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Von Pischke, J. D. (1977) *The political economy of farm credit in Kenya*.

PhD thesis

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THE POLITICAL ECONOMY  
OF FARM CREDIT  
IN KENYA

by J.D. Von Pischke

Supervised by L.D. Smith, Esq.

22 May 1977

Dissertation submitted to  
the Department of Political Economy at the University of Glasgow  
in partial fulfilment of the requirements for the degree of  
Doctor of Philosophy

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## ABSTRACT

Farmer access and financial performance are used as criteria to evaluate major farm credit schemes and lenders within the formal sector in Kenya. A non-mathematical model is constructed to demonstrate the interaction of political and financial factors in determining the performance of the farm credit system according to these criteria. The model identifies why and how major government initiatives in farm credit provision so frequently have been disappointing by either or both of these criteria. The questions of access to credit, the relevance of credit to on-farm innovation, and the ability of credit to stimulate agricultural production are also related through the model.

The performance of the system is viewed from the perspective of financial repression and its effect on the development of financial structure. The hypotheses explored in the study demonstrate the applicability of elementary capital market and financial theory to Kenya's agricultural credit system. The model derived from these hypotheses highlights the constraints to financial development, in terms of farmer access and the financial viability of agricultural loan portfolios, imposed by the peculiar set of assumptions upon which government intervention in credit provision, often with the support of external donors, is based.

The model is derived largely from the malfunctioning of major elements in Kenya's farm credit system, which has been the most visible fact of theoretical and operational interest. However, its validity is confirmed by the explanatory power of the framework it offers for the analysis of the outstanding success of the cooperative structure in rural financial intermediation in the early 1970's.

The Repayment Index, which makes its début in this study, is applied in two concluding exercises as a social science research tool and as a credit management tool. Borrowers' repayment performance may be precisely quantified and ranked in terms of Repayment Index values. Rigorous statistical treatment of repayment performance, including correlation with borrower, farm and loan characteristics, is possible using Repayment Index values. These values also furnish a basis for loan administration decisions and for the comparison of the performance of loan portfolios, credit decisions and decision makers, and of other managerial variables within the lender's control.

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RATES OF EXCHANGE

From the 1960's through March 1973 the rate of exchange between the Kenya Shilling and the US Dollar was Sh 1.00 = US\$ 0.14. At \$2.40 to the Pound Sterling, Sh 1.00 = 5.8p. (The Kenya Shilling was equal to one old shilling until the Sterling devaluation of 1967.) Following March 1973 the Shilling was revalued by small amounts, later devalued, and in October 1975 was pegged to IMF Special Drawing Rights at SDR 1.00 = Sh 9.66. At US\$ 1.70 = £1.00, Sh 1.00 = 7.0p, given the SDR-US Dollar parity as of early 1977.

LIST OF ABBREVIATIONS

AFC	Agricultural Finance Corporation
AI	artificial insemination
AID	United States Agency for International Development
ALDEV	African Land Development Organisation
ASF	Agricultural Settlement Fund
C&SFC	Cereals and Sugar Finance Corporation
CPCS	Cooperative Production Credit Scheme
CSS	Cooperative Savings Scheme
EOM	end of month (Refers to a method of levying interest on trade credit, which begins charging the borrower for amounts outstanding after a specified number of days have elapsed following the end of the month in which the debt was incurred.)
FAO	Food and Agriculture Organization of the United Nations
FHA	United States Farmers Home Administration
GMR	Guaranteed Minimum Return scheme
ha	hectares
HYV	high yielding varieties
IBRD	International Bank for Reconstruction and Development (The World Bank)
ICA	International Cooperation Administration (a predecessor of AID -- see above)
IDA	International Development Association (part of the World Bank Group)
IDS	Institute for Development Studies at the University of Nairobi
ILO	International Labour Office
IMF	International Monetary Fund
KCC	Kenya Cooperative Creameries
KFA	Kenya Farmers Association (Cooperative), Ltd.
KNIS	Kenya National Insemination Service
KTDA	Kenya Tea Development Authority
POSB	Kenya Post Office Savings Bank
SDR	Special Drawing Right
SFCI	specialised farm credit institution
Sh	Shilling (Kenya's currency unit, consisting of 100 cents)
VP	vegetative propagation

## ACKNOWLEDGEMENTS

This dissertation stems from a conversation between the writer and Mrs Julia Porter of the Intermediate Technology Development Group in London in 1971. The writer proposed an academic quest for the economic justification of appropriate technology. Mrs Porter suggested that small farm credit might constitute a technology more appropriate for the writer's attention.

The timing was fortuitous. Between 1971 and 1976 small farm credit has blossomed as a subject of enquiry. This groundswell has resulted in the penetration of a theoretical advance which has captivated imaginations in the World Bank, the United States Agency for International Development, and the Food and Agriculture Organization of the United Nations.<sup>1</sup> Policymakers and practitioners in these and in many organisations with similar interests have begun to feel uncomfortable about the results of their interventions in rural finance and about the conventional wisdom on which many rural credit schemes and rural credit elements in more comprehensive projects appear to have been based. Ministries of agriculture seeking funds for rural development projects from multilateral and the more enlightened bilateral aid agencies will no doubt soon be required to provide evidence that credit for farmers will provide the benefits it is envisaged to bring. Bureaucrats with money to lend or grant for these purposes will also be asked more difficult questions. It has often been assumed that the provision of institutional credit to rural people constitutes an essential part of rural development projects, and as an essential element the provision of institutional credit seemed to require little justification. It is possible that the line of questioning which is being developed may eventually lead to a realisation that in certain circumstances credit as usually packaged and delivered may even constitute a dysfunctional element in rural development activities supported by outside agencies.

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1. See, for example, World Bank, Agricultural Credit. Sector Policy Paper. Washington, DC, May 1975.

The writer's journey has been assisted by many. Mr L.D. Smith, as supervisor of the writer's studies and dissertation, provided an unusual mix of guidance and flexibility. The late Professor Ballendux of the Agricultural University at Wageningen, the Netherlands, offered a stimulus virtually at the outset by sharing valuable observations arising from his long experience in small scale farm finance and by suggesting that theoreticians and practitioners of the writer's nationality are congenitally unqualified for making useful contributions to rural development in the Third World. Through a delightful correspondence the late Professor's associate, Drs F.J.A. Bouman, has given several gentle guides to insight. Dr Graham Donaldson of the World Bank offered the "break" which furnished intellectual and financial capital, in the form of a contract to participate in the Bank's Africa Rural Development Study, to overcome certain initial problems of lack of focus. Dr Horst von Oppenfeld of the World Bank and Professor Dale W. Adams of the Ohio State University have given their encouragement throughout. Mr James A.C. Smith of the Standard Bank was an inspiring critic and stimulating intellectual sparring partner in Nairobi. Mr Turto Turtiainen of the Nordic Project for Cooperative Assistance to Kenya also helped to check certain of the writer's tangential tendencies.

This dissertation could not have been prepared without the very generous cooperation of numerous Kenyan officials. Mr F.G. Maina, General Manager of the Agricultural Finance Corporation, and his predecessor, Mr Henry Lowe, greatly facilitated the writer's work at every step and in a variety of ways. The members of their staff who provided assistance and helpful criticism include a large portion of the Corporation's managerial, field and operations cadre. Mr J.K. Muthama, Commissioner for Cooperative Development, and his staff were also exceedingly generous with their time and comments and in facilitating the writer's access to data pertaining to cooperatives as financial intermediaries. To these individuals, and to others in Kenya's financial sector (especially the commercial banks and the Central Bank), the Ministry of Agriculture, and various foreign assistance programmes and offices, the writer offers his heartfelt thanks.

On a less grateful note, the author, like all others conducting formal academic research within the law in Kenya, had to obtain research clearance from the Office of the President. This official limitation on freedom of enquiry -- an egregious violation of academic freedom by the state -- was not a binding constraint and in no way compromised the nature or scope of this study, in spite of the time this formality required which might have been devoted to more fruitful activities. However, having dispensed its petty bureaucratic sanction, the public sector was generous to a fault in allowing access to information and in other ways facilitating the writer's work.

Dr Judith Heyer at the University of Nairobi, numerous colleagues at the Institute for Development Studies and at the University of Glasgow also deserve special gratitude.

The usual disclaimers apply. Specifically, errors and omissions are the sole responsibility of the writer. The views expressed are the writer's and should not be interpreted as reflecting those of any individuals cited here or of the policies of any of the institutions which have provided data or other assistance or with which the writer has been or is affiliated.

Very special appreciation for the role that my wife and family played throughout the work which led to this paper is hereby acknowledged.

## DECLARATION

Portions of this dissertation are based in varying degrees on material which the writer has published since beginning his work on small farm credit as a Research Student at the University of Glasgow. These publications, as listed in the attached bibliography, were prepared as part of the study leading to this dissertation.

The major publication cited in the bibliography is "A Survey of Farm Credit in Kenya," which was prepared as part of the Africa Rural Development Study organised by the World Bank and published in 1973 as part of Small Farmer Credit in Kenya, Vol. VII of the Spring Review of Small Farmer Credit conducted by the United States Agency for International Development. This article was jointly authored with Dr G.F. Donaldson of the World Bank who supervised the Bank's Africa Rural Development Study in Kenya between August 1972 and April 1973. While Part II of the article was contributed by the writer, Part I was drafted primarily by Dr Donaldson, who also undertook editorial tasks connected with presentation of the article. The outline of the article was jointly agreed by the authors and was modified as the work progressed.

The material in Part II of the Spring Review article was subsequently refined and presented as one of three papers contributed by the writer to the Africa Rural Development Study. These papers, listed in the bibliography, have been circulated by the Bank in mimeograph form as Background Papers of the Africa Rural Development Study, No. 5 in the World Bank series entitled "Studies in Employment and Rural Development."<sup>1</sup>

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1. The findings of the Africa Rural Development Study are discussed by Dr Uma Lele in her book entitled The Design of Rural Development: Lessons from Africa. Baltimore, Johns Hopkins Press, 1975.

## INTRODUCTION

A. Summary and Conclusion

Kenya's agricultural credit system is characterised by lender's specialisation for the provision of financial services to various classes of farmers. Short and medium term cooperative credit is available to smallholder growers of certain cash crops. Long term credit is provided by the settlement authorities for settlement scheme farmers. The commercial banks lend on a short and medium term basis to viable large farms and to small farmers established in the cash economy through off-farm employment or as substantial producers of cash crops. The Agricultural Finance Corporation (AFC) provides medium and long term funds to virtually all of the large scale sector owned by Kenyans, and also issues medium term loans for specific enterprises on smallholdings in areas where the land is registered. The Cereals and Sugar Finance Corporation (C&SFC) raises funds in the local money market for short term finance for large scale wheat and hybrid maize producers, and various sources, such as the Kenya Tea Development Authority (KTDA), merchant banks and finance companies, and the Kenya Farmers' Association (KFA) provide either narrowly limited or small amounts of agricultural credit to their established clientele.

How did this diversity arise? How may the various specialisations and, equally importantly, the gaps in availability of credit to Kenya's agriculture, be explained? What are the constraints which limit the interaction of the agricultural sector and the financial sector, and is there any scope for their removal?

This study approaches these questions within the framework of political economy, directing its attention to questions of financial market theory, elementary aspects of financial logic, and the nature and quality of government intervention. Agricultural technology, the risks of farming, rates of return in agriculture and other factors beyond the control of lenders and farm credit policymakers are accepted as given. This is not to

say that credit cannot alter any of these factors, nor does it imply that lenders are necessarily fully informed of the financial implications of the realities of agricultural production. Rather, it merely facilitates examination of financial aspects of the farm credit system and the measures taken by government to shape this system.

While financial logic and capital market theory alone are insufficient to explain the state of farm credit in Kenya, consideration of the political constraints within which much of the farm credit system has been structured provides the basis for a political-financial model which offers an explanation for the problems encountered by lenders and the malfunctioning of the system. These problems include the necessity of rationing credit stringently and hence restricting rural access to credit and also to other financial services; the difficulty in achieving financially viable levels of agricultural loan portfolio performance; the isolation of specialised lenders from the broader financial market; poor loan discipline characterised by borrowers' delinquency, deceit and diversion of loan proceeds; and the necessity facing lenders of taking into account political considerations in their credit policy making and loan decision making.

The farm credit system in Kenya conforms to the pattern associated with financial repression, manifested in low interest rates and intervention in financial markets to correct the effects of low interest rates and to channel to agriculture funds which would otherwise not be forthcoming. The particular type of intervention which has been undertaken has not been oriented towards providing incentives to enhance the spontaneous development of financial markets in socially acceptable directions. Intervention has been direct and therefore not possessing very much flexibility. Where intervention has been massive, as with respect to the financial arrangements of settlement agriculture, loan arrears have grown to be massive, too, and initial expectations embodied in farm plans have been made to appear ludicrous. Where intervention has been out of touch with rural financial markets or the potential for such markets, as in the case of the Agri-



cultural Finance Corporation, there has been little dynamic impact on rural development, institutional self-sufficiency and viability have yet to be demonstrated after more than a decade, external assistance and national subvention are relied upon as engines of growth, and benefits have been distributed narrowly rather than broadly and comprehensively. Both of these major manifestations of intervention have involved the intensive rationing of credit, providing a restricted number of borrowers with lots of credit, relative to their debt capacities. The results, in terms of portfolio performance, conform to financial logic.

Kenya's pluralism has permitted it to experiment, however, and one result has been the very promising start of a reformed rural cooperative banking system based on substantial public sector support and supervision, and on the traditional cooperative functions of providing marketing channels for certain smallholder cash crops and supplying certain farm inputs. While not really a very good example of financial liberalisation and while limited to farmers growing cash crops, the experience of the cooperative banking system between 1972 and 1975 suggests considerable scope for an alternative, market oriented approach to the financial aspects of rural development.

#### B. Hypotheses to be Tested

The analytical focus of this paper is on the interaction between the financial sector and the agricultural sector. The general concern is rural development and the extent to which it may be hindered, enhanced or otherwise influenced by the relationships which exist between the two sectors. A set of related hypotheses are used to develop the position taken in this paper, and these are listed below organised according to topic. Individual hypotheses are listed again, primarily in Chapter V, in the sections in which they are confirmed or discarded.

1. a) Public policy designed ostensibly to stimulate rural development through the provision of credit to farmers on "reasonable" terms in Kenya has in fact led to distortions in credit allocation by the formal sector which are dysfunctional to rural development.
  - b) Public policy has contributed to imperfections and deficiencies in the organisation of formal financial markets in Kenya.
  - c) Public policies relating to farm credit have worked against the interests of small farmers in the competition for scarce credit in Kenya.
2. a) A concept of the "need" for farm credit permeates relevant public policy in Kenya.
  - b) The concept of credit need is based upon political concern in Kenya.
  - c) The concept of credit need diverges sufficiently from the financial concept of debt capacity that it results in a questionable use of credit in an attempt to stimulate rural development in Kenya.
  - d) Public policy orientation in Kenya, as manifested by the "need creed," supports the fragmentation of financial markets.
3. Public policy in Kenya, as embodied in "low" interest rates and the resulting impediments to financial market integration, restricts the supply of funds available for lending to farmers.
4. a) The restricted supply of private domestic resources for agricultural credit in Kenya reinforces the requirement that lenders ration credit.
  - b) Farm credit in Kenya is rationed according to commercial and political criteria.
  - c) Credit rationing by the public sector in Kenya is not based on careful considerations of optimal resource use.
  - d) Farm credit rationing in Kenya works to the disadvantage of the small scale farm sector in the competition for loans.
  - e) Interest rates in the market for formal farm credit in Kenya play virtually no role in allocating credit among borrowers or loan applicants.
5. a) The nature of public sector involvement in the farm credit market in Kenya is conducive to poor loan repayment performance.
  - b) Poor repayment performance hinders the development of agricultural credit institutions in Kenya.
  - c) Repayment performance on agricultural loans in Kenya varies directly with the borrower's commitment to farming.

5. d) Repayment performance on agricultural loans in Kenya varies inversely with loan size within any given credit scheme.
  - e) Repayment performance on agricultural loans in Kenya varies inversely with the borrowers' net worth.
  - f) Poor payers include practically all borrowers who obtained funds under politically based credit rationing criteria in Kenya.
6. A partial departure from the mainstream public sector farm credit policy in Kenya, embodied in cooperative savings and credit experience involving smallholder growers of cash crops, has yielded relatively satisfactory operating results consistent with the theory of financial liberalisation and has increased access to financial services in rural areas.

### C. Definitions

Certain specialised terms are used in this paper, and certain lay terms are used in a specialised sense. To identify more precisely the paper's subject matter and the concepts it develops, key words are defined below, in alphabetical order. Definitions specific to Kenyan agriculture, such as what constitutes large scale and small scale farms, are given in Chapter I.

✓ Agricultural credit refers to loans in cash or kind issued directly to farmers. The term is used synonymously in this paper with farm credit. It does not include credit to those who facilitate the flow of goods and services to and from the agricultural sector, such as crop finance for the purchase of harvested produce. Agricultural credit is usually provided for three ostensible purposes:<sup>1</sup>

- 1) To accord access to or control over basic factors of production, primarily land.
- 2) To increase production through the development of resources. This process involves mainly the application of capital and labour to land.
- 3) To facilitate commercial transactions, including the purchase of seasonal inputs.

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1. Donaldson, G.F., and J.D. Von Pischke, "A Survey of Small Farm Credit in Kenya," Small Farmer Credit in Kenya. Vol. VII. AID Spring Review of Small Farmer Credit. Washington, DC, Agency for International Development, February 1973. pp. 9 - 10.

The distinction between 2) and 3) frequently depends upon the source of credit. The purchase of machinery or water tanks, for example, could occur under either heading. If the supplier issued the credit, heading 3) could apply. If a bank made the loan, heading 2) would be appropriate. Whatever the purpose for which credit is provided, it may be difficult or impossible to identify its impact because credit is fungible, part of an undifferentiated cash flow. In addition, agricultural production by smallholder households is typically only partially commercialised, implying that decisions relating to production and consumption are inextricably mixed.<sup>1</sup>

Financial innovation is used here as defined by Cameron and Patrick, to refer to "the introduction and utilisation of new financial techniques and institutions."<sup>2</sup> On a historical basis all of the means of payment and financial instruments currently in use were innovations in technique at an earlier stage of financial development, as were present day financial institutions. In Kenya's recent financial history the Cooperative Savings Scheme and the Cooperative Production Credit Scheme are examples of innovation on both the institutional and technical sides. Other examples include the national currency and Central Bank and the appearance of finance companies and of specialised institutions to channel funds to various sectors of special development priority as perceived by Government.

Financial markets refer to markets dealing in financial assets, primarily debt instruments. Van Horne provides a useful definition of financial assets:<sup>3</sup>

Unlike real, or tangible assets, a financial asset is a claim on some other financial unit. It does not provide its owner with the physical services that a real asset does. Instead, financial assets are held as a store of value for the return that they are expected to provide.

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1. Food and Agriculture Organization of the United Nations, Agricultural Credit through Cooperatives and Other Institutions. Rome, FAO, 1965. pp. 1 - 2.

2. Cameron, Rondo, and Hugh T. Patrick, "Introduction," in Cameron, Rondo, et al., Banking in the Early Stages of Industrialization. New York, Oxford University Press, 1967. p. 8.

3. Van Horne, James C., Function and Analysis of Capital Market Rates. Englewood Cliffs, New Jersey, Prentice-Hall, 1970. p. 1.

A market is commonly defined as relationships between buyers and sellers, and also as a mechanism for bringing potential buyers and potential sellers together. This mechanism and set of relationships include institutions and individuals acting as intermediaries and specialising in certain types of financial transactions. Myint characterises well developed financial markets as consisting of a financial centre which attracts resources from domestic and external sources and of a financial network which links the centre with lenders and borrowers throughout the economy.<sup>1</sup>

Rural financial markets are those in which rural people are active. Their participation may be as buyers or as sellers or as both buyers and sellers. Rural financial markets are not necessarily wholly rural institutions, and will frequently function as a link between rural cash flows and those of the larger economy. Such interdependence is natural. The seasonal nature of much rural economic activity implies marked variations in the liquidity absorbed by or available within the rural sector at different times of the year, and this periodic variation is in fact a primary raison d'être for financial markets linking rural and non-rural economic units.

Financial markets are frequently referred to as capital markets, but the latter term is avoided in this paper in the interest of precision. Capital is a broad and somewhat esoteric concept which encompasses a variety of specialised meanings. For example, in the financial context capital markets are markets dealing in financial assets having a maturity in excess of one year, while money markets specialise in short term financial assets.<sup>2</sup> The subtle relationships between various types of capital need not be explored if the term capital market is discarded, and no loss of clarity need occur.

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1. Myint, H., "Dualism and the Internal Integration of the Underdeveloped Economies," Banca Nazionale del Lavoro Quarterly Review. XXIII, 93, June 1970. p. 138.

2. Van Horne, James C., op.cit., p. 12. This distinction and the possibility of confusion is noted in Perera, Philips, Development Finance: Institutions, Problems and Prospects. New York, Frederick A. Praeger, 1968. p. 83; and in Williams, David, "The Growth of Capital and Securities Markets," Finance and Development. III, 3, September 1966. p. 213.

Financial repression is defined as the imposition of policies which restrain the rate of growth of financial assets in real terms. The phrase has two connotations. The first is that the degree of restraint is substantial, exceeding, for example, the level of retardation which would ordinarily be associated with anti-inflationary measures used by monetary authorities in a highly developed economy. The second is that the source of financial repression is government, as manager of the money supply, as a major borrower, spender and investor, and as the regulatory authority over financial institutions.

No precise definition of financial repression is given by Shaw or McKinnon, the writers who have popularised the term. The definition given above is based on their observations, including an example given by McKinnon:<sup>1</sup>

Organised banking has a sorry record in penetrating the economic hinterland of less developed countries, in serving rural areas in general, and in serving small borrowers in particular. Bank credit remains a financial appendage of certain enclaves: exclusively licensed import activities, specialised large scale mineral exporters, highly protected manufacturing, large international corporations, and various government agencies, such as coffee marketing boards or publicly controlled utilities. Even ordinary government deficits on current account frequently pre-empt the limited lending resources of the deposit banks. Financing of the rest of the economy must be met from the meagre resources of money-lenders, pawnbrokers, and cooperatives. It is this phenomenon that I call "financial repression."

In other words, financial repression is manifested by a financial mechanism in which modern, large scale financial intermediaries follow rationing criteria which deny access to non-modern, non-large scale economic units. Shaw provides a thumbnail economic explanation of the mechanism of financial repression:<sup>2</sup>

...the techniques of financial repression...are simple but numerous, widely known, and widely practiced. The

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1. McKinnon, Ronald I., Money and Capital in Economic Development. Washington, DC, The Brookings Institution, 1973. p. 68.

2. Shaw, Edward S., Financial Deepening in Economic Development. New York, Oxford University Press, 1973. p. 80.

principle that guides them is to establish unattractive yields on domestic financial assets and so to repel demand.

The operation or dynamics of financial repression are explored in detail within the Kenyan context in this paper, and in this context it is held that financial repression is based on an unrealistically low level of interest rates which works to the disadvantage of most of the rural population in two ways: by failing to stimulate investment in non-cash financial assets and hence failing to mobilise rural savings; and by failing to provide a level of remuneration to financial institutions commensurate with the costs of small transactions and the risks of lending to small scale agriculture, hence discouraging these institutions' entry into the small scale economy of rural areas, completing the circle of non-interaction. Shaw asserts that "the subsidised loan rate represents repression at its worst,"<sup>1</sup> and it is easily demonstrated that most formal lending to the agricultural sector in Kenya involves some element of subsidy.

Formal credit is used in this paper to refer to finance provided by organisations having a formal charter registered with the appropriate government agency, and dealing in a more or less impersonal and commercial way with written evidences of indebtedness, frequently on a large scale. The providers of formal credit include the "modern financial sector" in developing countries. Formal credit is usually subject to a relatively substantial amount of government control. Financial repression is the result of restrictive policies functioning through the operations of intermediaries issuing formal credit.

Widely used terms which are more or less synonymous with formal credit include institutional credit, organised credit and modern credit. These alternatives are avoided in this paper on grounds ranging from convenience to accuracy. Institutional credit is probably in general not a bad compromise derived from the term financial institution, but is at variance with the

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1. Ibid., p. 87.

meaning of institution in its broad sociological sense of being an organised way of doing things. Informal credit (see below) arrangements such as rotating credit associations are indeed institutions in many societies, and the highly institutionalised nature of many rural societies provides the basis for misinterpretation if the term institutional credit is used synonymously with formal credit in discussions dealing with rural development.

Organised credit is a gross misrepresentation, implying that informal credit arrangements are not organised or perhaps even in disarray. In fact, traditional (in the folk or sociological sense) financial delivery systems are frequently as intricate as the societies which developed them.<sup>1</sup> To regard these as lacking in organisational structure or cohesion is erroneous both on a comparative basis -- between different types of societies today -- and on an historical basis, as apparent from the evolution of finance.<sup>2</sup> Use of the term organised in this inappropriate and misleading sense may be just another manifestation of what may be lightly termed the "pre-development blank slate assumption." Under this assumption nothing of economic interest or financial consequence occurred before the advent of some "organised" reference date, such as the arrival of modernity in the form of colonial or post-revolutionary institutions, the start-up of some development project or the establishment of a certain regulatory authority, etc.

Modern credit is a harmless phrase, a contrast with traditional credit. However, it is not terribly revealing of the nature of the transactions or parties involved, and because of its bland ambiguity is avoided in this discussion.

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1. Several examples are provided in Firth, Raymond, and B.S. Yamey, Capital, Saving and Credit in Peasant Societies. London, George Allen and Unwin, Ltd., 1964. See also the articles in Small Farmer Credit: Informal Credit. Vol. XV, AID Spring Review of Small Farmer Credit. Washington, DC, Agency for International Development, June 1973.

2. See, for example, Postan, M.M., Medieval Trade and Finance. Cambridge, at the University Press, 1973; and Polanyi, Karl, et al., eds., Trade and Market in the Early Empires. Glencoe, the Free Press, 1957.



Informal credit is characterised by small scale activities, frequently limited by the lenders' and borrowers' preference for face-to-face transactions. Informal credit often involves no written evidence of indebtedness, and is largely outside the control of government except in the very broadest sense relating to government's role as an issuer of currency. The scope of informal financial transactions is widely varied. Informal transactions include kinship credit, those involving professional rural moneylenders, and those which occur in the active kerb or bazaar markets in certain countries. Informal transactions also include the arrangements for circumvention of exchange or other controls over finance which frequently abound in developing countries.

✓ Intensive credit rationing. Credit rationing has two dimensions: it is possible to limit the amount of credit issued to each borrower so that recipients receive less than they would in the absence of such rationing, and it is possible to limit the number of recipients so that more credit is available for each than would be the case were a larger number of borrowers accommodated from the lender's resources. Intensive credit rationing refers to the latter case, that of much for the few, while the opposite situation, a little for the many, may be called extensive credit rationing.

These terms are not in common use. Their invention for the purposes of this paper reflects necessities imposed by the theoretical grey areas which are found in the literature on credit rationing. A discussion of some of the problems arising from the ambiguities of the concept is contained in Chapter II of this paper.

#### D. The Relevance and Contribution of the Research

The main emphasis of this paper is the interaction between the financial sector and the agricultural sector, primarily the small scale portion of the agricultural sector because it is in this portion that questions of access have their greatest social and developmental importance. The hypotheses to be tested were formulated as the basis for examining the question of whether financial markets have a role to play in rural development, and if they do, how that role could be enhanced.

This approach is both old and new. It is new in that agricultural credit in developing countries has usually been viewed within the context of agriculture rather than finance, as manifested by the design of many rural development projects and by the nonviable nature of so many of the farm credit institutions which inhabit the Third World. However, since the publication of the Spring Review of Small Farmer Credit published in 20 volumes by the United States Agency for International Development (US AID) in 1973 and the appearance in 1974 of the World Bank's internal document entitled Bank Policy on Agricultural Credit<sup>1</sup> the conclusion that lack of credit is generally not a constraint to small scale agricultural development has been widely aired, rendering less attractive the narrow conceptual base inherent in viewing farm credit solely in relation to agriculture.

Suggesting that the interaction of the financial sector and the rural sector may be shaped to promote rural welfare is, of course, not new. Concern with rural indebtedness in India found expression in measures such as the Bengal Regulation XV of 1793, the Deccan Agricultural Relief Act of 1879, and the Usurious Loans Act of 1918. The Deccan Act, "a direct result of severe agrarian riots," enabled courts to reduce "unreasonable charges on account

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1. Published in a slightly revised form by the World Bank in May 1975 as Agricultural Credit in the Sector Policy Paper Series. 85 pp.

of interest and to spread the amount actually due over instalments."<sup>1</sup> Going back further in history, Sidney Homer's A History of Interest Rates cites interest rate controls in the Code of Hammurabi (c. 1800 BC) and includes references to earlier sources.<sup>2</sup> The writings of the Schoolmen and of Koranic scholars on the subject of interest rates may be taken as evidence of a similar concern.<sup>3</sup> Benjamin Nelson relates the historical course of the controversy over usury in Western history to the philosophical basis of human society, beginning his enquiry with an exploration of the Judaic prohibition of interest on loans to insiders in the tribal brotherhood specified in Deuteronomy xxiii: 19-20, and the parallel approval of the practice of charging interest on loans to foreigners. His thesis is neatly summarised in the title of his work, The Idea of Usury: From Tribal Brotherhood to Universal Otherhood.<sup>4</sup> Nelson perceives that the preferred status reserved traditionally for members of tribal brotherhoods by their peers has been extended and generalised with the development of Western society. While human concern has expanded to encompass larger and larger groups, the reality of brotherhood in the tribal sense has been replaced by a certain sense of individuality and alienation, i.e., by universal otherhood.

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1. An excellent summary in this vein of the problems and practices of rural borrowing and lending in India in the century before independence is contained in Reserve Bank of India, Report of the Agricultural Finance Sub-Committee, 1945. Bombay, 1945, reprinted in 1965. The material quoted here is found on pp. 23-24 of the 1965 edition.

2. New Brunswick, New Jersey, Rutgers University Press, 1963. pp. 25-27.

3. Shakespeare also provides evidence that debt has been a problem of mankind for some time. Polonius' advice to Hamlet,  
 Neither a borrower, nor a lender be;  
 For loan oft loses both itself and friend,  
 And borrowing dulls the edge of husbandry,  
 is followed directly by, "This above all: to thine own self be true...." ("Borrowing dulls the edge of husbandry" is of course in conflict with the optimistic thesis on which many rural credit schemes are based.) The importance of debt to the dénouement of The Merchant of Venice may also reflect popular fascination with the financial function.

4. 2nd ed., enlarged. Chicago, The University of Chicago Press, 1969. First published in 1949.

To return to the narrower concern, Keynes noted:<sup>1</sup>

...for centuries, indeed for several milleniums, enlightened opinion held for certain and obvious a doctrine...that the rate of interest is not self-adjusting at a level best suited to the social advantage but constantly tends to rise too high, so that a wise government is concerned to curb it by statute and custom and even by invoking the sanctions of the moral law...Provisions against usury are among the most ancient economic practices of which we have record.

However, this older, narrower approach, characterised by concern about exploitation of borrowers by lenders, and by efforts to intervene on behalf of the debtor in the determination of interest charges, is quite different from the current groundswell in the literature, which treats the scope for creation and distribution of benefits from the interaction of the two sectors rather than how the rural sector can best be protected from the financial sector. The element of paternalism apparent in the older approach becomes less attractive to developers as evidence of the rationality of smallholders, in the broad context of political economy, becomes more firmly established empirically.<sup>2</sup>

The most damaging set of field studies, from the point of view of the old school of low interest rates and subsidised credit, are those of Professor Dale W. Adams and his colleagues in the Department of Agricultural Economics and Rural Sociology at the Ohio State University. Their primary data was collected in several Latin American countries in the 1960's, as well as more recent data from Asia. Some of their most interesting results from the point of view of this dissertation are that the policies promoted by the old school tended to result in severely restricted access to credit by small farmers, and that large farmers who

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1. The General Theory of Employment, Interest and Money. London, Macmillan & Co., Ltd., 1960. p. 351.

2. The economic rationality of African farmers in several countries was reasonably well documented by the mid-1960's, as indicated by the literature summary in Dean, Edwin, The Supply Responses of African Farmers: Theory and Measurement in Malawi. Amsterdam, North Holland Publishing Company, 1966. pp. 75-81. See also, Wolgin, Jerome Morris, Farmer Response to Price in Smallholder Agriculture in Kenya: An Expected Utility Function. Unpublished PhD dissertation, Yale University, 1973.

received subsidised credit -- at negative real rates of interest in certain inflation-prone Latin American countries -- frequently diversified their activities out of agriculture with the proceeds of subsidised agricultural loans. These findings suggest that resource allocation distortions harmful to "equitable" and broadly based rural development arise from applying the old approach.<sup>1</sup> This paper is intended to constitute an addition to the stream of the literature to which Adams and his colleagues at Ohio State have contributed so much.

The writer's work attempts to make two original contributions. The first attempt at originality is directed at explaining the operation of Kenya's farm credit mechanism within the approach provided by that body of financial market theory, associated with the work of Edward S. Shaw and Ronald I. McKinnon, among others, which holds that the interest rate is a key determinant and perhaps the key determinant of the quality and quantity of financial development in less developed countries. The attractiveness of the theoretical base provided by this school of thought appears

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1. Among the publications of Ohio State researchers which are of particular interest from the point of view of this dissertation are: Adams, Dale W., "Agricultural Credit in Latin America: A Critical Review of External Funding Policy," American Journal of Agricultural Economics. 53, 2, May 1971. pp. 163-172; Adams, Dale W., Harlan Davis and Lee Bettis, "Is Inexpensive Credit a Bargain for Small Farmers? The Recent Brazilian Experience," Inter-American Economic Affairs. 26, 1, Summer 1972. pp. 47-58; Adams, Dale W., and Joseph L. Tommy, "Changes in Small Farmer Credit Use in Southern Brazil, 1965-69." Studies in Agricultural Credit and Technology, Economics and Sociology Occasional Paper No. 61, Department of Agricultural Economics and Rural Sociology, The Ohio State University, Columbus, February 1972; Adams, Dale, William Simpson and Joseph Tommy, "Capital Formation on Small-to-Medium Sized Farms in Southern Brazil, 1965 to 1969." Research Notes on Agricultural Capital Formation and Technological Change, No. 8, The Ohio State University and ESALQ/University of Saõ Paulo, Columbus, June 28, 1971; Adams, Dale W., et al., "Rural Capital Markets and Small Farmers in Taiwan 1952-1972," Small Farmer Credit in East Asia. Vol. XI. AID Spring Review of Small Farmer Credit. Washington, DC, Agency for International Development, 1973; Erven, Bernard, and Norman Rask, "Credit Infusion as a Small Farmer Development Strategy -- The Ibirubá Pilot Project in Southern Brazil." Studies in Agricultural Capital and Technology, Economics and Sociology Occasional Paper No. 48, Department of Agricultural Economics and Rural Sociology, The Ohio State University, Columbus, December 1971; and Rask, Norman, "The Impact of Selective Credit and Price Policies on the Use of New Inputs," Development Digest. IX, 2, April 1971. pp. 49-54.

sufficient to permit the formulation of a model of farm credit in Kenya. To the extent the model approximates reality it may also be applicable to the financing of local small scale enterprise and other areas in which formal lenders find it difficult to operate.<sup>1</sup>

The second contribution consists of the specification of an index of repayment performance (in Appendix B) which provides a quantitative tool for comparing the repayment performance of different borrowers (in Appendices C and D). The index may also be used as a measure of portfolio performance, complementing those commonly in use. These include 1) the collection ratio, which is basically loan collections expressed as a percentage of amounts overdue and falling due, 2) amounts overdue as a percentage of total amounts outstanding, and 3) ageing of arrears to indicate the length of time for which amounts in arrears have been overdue. The collection ratio is the only dynamic or flow type of measure among these three, and is in fact a comparison of a cumulative flow of receipts with a cumulative flow of amounts falling due. The repayment index proposed in this study is in fact superior in certain respects to the three measures commonly in use because it is capable of comparing an entire flow with an entire stock on a continuous basis.

The index of repayment performance is so elementary that it is inconceivable that it has not been previously developed elsewhere. However, the writer's survey of the farm credit literature and experience with financial institutions have failed to uncover any other efforts to develop such a measure, useful to the social scientist and rural developer because it provides a basis for comparing borrowers' performers as payers, and useful to the financier because it provides a finer and more timely measure

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1. This exposition is limited to the Kenyan case, and hence no general theory of formal farm credit in developing mixed economies is proposed here. However, the Spring Review country papers and other descriptive literature appear to offer scope for the generalisation of the model and the formulation and testing of a theory of farm credit over a broad range of agricultural, social and institutional conditions.

of portfolio performance than those commonly in use, and which can easily be added to the types of analytical data generated almost effortlessly by computerised accounting systems. If the writer's claim to originality in this respect is unfounded, at least a claim of independent development can be based on reference to analyses of farm credit programmes listed in rural development and farm credit bibliographies and to standard texts on financial analysis and loan portfolio management.

An additional feature of this study is that it attempts to build a framework to support the conclusion that credit rationing by politically established criteria increases the probability that some borrowers will receive too much credit relative to their ability to service debt. While this observations is by no means original, it is one that is frequently overlooked -- rationing is usually associated with scarcity and intervention to secure a wider distribution of the rationed good or service, not with inundation and concentration. As noted above on page 11, the overloading of individual borrowers with credit is referred to as intensive credit rationing.

## CHAPTER I

## A REVIEW OF KENYAN AGRICULTURAL DEVELOPMENT

The purpose of this chapter is to sketch the general outline of Kenyan agriculture in the recent past and as of the early 1970's. The utility of a review of this type is based on two observations. The first is that the configuration of credit delivery systems reflects the character of Kenyan agriculture. This pattern is a natural result of the propensity to view agricultural credit within the context of or primarily in relation to agriculture. Hence, a useful approach to analysis consists of following the same track, at least at the outset. A second justification is that rural financial flows are closely related to the character of the country's agriculture, the major source of rural incomes.

A. Geographical and Historical Factors Contributing to the Structure of Kenyan Agriculture

1. Rainfall, Altitude and Soil Types as Determinants of Land Use

Kenya is located on the edge of the old and stable southern African land mass, being interrupted by the Rift Valley, the country's most prominent geological feature.<sup>1</sup> The Rift manifests geological activity characteristic of areas on the margin of large land masses, which is also reflected in the varied landscape found in Kenya.

Almost every variation of physical feature is to be found, from the permanent snows...of Mt Kenya to the hot humid coastal belt, and from the arid deserts... to the lush parklands of the high plateau.<sup>2</sup>

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1. Government of Kenya, The Economic Development of Kenya: Report of an Economic Survey Mission. Nairobi, Government Printer, 1962. p. 3.

2. East Africa Royal Commission 1953-1955 Report. Cmd 9475. 1961 reprint. London, HMSO, 1961. pp. 6-7.



While providing majestic and awesome scenery, this variation also renders much of Kenya unsuitable for arable cropping, as about two-thirds of the country's surface is desert or semi-desert.<sup>1</sup> The remaining one-third is found in the southwestern portion of the country and in a narrow belt along the Indian Ocean Coast. The southwestern quadrant has been described as Upland Kenya, "the backbone of the Republic."<sup>2</sup> An East-to-West profile of land types and uses is described in an early World Bank report on Kenya:<sup>3</sup>

As the land rises inland, the vegetation and the prospects for cultivation improve, and the climate moderates to subtropical and temperate. In the middle altitudes, the rising grasslands provide a home for game and herds of domestic cattle. The plateau and upland areas lying between 5,000 and 9,000 feet which cover roughly the southwestern quarter of Kenya, comprise some of the best land for settlement and agriculture in Africa. Eventually, the land drops away to the basin of Lake Victoria, housing the rich lands of Nyanza on the lake's northeastern shore.

The report adds that areas suitable for unirrigated intensive cropping or grazing are limited to the Coast and higher elevations enjoying a good probability of at least 35 inches of rainfall annually.<sup>4</sup> However, 89% of the country lies below the 30 inch isohyet, suggesting the pervasiveness of inadequate rainfall as a constraint to agriculture.<sup>5</sup>

In general, rainfall and altitude have a high correlation away from the Coast.<sup>6</sup> So consistent is the relation between these variables that cropping patterns follow contours in many parts of

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1. Ojany, Francis F., and Reuben B. Ogendo, Kenya: A Study in Physical and Human Geography. Nairobi, Longman Kenya, Ltd., 1973. p. 1. Maps vividly illustrating rainfall zones are included in the East Africa Royal Commission 1953-1955 Report.

2. Ojany, Francis F., and Reuben B. Ogendo, op.cit., p. 38.

3. Government of Kenya, The Economic Development of Kenya. p. 3.

4. Ibid.

5. Ojany, Francis F., and Reuben B. Ogendo, op.cit., p. 61.

6. Republic of Kenya, Atlas of Kenya. 3rd ed. Nairobi, Government Printer, 1971. pp. 4-5, 14-19, 23. See an elaboration

the country: e.g., sorghum grows between 3,000 and 5,000 feet, coffee between 4,500 and 7,000 feet, tea between 5,000 and 7,400 feet, pyrethrum above 6,500 but optimally at 8,000 feet, etc.<sup>1</sup>

Reflecting interaction between Indian Ocean monsoons and continental air masses, the rainfall pattern is dramatically bi-modal in the central portion of the country but somewhat more evenly distributed towards the west.<sup>2</sup> This pattern permits double cropping in many densely populated smallholder areas.

Finally, it should be noted that there is little substitute for rainfall. Irrigation is not a major factor in Kenyan agriculture.<sup>3</sup> Official schemes covered fewer than 8,000 ha in 1973 and involved only 4,100 plottolders.<sup>4</sup> The Kano Plains and the Tana Basin offer potential for irrigated agriculture, but funds will probably not be available for any significant development of water resources in these areas before 1980.<sup>5</sup>

Within the country's arable areas the derivation of soil types is an important determinant of agricultural development potential. Heyer et al. note that,<sup>6</sup>

The areas with volcanically derived soils generally (offer) much greater potential for development than the granite derived soils. In the latter areas, with

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(continued) of this point in Hickman, G.M., and W.H.G. Dickins, The Lands and Peoples of East Africa. 3rd impression. London, Longmans, Green & Co., Ltd., 1964. pp. 11-12.

1. Acland, J.D., East African Crops. London, Longman Group Ltd., 1971. pp. 63, 153-154, 188, 210.

2. Ojany, Francis F., and Reuben B. Ogendo, op.cit., p. 58.

3. O'Connor, A.M., An Economic Geography of East Africa. London, G. Bell & Sons, 1966. pp. 59, 218, 252; International Labour Office, Employment, Incomes and Equality: a Strategy for Increasing Productive Employment in Kenya. Geneva, 1972. pp. 411-420.

4. Republic of Kenya, Economic Survey 1974. Nairobi, Government Printer, 1974. p. 73.

5. Ojany, Francis F., and Reuben B. Ogendo, op.cit., pp. 144, 146-147; ILO, op.cit., pp. 411-420.

6. Heyer, Judith, et al., Rural Development Planning in Kenya. Nairobi, East African Publishing House, 1971. p. 14.

very old and sandy soils and uncertain rainfall, the problems of agricultural development reach grim proportions....

However, Kenya has never had a soil survey and hence only partial data is available.<sup>1</sup>

A general typology of soil types in the National Atlas of Kenya indicates that well drained soils predominate in the main arable zones.<sup>2</sup> On the lower western slopes of the Aberdares, on the northern slopes of Mt Kenya, and in certain other lower areas on the fringes of the arable highlands, black clays or black cotton (grumosolic) soils as well as dark brown clays with light textured top soils (planosolic soils) are found.

## 2. European Settlement and Its Effect on Land Use

European involvement on a significant scale in what is now Kenya began in the 1890's when the British government assumed the task of administering the territory. In 1896 railway construction began in Mombasa and in 1901 the line reached Lake Victoria, 580 miles inland.<sup>3</sup> The opportunities opened by the railway and the need to generate traffic to pay for the enterprise provided a basis for European settlement, and by the outbreak of World War I, approximately 1,000 farms and a few plantations had been established.<sup>4</sup> At that time the European population numbered about 6,000.<sup>5</sup> After the War the Soldier Settler Scheme gave an impetus

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1. Republic of Kenya, Report of the Working Party on Agricultural Inputs (The Havelock Report). Nairobi, Government Printer, 1971. p. 6.

2. Republic of Kenya. 3rd ed., pp. 26-27.

3. Wrigley, C.C., "Kenya: The Patterns of Economic Life," in Harlow, Vincent, and E.M. Chilver, eds., History of East Africa. Oxford, Clarendon Press, 1965. pp. 209-211; Huxley, Elspeth, White Man's Country. London, Chatto and Windus, 1935. (1956 reprint). pp. 77-79.

4. Odingo, R.S., The Kenya Highlands: Land Use and Agricultural Development. Nairobi, East African Publishing House, 1971. p. 30.

5. Cone, L. Winston, "European Settlement and Early Agriculture," in Cone, L. Winston, and J.F. Lipscomb, eds., The History of Kenya Agriculture. Nairobi, University Press of Africa, 1972. p. 36.

to colonisation and resulted eventually in the establishment of 1,246 new holdings.<sup>1</sup> In 1934, when there were about 2,000 European landholders or occupiers in Kenya, recommendations of the Kenya Land Commission (Carter Commission) provided the basis for fixing the boundaries of the Scheduled Areas, reserved primarily for European agriculture (and the production of "squatter" labourers and their families, comprising as many as 150,000 persons in the 1930's).<sup>2</sup> These boundaries remained virtually unaltered until the 1959 decision to remove race as a basis for land ownership within these areas.<sup>3</sup>

a. Statutory and administrative protection

The impact of European settlement on Kenyan agricultural development remains a topic of controversy.<sup>4</sup> A major fact was the existence of almost 3,000,000 ha of large scale, commercially

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1. Lipscomb, J.F., "Soldier Settlers," in Cone, L. Winston, and J.F. Lipscomb, eds., op.cit., pp. 55-57. For a fuller description, with details varying slightly from Lipscomb's account, see Ghai, Y.P., and J.P.W.B. McAuslan, Public Law and Political Change in Kenya: A Study of the Legal Framework of Government from Colonial Times to the Present. Nairobi, Oxford University Press, 1970. p. 81. R.S. Odingo notes some of the problems encountered by this project, op.cit., pp. 30-31.

2. East Africa Royal Commission 1953-1955. pp. 53-57; Cone, L. Winston, and J.F. Lipscomb, "Phase II - 1923-1939," in Cone, L. Winston, and J.F. Lipscomb, eds., op.cit., pp. 59-60; Wrigley, C.C., op.cit., p. 257; Ghai, Y.P., and J.P.W.B. McAuslan, op.cit., pp. 94-97. The Non-scheduled Areas were reserved for African use.

3. Wrigley, C.C., op.cit., p. 259; Lipscomb, J.F., "Land Transfer and African Settlement," in Cone, L. Winston, and J.F. Lipscomb, eds., op.cit., pp. 121-122. The removal of tribal and racial impediments to land tenure was recommended several years earlier by the East Africa Royal Commission 1953-1955, op.cit., pp. 60-61.

4. Cone, L. Winston, and J.F. Lipscomb, op.cit., appear frequently to present views which may have been popular among many of the European settlers. A Marxist interpretation (marred by the inaccurate reporting of certain facts relating to the behaviour of the financial sector) is found in van Zwanenberg, Roger, The Agricultural History of Kenya. Paper No. 1. Historical Association of Kenya. Nairobi, East African Publishing House, 1972. A more conventional examination is provided by Wrigley, C.C., op.cit. A moderately radical view is found in an

oriented units operated by Europeans. Another was the relationship between these units and the African rural sector, which involved dependence on African agricultural labour by European farmers plus the institution of a number of policies which affected African agricultural development. The impact of colonial agricultural policies cannot be explored in detail here, and for the purposes of this paper the land question does not require recapitulation.<sup>1</sup> Suffice it to note that a number of measures were taken which gave economic and statutory encouragement to the large scale European sector while simultaneously closing the door to African development along certain lines. "Legislation to benefit one community inevitably affected the other adversely"<sup>2</sup> may be too broad for precision, but the tendency towards discrimination in colonial policy needs little elaboration. As late as the 1950's dual pricing policies, restrictions on marketing and on production of certain major crops, and discriminatory borrowing regulations were in effect which hindered African initiative in cash cropping.<sup>3</sup>

The discriminatory aspects of ordinances and arrangements affecting cash cropping are noteworthy.<sup>4</sup> Principal cash

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(continued) extensively documented paper by Smith, L.D., "An Overview of Agricultural Development Policy in Kenya," in Heyer, J., J.K. Maitha and W.M. Senga, eds., Agricultural Development in Kenya: An Economic Assessment. Nairobi, Oxford University Press, 1976.

1. It may be useful, in view of frequent confusion on the point, to note that "approximately four-fifths of the total acreage of high-potential land (was) in the Non-scheduled Areas." (Government of Kenya, The Economic Development of Kenya. p. 51.)
2. Ghai, Y.P., and J.P.W.B. McAuslan, op.cit., p. 96.
3. Forrester, Marion Wallace, Kenya To-Day: Social Prerequisites for Economic Development. 's-Gravenhage, Mouton & Co., 1962. pp. 78 ff.
4. The importance of administrative arrangements and their extra-legal aspects in Kenyan administration are discussed in McAuslan, J.P.W.B., "Control of Land and Agricultural Development in Kenya and Tanzania," in Sawyerr, G.F.A., ed., East African Law and Social Change. No. 6, Contemporary African Monograph Series, East African Institute of Social and Cultural Affairs. Nairobi, East African Publishing House, 1967. pp. 172-257.

enterprises on smallholdings today -- tea, coffee, pyrethrum and dairying based on improved stock -- were restricted to varying degrees but on a significant scale during the colonial era through a series of administrative arrangements. These permitted adoption or gave official support in the form of technical advice, marketing arrangements, etc., only to operators who could meet certain standards which were at times stated explicitly in racial terms. It has been noted by several observers that labour intensive enterprises, such as coffee, were the most subject to controls, given the dependence of the European farm sector on African labour.

At the same time, however, efforts were made to introduce new food crops in African areas and veterinary services were supplied which had the effect of strengthening African herds as well as protecting European herds from diseases harboured in or spread by the grazing or movement of livestock owned by Africans.<sup>1</sup>

Another aspect of European settlement was its effect on the expansion of African cultivation. Again, the precise impact is open to question. The African population appears to have expanded at a considerable rate during much of the colonial period, first as a recovery from a series of epidemics and insect plagues shortly prior to European penetration, later as a recovery from famine and pestilence in 1898-1899 and in 1918-1920, and after about 1930 in response to those aspects of European penetration which increased African life expectancy.<sup>2</sup> Thus, with and as a result of European penetration African populations faced certain limitations on land availability -- offset only slightly by the opening of previously unexploited land to squatter-labourers on

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1. Heyer, J., "A Survey of Agricultural Development in the Small Farm Areas of Kenya since the 1920's." Working Paper No. 194, Institute for Development Studies, University of Nairobi, October 1974; Wrigley, C.C., op.cit., pp. 255-256.

2. Low, D.A., "British East Africa: The Establishment of British Rule 1885-1912," in Harlow, Vincent, and E.M. Chilver, eds., op.cit., pp. 3-4; Wrigley, C.C., op.cit., pp. 254-255.

European farms<sup>1</sup>-- as well as a probably unprecedented increase in population. Shifting cultivation was the norm until the 1920's, when settled agriculture became common in some of the better endowed African areas. While from this point of view European settlement hastened the development of African agriculture, it appears that the food crop bias in colonial policy for African areas, exacerbated by land pressure, skewed development away from those enterprises or enterprise mixes which might have contributed most to smallholder welfare had there been no European farm sector.

b. Transport facilities

The importance of the railway to the development of Kenya's large scale farm sector has already been noted. The trunk line linking Mombasa, Nairobi and Kisumu was supplemented by a spur to Thika, a coffee and sisal area, in 1913, and the period between 1925 and 1930 saw a massive increase in the system when lines were laid to serve the main cereal producing portions of the European areas.<sup>2</sup>

The road network expanded at a slower rate. As of 1959 Kenya had only 531 miles of bitumen roads, but by 1973 the system had expanded to more than 2,300 miles.<sup>3</sup> The growth of the 45,000 mile gravel and earth road system has not been so dramatic in relative terms, but some of its development has had a substantial impact on agricultural progress. A primary example consists of the more than 800 miles of "tea roads" in smallholder tea areas which had been constructed by 1969 to facilitate the daily leaf collection so essential for efficient tea production.<sup>4</sup>

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1. Squatter-labourers were reported to number 150,000 in the early 1930's, and a proportion of these were considered unlikely to return to their native reserves. See Ghai, Y.P., and J.P.W.B. McAuslan, op.cit., p. 95.

2. Odingo, R.S., op.cit., pp. 32, 35.

3. Republic of Kenya, Statistical Abstract 1968. p. 122; Statistical Abstract 1973. p. 172.

4. Kenya Tea Development Authority, Annual Report and Accounts, 1 July 1968 to 30 June 1969. Nairobi. p. 18.

Kenya lacks navigable rivers and inland water transport plays no commercial role except on Lake Victoria.

c. Institutional infrastructure

The institutional infrastructure in the agricultural sector, widely defined to include the channels handling the flow of goods and services to and from the sector, has two primary characteristics, which are to some degree interrelated.

The first is an abundance of controls.<sup>1</sup> The statutory board syndrome of administered prices and monopolistic marketing is well advanced in Kenya, and is discussed in a later section. The development and roots of controls over land use from early in the colonial era is well documented,<sup>2</sup> and as of the early 1970's included controls of an administrative nature which can be, and in apparently 5-10% of cases submitted for approval are, invoked to prevent land transactions.<sup>3</sup> Controls may also be used to force farmers to plant certain crops.<sup>4</sup> Likewise, "orders" can be applied to land if the Government does not approve of its use or the manner in which it is used.<sup>5</sup> The fact that the more drastic of these powers have been invoked only infrequently in the past in no way diminishes their existence on the statute books.

The second major characteristic of the institutional structure is the overwhelming influence of European penetration in Kenya.

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1. In spite of the pervasiveness of controls and preference for public sector monopoly in key markets, some observers still portray the Kenyan approach to development as being fundamentally "capitalistic". See, for example, Lele, Uma, The Design of Rural Development: Lessons from Africa. Baltimore, Johns Hopkins Press, 1976. p. 41; and Wolgin, Jerome Morris, op.cit., p. 1.

2. Ghai, Y.P., and J.P.W.B. McAuslan, op.cit. Chapter III, "The Development of Agrarian Administration." pp. 79-124.

3. McAuslan, J.P.W.B., "Control of Land." p. 194 ff; Fleming, J.T., "An Analysis and Review of the Kenya Land Reform Programme 1966-1968." Nairobi, Ministry of Lands and Settlement, June 1968. pp. 47-52.

4. The Agriculture Act. Chapter 318, Laws of Kenya. Nairobi, Government Printer.

5. Ibid.



The institutional infrastructure was developed around the production and export of produce from European farms. Marketing and input supply organisations, the most interesting example being the Kenya Farmers' Association, are frequently vertically integrated from depots in rural centres to import-export facilities in Mombasa. The orientation of these organisations has been towards large scale production, although since independence most institutions related to agriculture have been modified -- and a few others newly formed or reorganised -- towards the needs and potential of a larger number of farm operators.

Although agricultural research was begun in African areas in 1947,<sup>1</sup> the utility of the Government's research activities has accrued largely to the large scale sector.<sup>2</sup> This reflects both the orientation of research activities and also the channels of communication or media used to inform farmers of research results.<sup>3</sup> Likewise, studies of small farm management problems only got underway on a significant scale in the early 1960's.<sup>4</sup> It is generally accepted today that the lack of agronomic research and the related absence of innovations suitable for smallholders in the lower, drier arable areas in Kenya is an important constraint to development in these zones,<sup>5</sup> which have an increasingly important role as population pressure extends the margin of cultivation. Even at the present time extension advice is to a significant extent not heeded by farmers because it fails to be harmonious with small farm systems -- the

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1. Swynnerton, R.J.M., A Plan to Intensify the Development of African Agriculture (The Swynnerton Plan). Nairobi, Government Printer, 1955. p. 50.

2. de Wilde, John C., Experiences with Agricultural Development on Tropical Africa. Vol. II, The Case Studies. Baltimore, Johns Hopkins Press, 1967. p. 133.

3. ILO, op.cit., pp. 145-148, 153-156.

4. de Wilde, John C., op.cit., Vol. II, p. 103.

5. See, for example, Hunt, Diana M., "Agricultural Innovation in Mbere." Working Paper No 166, Institute for Development Studies, University of Nairobi. June 1974. pp. 59-62; "Resource Use in a Medium Potential Area: The Mbere Rural Economy." Working Paper No. 180, Institute for Development Studies, University of Nairobi. August 1974. pp. 28, 39-44.

constraints on experimental farm or trial plot yields may, and generally do, differ from those facing the small farmer. Consequently, technical recommendations per se may overlook the opportunity cost to the farmer of adoption.<sup>1</sup>

The provision of financial services has also tended to follow patterns outlined above with regard to other aspects of institutional infrastructure. Virtually every large farm which is not in organisational chaos or which does not have grossly ineffective management has access to a range of credit facilities, while smallholder access to formal credit is more restricted. Likewise, savings facilities and other financial services provided by the largest and also by several of the smaller financial institutions tend to be offered on terms which limit the access of many ordinary people. These issues will be dealt with in detail later in this paper.

The cooperative structure has been used by the Government in an attempt to obtain reorientation of certain functions related to agriculture without frontally attacking older arrangements. Cooperatives have certain monopsonistic roles conferred by law, and are frequently linked to statutory boards through produce marketing channels.<sup>2</sup> This base with respect to major smallholder cash crops such as coffee, milk and pyrethrum has been used to provide an integrated credit and savings system, input supplies and other services which are increasingly characterised by horizontal and vertical integration within the cooperative structure.

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1. Belshaw, D.G.R., "Agricultural Extension, Education and Research," in Helleiner, G.D., ed., Agricultural Planning in East Africa. Nairobi, East African Publishing House, 1968. pp. 68-69; Heyer, Judith, et al., op.cit., p. 112; ILO, op.cit., p. 146.

2. Republic of Kenya, Ministry of Cooperatives and Social Services, Cooperative Development Policy for Kenya. Sessional Paper No. 8 of 1970. Nairobi, Government Printer 1970, provides an outline of policy and structure. Details of cooperatives' monopsony powers are found in McAuslan, J.P.W.B., "Cooperatives and the Law in East Africa," in Widstrand, Carl Gosta, ed., Cooperatives and Rural Development in East Africa. Uppsala, The Scandinavian Institute of African Studies, 1970. pp. 106-107.

B. The Structure of Kenyan Agriculture:  
The Number and Size of Farm Firms

1. Large Scale Agriculture

The large scale agricultural sector is located primarily in the former Scheduled Areas and in the Coastal Strip. This sector is a result of European settlement in Kenya, as the Scheduled Areas were "reserved" for European farming<sup>1</sup> during most of the colonial era. The Scheduled Areas consisted of about 2.8 million ha (7.0 million acres) of land of variable quality,<sup>2</sup> as suggested by the diverse types of large scale farming which developed. A brief description of the large scale sector shortly before independence is found in Kenya's Economic Survey 1961:<sup>3</sup>

The Scheduled Areas, with the addition of European and Asian farms in the Coastal Protectorate, consisted in 1960 of 3,609 agricultural holdings of 20 acres (8 ha) or more and in total covered 12,100 square miles (31,400 km<sup>2</sup>) of land. The average size of holding was 2,142 acres (868 ha), although half of the farms were smaller than 890 acres (360 ha).

Of this area, 15% was cultivated for the production of temporary and permanent crops. Permanent crops occupied about 42% of cultivated land on large farms and the major permanent crop in terms of land area was sisal, accounting for roughly half of permanent crop cultivation. Wattle, coffee, sugar, tea and pyrethrum (in descending order of importance) accounted for most of the balance of permanent cropping. An additional 40% of cultivated land on large farms was devoted to cereal production in the years immediately prior to independence, and about one half

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1. The presence of "squatters" and labourers has already been noted. In addition, certain Africans living in the Scheduled Areas at the time European farms were established continued to reside in these areas until the late 1930's. (Ghai, Y.P., and J.P.W.B. McAuslan, op.cit., p. 96.) Finally there were more than 100 Asian farms in the Scheduled Areas. (Colony and Protectorate of Kenya, Agricultural Census 1960, quoted by Cone, L. Winston, and J.F. Lipscomb, op.cit., p. 81.)

2. Odingo, R.S., op.cit., pp. 12-26. Metric conversion added.

3. Colony and Protectorate of Kenya. Nairobi, Government Printer, May 1961. p. 15. Metric conversion added.

Table I-1. Land Utilisation on Large Farms in Kenya,  
1960 and 1972.

<u>Land Use</u>	1960		1972	
	<u>Ha (000)</u>	<u>%</u>	<u>Ha (000)</u>	<u>%</u>
Temporary crops	277	8.9	302	11.2
Temporary meadows	89	2.8	95	3.5
Temporary fallow	54	1.7	70	2.6
Permanent crops	184	5.9	146	5.5
Uncultivated meadows and pastures	2,230	71.3	1,756	65.3
Forest	114	3.6	150	5.6
Other	182	5.8	169	6.3
Total	<u>3,130</u>	<u>100.0</u>	<u>2,688</u>	<u>100.0</u>

Source: Republic of Kenya, Statistical Abstract 1973. p. 111;  
Statistical Abstract 1968, p. 78.

of the cereals land was under wheat, one third under maize, and the remainder planted to barley and oats. The balance of cultivated land, about 13%, was devoted to other temporary crops, including labourers' cultivation.<sup>1</sup> A large portion of the 85% of the uncultivated large farm area was used for grazing.

The overall pattern of large scale exploitation did not change markedly following independence, and whereas the number of large scale holdings was 3,624 in 1960, 3,166 were enumerated in 1972.<sup>2</sup> Total large farm area declined by 16% from 3,130,000 ha in 1960 to 2,688,400 ha in 1972.<sup>3</sup> The composition of the sector in terms of farm size and ownership changed substantially, however. While in 1960 there were 528 large farms of fewer than 50 ha, or 15% of the total, 770 were reported in 1972, or 24% of the total.<sup>4</sup> Enumeration errors aside, this change represents the subdivision of certain large farms which accompanied their transfer to African ownership. There were approximately 300 European large scale farmers operating in Kenya in 1972 according to the ILO Report.<sup>5</sup> The rate of transfer has been highest, in terms of land area, in the mixed farming areas and lowest in the predominantly range areas.<sup>6</sup>

The transfer of large farms has occurred in six ways:<sup>7</sup>

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1. Ibid., p. 15.

2. Republic of Kenya, Statistical Abstract 1973. p. 111; Statistical Abstract 1968. p. 78.

3. Ibid.

4. Republic of Kenya, Statistical Abstract 1973. p. 111.

5. ILO, op.cit., p. 35.

6. Compare land use and land ownership maps in Odingo, R.S., op.cit., pp. 179, 190.

7. The first four types of transfer noted here are mentioned in Republic of Kenya, Report of the Mission on Land Settlement in Kenya (Van Arkadie Report). Nairobi, Government Printer, 1966. p. 10. The fifth type, involving groups of settlers, was initiated in 1971. The sixth type includes the Haraka or squatter schemes and the Nandi Salient. See references in sections devoted to settlement and land transfer in Republic of Kenya, Economic Survey (annual) and Department of Settlement Annual Report (annual). A description of the various types of schemes developed under the Land Transfer Programme is also found in Republic of Kenya, Development Plan 1974-1978. Part I. Nairobi, Government Printer, 1974. pp. 225-230. Details of the background

1. Open market transactions arranged privately between buyer and seller.
2. Transfer under the Compassionate Farms programme, involving special conditions of valuation and finance based on concern for the status of the European seller.
3. Acquisition of farms to be run as State farms, either on an interim basis for eventual sale or for retention "in the national interest" as seed farms, stud farms, etc.
4. Acquisition of farms by the settlement authorities<sup>1</sup> and the subsequent subdivision and sale of these lands to individual members of settlement schemes.
5. Acquisition of farms by the settlement authorities and the subsequent operation of these farms as going concerns by groups of settlers.
6. Miscellaneous transfers ranging from the occupation of abandoned farms by former farm labourers, to the turning over to local authorities of European farmland purchased by the Kenya Government.

For the purposes of this discussion only the major channels of transfer are dealt with, and these can be grouped under two headings. One heading includes all of those methods of transfer which involved an attempt or initial commitment to maintain the farms (or portions of them which would be classified as large farms in their own right) as going concerns. The other heading includes those in which no such attempt was made, where subdivision was undertaken at the outset. For purposes of convenience the relatively small number of State farms and miscellaneous forms of transfer can be excluded on the grounds that the acreage, production and number of settlers involved is relatively small.

Farms taken over as going concerns frequently underwent an

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(continued) to land transfer are presented in the Van Arkadie Report cited above, and are also summarised in Von Pischke, J.D., Small Farmer Credit in Kenya: A Review of Major Credit Schemes. Vol. I. A Review of Major Agricultural Credit Programs and Institutions Operating in Kenya. Studies in Employment and Rural Development No. 5. Washington, DC, International Bank for Reconstruction and Development, September 1974. (mimeo) pp. 2-25.

1. Settlement authorities as used in this paper refers to all Kenyan agencies involved in the settlement of Africans on settlement schemes. These include the Settlement Fund Trustees, Department of Settlement, Central Land Board, etc.

organisational change. Whereas the majority of Europeans in mixed farming areas farmed as proprietors or worked essentially as proprietors under corporate forms established for convenience, the majority of buyers have been groups of Africans organised as partnerships, corporations and cooperatives. Unfortunately, no comprehensive published documentation of the extent of this shift in organisational form and ownership pattern is available. However, several sources note the existence of this change. Link states that larger farms, in terms of land area, in Trans Nzoia were generally acquired by "loose partnerships".<sup>1</sup> More detailed concern for the effects of grouping on the capital structures of large farms is contained in a report prepared by a committee considering the pros and cons of subdivision of large farms under some form of collective ownership:<sup>2</sup>

At the time of take-over, most people could not raise the initial deposit (required by mortgage lenders) by themselves and consequently they grouped themselves together to form companies, partnerships and cooperatives.

Further evidence is found in the Ministry of Agriculture's large farm supervised credit project proposal prepared for World Bank consideration:<sup>3</sup>

There is a fairly typical pattern of events leading to a problem farm situation. The farm is bought from a European farmer by thirty or so members who form themselves into a partnership, cooperative or company.

This proposal also mentions that there were an estimated 600 problem farms among the 3,200 composing the large scale sector in 1974,<sup>4</sup> implying that a substantial number of former European

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1. Link, H., "A Study of the Financial and Loan Repayment Position of African Large-scale Farms in Trans Nzoia District, 1969/70." Kitale, German Agricultural Team, District Agricultural Office, September 1970. (mimeo) p. 7.

2. Republic of Kenya, Ministry of Agriculture, "Draft Report and Recommendations of the Committee on Sub-Division of Large Scale Farms." Nairobi, July-August 1971. (mimeo) p. 2. Brackets added.

3. Republic of Kenya, Ministry of Agriculture, "Group Farm Supervised Credit Project." Nairobi, March 1974. (mimeo) p. 6.

4. Ibid.

holdings now operated by Africans face serious difficulties. Similar findings are reported by Mogaka<sup>1</sup> and Onyonka.<sup>2</sup> The financial implications and problems of the method used to transfer large scale farms more or less intact will be discussed later in this paper.

## 2. Settlement Agriculture

About 550,000 ha (1.3 million acres) of former European farming land -- largely in mixed farming areas -- had been acquired by the Settlement Fund Trustees by the end of 1971.<sup>3</sup> The mechanics of land transfer through the settlement authorities has generally involved the following steps:<sup>4</sup>

- 1) Negotiations on a willing-buyer-willing-seller basis between the European farmer and the settlement authorities.
- 2) Subdivision of the farm into units judged sufficient to enable an African farmer to obtain a specified return under a standard farm budget devised by the settlement authorities.
- 3) Selection of settlers and their establishment on the land. Settlers' establishment involves substantial amounts of credit, as settlers undertake to pay for their land over 30 years and are also issued 10 year development loans for grade cattle, etc. The implications of the role of credit to settlers will also be

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1. Mogaka, Thomas N., "Focus on Land Transfer in Trans-Nzoia District, 1962-1973: An Outline of Successes and Failures of Large Scale African Farming Since the Dawn of the Great Land Transfer." Kitale, District Agricultural Office, May 1973. MS

2. Onyonka, Zachery T., "Report on the Loan Schedules for Large Scale Farmers." Nairobi, Department of Economics, University College, 10 July 1969. (mimeo); Agricultural Development Banking: A Case Study of Kenya. Unpublished PhD dissertation, Syracuse University, 1968.

3. Republic of Kenya, Department of Settlement Annual Report 1971. Nairobi, Government Printer, 1972. p. 50.

4. The complete process is of course more complicated than described in the summary given here. Details are found in the annual reports of the Department of Settlement and the old Central Land Board, and in Storrar, A., "A Guide to the Principles and Practices of Land Settlement in Kenya," Journal of Local Administration Overseas. 3, 2, January 1964, pp. 14-19. A summary is also given in Donaldson, G.F., and J.D. Von Pischke, op.cit., pp. 6-11.



explored later in this paper.

The latest comprehensive official accounting available in 1974 concerning the number of European farms purchased by the settlement authorities for subdivision appeared to date from 1965, when 780 had been obtained for High and Low Density schemes and 314 additional farms had been purchased under alternative transfer arrangements involving the settlement authorities.<sup>1</sup> Later acquisitions reported by the Department of Settlement include: 46 farms in 1965-1966 (an unspecified number of which are included in the 780 reported above, due to a change in reporting periods), 24 in 1966-1967, 13 in 1967-1968, five in 1968-1969, three in 1970 and 11 in 1971.<sup>2</sup> The total number of former European farms on which settlers were receiving Department of Settlement services at the end of 1971 appears to have approximated 950.<sup>3</sup> About 420,000 ha (1.1 million acres) of this land had been subdivided and awarded to individual settlers, and an additional 120,000 ha (300,000 acres) transferred to various sorts of cooperative farming organisations.<sup>4</sup>

Settlement agriculture includes a broad variety of Kenyan upland enterprises: dairying, beef, sheep, pyrethrum, sugar cane, potatoes, maize, wheat, barley, coffee, tea and other, minor crops. Production statistics are usually reported together with those for the rest of the "small scale" sector, although Department of Settlement annual reports contain turnover data for cooperative marketing societies on settlement schemes.

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1. Government of Kenya, Central Land Board, Final Report 1964-1965. Nairobi, 1965. p. 13.

2. See pages 48, 47, 18, 15 and 13 of the Department's Annual Reports for the respective periods to 1970 and Republic of Kenya, Lands Department, Annual Report 1971. p. 7.

3. Derived from Government of Kenya, Central Land Board, Final Report, and subsequent annual reports of the Department of Settlement. The Department's Five Year Review and Annual Report 1967/68 mentions a total of 1,005 farms purchased. (See p. 4)

4. Republic of Kenya, Department of Settlement, Annual Report 1971. p. 50. 48,000 ha of cooperative farms in the Ol'Kalou Salient are in effect managed by the Department of Settlement.

### 3. Small Scale Agriculture

From the statistical point of view the small scale sector is the residual portion of Kenya's agriculture, comprising everything that is not large scale, as defined above. This land was classified in the 1960/61 sample census as consisting of:<sup>1</sup>

1. some one million peasant holdings on land in the main, of high potential, covering some 18 million acres (7.2 million ha)...referred to as the agricultural sector of the Non-scheduled Areas.
2. some 110 million acres (44.5 million ha) or 173,000 square miles which are outside the areas of European and Asian farming and which due to a low rainfall expectation are inhabited almost entirely by nomadic pastoral tribes...referred to as the pastoral sector of the Non-scheduled Areas.<sup>2</sup>

The size of holding in the small scale agricultural sector averages less than 5 ha. The 1960/61 sample census reported a mean holding size of 1.95 ha in Central Province and 3.80 ha in Nyanza Province, both figures applying to areas in which land was consolidated.<sup>3</sup> Small farm size distributions are no longer provided in the annual Statistical Abstract, although data from the 1970 Abstract presented in the ILO Report suggest that half of the country's smallholdings consist of less than 2 ha, as shown in Table I-2, and that the median size of smallholding is less than 1 ha. This data raises some interesting questions because the figure for the total area registered does not reconcile with those found in certain Kenyan documents, including the Economic Survey 1970.<sup>4</sup> In fact, according to the annual Economic Surveys the number of registered holdings and the area registered did not until 1973 equal the quantities noted in the ILO Report.<sup>5</sup>

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1. Colony and Protectorate of Kenya, Economics and Statistics Division, Office of the Minister of State for Constitutional Affairs and Economic Planning, Kenya African Agricultural Sample Census, 1960/61. Part I. Nairobi, Government Printer, 1962. p. 1.
  2. The pastoral sector is excluded from further consideration in this paper for reasons discussed later.
  3. Colony and Protectorate of Kenya, Sample Census, p. 18.
  4. See Republic of Kenya, p. 75.
  5. See Republic of Kenya, Economic Survey 1973. p. 79; Economic Survey 1974. p. 78.

Table I-2. Size Distribution of Registered Smallholdings in Kenya, 1969.

<u>Size of registered holding in hectares</u>	<u>Number</u>		<u>Area</u>	
	<u>(000)</u>	<u>%</u>	<u>(000 ha)</u>	<u>%</u>
Less than 0.49	91	11.7	28	1.1
0.5 - 0.99	121	15.5	89	3.4
1.1 - 1.99	192	24.6	274	10.3
2.0 - 2.99	128	16.4	303	11.4
3.0 - 4.99	104	13.3	404	15.1
5.0 - 9.99	88	11.3	629	23.8
10.0 or more	54	7.0	923	34.9
All sizes	<u>777</u>	<u>100.0</u>	<u>2,646</u>	<u>100.0</u>

Source: International Labour Office, Employment, Incomes and Equality: A Strategy for Increasing Productive Employment in Kenya. Geneva, ILO, 1972. p. 36.

Note: Columns may not sum to totals because of rounding errors.

This disparity is so great that it appears that settlement land may be included in the data used in the ILO tally, although it is generally conceded that such land could not at that time have been considered registered in the same sense that small-holdings on Trust Land had been registered by formal entries in Land Registers.<sup>1</sup> There are also grounds for suspicion that this data may understate the size of the average registered holding in agriculture by including in the total small town parcels as well as small rural parcels kept as public domain which consist of watering points and rights of way. In addition, fragmentation in certain registered areas would render the average agricultural holding larger than the mean plot size.

Whatever the mean size of registered plots, the possibility that the unselective use of official data understates the mean size of agricultural holding is swamped by the increasingly widespread existence of unregistered subdivisions of registered plots. The mean size of holding is smaller than the mean plot size, reflecting, in part, the conflict between legal and administrative provisions on one hand and social priorities and customary inheritance provisions on the other.<sup>2</sup> Because of these conflicts and also because of the costs of recording successions in Land Registers, many heirs prefer informal subdivision as a working arrangement. Wilson estimated in the early 1970's that fewer than 1% of the probable number of successions in Kisii District were reflected on the Land Registry.<sup>3</sup>

A survey conducted by Fleming between 1966 and 1968 noted 217 deaths of land owners in sample areas, of which 192 were not reported to land registration authorities.<sup>4</sup> Land Control Boards,

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1. Republic of Kenya, Development Plan 1974-1978. Part I. p. 227. By mid-1975 over 5,000 settlement holdings were recorded in Land Registers as a result of registration efforts underway for several years. (Private communication from J.C.D. Lawrance, Land Tenure Advisor, Ministry of Overseas Development, London. 21 May 1975.)

2. Wilson, Rodney J.A., "Land Control and Kenya's Smallholder Farming Areas," East African Journal of Rural Development. 5, 1-2, 1972. p. 139.

3. Ibid., p. 132.

4. Fleming, J.T., "Analysis and Review," p. 105.

which have absolute discretion to render a transaction invalid and which cannot be challenged through the courts, are supposed to ensure that holdings do not fall below recommended minimum sizes through subdivision, a measure based on economic considerations as perceived by the Government.<sup>1</sup> Wilson indicates that in the two areas in which he conducted fieldwork the minimum recommended holding size in fact exceeded the mean plot size,<sup>2</sup> which of course must be viewed against the fact that the land reform measures which culminate in registration involve substantial efforts at consolidation, reducing the probability that individual landholders might in fact own several small plots of a total acreage in excess of the recommended minimum. The result of all of these problems and conflicts in attempts at development administration is that the registries become increasingly out of touch with the realities of land usufruct. In addition to these factors and the ambiguities surrounding the function of the Land Control Boards, problems of education, the inconvenience of the location of Land Registries, avoidance of transfer fees, the occasional necessity of bribing civil servants and other transaction costs lead to unregistered transactions. Fleming found that of 847 transfers monitored, 61% were unregistered.<sup>3</sup>

These observations reinforce the interpretation of other farm size data which suggests that the majority of farms in the smallholder areas are in fact "small" in terms of absolute size and in comparison to averages in the large scale sector.

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1. The Land Control Act of 1967 established the Boards and provides the framework for their operations. Fleming, J.T., "Analysis and Review," describes these arrangements and problems of implementation, pp. 47 ff. Wilson, Rodney J.A., "Land Control," also notes the divergence between Boards' performance and their terms of reference and presents data which suggests that Government policy is based on a false premise concerning the effects of subdivision on agricultural production, as small farms are more productive in terms of land, i.e., more intensively farmed, than larger holdings. This point is also discussed in a section of the ILO Report dealing with the large farm and settlement sectors. ILO, op.cit., pp. 125-126.

2. "Land Control," pp. 125-126.

3. "Analysis and Review," p. 40.

The mathematics of smallholder agriculture in the 1960/61 sample census quoted above were that one million peasant holdings occupied 7.3 million ha of land. Given an estimated 3% growth rate in the rural population and discounting population drift down into the lower, less agriculturally attractive areas, the situation in 1975 would approximate 1.5 million peasant family farms on 7.3 million ha, or a mean small farm size of less than 5 ha. The ILO Report, drawing on 1969 population data, mentions 1.7 million rural households and 1.2 million settled agricultural holdings. Of 31 Districts having medium or high potential land, the median amount of land, measured in hectares of high potential equivalent, was 0.8 ha per person resident in these Districts.<sup>1</sup>

The degree of commercialisation in the smallholder sector covers a broad range. While smallholder agriculture reportedly produces about half of the marketed agricultural output in terms of value, the sector is predominantly subsistence oriented and supports perhaps 80% of Kenya's settled population. Cash cropping is highly developed in certain areas, and subsistence orientation does not exclude a substantial degree of commercialisation. Rather, subsistence orientation is seen in the preference for household self-sufficiency in basic foods. This orientation is reflected in land use patterns. The small scale sector differed from the large scale sector in land use around the time of independence primarily in the higher proportion of land devoted to temporary crops (31% as opposed to 9%) and also exhibited proportionately less permanent cropping (3% of land area as opposed to 6%). In both sectors, the bulk of the land consisted of uncultivated meadows and pastures (71% of the large scale areas, 57% of the small scale areas).<sup>2</sup>

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1. ILO, op.cit., p. 35. The weightings used in this calculation, admittedly crude, were that five ha of medium potential land and 100 ha of low potential land are equivalent to one hectare of high potential land.

2. Colony and Protectorate of Kenya, Sample Census 1960/61. Part I. p. 25.

Data for small scale areas in 1960/61 and for small scale and settlement areas in 1969/70 is contained in Table I-3. The most striking aspect of the ten-year comparison is the increase in the land area included. While the addition of settlement schemes would have increased the area by more than 500,000 ha, the major portion of the increase is simply the result of a change in the basis for enumeration, which makes comparison of the two periods difficult. Suffice it to note that the majority of land in the areas covered is not cultivated, and that permanent crops (coffee, tea, tree fruits, etc.) account for a relatively small portion of smallholder land. However, permanent crops occupied about one-fifth as much area as temporary crops in 1969/70 -- double the proportion reported in 1960/61 -- signifying their considerable importance among arable enterprises and their increasing role in smallholder agriculture as discussed later in this paper.

The 1,546,000 ha of cultivated land shown in the Table for 1969/70 is expanded to 2,303,000 ha if the anomalies of reporting mixed cropping and land cropped twice a year are allowed for. On this basis, the soundest in view of reporting practices, 43% of smallholder and settlement cultivated land was devoted to maize in 1969/70; 10% to millets and sorghum; 21% to pulses, primarily beans; 11% to permanent crops; and the remaining 15% to temporary crops not included elsewhere.<sup>1</sup> The total area devoted to coffee, tea and pyrethrum -- crops which are entirely cash enterprises -- was about 100,000 ha, or about 7% of the total cultivated area on smallholdings and settlement schemes.

#### 4. Statistical and Classificatory Problems

The classification of agriculture used in this paper is trichotomous: large scale, settlement and small scale. This categorisation poses certain problems, as a two sector model is used

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1. Republic of Kenya, Statistical Abstract 1973. p. 105.

Table I-3. Land Utilisation Reported on Small Farms in 1960/61 and on Small Farms and Settlement Schemes in 1969/70 in Kenya.

<u>Land Use</u>	1960/61		1969/70	
	<u>Ha (000)</u>	<u>%</u>	<u>Ha (000)</u>	<u>%</u>
Temporary crops	932	31.2	1,286	15.9
Temporary fallow	47	1.6	(	
Permanent crops	87	2.9	260	3.2
Uncultivated meadows and pastures	1,715	57.4	(	
Forest	23	.8	(	
Other	187	6.1	(6,606	80.9
Total	<u>2,991</u>	<u>100.0</u>	<u>8,152</u>	<u>100.0</u>

Source: Colony and Protectorate of Kenya, Kenya African Agricultural Sample Census, 1960/61. Part I. p. 25; Republic of Kenya, Statistical Abstract 1973. pp. 105-108.

Note: A change in series accounts for most of the increase in hectares enumerated in 1969/70 as compared with 1960/61.



for the presentation of official statistics. These problems arise because some system of classification is required to deal with credit schemes, which are usually specialised by purpose or enterprise and also limited by ranges of loan sizes. Access to agricultural credit is very much a function of the agricultural environment of the borrower or potential borrower.

The large scale sector as referred to in this paper is as given by the official statistics: units of more than 20 acres (8 ha) in the former Scheduled Areas and Coastal Strip which have not been included in settlement programmes.<sup>1</sup> This sector is varied. It includes plantations, mixed farms and ranches. Forms of organisation include control by multi-national corporations, cooperatives, state farms, proprietorships, etc. In many cases large mixed farms operated by African purchasers formed into companies, cooperatives and partnerships are simply a de facto collection of small family farms, reflecting organisational problems of joint ownership on one hand and official and lender reluctance to permit formal subdivision on the other.

The small farm sector is taken here to exclude settlement schemes and pastoral agriculture. Settlement schemes are a special case as far as credit is concerned because they are a child of credit provided to settlers by the Agricultural Settlement Fund and also because settlement farmers have been generally excluded from the considerations of other institutional lenders. Pastoral agriculture is excluded from this study, although it may be argued that the principles to be developed in the following pages apply with equal force to this second special case. Pastoralism is excluded because of its uniqueness. Monetary finance plays a relatively minor role, reflecting a low level of pastoral commercialisation. The debate over the effects of development interventions, the range of practicable development alternatives

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1. In many of the presentations which follow, the large scale sector is listed and discussed first, followed by material pertaining to the settlement and small scale sectors. This sequence is used merely for convenience and is not intended to convey any judgement concerning priorities of any other nature.

and appropriate development policies and goals for the pastoral sector appears to be even less advanced than that concerning small scale permanent agriculture in Kenya.

### C. Production Performance in Kenyan Agriculture

#### 1. Volume of Production

The proportion of gross domestic product contributed by the agricultural sector amounted to roughly 30% in 1973 according to official statistics.<sup>1</sup> About 53% of agriculture's share is thought to originate outside the monetary economy. Agriculture's share of GDP stood at about 45% in the early 1950's and the estimated proportion outside the monetary economy amounted to about 65%.<sup>2</sup> The agricultural product grew from Sh 2,531 million in 1964 to Sh 3,816 million (at 1964 prices) in 1973,<sup>3</sup> a compounded increase of more than 4% per annum. These statistics indicate that while agricultural production has expanded and has become more highly commercialised, other portions of the economy have expanded more rapidly.

Agriculture is also the dominant source of Kenya's exports.<sup>4</sup> Non-agricultural exports accounted for less than 15% of total exports beyond East Africa in 1960, and not more than 30% in 1972. Coffee, the largest single export commodity, has provided between 20% and 30% of Kenya's earnings from exports in recent years to countries beyond East Africa. Tea has contributed an additional 10% to 20%.

#### 2. Composition of Output

An interesting feature of the statistical series showing the proportion of gross marketed agricultural output originating

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1. Republic of Kenya, Economic Survey 1974. p. 2.

2. Colony and Protectorate of Kenya, Economic Survey 1961. p. 2.

3. Republic of Kenya, Economic Survey 1974. p. 2.

4. Republic of Kenya, Statistical Abstract 1968. p. 45;  
Statistical Abstract 1973. p. 59.

from the small farm and the large farm sectors is its relative constancy since the share of each reached approximately 50% in 1967.<sup>1</sup> In 1960 the contribution of the small scale sector amounted to only about 32% of the whole.<sup>2</sup> Part of this shift reflects the subdivision of large farms under the Land Transfer Programme, part the increase in smallholder output with the rise in cash cropping, and part the organisational and managerial disarray of some of the large farms transferred as large farms.

Permanent crops (primarily tea, coffee and sisal) account for about half the value of Kenya's total marketed production. Livestock provides about a quarter of the total, and cereals approximately 10-15%. A breakdown of marketed agricultural output by major categories of enterprise as of 1960 and 1973 is given in Table I-4. An interesting aspect of the data, which must be regarded as not more than approximate, is the relatively small shifts which have occurred in overall proportions, against an almost tripling of gross farm cash income. Within the smaller categories, the shifts between 1960 and 1973 have been significant in terms of proportional magnitudes, with the entire agricultural sector moving towards the composition characteristic of the small scale sector in 1960. Unfortunately, recent published statistics have not contained breakdowns by crop for both the large scale and small scale sectors.

Of particular interest to the points to be developed later in this paper are the increases in smallholder production of certain cash crops and of improved maize varieties. The case of coffee has been dramatic, for smallholder tonnage constitutes half the national crop. This proportion was reached in the

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1. Republic of Kenya, Economic Survey 1968. p. 50; Economic Survey 1974. p. 55. J. Heyer suggests this balance is spurious, that unrecorded marketed output would be greater for small than for large farms. See Heyer, J., "Survey," p. 29.

2. Colony and Protectorate of Kenya, Economic Survey 1962. pp, 16, 20, adjusted for the change in series as given in Heyer, J., "Survey," p. 30.

Table I-4. The Value Composition of Gross Marketed Agricultural Output in Kenya, 1960 and 1973.

(in millions of shillings and in %)

Commodity Group	1960						1973	
	Scheduled Areas & Coast		Non-Scheduled Areas		Total		Total	
	Sh m	%	Sh m	%	Sh m	%	Sh m	%
Cereals	113.9	15	26.9	14	140.8	15	290.5	12
Temporary Industrial Crops	( 26.0	4	16.5	9	42.5	5	182.8	7
Other Temporary Crops	(		19.3	10	19.3	2	157.7	6
Permanent Crops	421.4	56	80.8	42	502.2	53	1,180.6	48
Total Crops	561.3	74	143.5	75	704.8	74	1,811.6	73
Livestock	196.1	26	49.0	25	245.0	26	656.8	27
Gross Farm Revenue	757.4	100	192.5	100	949.8	100	2,468.4	100

Sources: Colony and Protectorate of Kenya, Economic Survey 1962, pp. 16, 20; Republic of Kenya, Economic Survey 1974, p. 54. The basis used for the 1973 calculations is slightly different from that used in 1960, reflecting the standardisation of reporting years for the various commodities and the elimination of inter-sectoral transfers, as explained in Republic of Kenya, Economic Survey 1967, pp. 32 ff.

## Definitions:

Cereals: Wheat, maize, barley, rice, etc.

Temporary Industrial Crops: Oil seeds, pineapples, pyrethrum, sugar cane, tobacco, cotton.

Other Temporary Crops: Pulses, potatoes, etc.

Permanent Crops: Coffee, sisal, tea, coconut products, wattle, cashew nuts, fruit, etc.

Livestock: Cattle and calves, sheep, goats, lambs, pigs, poultry and eggs, wool, hides and skins, dairy products.

Note: Columns may not sum to totals because of rounding errors.

mid-1960's,<sup>1</sup> having risen from a level of 19% in 1960.<sup>2</sup> This growth followed the relaxation of restrictions which limited African production. Smallholder tea has also shown extraordinary expansion, which was still underway in the mid-1970's. While in 1960 there were fewer than 1,000 ha planted to tea in smallholder areas,<sup>3</sup> almost 31,000 ha had been planted by about 80,000 growers by June 1973.<sup>4</sup> Pyrethrum has also changed from being predominantly a large scale crop to being overwhelmingly a small scale one. While in 1960 smallholder tonnage accounted for 21% of total production,<sup>5</sup> in the early 1970's smallholders produced 90% of the crop.<sup>6</sup>

The rate of smallholder adoption of improved varieties of food crops is more difficult to document, and it is regrettable that there is no published statistical series showing estimated improved seed turnover, broken down on a geographical basis and by crop. However, data obtained by Mundt for the smallholder District of Kericho shows an immense increase in the volume of hybrid maize seed sold between 1967/68 and 1971/72:<sup>7</sup>

1967/68	121 tons
1968/69	136 tons
1969/70	243 tons
1970/71	346 tons
1971/72	582 tons

The rate of growth monitored by Mundt amounts to 48% compounded annually. Mook indicates that while in 1962 only 2% of the farmers in the densely populated Vihiga Division of Kakamega District grew hybrid maize, by 1970 the adoption rate stood

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1. Republic of Kenya, Economic Survey 1967. pp. 35, 38, 39, 44.
  2. Colony and Protectorate of Kenya, Economic Survey 1962. p. 18.
  3. Ibid.
  4. Republic of Kenya, Economic Survey 1974. p. 65.
  5. Republic of Kenya, Statistical Abstract 1968. p. 73.
  6. The Pyrethrum Board of Kenya and the Pyrethrum Marketing Board, Annual Report and Accounts for the Period 1st October 1969 to 30th September 1970. p. 3.
  7. Mundt, Christoph, "Betriebsberatung und Kreditvergabe auf Afrikanischen Kleinbaurenbetrieben in Tropischen Höhenlagen Ostafrikas (Kericho District, Kenia)," {Extension Services and Credit on African Smallholdings in Tropical Highlands in East Africa (Kericho District, Kenya)}. Kitale, German Agricultural Team, 1973. (mimeo) p. 24.

at 59%.<sup>1</sup> This type of growth was also found by Garst in areas studied in Kisii, in which the estimated cumulative adoption for improved maize stood at about 2% in 1960 and exceeded 75% by 1970, defined as farms on which adoption had taken place as a percent of the total number of farms in the area.<sup>2</sup>

A review of the vigour of hybrid maize adoption in Kenya sponsored by the Rockefeller Foundation suggests an increase in the area planted to hybrid maize on smallholdings from 700 ha in 1964 to 137,500 ha in 1971, indicating an annual growth rate of more than 50% on a compound basis.<sup>3</sup> This estimate appears to be based on Kenya Seed Company data and on the recommended application rate of 10 kg of seed per acre (25kg per ha). While work by Mook<sup>4</sup> and Allan<sup>5</sup> indicates that planting at the recommended density is perhaps only infrequently observed on smallholdings, the evidence nevertheless suggests a very rapid growth of hybrid maize adoption.

However, the 1969/70 small farm census indicates that the total area on small farms and settlement schemes planted to unimproved maize was 849,700 ha, while improved varieties occupied 155,800 ha.<sup>6</sup> Although an estimated 15% of maize land devoted to improved varieties may not appear impressive, there probably has been significant expansion in smallholder cultivation of improved varieties since 1969/70.

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1. Mook, Peter Russell, Managerial Ability in Small Farm Production: An Analysis of Maize Yields in the Vihiga Division of Kenya. Unpublished PhD dissertation, Columbia University, 1973. pp. 110-111.
  2. Garst, Ronald D., The Spatial Diffusion of Agricultural Innovations in Kisii District, Kenya. Unpublished PhD dissertation, Michigan State University, 1972. p. 122.
  3. Streeter, Carroll P., "Reaching the Developing World's Small Farmers." New York, Rockefeller Foundation, 1973?. p. 48.
  4. Mook, Peter Russell, op.cit., pp. 258-259.
  5. Allan, A.Y., "Maize Diamonds," The Kenya Farmer. January 1968. p. 18.
  6. Republic of Kenya, Economic Survey 1974. p. 56.

Another indicator of improved practices is the growth in fertiliser use. Kenya imports its entire chemical fertiliser requirements, and the trend in the use of this class of input is suggested by the following import data, which is net of re-exports, expressed in thousands of metric tons:<sup>1</sup>

Type of Fertiliser <u>Imported</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1972</u>
Nitrogenous	14.7	47.9	50.2	54.7
Phosphatic	13.0	11.9	19.3	15.4
Other	10.8	10.8	48.9	59.7

There is a general concensus that fertiliser usage has not increased by a very significant factor on large farms during the last ten or 15 years, suggesting that the upsurge in imports reflects mainly small farmer demand.<sup>2</sup> Data from one of the main distributors also suggests that the volume of fertiliser purchases has increased greatly in small farm areas.<sup>3</sup>

Also of note is the growth of dairy enterprises based on grade cattle in smallholder and settlement areas. Lacking reliable livestock census data, the major dimension of adoption cannot be monitored. However, the rise in estimated real gross farm revenue from dairying on small farms by more than 60% between 1963 and 1966 gives an indication of the scope of the change.<sup>4</sup> In money terms the rise in gross farm revenue was from Sh 10.4 million to Sh 16.2 million, perhaps 75% of which reflects the transfer of grade cattle from large farms to settlement schemes.<sup>5</sup> The Department of Settlement reported

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1. Republic of Kenya, Statistical Abstract 1968. p. 56; Statistical Abstract 1973. p. 72.

2. Republic of Kenya, Report of the Working Party on Agricultural Inputs. p. 11.

3. Donaldson, G.F., and J.D. Von Pischke, op.cit., pp. 150-151.

4. The publication of small farm dairy revenue data has been discontinued and indications for years following 1966 are lacking. Revenue data is from Republic of Kenya, Economic Survey 1967, p. 47, and a price deflator was calculated from Republic of Kenya, Statistical Abstract 1968, p. 75.

5. Estimated from Republic of Kenya, Economic Survey 1967, p. 47 and Economic Survey 1970, p. 74.

over 95,000 dairy cows on settlement schemes as of the end of 1971,<sup>1</sup> and while some of this herd consisted of animals brought to the schemes by farmers from small farm areas, the bulk would represent an addition to the non-large farm herd since the start of the settlement programme in the early 1960's. Between 1967 and the end of 1974 the Agricultural Finance Corporation provided loans to smallholders for the acquisition of over 20,000 animals<sup>2</sup> and the commercial banks also provided a substantial amount of funds to owners of smallholdings -- an amount which probably exceeded AFC's lending in these areas.<sup>3</sup> Given the transfer of animals within the smallholder sector, not all of these loan-financed animals would constitute additions to the smallholder herd. Grade cattle, nevertheless, have been a popular innovation by smallholders in recent years.

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1. Annual Report 1971. p. 36.

2. Agricultural Finance Corporation, "The IDA 105-KE Smallholder Agricultural Credit Project: Report of the Period June 30th 1967 to 31st March 1973," contains an estimate of 15,000 grade heifers financed under this scheme. This figure was subsequently raised to 17,000. The estimate of 20,000 used above seems a reasonable extrapolation from the lower base, given a second IDA project and lending under the KFW and AFC small scale programmes.

3. Data gathered by the writer in Murang'a District indicates that in the first quarter of 1973 AFC registered 30 charges against registered land with respect to loans amounting to Sh 140,000 while the commercial banks registered 236 charges with respect to Sh 1,942,200 of loans. Most of these commercial bank loans were ostensibly for agricultural purposes. See Von Pischke, J.D., Small Farmer Credit in Kenya: A Review of Major Credit Schemes. Vol. III, Credit Use and Development on Nineteen Murang'a Farms, 1969-1973. Studies in Employment and Rural Development, No. 5. Washington, DC, International Bank for Reconstruction and Development, September 1974. (mimeo) p. 39. This finding suggests that the trend noted almost a decade earlier in the Lawrance Report may still continue, i.e., "that in the last seven years farmers have received as much credit from the banks as from the Government's general credit programme...." Republic of Kenya, Report of the Mission on Land Consolidation and Registration in Kenya 1965-1966 (The Lawrance Report). Nairobi, 1966. p. 126. In fact the existence of this trend in 1970 was affirmed by data provided to the World Bank's agricultural sector review mission.



## D. Markets for Productive Factors in Kenya

### 1. The Market for Land<sup>1</sup>

Two legal regimes apply to land in Kenya: customary and non-customary.<sup>2</sup> The non-customary originated with European penetration and has been extended to customary landholders as a result of the process of change which has altered the economic basis for customary land arrangements. The non-customary regime applies to the majority of land devoted to the types of agriculture of interest from the point of view of this paper, and its application is widening with Government initiatives to expand land registration. Registration may be viewed as a primary thrust of the move from customary to non-customary land tenure arrangements.

#### a. The market for land in the former Scheduled Areas

European agricultural settlement in Kenya has involved some formalised procedure for registration of claims over land virtually from the time it began. Organised and controlled access to land was essential to Britain's concern for encouraging European settlement on one hand and for its responsibilities, as perceived at the time, as colonial overlord of the indigenous population on the other.

Towards the close of the colonial era in 1961, the distribution of Scheduled Area alienated holdings by type of tenure was reported as follows:<sup>3</sup>

freehold tenure	226,700 ha
99 year leasehold	239,300 ha
999 year leasehold	2,571,300 ha

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1. This section has benefitted greatly from comments, on an early draft, provided by Mr J.C.D. Lawrance of the Ministry of Overseas Development, London.

2. McAuslan, J.P.W.B., "Control of Land." p. 177.

3. Government of Kenya, The Economic Development of Kenya. p. 47. The Scheduled Areas also contained a small amount of unalienated land.

Most of the freeholdings reflect grants made prior to the enactment of the Crown Land Ordinance of 1915, although in the early 1960's legal provisions were enacted enabling the conversion of leaseholds into freeholds.<sup>1</sup> Leaseholds were provided largely under the 1915 Ordinance, although that form of tenure was also the most common for European farmers prior to 1915.<sup>2</sup> The lessor was formerly the British Crown and is now the Republic of Kenya. The land transferred for African settlement schemes since 1960 is held initially by the Settlement Fund Trustees as the creditors of the settlers. Registration of settlement land was underway by the early 1970's. Settlers' title is confirmed by original letters of allotment issued as a basis for taking up plots, but certificates are not being issued to settlers until their loans from the Agricultural Settlement Fund are repaid in full.<sup>3</sup>

In the 1950's the "normal" market for land in the Scheduled Areas was characterised by a turnover in the market of about 5% of the total number of holdings.<sup>4</sup> Transfers of agricultural land in the Scheduled Areas were supported to some extent by the Land Bank, founded in 1931.<sup>5</sup>

Data pertaining to recent activity in the large farm land market are not readily available, given the Lands Department practice of making no distinction in its Annual Reports between

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1. McAuslan, J.P.W.B., "Control of Land." p. 175. Evidently little use has been made of these facilities, provided in the Conversion of Leases Regulations.
  2. Sorrenson, M.P.K., "Land Policy in Kenya," in Harlow, Vincent, and E.M. Chilver, eds., History of East Africa. Oxford, Clarendon Press, 1965. pp. 673-680; Lipscomb, J.F., "The Crown Land Ordinances, 1902 and 1915," in Cone, L. Winston, and J.F. Lipscomb, eds., op.cit., p. 54.
  3. Private communication from Mr J.C.D. Lawrance, Land Tenure Advisor, Ministry of Overseas Development, London. 21 May 1975.
  4. Private interview with Mr Dermott Kydd, Chief Valuer, Lands Department, Ministry of Lands and Settlement, Nairobi, 1973.
  5. Cone, L. Winston, and J.F. Lipscomb, "Phase III -- 1939-1959," in Cone, L. Winston, and J.F. Lipscomb, eds., op.cit., p. 81.

settlement land and the remaining large farm properties. Information concerning the extent to which African-owned large farms have changed hands in the market and the extent to which shares in such farms have been traded is not readily available.

Data from the Nyandarua Registry for 1974, where virtually all registered titles are in respect of settlement plots, shows an ownership turnover through sales of about 0.2% of the total of 5,663 registered plots.<sup>1</sup>

b. The market for registered land in smallholder areas<sup>2</sup>

One of the main rationales advanced for the allocation of considerable budgetary resources to land registration in areas not subjected to European settlement is the favourable impact on agricultural development envisaged from registration. In the quaint prose of the Swynnerton Plan, the objective of registration was stated as follows:<sup>3</sup>

Sound agricultural development is dependent upon a system of land tenure which will make available to the African farmer a unit of land and a system of farming whose production will support his family at a level, taking into account perquisites derived from the farm, comparable with other occupations. He must be provided with such security of tenure through an indefeasible title as will encourage him to invest his labour and profits into the development of his farm and as will enable him to offer it as security against such financial credits as he may wish to secure from such sources as may be open to him.

At another point the Plan uses more direct language:<sup>4</sup>

We must go all out for the primary objective, to give security of tenure and an occupational license.

The Lawrance Report notes that security of tenure and possession of registered title are not necessarily the same, summarising one set of observations as follows:<sup>5</sup>

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1. Lands Department preliminary material.
  2. Smallholder areas as used here include the former Trust Lands.
  3. Swynnerton, R.J.M., op.cit., p. 9.
  4. Ibid., pp. 10-11.
  5. Republic of Kenya, Report of the Mission on Land Consolidation and Registration. p. 9.

We do not wish to decry registration of title as a useful, indeed necessary process, but we must get it into the right perspective. It is not a panacea for all tenurial ills, nor indeed is it, as so many seem to think, an end in itself. We feel we must make this clear because, in making it an aim of policy to apply registration of title unselectively to all areas capable of development throughout the whole country, the Kenya Government is not only attempting a task of unparalleled magnitude but could in many places be merely handing a stone to the man who is asking for bread.

By the end of 1973, about 3.1 million ha or 20% of the 15 million ha deemed fit for registration in smallholder areas by the Kenya Government had been registered and the process leading to the issue of titles had begun for another 20%.<sup>1</sup> The process of registration has tended to follow a pattern of priorities which has resulted in the early registration of the areas which are well endowed agriculturally.

Registration has in fact provided a cornerstone for smallholder credit by public sector lenders and commercial banks by creating in land a mortgagable asset. However, credit is not generally available for the purchase of smallholder land per se,<sup>2</sup> although of course the fungible nature of credit makes it impossible to prevent borrowers' using credit for the purpose most important to them, not necessarily for the purpose judged most important by the lender.<sup>3</sup>

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1. Republic of Kenya, Economic Survey 1974. p. 78.

2. The Agricultural Finance Corporation provides loans to smallholders who have less than ten acres and who can enlarge their farms with the purchase of contiguous land. However, this situation appears to be infrequent and few loans of this nature have been made. Commercial banks generally prefer to lend for "productive purposes" only and in any event are unwilling to provide credit at the maturities appropriate for investments in land.

3. Field surveys confirm the diversion of commercial bank credit, issued for production purposes or for the acquisition of grade cattle, for the purchase of land. See Wilson, Rodney J.A., "The Economic Implications of Land Registration in Kenya's Smallholder Areas." Staff Paper No. 91, Institute for Development Studies, University of Nairobi. February 1971. p. 17; Von Pischke, J. D., Credit Use and Development. p. 121.

The extent to which registration is responsible for the development of an active land market is not assessable because of the impossibility of isolating the effects of registration from the other factors which result in purchases, sales, leases, and similar transactions. Wilson suggests that registration per se has little effect on the market for land.<sup>1</sup> The trends in land transactions monitored by Wilson appear to be the result of rational responses to the economics of land -- independent of registration -- within the social patterns of Kisii, where he conducted a survey of landholders who appeared to have an interest in registration because of their dealings in land and their mortgaging of land. The volume of transfers (i.e., purchases, sales, and gifts) reported before and after registration by these respondents was not greatly different, leading Wilson to conclude that registration was not a material factor affecting transaction volume.

However, Wilson notes that some of the pre-registration transactions reported may have been initiated by buyers in anticipation of registration, as timely purchase would not involve the expenses and formalities of transfer which would obtain following registration, while also providing the prospect of a dispute-free registered claim. In any event, logic suggests that registration would contribute to the development of a land market primarily by rendering transactions easier and safer.

It may also be asked whether the period monitored by Wilson was sufficient to support his conclusion. Registration occurred in 1967 in Wilson's sample area, while results of his study appeared in 1971. Even if the period were sufficient, however, and the question of the accuracy of reports of pre-registration transactions is ignored, the problem remains of isolating the effects of registration from the changing economics of land use.

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1. Wilson, Rodney J.A., "Economic Implications of Land Registration." p. 24.

Statistics showing land registry entries do indicate an increasing volume of transactions, but without additional information on the events behind citizens' approaches to the registries interpretation is again difficult. There is also evidence, cited previously, that the volume of unregistered transactions is large, amounting to a substantial number in relation to those which are registered. This anomaly also complicates attempts to assess the level of activity in the land market. Table I-5 gives the number of transfers recorded on selected registries for several years between 1964 and 1974. The 1964-1966 statistics are not consistent in all cases, as land was still being added to several of the registries during that period. During 1971 the number of registered transactions was no doubt inflated to some extent by the formalisation of earlier unregistered transactions in response to an educational programme mounted in 1969 and 1970 by the Government in an effort to inform the citizenry more fully of the role of registries and protection registration affords. However, the 1974 figures clearly suggest an increase in the number of transfers.

This trend is largely confirmed by a longer series of data on transfers available for Kiambu and Nyeri, where registration has been complete for some time, as given in Table I-6. These series, however, suggest a wide degree of variation in the number of recorded transactions. While great increases in transfers occurred in Kiambu in 1963 and in Nyeri in 1965, the volume of transfers recorded annually in the mid-1960's does not appear to have been maintained in all later periods, for reasons which are not fully discussed in published information.

Table I-7 indicates that transfers tend to be more frequent in better endowed Districts, such as Kiambu and Nyeri, than in poorly endowed Districts such as Kakamega and Kisii, although this pattern is not entirely consistent. Once again, this observation suggests that the increasing

Table I-5. Simple Transfers Recorded in Selected Land Registries, 1964-66, 1971 and 1974.

<u>Registry</u>	<u>Year</u>				
	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1971</u>	<u>1974</u>
Bungoma	59	73	85	273	707
Eldoret	42	89	70	28	83
Embu <sup>a/</sup>	330	573	644	1,042	1,288
Kakamega	7	66	107	598	880
Kiambu <sup>b/</sup>	2,248	2,283	3,060	2,014	3,901
Kisii	-	1	22	178	580
Kisumu <sup>c/</sup>	-	-	-	35	90
Meru	36	84	211	467	945
Murang'a	376	548	601	1,608	2,026
Nyeri	597	1,205	1,766	612	853

Source: Republic of Kenya, Lands Department, Annual Report 1965, 1966, 1971, and preliminary data for 1974.

a/ including Kirinyaga, created from the Embu Registry in 1971.

b/ including Ngong.

c/ including Siaya, created from the Kisumu Registry in 1971.

Table I-6. Land Transfers Registered Annually in Kiambu and Nyeri Districts, Selected Years, 1959-1974.

<u>Year</u>	<u>Kiambu Registry</u>	<u>Nyeri Registry</u>
1959	a/	
1960	782	a/
1961	852	68
1962	872	764
1963	1,557	339
1964	2,248	597
1965	2,283	1,205
1966	b/	1,766
1971	2,014	612
1974	3,901	853

Source: Data through 1963 are from Republic of Kenya, Report of the Mission on Land Consolidation and Registration, pp. 165, 170; data for 1964-1966 and 1971 are from annual reports of the Department of Lands; while 1974 statistics are from unpublished Department of Lands records.

a/ denotes the year in which the process of initial registration of smallholdings was completed in a District.

b/ indicates an absence of data available on a consistent basis.



Table I-7. Rates of Registered Turnover in Land Ownership through Transfers in Selected Districts, 1965, 1966, 1971 and 1974.

District Registry	Transfers as a Proportion of Registered Holdings or Titles				Registered Holdings <sup>a/</sup>	Registered Titles <sup>b/</sup>	
	1965	1966	1971	1974	1966	1971	1974
<i>(Registration completed prior to 1965)</i>							
Embu/							
Kirinyaga	1.3%	1.5%	2.1%	2.2%	43,302	49,882	57,764
Kiambu	6.1%	8.2%	2.8%	5.3%	37,408	72,675	74,062
Nyeri	2.8%	4.0%	1.3%	1.7%	43,593	48,221	49,546
<i>(Registration underway in 1965)</i>							
Bungoma	.7%	.7%	1.1%	.2%	11,978	24,672	38,424
Kakamega	.1%	.2%	.7%	.8%	63,372	89,645	117,177
Kisii	.1%	.4%	.3%	.8%	5,503	54,796	71,320
Meru	.7%	1.0%	1.1%	1.8%	22,426	43,819	53,424
Murang'a	.9%	.8%	1.4%	1.7%	74,987	117,143	117,899

Source: The percentages of holdings transferred in 1965 and 1966 are based on the number of holdings registered as given in Republic of Kenya, Economic Survey 1967, p. 54; and on the number of transfers reported annually in Republic of Kenya, Lands Department, Annual Report 1965, p. 15, and Annual Report 1966, p. 15. Data for 1971 is from Republic of Kenya, Lands Department, Annual Report 1971 and from Fleming, J.T., unpublished manuscript quoted by permission. 1974 statistics are from unpublished Lands Department material.

a/ Registered holdings as used in this Table refers to the cumulative total of original registrations. Increments from subdivision are excluded from this measure, resulting in an overstatement of the proportions shown in this Table for 1965 and 1966.

b/ Registered titles refers to the total number of parcels carried on Registers at annual reporting dates.

trend in the proportion of transfers is a function of economic growth, not necessarily of other factors set in train by the existence of registration. Fleming notes that factors associated with a relatively high level of purchases and sales in any given area include:<sup>1</sup>

1. population pressure on the land,
2. relatively advanced farming standards, and
3. access to alternative land, as on settlement schemes or where several plots are owned by an individual.

These observations are consistent with economic logic. All suggest a relatively large or rising number of alternatives available to land owners, conducive to an augmented volume of transactions. On the other hand, highly developed land, such as that carrying mature coffee trees, tends not to be transferred on a commercial basis, according to Fleming,<sup>2</sup> suggesting that those committed to and earning regular cash incomes from farming have little incentive to sell their most highly developed land which would tend to be specialised and hence, other things remaining equal, offer relatively fewer attractive alternative uses.

Of particular interest is the impact of subdivision on the number of titles registered. Table I-7 shows the number of original registrations recorded by 1966 and the number of plots on the registries as of the end of 1971. In three Districts -- Kiambu, Nyeri, and Embu/Kirinyaga -- registration was completed prior to the end of 1965. While in Nyeri the rate of growth in the number of titles was less than 2% annually between 1966 and 1974, and in Embu/Kirinyaga less than 4% annually, an explosion of the number of plots appears to have occurred in Kiambu, yielding an annual growth rate of 9%. Much of this increase no doubt relates to the urbanisation of this District, which is contiguous with Nairobi. In the other Districts in the Table the increase in the number of registered plots reflects primarily the progress of initial registrations.

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1. Fleming, J.T., "Analysis and Review." pp. 6-13.

2. Ibid.

In addition to transfers, the land market as evidence of an increasingly commercial outlook by smallholders is also represented by leases and other charges made by lenders. These have also experienced considerable growth according to published Lands Department statistics and data from other sources.<sup>1</sup>

Land in smallholder areas has indeed become a commodity. This property of land in many parts of Kenya is a fairly recent development which is related to economic forces which increase the value of land through contributing to its scarcity.<sup>2</sup> The effect of scarcity is seen in the intensification of its use through the replacement of shifting cultivation with sedentary agriculture which occurred in the 1920's in many smallholder areas.<sup>3</sup> The role of increasing scarcity is also indicated by Wilson's observation that in Kisii land was freely available for occupation through the 1930's.<sup>4</sup>

In economic terms the increasing scarcity of land is a function of an increasing demand relative to a more or less inelastic supply. Supply is not entirely inelastic, as shown by the recent expansion of agriculture into forests beyond the former upper altitude limits of cultivation and into bush beyond the former lower altitude limits of sedentary cultivation, as for example, in Central and Eastern Provinces near Mr Kenya. However, extension of cultivation at the margin involves increasingly unattractive returns. Upland areas yield only one

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1. Republic of Kenya, Department of Lands, loc.cit.; Wilson, Rodney J.A., "Economic Implications of Land Registration." p. 4; Von Pischke, J.D., "Credit Use and Development." p. 39; Fleming, J.T., unpublished manuscript quoted by permission. Details of these transactions are not discussed here, as the increasingly commercial attitude towards land is amply reflected in the data relating to transfers.

2. S.H. Fazan reported being told by Kikuyu elders in 1929 that, "No man might dispose of his land by barter for profit." Quoted in Fleming, J.T., "Analysis and Review," p. 16, who later notes (p. 23) that as of the late 1960's restrictions on the disposal of land under customary law have been replaced: "The only effective rule that is observed is that land will go to the highest bidder or whoever has ready cash to hand."

3. Heyer, Judith, "Survey." p. 10.

4. "Economic Implications of Land Registration." p. 5.

crop a year and are generally far from markets for cash crops (excluding tea), while lowland areas are subject to low and relatively uncertain rainfall which greatly adds to the risks of production as well as restricting opportunities for cash cropping.

As land becomes less freely available there may be an incentive to increase land productivity through the more intensive application of other factors of production. Land scarcity alters the economic underpinnings of traditional tenure arrangements, and the development of land in Kenya has been accompanied by individualisation of tenure. The Lawrance Report indicates that the momentum for individualisation had assumed irreversible proportions by 1945.<sup>1</sup> This institutional development epitomises the change from customary to non-customary tenure arrangements in Kenya's recent history.

c. The market for unregistered land

Unregistered land falls almost entirely under the customary legal regime, and virtually no monitoring of the extent and nature of transactions involving unregistered farmland is undertaken by official sources. These transactions would no doubt be complex and diverse in relation to those noted on Land Registers, reflecting the economic and social bases of the societies involved.

Some indications of the nature of land as a commodity in Murang'a prior to registration were recorded in the writer's case studies.<sup>2</sup> In one instance an elderly farmer with a large plot had planted trees on his land in the 1930's to provide evidence of his claim to the land, to which he now has title. More than one respondent indicated that prior to land registration in Murang'a unimproved land could be reclaimed by a seller or his heirs simply by refunding the purchase price, a system known

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1. Republic of Kenya, Report of the Mission on Land Consolidation and Registration. pp. 5-6.

2. Credit Use and Development. pp. 73-74.

as "customary mortgage" or "pledging". Improved land could not be reclaimed in this manner, although transfers were not irreversible under practices and considerations enforced by elders to whom matters of this sort were referred.

The arrangements for transfer of unregistered land need not be considered further here. However, it should be noted that farmers without land to pledge as security have very little chance of obtaining medium or long term credit from the Agricultural Finance Corporation or from the commercial banks, the main sources of such credit. The commercial banks of course lend against other security, but few farmers would have sufficient suitable assets other than land to offer the banks as security. The Lawrance Report suggests that the fact that land registration provides theoretical access to credit was an important reason why there appeared to be considerable public sentiment for registration at the time that mission was in the field,<sup>1</sup> and public enthusiasm on these grounds for land registration was also noted a decade earlier by the East African Royal Commission.<sup>2</sup>

## 2. The Market for Agricultural Labour

Official estimates of the amount of wage employment generated by the agricultural sector are subject to a degree of inconsistency and are useful primarily as indicators of relative magnitudes.<sup>3</sup> Wage employment estimates by sector and industry suggest that as of the early 1970's agriculture and forestry employed about 200,000 wage earners who constituted about 45% of the total private sector wage labour force.<sup>4</sup>

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1. Republic of Kenya, Report of the Mission on Land Consolidation and Registration. p. 24.

2. Op.cit., p. 97.

3. Brief discussions of the problems involved in interpretation of recorded data are found in Republic of Kenya, Statistical Abstract 1973, p. 221, and in Ray, Robert S., "The Structure of Employment in Kenya," in Sheffield, James R., ed., Education, Employment and Rural Development. Report of the Kericho (Kenya) Conference, 25 September to 1 October 1966. Nairobi, East African Publishing House, 1967. p. 194, 196.

4. Republic of Kenya, Statistical Abstract 1973. p. 222.

a. Labour in the large scale farm sector

A contrasting official estimate places the large farm wage labour force at about 187,000 or approximately one quarter of the total wage labour force in 1972.<sup>1</sup> The ILO Report indicates that employment in large scale agriculture declined (from 1960)<sup>2</sup> through 1967 as a result of the transformation of large scale farms into settlement schemes, which in effect substituted family labour for wage labour, and as a result of the reduction of labour inputs per hectare on remaining large farms.<sup>3</sup>

Kenya does not have a history of landless labourers. Indeed, the thrust of much of the political activity of the European settlers was to secure labour from the African population, as noted earlier. However, land pressure in the last decade has provided the basis for the creation of a class of landless labourers, and this development of landed and landless classes was presaged by the Swynnerton Plan as a "normal step in the evolution of a country."<sup>4</sup>

Labour tends to be organised on plantations, but generally not on mixed farms and ranches. Outside the plantation sector employers of agricultural labour are usually not organised, although membership in the Kenya National Farmers Union provides a forum for discussion and consultation for a number of large scale operators. The 1974-1978 Development Plan contains scant reference to labour organisation or its projected development.

b. Labour in the settlement and small scale farm sectors

Official sources indicate that more than 300,000 persons are employed for wages in settlement and small scale agriculture.<sup>5</sup> Approximately one-seventh of these are estimated to be children (euphemistically termed "juveniles"). Slightly fewer than half

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1. Ibid., pp. 223, 225.

2. Republic of Kenya, Statistical Abstract 1968. p. 164.

3. ILO, op.cit., p. 92.

4. Swynnerton, R.J.M., op.cit., p. 10.

5. Republic of Kenya, Statistical Abstract 1973. pp. 248-249.

are casual labourers. Almost two-thirds are adult males.

Casual labourers are frequently obtained from the immediate vicinity of the employer's farm. Permanent labourers may come from further afield, although the range of mobility may be restricted somewhat by preferences to engage and to work for members of one's own tribal group or clan, which would minimise communication problems.

There is no system of formal labour organisation relating to smallholder agriculture. The existence of a going rate in each area and widespread knowledge of this rate therefore suggests an integrated farm labour market. Mook reported a prevailing stated wage of Sh 2 per day in Vihiga during his period of residence there, although he doubted that the rate was in fact constant throughout the year.<sup>1</sup> The writer found indications of a pervasive wage in Murang'a, and a substantial reported increase in this wage, from Sh 2 per day in 1969 to Sh 5 per day in 1973.

Gwyer found that wages paid in small scale areas tended to vary directly with the level of cash crop development as manifested by the diversity of cash enterprises, and that diversification tended to create flatter labour requirement profiles throughout the year.<sup>2</sup> Undiversified areas had greater seasonal variation in labour demand, dominated by maize labour cycles.

Gwyer notes that in most Districts casual wage rates exceeded the regular or full time wage rate.<sup>3</sup> He suggests this reflects a) the different opportunity costs of full time workers, who are assumed to be landless, and casuals, who are assumed to prefer part time employment; plus b) the difficulties of keeping a full time labourer fully employed on a smallholding. It would appear that the differential return to the tasks or of the

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1. Mook, Peter Russell, op.cit., p. 220.

2. Gwyer, G.D., "Labour in Small Scale Agriculture: An Analysis of the 1970/71 Farm Enterprise Cost Survey Labour and Wage Data." Working Paper No 62, Institute for Development Studies, University of Nairobi, 1972. p. 13.

3. Ibid.

urgency of the tasks for which casuals are frequently recruited would also influence the demand for their services. The question of risk attached to the two forms for farmer and labourer is not explicitly cited by Gwyer and could no doubt usefully be incorporated into the analysis.

Gwyer's analysis also points out that food supplies are major determinants of labour supply in many smallholder areas. A poor harvest in one District increases the number of people who go to neighbouring Districts in search of work.<sup>1</sup>

### 3. The Market for Physical Capital: Inputs and Supplies

#### a. The market for agricultural machinery

Agricultural machinery is sold by various private dealers situated in Nairobi, Nakuru and other centres. Dealers include local subsidiaries of manufacturers abroad, local agents enfranchised by such local subsidiaries, and distributors enfranchised directly by foreign manufacturers.<sup>2</sup> A number of standard makes are available, although two brands accounted for 70% of the tractor market in the late 1960's.<sup>3</sup>

Credit facilities are provided for eligible buyers of certain brands by tied financing companies affiliated with major manufacturers, and one finance company in Nairobi reported offering hire purchase facilities for farm machinery in 1973. Commercial banks and the Agricultural Finance Corporation also provide funds for the purchase of tractors and other machinery.

The volume of tractor imports during the ten years ending in 1972 varied erratically around an average of more than 900 units annually.<sup>4</sup> In terms of value at the farm gate, tractor imports amounted to between 50% and 67% of total expenditures

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1. Ibid., p. 14.

2. Republic of Kenya, Report of the Working Party on Agricultural Inputs. p. 29.

3. Ibid.

4. Republic of Kenya, Statistical Abstract 1973. p. 73.



on imported farm machinery between 1964 and 1969 when the total market turnover was about Sh 40 million annually.<sup>1</sup>

The Ministry of Agriculture has a Tractor Hire Service with a fleet of 50 machines.<sup>2</sup> This service has been concerned with expanding land under cultivation, especially under special schemes for wheat and cotton, and in filling gaps in the availability of mechanical draught in small scale areas. However, its impact is small in relation to the national tractor fleet. On large scale farms alone there were an estimated 5,500 tractors in 1972.<sup>3</sup>

b. The market for seasonal inputs

Fertilisers, seeds and chemicals are handled by three major systems of suppliers, and in addition several plantations import their supplies directly.

One of these systems consists primarily of the Kenya Farmers' Association (Cooperative) Ltd. (KFA), which was founded early in the colonial era by British settlers. KFA handles a variety of farm inputs and certain household items at 32 branches and depots in major rural centres.<sup>4</sup> In addition, KFA has relationships with a number of stockists or traders in small centres. Two hundred such channels were reported in 1969.<sup>5</sup>

The second major input supply network centres around Mackenzie Dalgety Ltd., which is part of the Inchcape Group and has traded in East Africa since the last Century.<sup>6</sup> This organisation has a number of branches and depots in rural areas, and with the exceptions of Nakuru, Nairobi and Mombasa these are not found in

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1. Republic of Kenya, Report of the Working Party on Agricultural Inputs. p. 25.

2. Republic of Kenya, Development Plan 1974-1978. Part I. p. 220.

3. Republic of Kenya, Statistical Abstract 1973. p. 118.

4. A list of branches and depots is found on the inside cover of KFA annual reports.

5. The Kenya Farmers' Association (Cooperative) Ltd., Directors' Report and Statement of Accounts, 1968-1969. p. 5.

6. National Christian Council of Kenya, Who Controls Industry in Kenya? Report of a Working Party. Nairobi, East African Publishing House, 1968. pp. 54-55.

towns also served by KFA branches and depots. In addition, a number of stockists in smaller centres carry brands imported by Mackenzie Dalgety.

The third major input supply system is the cooperative structure, which is most well represented in smallholder coffee and pyrethrum areas. Cooperative stores provide supplies to their members for the cash crops handled by cooperatives and have also expanded their lines to include a broad range of farm inputs and tools. As of 1974 and 1975 efforts were underway to obtain a fertiliser import license for the apex body, the Kenya National Federation of Cooperatives, and to expand its activities as a channel for farm inputs to primary marketing societies.<sup>1</sup> The cooperatives are increasingly in a position to offer supplies on credit to loyal members, which should greatly enhance their competitive attractiveness.<sup>2</sup>

A recent development has been the introduction of small packages for inputs on a scale more suitable to the requirements of smallholders than the 50 kg or 100 kg bags commonly used on large scale operations. The Havelock Report recommended this development,<sup>3</sup> and in KFA's 1970-1971 annual report the introduction of a 33.3 kg bag of fertiliser to accompany the 10 kg or "one acre pack" of hybrid maize seed was announced.<sup>4</sup> Fertilisers are increasingly available in 25 kg bags, too, and small stockists frequently break standard lots to sell inputs by the kilogram.<sup>5</sup>

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1. Turtiainen, Turto, "Cooperatives in Kenya and the Role of the Nordic Project." Nairobi, Kenafec Press (Cooperative Press), May 1974. p. 11.

2. Republic of Kenya, Ministry of Cooperatives and Social Services, Department of Cooperative Development. "Policy for Credit Sales and Loans to Members." Commissioner's Circular No. 9 of 1972. 27 November 1972.

3. Republic of Kenya, Report of the Working Party on Agricultural Inputs. p. 18.

4. p. 5.

5. Moock noted this practice in Vihiga, an area of very small farms, in 1971. See Moock, Peter Russell, op.cit., p. 227.

c. The market for other supplies and inputs

Fencing, hand tools, sprayers and similar items are handled by the concerns and channels involved in seed, fertiliser and chemical distribution, and also by local stockists including ironmongers. Outlets are found in District headquarters towns and smaller centres. There are also local fabricators of galvanised steel sheet water tanks and local purveyors of fence posts in many areas.

E. Marketing Arrangements for Agricultural Produce

1. Statutory Boards and Marketing Organisations

Public sector authorities exercise control over the country's major export crops and also have considerable influence over the pricing of major food crops such as maize, wheat and beans. There were more than ten such entities in operational existence at the national level in the early 1970's, many tracing their roots to wartime measures introduced in the early 1940's.<sup>1</sup> The framework of controls established in the colonial era has been largely maintained. Indeed, it is interesting to note that no major

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1. East Africa Royal Commission 1953-1955. pp. 65-70; ILO, op.cit., pp. 159-163; Ghai, Y.P., and J.P.W.B. McAuslan, op.cit., pp. 97-109. The latter source goes into the greatest detail, discussing the Defense (Agricultural Production) Regulations 1940 and the Increased Production of Crops Ordinance 1942, as well as documenting the dates at which statutory boards were organised for various crops. These include wheat, 1930 (reorganised 1952); cashew nuts, 1933; pyrethrum, 1935 (1956); passion fruit, 1937; sisal, 1939 (1945); pigs, 1945; coffee, 1946; tea, 1950; cotton lint and seed, 1954; cereals (wheat, oats, barley, sunflower), 1956; canning crops (pineapples), 1957; dairy products, 1958; maize, 1959. (In many cases, notably that of maize, the establishment of a statutory board followed long after the imposition of some form of statutory control.) Most statutory boards are listed in a directory, "Statutory Boards Coming Within the Purview of the Inspector of Statutory Boards," published periodically by the Inspectorate of Statutory Boards in the Office of the President, Republic of Kenya.

changes have been made with respect to the system of controls since independence. Boards and legislative Acts exist for all major cash crops, and prices are administered by these authorities.<sup>1</sup> In some cases the crop authorities are monopsonistic buyers of smallholder produce, as for tea, while in other cases their purchasing authority in theory extends only to the marketing of surpluses across District boundaries and import-export monopolies, as for maize. The statutes pertaining to most of the statutory boards typically allot them responsibility for a broad range of functions such as collection, storage, marketing and distribution.<sup>2</sup> Statutory boards have played an important role in the development of smallholder crops, as suggested by Swynnerton:<sup>3</sup>

The development of large African cash crops should on no account take place in a haphazard manner.

Right from the beginning of the development of a cash crop industry, therefore, even though in the beginning they have to rely on Government for funds and staff, cash crop boards should be set up...for each major developing cash crop....

The structure of statutory control and the strength of board monopoly varies considerably. At least two tiers of intervention can be identified: one involves policy-making and control, and the other involves operational responsibility for processing, storage, marketing and related functions. In the case of the Maize and Produce Board these two tiers are combined in one body. In the case of tea, the Tea Board of Kenya is the controlling organisation for the entire industry while the Kenya Tea Development Authority has responsibility for processing and marketing the produce of the smallholder segment of the industry.<sup>4</sup>

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1. See The Laws of Kenya for chapters regarding specific crops.
  2. For a brief statement by a Minister of Agriculture concerning the official rationale for and scope of intervention, see Nyagah, J.J.M., "Policy Issues," in Amann, V.F., ed., Agricultural Policy Issues in East Africa. Proceedings of the East African Agricultural Economics Society Conference, Nairobi, June 1971. Kampala, Makerere University, 1973. p. 2.
  3. Op.cit., pp. 24-25.
  4. National Christian Council of Kenya, Industry in Kenya. pp. 22-24.

Pyrethrum and coffee have an even greater structural diversity. The pyrethrum industry has a controlling board, a marketing board, and a processing company owned by the marketing board and other investors.<sup>1</sup> Coffee production and marketing policy is the responsibility of one board, an apex cooperative does most of the processing of clean cherry and grading, a separate company affiliated with the board mentioned above provides storage facilities, and yet another entity is responsible for organising and conducting auctions for the buyers who export the crop.<sup>2</sup>

The cooperative structure is also accorded statutory monopsony by Section 48(1) of the Cooperative Societies Act, which gives the Minister concerned the power to require that all producers of an agricultural commodity in a given area sell the marketed share of their production of the commodity to the society handling the commodity in the area if the society first obtains a market share of 60% in the area and commodity concerned.<sup>3</sup> This provision has found expression largely in marketing arrangements for smallholder coffee, smallholder pyrethrum and dairy produce. With respect to coffee and pyrethrum the cooperative structure is a client organisation of the statutory boards which control these industries.

The extent of intervention depends on the nature of the crop. Export crops for which there is little home market, such as coffee, tea and pyrethrum, provide a situation in which intervention and controls are most easily applied. Crops which are grown primarily on a large scale, such as wheat, are also relatively easily controlled, especially as the control mechanism can be made to serve the economic interests of already important interest groups, such as large landowners. Smallholder food

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1. Ibid., pp. 35-36.

2. Ibid., pp. 16-19.

3. Crow, W.M., and K. Ram, A Guide to the Cooperative Societies Act. Lower Kabete, Kenya Institute of Administration, 1969. pp. 45-46.

crops such as maize and beans are the most difficult to control, and for these crops Maize and Produce Marketing Board prices provide something of a floor price. However, only a small proportion of total maize output is marketed through this Board, as most of the crop is consumed by growers, and as growers are free to sell maize privately within their own Districts.

Boards do not appear to have accumulated high reserves along the pre-independence West African pattern or the Malawian pattern of the first half of the 1970's, and the operations (as opposed to their price policies) of the various statutory bodies appears not to have been subjected to very much economic analysis.

Managerial performance of the various statutory marketing organisations appears to vary greatly. The Kenya Tea Development Authority, with support and supervision from the Commonwealth Development Corporation and the World Bank, appears to be a model of a cash crop development institution.<sup>1</sup> The Maize and Produce Board, on the other hand, has provided material for press comment and commissions of enquiry.<sup>2</sup>

The 1974-1978 Development Plan indicates that "marketing and pricing policies will be completely overhauled" during the Plan period,<sup>3</sup> although there is little indication of the direction of the expected changes.

## 2. Non-statutory Marketing Facilities for Farm Produce

Beneath the statutory marketing structure local markets in food crops operate on a traditional and also on a conventional commercial basis. Local markets in rural areas are characterised by numerous sellers, frequently women, of home-grown produce. The larger towns are served by market gardening entrepreneurs.

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1. An early assessment is contained in Ruthenberg, Hans, African Agricultural Production Development Policy in Kenya, 1952-1965. Berlin, Springer Verlag, 1966. pp. 39-47.

2. See, for example, Republic of Kenya, Report of the Select Committee on the Maize Industry. Nairobi, Government Printer, 1973.

3. Republic of Kenya, Development Plan 1974-1978. Part I. p. 200.

Outside the statutory marketing structure certain commodities are traded in relatively unsupervised markets. Macadamia nuts, wattle bark and charcoal are a few examples.

The statutory system of controls is of course impossible to enforce tightly with respect to certain crops. Dairy produce is traded on the black market in Nairobi, perhaps tolerated by the authorities because of the marketing and processing problems which appear to plague the efforts of the Kenya Cooperative Creameries to provide fresh and clean milk in sufficient quantities and on a daily basis. The writer found that "illegal" milk sales were also frequent in Murang'a District, an area in which dairy cooperatives have not proved very successful.<sup>1</sup>

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1. Credit Use and Development. pp. 183-189.

## CHAPTER II

## FINANCIAL MARKETS AND BROADLY-BASED DEVELOPMENT

A. Introduction

This chapter attempts to provide a theoretical framework for examination of the effectiveness of agricultural credit in Kenya as a rural development policy instrument. The approach taken is to consider the role of financial markets in the development process, with special attention to the extent to which they may contribute to broadly-based development.

Broadly-based development may be defined as being self-sustaining and having a positive impact on the productivity of large segments of the population.<sup>1</sup> Given the importance of agriculture in the Kenyan economy, broadly-based development perforce includes rural development involving large proportions of the rural population -- more production by most people. The definition used here is not directly concerned with relative aspects: that some may contribute more than others or that it may not be practicable to remove constraints to productivity or to enhance the productivity of all producers to the same degree. However, it will be apparent from the emphasis of this chapter that the distributive implications of the approach taken are egalitarian in the sense of providing more opportunities to a larger and expanding portion of the population.

The structure of this chapter includes an initial statement of the nature of financial deepening, followed by observations on the efficiency-enhancing function of intermediation in financial markets, and the relation between real and financial development. The second portion of the chapter is devoted to a critique of the use of financial technique as a development

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1. Lele, Uma, The Design of Rural Development. p. 20.



stimulant, and the third examines the implications of financial deepening for rural development. The closing portion of this chapter is devoted to other aspects of "practical" importance which may diminish the effectiveness of financial markets in a developing mixed economy such as Kenya's.

## B. The Theory of Financial Deepening

### 1. Definition

Financial deepening refers to the growth of an economy's financial assets at a more rapid rate than the growth of its real assets.<sup>1</sup> The term appears to have been coined by Shaw in his book on the subject, as it is not found in his earlier publications or in major works by others writing before the appearance of Shaw's book who were concerned with the same phenomenon.<sup>2</sup>

Financial deepening is a function of the operation of financial intermediaries. The relationship between growth in real assets and the growth of financial assets may be illustrated by simple balance sheet presentations. The following example traces the transfer of savings of 100 to investment in real assets through three alternative channels, each representing an alternative financial technology. Several simplifying assumptions and simple balance sheet presentations are used as required.

Self-finance is the most fundamental case, as shown in Table II-1. The saving unit is also the investing unit. The accumulated saving represented by a cash balance of 100 is an asset, which in turn is represented by a financial claim, net

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1. Shaw, Edward S., Financial Deepening. p. vii.

2. Shaw's use of "deepening" in this context is consistent with the more general usage found in the term "capital deepening." Capital deepening denotes an increase in the amount of capital per unit of labour, which permits the realisation of greater labour productivity. See, for example, Stonier, Alfred W., and Douglas C. Hague, A Textbook of Economic Theory. 4th ed. London, Longman Group Ltd., 1972. pp. 602-603.

Table II-1. Alternative Financial Technologies:  
The Self-Finance Model

A. Saving-Investing Unit's Balance Sheet

<u>Before self-finance</u>			
<u>Assets</u>		<u>Liabilities &amp; net worth</u>	
Cash	100	Net worth	100

<u>After self-finance</u>			
<u>Assets</u>		<u>Liabilities &amp; net worth</u>	
Real assets	100	Net worth	100

worth, of the same amount. With self-finance, the transfer of 100 from monetary saving to real investment is simply the exchange of one asset for another on the same balance sheet, i.e., by an internal shift in the unit's asset portfolio. The salient accounting feature of the alternative financial technologies discussed here is suggested most conveniently in the liabilities and net worth side of the balance sheets under consideration. It is apparent in the self-finance model that no new financial claims are created -- the level of financial claims in the example remains unchanged at 100, representing the net worth of the saving-investing unit.

Direct finance is the second alternative channel for transferring savings to investment, as illustrated in Table II-2. Direct finance occurs when the saving unit transfers liquidity directly to the investing unit in the form of a loan, as assumed in the Table, or in the form of equity participation. In the two unit economy of direct finance financial claims expand at the same rate as investment in real assets. No financial deepening occurs. The addition of the investment of 100 in real assets on the closing "after investment" balance sheet of the investing unit is reflected in the addition to financial claims represented by the loan of 100 recorded as a liability of the investing unit.

The element of specialisation introduced by direct finance is apparent in the transfer of liquidity from one unit to another, which enables the investing unit to employ the savings accumulated by the saving unit. It is apparent that direct finance involves allocative flexibility which is absent in the self-finance model, which is the limiting case. The allocative advantages of direct finance and of purely financial transactions is illustrated more forcefully in the fact that the investing unit in Table II-2 had nil assets before direct finance. The investing unit became an entity only by virtue of the performance of the financial function embodied in the creation of a financial claim, in the form of a loan, on the investing unit by the saving unit.

Table II-2. Alternative Financial Technologies:  
The Direct Finance Model

A. Saving Unit's Balance Sheet

<u>Before direct finance</u>		<u>Liabilities &amp; net worth</u>	
<u>Assets</u>			
Cash	100	Net worth	100

<u>After direct finance</u>			
Loan to investing unit	100	Net worth	100

B. Investing Unit's Balance Sheet

<u>Before direct finance</u>		<u>Liabilities &amp; net worth</u>	
<u>Assets</u>			
Total assets	-0-	Liabilities & net worth	-0-

<u>After direct finance</u>			
Cash	100	Loan from saving unit	100

<u>After investment</u>			
Real assets	100	Loan from saving unit	100

A higher order of specialisation is provided by financial intermediation. When intermediation is introduced the saving unit places its funds at the disposal of the intermediary, who in turn provides them to the investing unit, as shown in Table II-3. With intermediation, the investment of 100 in real assets used in the example is accompanied by a growth of 200 in financial claims. Hence, financial assets expand at a more rapid rate than real assets, indicating that financial deepening occurs. The new financial claims in the example consist of 100 in the form of a deposit liability to the saving unit by the intermediary, and a liability of 100 on the investing unit's balance sheet representing a loan received from the intermediary. The insertion of additional intermediaries in the chain between the saver and investor would result in an even greater growth of financial assets relative to real assets.

These models of alternative financial technique -- self-finance, direct finance and financial intermediation -- suggest that financial deepening requires a financial sector intermediating between savers and investors in the economy. However, the simple presentation in Tables II-1, 2 and 3 leads to a fundamental question: of what benefit, in terms of the growth of real asset holdings, is the proliferation of financial claims? What are the benefits of financial intermediation?

## 2. The Utility of Financial Intermediation

Economic units having funds in excess of their own direct<sup>1</sup> investment opportunities are linked, through financial markets, with units having direct investment opportunities exceeding their capacities of self-finance. The importance of providing a link between these two types of units rests on the systematic difference between the incidence of "excess" saving and useful outlets for investment funds. Writing after the

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1. Direct investment is used here to denote the acquisition of real assets by an investing unit. The term does not refer to the purely financial transaction between a saving unit and an investment unit as in the direct finance model presented above.

Table II-3. Alternative Financial Technologies:  
The Intermediation Model

A. Saving Unit's Balance Sheet

	<u>Before intermediation</u>	
<u>Assets</u>		<u>Liabilities &amp; net worth</u>
Cash	100	Net worth 100
	<u>After intermediation</u>	
Deposit with intermediary	100	Net worth 100

B. Intermediary's Balance Sheet

	<u>Before intermediation</u>	
<u>Assets</u>		<u>Liabilities &amp; net worth</u>
Total assets	-0-	Liabilities & net worth -0-
	<u>Intermediation - step one</u>	
Cash	100	Deposit from saving unit 100
	<u>Intermediation - step two</u>	
Loan to investing unit	100	Deposit from saving unit 100

C. Investing Unit's Balance Sheet

	<u>Before intermediation</u>	
<u>Assets</u>		<u>Liabilities &amp; net worth</u>
Total assets	-0-	Liabilities & net worth -0-
	<u>After intermediation</u>	
Cash	100	Loan from intermediary 100
	<u>After investment</u>	
Real assets	100	Loan from intermediary 100

tradition of Schumpeter, Cameron and Patrick note that:<sup>1</sup>

In an exchange economy individual savers are not necessarily the most efficient investors, since savings depends primarily upon income whereas efficient investment depends primarily upon entrepreneurial talents, knowledge and willingness to take risks.

Through exchange, financial resources are made available to those units which are judged capable of using them to best advantage, obtaining higher returns on the use of these resources than would be available from their alternative uses

Financial intermediaries enhance the efficiency and convenience of the allocative process in the operation of financial markets by enabling financial resources to flow indirectly between surplus (saving) and deficit (investing) units. The process and vocabulary of intermediation are described aptly by Van Horne, who states that intermediaries "transform direct claims -- primary securities -- into indirect claims -- called indirect securities -- which differ in form from direct claims."<sup>2</sup> Intermediation increases the utility of financial resources by enabling the market to allocate these resources without requiring buyers and sellers of securities to negotiate directly with each other for each transaction. Direct negotiation and hence direct finance involves the inconveniences of barter, to which they are analogous. Intermediation increases the attractiveness of financial assets and liabilities by providing 1) economies of size,<sup>3</sup> 2) divisibility and flexibility, 3) diversification of risk, 4) a variety of maturities through pooling, and 5) expertise and convenience.<sup>4</sup>

Economies of size originate from the continuous nature of an

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1. Cameron, Rondo, et al., Banking in the Early Stages of Industrialization. New York, Oxford University Press, 1967. p. 8.

2. Van Horne, James C., Capital Market Rates. p. 6.

3. "Economies of size" is used here rather than "economies of scale" to avoid ambiguities which may arise from the definition of economies of scale which suggests that that term refers to the scaling up of all inputs by proportional amounts.

4. Van Horne, James C., Capital Market Rates. pp. 6-7. Van Horne speaks of economies of scale rather than economies of size.

intermediary's transactions according to Van Horne, but continuity appears a trifle vague. It may well be that the characteristic of continuity and economies of size are simply a result or derivative of the repetitiveness and multiplicity of such transactions. Continuity is an important dimension of financial markets because of the rapidity of change in prices in such markets. Changing market conditions create a premium on access to information. Such access, inherent in continuous operations in a market, provides a basis for economies of size in intermediation. Procedures and contacts suitable to the intermediation function are other bases for these economies. Van Horne indicates that frequent transactions also underlie the expertise and convenience which develop through intermediation. Expertise is another aspect of the access to information provided by market participation, and convenience is a function of intermediation per se as well as of the necessity of frequent transactions to ensure liquidity of financial assets, which is discussed later in this section.

The other advantages of intermediation listed by Van Horne have a somewhat more "physical" nature than those discussed above, stemming from the input homogenising (blending) and the output specialising (segmenting) nature of intermediaries' market operations. Divisibility and flexibility refer simply to the sizes of transactions -- small inputs can be aggregated, large inputs can be disaggregated. The creation of a variety of maturities reflects the operation of the same process, but in another dimension, that of time. Long term commitments of resources can be used for a series of short term transactions, and short term commitments of resources can be "rolled over" or refunded to provide a stable stock of resources in the longer term for any particular user, or may be pooled for the creation of a more stable core of resources for diverse uses. Intermediaries transform maturities. Diversification of risk is also a function of the aggregation and disaggregation inherent in intermediation, and diversification is a means of increasing portfolio liquidity.



Liquidity is simply "nearness to cash," with cash defined, according to the narrow definition of the money supply, as the basic or fundamental financial asset which best satisfies all requirements of money. Liquidity has two dimensions: "1) the length of time and transaction cost required to convert (an) asset into money, and 2) the certainty of the price realised."<sup>1</sup> Liquidity is somewhat paradoxical. Without liquidity there would be little in the way of financial markets, because the absence of liquidity implies that financial assets could not be converted into cash. However, the ability of financial markets to offer an opportunity for conversion, without great losses of time and of value, is a major determinant of the attractiveness of financial assets (defined to exclude cash) to surplus units in the economy. On the other hand, a state of complete liquidity would imply the absence of any financial assets other than cash (or money supply narrowly defined), and hence also an absence of financial markets.

Intermediaries are essential to the development and functioning of financial markets, as without them these markets could deal only in direct finance with all of the disadvantages of barter exchanges between savers and investors. The market-creating function of intermediation is of great economic interest because of the role of markets in resource allocation, and advocacy of financial deepening is economically justified only if it can be demonstrated that more efficient financial markets contribute to the more efficient allocation of real resources in the economy.

The general conclusion from the argument developed here is that financial intermediation increases the efficiency of financial markets. Efficient financial markets enhance the efficiency of markets for real capital by lowering the costs of the provision of savers' funds to investors, as suggested by the increased number of alternative channels between segments of financial

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1. Van Horne, James C., Capital Market Rates. p. 12.

markets created through the activities of specialists engaged in intermediation. Financial deepening reflects specialisation to the extent that specialists take a position by issuing claims on themselves rather than acting merely as agents between principals functioning as savers and as investors.

### 3. The Problem of Efficiency and Perfection in Financial Markets

Efficient markets are indicated by a uniformity of prices for a given product traded by a large number of buyers and sellers at any given point in time. This definition, specified in terms of static equilibrium under conditions of perfect competition, assumes that sellers (and buyers, for that matter) do not engage in collusion, that government price controls are absent and that trading costs and other differentials related to location are not material.<sup>1</sup> Perfectly competitive financial markets would yield a single rate of return, a uniform price for financial capital.<sup>2</sup> However, financial markets are characterised by two "distortions" or imperfections which diminish the utility and hence the applicability of the concept of perfect competition as an analytical tool. The first is that the price of finance is difficult to specify because of the time dimension of credit. Costs and returns are not apparent with respect to any given type of credit transaction at the time a bargain is struck because default can occur only in the future and is perforce unknown. A second characteristic of financial markets is product differentiation, and this trait logically follows from the un-

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1. Stigler, George J., The Organization of Industry. Homewood, Illinois, Richard D. Irwin, Inc. 1968. pp. 118-119.

2. Shaw, Edward S., op.cit., pp. 48, 62; McKinnon, Ronald I., op.cit., pp. 5-6. Support for the assertion that financial markets in less developed countries are more fragmented than those of developed countries is found in the division between formal and informal financial markets and the large role played by informal markets in developing countries. Differences in degrees of fragmentation and efficiency are also implied by U Tun Wai's observation that the organised money markets in developing countries are characterised by a wider range of rates at any given time than those in developed countries, although violations of ceteris paribus assumptions render this observation inconclusive. See "Interest Rates in the Organized Money Markets of Underdeveloped Countries," IMF Staff Papers. 5, 1956-57. p. 256.

certainty attached to the future, suggesting that the "imperfection" of product differentiation actually renders financial markets more workable by differentiating risk. Some types of financial assets entail higher risks than others, as for example common shares compared with savings accounts, even under assumptions of no uncertainty regarding the future rate of inflation. The price of such differentiated assets, as expressed in their market rates of interest or yields, would vary with the degree of uncertainty attached to their returns, other things remaining equal. Yet, other types of market imperfections would also be reflected in differential returns, making conclusive analysis difficult if not impossible, at least over any other than the very long run.

Approaching financial markets from the specifications of the perfectly competitive equilibrium model requires the use of simplifying assumptions. These assumptions tend to deny or mask the existence of the very sorts of problems -- differential risk, market structure, regulation, articulation with the rest of the economy -- which are of greatest theoretical interest from the point of view of the contribution of the financial sector to economic development. Because of these problems there is considerable precedent for rejecting the analytical framework of perfect competition in the study of financial markets. Stigler argues that:<sup>1</sup>

There is no 'imperfection' in a market possessing incomplete knowledge if it would not be remunerative to acquire (produce) complete knowledge: information costs are the costs of transportation from ignorance to omniscience, and seldom can the trader afford to take the entire trip.

This line of reasoning leads Stigler to conclude that, "We cannot possibly afford perfect markets...."<sup>2</sup> Gunnar Myrdal summarily dispenses with the concept of equilibrium in his notes on controls on the financial sectors of South Asian countries:<sup>3</sup>

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1. Stigler, George J., op.cit., p. 119.

2. Ibid., p. 120.

3. Asian Drama: An Inquiry into the Poverty of Nations. Vol. III. New York, Pantheon, 1968. p. 2091.

Indeed, the concept of "equilibrium" in the money, credit, or, more widely, capital market is meaningless, except when all controls other than the level of interest rates (sic) are taken as given. As this is not the assumption used in our analysis, the terms will not be used.

In other cases writers using the term imperfection in the context of financial markets have used definitions of imperfection which differ from those commonly found in the market organisation literature. For example, Masson and Hirshleifer apply the term to a situation defined in terms of an interest rate which is a function of loan size.<sup>1</sup>

While students of financial markets have developed models, using data over long time series in highly developed financial markets, which employ or in certain ways approximate the concept of equilibrium,<sup>2</sup> the methodological problems of ensuring a high degree of consistency over time are considerable and in any case the data base and limited variety of securities in financial markets in developing countries, possibly excluding Mexico, is such as to render this approach generally unrewarding.<sup>3</sup>

To avoid the analytical blind alleys leading from the concept of perfect competition, Shaw and McKinnon employ variants of an alternative approach, consistent with the view that realistic assessment of market performance should be in terms of "workable" competition<sup>4</sup> rather than in terms of competition

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1. Masson, Robert Tempest, "The Creation of Risk Aversion by Imperfect Capital Markets," American Economic Review. LXII, 1, March 1972. p. 78n; Hirshleifer, J., "On the Theory of Optimal Investment Decisions," Journal of Political Economy. 66, August 1958. p. 329.

2. Examples are found in the studies discussed in chapters dealing with interest rate structures in Van Horne, James C., op.cit.

3. McKinnon, Ronald I., op.cit., p. 3. For analysis of the Mexican case see Bennett, Robert Lee, The Financial Sector and Economic Development: The Mexican Case. Baltimore, The Johns Hopkins Press, 1965.

4. Neither of these writers uses the term "workable competition," however. This term was proposed by John Maurice Clark in his early article, "Towards a Concept of Workable Competition,"

which is "perfect" in some abstract sense. This distinction is of such theoretical interest, and of such importance to the interpretation of the prescriptions of Shaw, McKinnon and others of similar persuasion to warrant a digression on financial market imperfections and the peculiar problems they entail from the point of view of this analysis. The term imperfection is retained here only because of its currency, and in a strictly technical sense.

Financial markets in developing countries, especially formal financial markets, do not operate in a free market environment and often are as far from economic perfection as they are from purely monopoly situations.<sup>1</sup> Two major influences constrain the operation of financial markets in many developing countries from performing the allocative role which they would play under the assumptions of perfection within the usual neo-classical analytical framework. Both of these influences diminish the extent to which financial markets are workable, and both arise from extra-market considerations. One is the incomplete monetisation of the typical developing mixed economy, while the other is government intervention.

a. Incomplete monetisation and the economic performance of financial markets

Incomplete monetisation in the context of developing economies has two common manifestations. One is simply that the production process in certain sectors and geographical areas is not characterised by monetised exchange. An aspect of this phenomenon is that production-for-own-use predominates, i.e., economic activity is largely of a subsistence nature. The family unit consumes most or all of its own production, and participation in monetised commercial activities is sporadic and infrequent. Another aspect of the non-monetised character of economic activity in such sectors and areas is the role of bartering in the exchange process. Barter markets do not have a standard medium of exchange

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(continued) American Economic Journal. XXX, 2, June 1940. pp. 241-256, and elaborated many years later in his Competition as a Dynamic Process. Washington, DC, The Brookings Institution, 1961.

1. McKinnon, Ronald I., op.cit., p. 3.

or numeraire. In barter and production-for-own-use the level of specialisation in production is low, the range of exchanged goods and services restricted, and the trading mechanism cumbersome. Exchange, and hence specialisation, are not greatly facilitated by barter because of the requirement that barter transactions can be effected only when there is a mutual coincidence of wants with respect to the limited range of specific goods and services each party is willing to trade.

The utility of financial markets as development media is a function of the utility of money, the basic financial asset. The market for money arises because money trades against all other economic goods, to the extent the trade in all other economic goods is monetised. Expressed in another way, money clears the payments network between net buyers and net sellers with the limitations of a currency area. A currency area may not be congruent with the national economy, however, because of incomplete monetisation.<sup>1</sup> To the extent that the economy is monetised, intermediation facilitates the flow of money between net buyers and sellers and hence increases the efficiency of monetisation.

In the non-monetised parts of an economy, however, monetary prices do not perform a direct allocative role and hence the allocative function of financial markets does not directly apply. In a non-monetised economic sector the opportunity for monetary accumulation is constrained and financial intermediaries also cannot play their role as operators of the payments system. Thus, the existence of a significant sphere of economic activity beyond the frontiers of monetised transactions tends to be reflected in narrow and shallow financial markets. With a higher volume of transactions reflecting increased monetisation, such markets could have an opportunity to become increasingly workable.

While this aspect of incomplete monetisation concerns primarily the quantitative importance of money in relation to

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1. Shaw, Edward S., op.cit., p. 60.

economic activity, the second perspective is fundamentally qualitative in nature. In the economies of many developing countries the money issued by the State, and other components of the money supply (however defined over the range from M1 through M3) which are denominated in the same units as specie issued by the State, fall far short of fulfilling the abstract functions of money: e.g., a medium of exchange, a unit of account or numeraire, and a store of value.

Imperfections in the role of the money issued by many governments are reflected in exchange controls and in substantial rates of inflation. Exchange controls are an attempt to protect the domestic statutory and administrative monopoly which governments accord the money they issue and the money supply they control. However, exchange controls in fact limit the ability of the national currency to serve as a medium of exchange by restricting its use in external transactions, which must frequently be conducted via some other medium of exchange. When national currencies are extremely weak the State may even attempt to ensure that certain domestic transactions are conducted via another medium of exchange. For example, foreign travellers have been required to pay for hotel accommodation in India in foreign exchange, and Ghana Airways has refused to accept Ghanaian currency in payment for drinks purchased aboard its flights. In certain situations several currencies have circulated domestically when the State's currency is weak, openly as in the cases of South Korea in the 1950's and South Vietnam during the period of American military involvement, clandestinely wherever currency black markets operate. The use of cigarettes as a medium of exchange in Germany in the immediate post-War era is a variant on the theme of incomplete monetisation.<sup>1</sup>

The difficulty certain national currencies have experienced in serving as a store of value is well known and illustrated most

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1. For a discussion of the problems inherent in imperfect performance of legal tender see Hayek, F.A., "Choice in Currency: A Way to Stop Inflation." Occasional Paper 48, Institute of Economic Affairs, London, 1976.

forcefully by countries which have suffered rates of inflation exceeding 100% per annum. Airline tickets were purchased as a store of value at one time in Brazil, tractors have been hoarded by large farmers in Chile, and land and buildings have attracted the funds of savers in many countries because of the prospects of a return on investment superior to that offered by financial assets denominated in the State's currency unit or by direct investment in "productive" enterprises. The traditional preference of French and Indian peasants for gold is also to some extent attributable to the superiority of gold as a store of value in comparison with the national currencies of these countries.<sup>1</sup>

National currencies generally encounter less public resistance to their function as a unit of value than to their roles as media of exchange and stores of value. Subdivision of major units which are large accommodates small transactions, as suggested by the farthing. Where the major unit itself is inconveniently small, the public seems prepared to deal in large numbers, as in contemporary Italy and pre-New Franc France and pre-New Dinar Yugoslavia, or to deal in multiples of the unit, as in Iran where convention permits the informal specification of prices in units consisting of ten rials. These are matters of form, not of substance.

However, recent experience with inflation in industrialised countries with broadly-based financial markets has engendered attempts to improve upon the national monetary unit as a numeraire. Inflation accounting has blossomed into a popular field of enquiry and debate in industrialised countries, and in Britain the Sandilands Report and the lively correspondence in the business section of The Times following the Report's appearance in 1975 exhibited a general professional consensus that the assumption of parity between different vintages of the national currency unit employed in standard accounting practice easily entails suboptimal financial

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1. A dissenting view is presented in Chandavarkar, Anand G., "The Nature and Effect of Gold Hoarding in Under-Developed Economies," Oxford Economic Papers. NS, XIII, 2, 1961. pp. 137-148.



decision-making and misleading appraisal of investment results. Thus, the deterioration of the ability of the national money to serve as a store of value also diminishes its utility as a standard of value when more than one time period is under consideration.

Both aspects of incomplete monetisation increase the costs of securing real growth. In contrast, the expanded use of money, from increased monetisation of the economy, occurs with and contributes to real growth. McKinnon emphasises this interrelationship in a model which indicates that accumulations of money are required for real growth because of the lumpiness of investment. Larger volumes of savings are required before investment can be expanded (except by units having access to the proceeds of the inflation tax), given the insufficient alternatives to self-finance within the constraints of highly imperfect financial markets in many developing countries.<sup>1</sup> If the accumulation of real balances is retarded by inflation, the cost of investment is obviously increased.

b. Public sector intervention and the analytical treatment of financial markets

Public sector intervention is the second major phenomenon which renders unrealistic any attempt to use the perfect competition model to explain the performance of financial markets in developing countries. This intervention takes three main forms, ranging from the pervasive to the highly specific.

The first and most extensive example of intervention is the usual government monopoly of specie issue and government control over the money supply. In other words, governments control the supply of a major portion of the firms in the financial sector, and through manipulation of the money supply affect the operations of all financial firms as well as the allocation of real resources. However, government monopoly is not complete because of the existence of substitutes for the national currency which are used by the public to fill monetary functions which they consider are only insufficiently performed by the currency issued by the State.

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1. McKinnon, Ronald I., op.cit., pp. 57-67.

Foreign exchange and gold are two such substitutes, as indicated above, and the spectrum of imperfect substitutes is indeed broad.

The second variety of government intervention in the operation of financial markets consists of regulations and measures which apply to large numbers of firms in the formal financial sector. A primary example is found in interest rate regulations which control the price which intermediaries may obtain for certain of their services. While intermediaries generally are capable, through market imperfections, of selectively raising and lowering charges levied on borrowers through the use of fees and control over the terms of customers' access to other services, the fact remains that interest rate regulations limit the range over which any given type of intermediary can specify the price for one of its major products or services, i.e., loans.

Governments frequently erect barriers to entry into intermediation in formal financial markets, and intermediaries already active in financial markets are frequently restricted in their ability to diversify their activities. The most common barrier to entry facing prospective financial intermediaries is the legal requirement that a certain minimum capital base, in the form of balance sheet net worth, be subscribed by the sponsors of the proposed venture. Diversification of commercial banks, for example, is also restricted on a functional and geographical basis, as specified by acts defining banks and the business they may conduct, and by regulations concerning the establishment of branch offices.

Another form of this variety of intervention is government designation of priority sectors in the allocation of credit by banks and other institutions. An example of this type of control in Kenya is found in Central Bank circulars which request the commercial banks to exempt African farmers and businessmen from credit squeezes, as noted elsewhere in this paper.

Deposit insurance by public sector agencies is also an example of intervention. While the benefits of deposit insurance from the

depositors' point of view are apparent, the manner in which the premium is frequently charged -- levied on all institutions at the same rate and paid by the institution rather than directly by the depositor -- may relieve individual intermediaries from the influence of certain market forces which would encourage them to behave in a more responsible manner than they may be forced to under the usual system of deposit insurance. This is not to say that insured intermediaries behave or tend to behave irresponsibly, but rather that considerations of degree may be involved. This example would not apply to most of the banks operating in Kenya. The Government has interests in two of the banks, making a deposit insurance system under Government auspices of rather low priority with respect to these two banks.<sup>1</sup> Two other banks are British overseas banks, which probably have a stronger financial standing than the Kenya Government, making deposit insurance superfluous in these two cases.

Other forms of this variety of intervention, aimed at broad classes of intermediaries, include the legal aspects of loan security arrangements and the repudiation of debtors' obligations to their creditors. Indian experience provides examples of both of these phenomena, as indicated elsewhere in this discussion. To summarise, legislation for many years in several Indian states permitted certain types of lenders, such as cooperatives and other agencies deemed to be more socially desirable or politically pliable than commercial banks and other lenders, to obtain a first charge over a borrower's assets even if a commercial bank held a prior charge over such assets.<sup>2</sup> The repudiation of rural indebtedness through government action on behalf of large classes of debtors has been a repetitious aspect of Indian financial history,<sup>3</sup> the most recent example consisting of actions taken

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1. In addition to the two solely commercial banks in which the Government has an interest, the Cooperative Bank is also closely identified with the Government, which appoints four members of that Bank's nine-man Board.

2. Report of the Expert Group on State Enactments Having a Bearing on Commercial Banks Lending to Agriculture. Bombay, Reserve Bank of India, 1971. p. 4.

3. Ibid., p. 19; Report of the Agricultural Finance Subcommittee.

following the assumption of emergency powers in 1975.

A third form of intervention is that which affects specific intermediaries. The most obvious illustration is government ownership of certain financial institutions. The control of government balances and their employment in a manner favouring specific institutions is a second example of this type, while the design of specific credit projects or programmes aimed at certain types of borrowers or firms is a third. In addition, financial institutions in developing countries may frequently experience political intervention with respect to issuing and collecting specific loans. Public sector financial institutions may likewise be restricted in their range of managerial control over key operating variables. Wages of staff of public sector banks, for example, may be regulated with reference to general civil service scales, which may not be appropriate to the accomplishment of certain institutional objectives. Staff travelling expenses in one Mediterranean country are so well controlled on a per diem basis that officials of that country's state-owned agricultural bank and Ministry of Agriculture leave their offices as infrequently as possible for official journeys requiring overnight lodging away from home, as per diem allowances are so meagre as to require officials to meet a substantial share of their travel expenses from their own pockets. The requirement that the agricultural bank in that country obtain its vehicles through the government purchasing agency under a non-price rationing mechanism ensures that loan officers and agriculturalists are limited in their mobility. In Kenya the Treasury must be consulted with respect to the employment of Agricultural Finance Corporation balances, and AFC management has not always been free to invest these funds in money market instruments providing the combination of yield and liquidity which probably would have been selected by prudent managers not under Treasury control and public sector bureaucratic restriction. Control over the branching policies of specific institutions and with respect to specific branches

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(continued) pp. 22-37.

is another form taken by this type of intervention.

In summary, firms in the formal financial sector experience an amount of government control which is large relative to the amounts of government control commonly imposed upon many other economic sectors in a mixed economy. In many developing mixed economies controls apply to the level of resources available within the financial sector, to the price of much of the "product" of the sector, to the number of firms in the sector, to the price of labour and capital employed, to the deployment of resources by purpose, and to the locations at which business may be conducted. These restrictions obviously create quite a different market context from that assumed by analytical models of competition and monopoly as they are commonly employed, and hence open to serious question the applicability of such models.

#### 4. Analysis of Financial Markets in Terms of Workability

Given incomplete monetisation and the market imperfections inherent in government intervention, discussion of the performance of financial markets in developing countries in terms of the perfectly competitive model is forced and unrealistic. An alternative approach, however, permits considerations of relative rather than absolute aspects of market performance, with a view towards making markets more workable rather than more nearly perfect. The concern for workability does not deny the concept of perfection, as demonstrated by the attention accorded interest rate differentials by Shaw and McKinnon. In fact, their use of interest rate structures as indices of market performance is much more consistent with the traditions of neo-classical economics than are, for example, measures used by the Wallichs in their evaluation of the performance of financial markets in Japan.<sup>1</sup> The problems surrounding the application of their criteria are indicative of the difficulties encountered with measures which

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1. The discussion that follows is based on Wallich, Henry C. and Mable I., "Banking and Finance," in Patrick, Hugh, and Henry Rosovsky, eds., Asia's New Giant: How the Japanese Economy Works. Washington, DC, The Brookings Institution, 1976. p. 251.

are not defined in terms of workability.

Three alternative bases for evaluation of financial markets are proposed by the Wallichs, and a brief critique of each serves to indicate the nature of the problem.

The Wallichs' first proposal is that financial markets may be evaluated in terms of their degree of perfection. In a perfect financial market "every participant can both lend and borrow any amount he wants to at the same rate." The most striking feature of this approach is its assumption that market participants face no financial constraints, that they can borrow without any externally imposed limit and that they may also lend without any externally imposed limit. The equation of what market positions participants would "want" to take and the maximisation inherent in assumptions of market perfection is of course linked through the assumptions of perfection, but when these assumptions are relaxed or discarded as inapplicable the concept of the desire to lend or borrow contrasts sharply with the realities of credit rationing. The assumption that participants could lend or borrow at the same rate suggests that there are no transactions costs, which is tantamount to saying that there is in fact no market.

The Wallichs' second suggestion is that the performance of financial markets may be evaluated in terms of the extent to which non-financial firms use financial markets to raise funds, rather than relying solely on internally generated resources. While this measure is perhaps instructive as a descriptive device concerning broad magnitudes (e.g., less than 25% in typical developing mixed economies as opposed to more than 75% in highly developed mixed economies), it tells us little of the rationality of the market in its allocation of resources or of the factors which determine the allocation and levels of access achieved.

The third measure of financial system performance proposed by the Wallichs is the value added to GNP by the financial sector. They note, however, that this measure may understate the strategic

role played by the financial system. Their critical statement contains a peculiar assumption of markets for finance which can be disembodied of financial decision makers: "To the extent that this allocation is determined not by the supply and demand originating from the real sectors, but through allocative decisions made by or through the financial system..." Unfortunately, there is no precise analytical tool at the present time which can discriminate on this basis, even if the nature of each of these aspects of the allocative process -- supply and demand as allocators versus decision makers as allocators -- could be precisely identified. To return to the value added by the financial sector, it is worth noting that this measure implies the existence of transactions costs. However, it gives no indication of the efficiency or competitiveness of the financial system in its creation of added value.

The vocabulary of financial market performance has been enriched by Shaw and McKinnon's use of the terms financial repression and financial liberalisation. These terms assist analysis of the workability of financial markets, representing movements along a continuum of greater to less inhibiting interference. Financial repression narrows the range of savers' choices and restricts the flow of funds to investors through financial markets. It also retards financial development, the augmentation of the size and form of the financial system which permits increased specialisation in the use of both real and financial assets. Financial liberalisation provides a richer array of financial assets to savers, enhances the alternatives open to investors through financial markets, promotes the growth of intermediaries subject to some degree of competition, and pushes outward the frontiers of monetisation.

Shaw and McKinnon both refrain from any summary statement of their positions -- there is no concise definition of the theory of financial deepening as applied to economic development. Shaw does, however, indicate in capsule form, in the Preface to

his book, the general area of concern:<sup>1</sup>

The emphasis...on financial deepening...implies a bias towards decentralisation of economic choice in a context of either capitalism or socialism. Its focus is on markets and on the seamless web that binds them together in an economic system.

The target of this book is the "lagging economy." The lagging economy confines itself to poverty partly by imposing upon its markets patterns of financial, fiscal, and international economic policy that, in effect, instruct market participants to keep aggregate levels of income and wealth where they are. It depends upon the plan, mandate, ration, license, and privilege to optimise resource allocation and use. It resists liberalisation of markets, where decentralised decisions could advance economic welfare, even though its government sector is inept. The lagging economy is stubbornly poor.

The development of increasingly specialised intermediary functions and a proliferation of differentiated financial assets -- an "imperfection" in terms of the perfectly competitive model -- are integral parts of the process of financial innovation, as new markets of savers are tapped and developed by new types of financial instruments. Successful financial innovation permits a more efficient allocation of resources in both real and financial markets, which stimulates real investment.<sup>2</sup>

However, the appearance of new intermediaries and instruments are not in themselves necessarily manifestations of liberalisation or of successful innovation, nor are they necessarily contributors to development. Governments can contrive intermediaries and instruments through the use of "the plan, mandate, ration, license and privilege," but in so doing they often do not enhance the workability of financial markets from the point of view of the community as a whole. The ability of such contrivances to survive on their own by providing the community with the services it desires, in a liberalised financial market, is the test of their

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1. Op.cit., p. vii.

2. Ibid., p. 70; Gurley, John G., and Edward S. Shaw, Money in a Theory of Finance. Washington, DC, The Brookings Institution, 1960. p. 49.



contribution to the workability of the market.

The financial sector is a logical focal point for measures of repression or of liberalisation because of its interaction with all other sectors, based on the role of money as a commodity which trades against all other economic goods, and also because of the key role of financial markets in the allocation of resources. Market workability may be enhanced by giving more head to enterprise by the removal of restrictions, and by the use or withholding of state power in order to encourage, stimulate and enforce workable competition.

### C. A Critique of the Financial Approach to Development

#### 1. The Immature Status of Finance in Development Theory

Capital is a concept which has always occupied the attention of economists. Its quantity and its quality are fundamental concerns of those studying the process of production and mechanisms of distribution. The forms assumed by capital include, at the least, "either funds waiting to be invested or specific capital goods (the result of past investment),"<sup>1</sup> and its quantity is regarded as a stock within the time perspectives usually found most useful for economic analysis. This stock, insofar as it consists of specific capital goods -- real assets -- is depleted through its contribution to production, and the value of specific capital goods may also be depressed by events in the economic environment which render it relatively less productive, such as obsolescence caused the appearance of more productive and hence superior competing capital.

Capital goods are created in response to investment. Investment can take place only as a result of saving, commonly viewed as acts of abstention from consumption. When the act of saving

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1. Harcourt, G.C., Some Cambridge Controversies in the Theory of Capital. Cambridge, at the University Press, 1972. p. 6. The implicit assumption in this statement that financial capital is limited to funds waiting to be invested is in fact too limiting. Funds waiting to be used for consumption expenditure are also financial capital, as discussed below.

occurred in the past, the availability for current investment of its contribution to capital depends upon its being available in liquid form for the purchase of capital goods. Claims on financial intermediaries provide a high degree of liquidity and hence play an important role in the savings-investment process. In addition, financial intermediation permits borrowers to obtain funds for current investment against the promise of repayment out of future savings rather than from the borrower's own past savings. Of course, the ultimate sources of the intermediary's funds are acts of saving in the past and up to the present, and the benefits of intermediation enjoyed by the borrower cannot be provided for the closed economy as a whole in real terms.

For the closed economy as a whole, there can be no net financial savings. Sources of funds equal uses of funds. The claims which constitute the financial assets of savers are identical to and comprise the financial liabilities of borrowers and sellers of equities. Therefore, over any given period ex post savings must equal ex post net investment in real assets for that period, reflecting the netting out of financial savings.<sup>1</sup> Real saving equals real net investment. That real saving is not necessarily identical to financial saving is a result of the utility of financial assets to those units not using all their financial income all the time for consumption, the role of non-monetised capital formation, and the fact that those units perceiving real investment opportunities are not identical to those units undertaking financial saving. The difference between financial saving and real net investment is one reason why study of the financial sector and its operations may yield insights into development.

In view of the link between savings and investment, and its importance to the development of economic thought, the reasons why savings are translated into investment have received con-

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1. See Van Horne, James C., op.cit., pp. 10-11 for a mathematical expression of these points based on some of Raymond W. Goldsmith's work.

siderable attention. However, it is perhaps surprising that there has not been more attention in recent economic literature to the process through which savings is translated into investment.

In a monetary economy much of the savings which is devoted to investment is processed by the financial sector in its role as intermediary. Goldsmith has attempted to quantify the extent to which non-financial sectors rely on the sale of debt and equity to finance investment, calling this relationship the external financing ratio. Specifically, it is the ratio between new issues of financial instruments, on a net basis, by enterprises other than financial institutions, and gross domestic capital formation.<sup>1</sup> His attempts, admittedly yielding only rough orders of magnitude because of data problems, suggest that during the period 1949-1963 the ratio stood between .30 and .60 for seven Western European countries studied, at .13 for the USSR, .34 for the USA, .52 for Canada and .99 for Japan.<sup>2</sup>

Goldsmith's data problems throughout his lengthy attempts to quantify the relationships between financial structure and development are perhaps indicative of the general lack of attention economists have until recently given to financial structure. The relative vacuum which existed is in retrospect somewhat surprising. As one reviewer noted:<sup>3</sup>

Finance has been a neglected area in the development literature....The long neglect of finance is somewhat surprising considering the importance ascribed to it by Schumpeter in his Theory of Economic Development and the key role of savings and investment in most development models. Because so many of these models were formulated in real terms, they had no "room" for money or finance either as an influence on the rate of saving or as a mechanism for translating savings into investment.

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1. Goldsmith, Raymond W., Financial Structure and Development. New Haven, Yale University Press, 1969. p. 136.

2. Ibid., p. 140. Gross capital formation includes consumer durables in this reckoning.

3. Cole, David C., review of Financial Deepening in Economic Development, by Edward S. Shaw, The Journal of Finance. XXIX,

4. September 1974. p. 1345.

However, since the publication in 1960 of Money in a Theory of Finance by Gurley and Shaw, several works have appeared which have attempted to integrate the observed operation of financial markets with the corpus of modern macro-economic theory.<sup>1</sup>

The omission of attention to financial processes, which is curious in view of the interests of major classical economists in the theory of money and in the operation of banking and credit systems, may perhaps simply be a casualty of classical economics reflecting the post-Ricardian rejection of mercantilism and the centre-stage position mercantilism accorded full-bodied money as wealth and a factor of production. The inattention of Keynes, and others in his debt, to the financial function is also surprising. Keynes noted at several points in The General Theory that the financial process involves the "costs of bringing borrowers and lenders together,"<sup>2</sup> although this cost was apparently not included specifically in his major contribution, which focussed on the gap between savings and investment and its consequences for production and employment. That savings does not necessarily equal investment had been noted prior to the appearance of The General Theory in 1936, and has been generally accepted since. This gap implies that the role of the financial system may be more complex than assumed in classical economic theory. However, the assumptions that 1) money can be produced at no cost in terms of real resources, and 2) that input and output are homogenous, have been largely retained by Keynes and many other post-classical theorists.

In addition to the possibility that the financial process was largely ignored because of the momentum achieved by concern for other economic variables and because of the manner in which economists became accustomed to examining problems of interest to them, there is also the possibility that the exclusion of the

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1. Works by Goldsmith, Gurley, McKinnon, Patrick and Shaw, among others, are cited in the bibliography of this study.

2. See, for example, London, Macmillan & Co., 1960, pp. 144f, 219. (emphasis added).

financial mechanism and its structure from formulation of theories of production, growth, distribution, etc., is the result of analytical economy. Either the heuristic utility of simplification was judged to outweigh the marginal explanatory advantages of complexity, or the financial sector and its operations evidently did not appear material to the majority of economists until perhaps recently, or its structure was not thought to exert any significant, independent causality on major economic variables.

The orthodox assumptions of the costlessness of producing money and the frictionless allocation of resources imply a costlessness of financial transactions and precludes considerations of the efficiency of financial intermediation and of financial innovation.<sup>1</sup> Intermediation is not allowed for at all if it is assumed that savers are inseparable from investors. Intermediation is treated implicitly as a given or constant under the condition of input and output homogeneity, which further implies that any or all savings may be available for any or all investment. Orthodox macro-economic theory suggests that the most attractive investments may be undertaken without financial constraints and only at the margin does an insufficiency of funds force adjustment or abandonment of investment plans.

Economic theory often advances on assumptions of perfect foresight and perfect information, i.e., of risklessness and certainty, which also imply a greatly diminished role for financial intermediaries. As noted previously, intermediaries differentiate risk and in so doing provide a greater range of choice to investors not graced with perfect information and foresight, enhancing the total volume of investment.

If the financial process has received only scant attention from economists concerned with major issues in developed economies,

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1. "The 'producer' of a debt is a debtor simply because he has acquired resources through no effort of his own; they were simply transferred to him by the creditor...." (emphasis added). For a detailed and sympathetic statement of this approach to money and finance, termed the Wealth View by Shaw, see Pesek, Boris P., and Thomas R. Saving, Money, Wealth and Economic Theory. New York, The Macmillan Co., 1967. This quotation is from p. 78.

its neglect in the context of developing economies is perhaps more easily understood but no more easily justified. As noted by Yaşer,<sup>1</sup>

By and large there seems a widespread presumption in the development literature that financial variables have little or no effect upon economic growth. The arguments fall generally into two categories: 1) the financial system is inherently unimportant in a poor or backward economy, and 2) the financial institutions in poor or backward economies are inadequate and unsuited for contributing to economic development.

Yaşer indicates that the presumption of inherent unimportance is based on five observations:<sup>2</sup>

- 1) Only small portions of developing economies deal with and through financial institutions.
- 2) Savings and savings capacities are thought to be negligible for the bulk of the household sector.
- 3) Savers prefer tangible rather than financial assets.
- 4) The interest rate has little meaning as an allocative device in economies characterised by the three qualities mentioned immediately above.
- 5) In any case interest rate structures tend to be badly distorted because of market fragmentation and market thinness.

The position that the financial system is so inadequate as not to merit serious consideration as a development tool has been based on six observations, again as classified by Yaşer.<sup>3</sup>

- 1) Financial systems in many developing economies are patterned on imported institutional arrangements which are not designed to meet local opportunities in a comprehensive or dynamic manner, and are in fact incapable of doing so.
- 2) Financial markets are often very narrow.
- 3) Financial markets are characterised by underutilised and inefficient intermediaries.
- 4) Disillusionment with attempts to control and/or stimulate finance through the establishment of central banks has also contributed to the lack of interest in the potential of the financial system as a development tool.

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1. Yaşer, Betty Slade, An Analysis of the Financial System in Turkey, 1949-1963. Unpublished PhD dissertation, Vanderbilt University, 1967. (University Microfilms 68-12,804). p. 3.

2. Ibid., pp. 3ff.

3. Ibid., pp. 7ff.

5) To the extent that the interest rate -- often low or negative in real terms -- plays an allocative role it frequently promotes investment of low social priority, as in real estate and into short term and often speculative investments by upper income groups.

6) Finally, fiscal priorities in the form of governments' thirst for funds and related suspicions that price stability conflicts with development by restraining governments from creating allocative power for themselves through the inflation tax overwhelm possibilities for meaningful monetary management. The central bank printing press appears to be a superior alternative to financial markets as a means of stimulating investment.

From this typology it appears that shallow finance has its own vicious circle of inattention. Imperfections in the market create justification for ignoring the potential role of a more effective and workable financial system. The points listed by Yaşar indicate that the assumptions used to justify ignoring the potential for real growth found in financial intermediation involve a lack of appreciation for the direction of causality.

## 2. Capital Shortage or Capital Surplus? A Paradox Explored

### a. The high returns hypothesis

The lack of agreement on the fundamentals of the debate around what Shaw terms financial deepening is reflected in alternative views about the supply of and demand for capital resources in less developed economies. A key example of the gaps presently existing with respect to the role of finance in development may be illustrated with reference to statements by Shaw and opposing observations by others.

The typical lagging economy, short of physical and human wealth, is long of investment opportunities at high rates of return. The evidence can be found in aggregative data, not too precisely perhaps but adequately, if changes in national income are divided by concurrent or lagged investment and the result multiplied by capital's share in income....There is no shortage of investment opportunities: there is a shortage of savings for their finance, especially for the best ones among them.<sup>1</sup>

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1. Op.cit., p. 81.

Shaw devotes only a single paragraph to this important point and provides only scattered and fragmentary data in substantiation. His indifference between simultaneous and lagged functions is a curious contrast with contemporary quests for econometric refinement. The statement is also remarkable in that it says that the situation exists at any point in time. The arguments put by Shaw and McKinnon suggest that liberalisation would lead to growth which in turn would create new rounds of investment opportunities. But Shaw's assertion is not conditional upon liberalisation. Rather, the existence of such opportunities in the typical lagging economy, presumably at virtually any time, provide the very basis for liberalisation.

The concept of the "high return" is almost as vague as it is ubiquitous, but Shaw appears clearly to have in mind a norm based on prevailing rates in economies with well developed, competitive financial systems. He indicates that marginal returns in developing economies may be extremely high in relation to average returns in developed economies,<sup>1</sup> but hopefully marginal returns in developed economies also frequently significantly exceed the average. At another point Shaw refines his position:<sup>2</sup>

Savings are scarce in lagging economies in the sense that excess demand for them can be found, at loan rates prevailing in more developed economies, in investments with acceptable degrees of risk. The capital market can be cleared of excess demand at some structure of loan rates which is high.

Shaw is referring to real rates of return in a world of risk and uncertainty.

But is it valid to assume that numerous attractive investment opportunities are not taken up in developing economies because of a shortage of appropriate finance? While consistent with economic logic, the thesis of capital shortage -- defined as insufficient savings reflected in low levels of investment -- in the face of

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1. Ibid.

2. Ibid., pp. 121-122.



attractive investment opportunities is frequently disputed on institutional and other grounds. In fact, the question of the relative scarcity or abundance of attractive investment opportunities lies at the very heart of the controversy over financial repression and liberalisation, and is especially marked in the debate regarding interest rates and financial policies appropriate for broadly based rural development.

For purposes of discussion it is useful to enquire what basis Shaw may have had for his assertions and then to examine statements to the contrary by others.

The evidence supporting Shaw's position that developing economies, probably as a whole, contain a surplus of investment opportunities relative to their sources of funds is of course found in the examples of the developing countries which have taken the path to liberalisation in recent years. The country of this type with which Shaw was probably most intimately acquainted and personally involved, the Republic of Korea, in fact registered greatly increased levels of savings, investment and growth following reforms which began in 1963. Gross investment as a proportion of GNP increased from 13% in 1962 to 20% in 1967, from mid-1964 through 1967 the wholesale price index increased at 7% per annum in contrast with 21% per annum on average for the decade ending in 1963, industrial production rose by 16% a year and imports by 39% a year between 1964 and 1967, while foreign exchange earnings and balances increased greatly.<sup>1</sup>

These changes followed relatively drastic but temporary cuts in government capital expenditure (down 18% in 1963, a further 20% in 1964) and a decrease in the rate of expansion of the administrative budget including a civil service wage freeze in 1963 and 1964 in the face of a 60% rise in the consumer price index. Restrictions on administrative expenditure

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1. Kanasa-Thanan, S., "Stabilizing an Economy -- A Study of the Republic of Korea," IMF Staff Papers. XVI, 1969. pp. 1-26.

evidently did not greatly impair civil service efficiency if the 245% increase in internal tax receipts between 1964 and 1967 as a result of improved administration is indicative of the opportunities for economies then available in public administration. Government expenditure as a proportion of GNP declined from 23.5% in 1962 to 13.9% in 1967. Government's share of capital formation declined from 60% to 30% over the same period.<sup>1</sup>

These changes occurred with the public sector's opting for liberalisation.

The primary policy emphasis during the years immediately after 1963 was on curbing the pace of monetary expansion and on expanding the role of the pricing system in order to achieve a more efficient allocation of resources.<sup>2</sup>

The monetary authority obtained increased flexibility in control and stimulation by moving from a system of direct controls towards the use of indirect measures.<sup>3</sup> The complex system of credit rationing in use up to 1964 included loan ceilings on formal sector lenders, preferential interest rates for priority borrowers, advance deposit requirements for imports and quotas on central bank rediscounts. However, these proved politically fragile and administratively vulnerable: preferential terms were broadened in practice so that their presumed effectiveness was diluted, banks provided credit in excess of their ceiling restrictions, there was no control over the use of credit rationed according to the complex system then in force, and the informal market flourished outside these encumbrances and was twice as large as the banking system.<sup>4</sup> In 1965 credit ceilings were discontinued

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1. Ibid.

2. Ibid., p. 3.

3. Ibid., pp. 7 ff.

4. Ibid., pp. 7 ff. The operation of informal markets in the face of controls was amusingly noted by John Exter, former Governor of Ceylon's central bank at a Society for International Development meeting in New York in May 1969. On the subject of exchange controls Exter drew an analogy with a boyhood experience. To paraphrase to the best of the writer's recollection: "We used rocks to try to dam small streams, and sure enough, wherever we placed a rock no water flowed through the rock."

and at the same time the central bank was experimenting with more vigorous use of conventional reserve requirements, marginal reserve requirements, interest bearing blocked accounts, and with treasury notes and its own bonds as instruments of monetary control.

This success story, one of the most widely documented, is paralleled by Indonesian experience in 1967-1969, and by Taiwan's less dramatic but quite impressive performance which is summarised by McKinnon.<sup>1</sup>

b. The low return hypothesis

Two dimensions of dissent from Shaw's thesis of capital shortage relative to attractive investment opportunities at high returns are found in the literature. One is that financial capital seeking remunerative real investment opportunities is abundant but rates of return low; the other is simply that rates of return are low.

The first argument, abundant financial capital and low returns, has been advanced by observers of development finance institutions who have been impressed with the lack of attractive projects, implying low prospective returns on new investments which might be considered.

Perera noted from his study of development finance companies and institutions that a lack of sound projects is one factor which limits foreign investment in developing countries,<sup>2</sup> while White reported that a lack of projects suitable to the exacting and apparently to some extent conflicting rationing requirements of the African Development Bank was largely responsible for the slow beginning made by that Bank.<sup>3</sup> Schatz also concluded, from

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1. Op.cit., pp. 105-116. McKinnon also provides data on developed economies which have recently prospered from liberalisation and less developed economies which have stagnated or declined with financial repression.

2. Perera, Phillips, Development Finance. p. 54.

3. White, John, Regional Development Banks. London, Overseas Development Institute, 1970. pp. 124 ff.

his experiences with the Federal Loans Board and the regional Loans Boards in Nigeria that a shortage of viable projects -- "i.e., projects that, all things considered, promise to be sufficiently profitable to attract indigenous private investment" -- exists relative to available financial resources, but that this shortage is obscured by a "false demand for capital" in the form of a plethora of proposals for projects of highly questionable worth.<sup>1</sup> Looking elsewhere in Africa, Schatz was able to find an impressive array of reports and articles indicating the widespread existence of the "capital shortage illusion" he identified in Nigeria.<sup>2</sup>

The shortage of viable projects has been observed at widely differing levels of development initiative: foreign investment, regional development bank investment, and relatively small scale investment by local entrepreneurs. However, the range of inclusiveness should not be considered definitive in that each case involves only one type or class of intermediary or one or a restricted range of sources of finance. Development finance institutions, frequently somewhat politically contrived rather than formed in response to market opportunities, may of course experience difficulties in finding the special sorts of investment situations they are expected to support, and their approach and sources of information may be quite distinct from the entrepreneurial essence they are supposed to capture. Foreign investors may be deterred for a number of reasons which differ from those which would enter into the calculus of a local investor, too.

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1. Schatz, Sayre P., Economics, Politics and Administration in Government Lending: The Regional Loans Boards of Nigeria. Ibadan, Oxford University Press, 1970. pp. 112, 119; "The Capital Shortage Illusion: Government Lending in Nigeria," Oxford Economic Papers. NS, 17, 2, July 1965. p. 309. For an opposing view see Diaku, Ikwaakam, "A Capital Surplus Illusion: The Nigerian Case Revisited," The Nigerian Journal of Economic and Social Studies. 14, 1, March 1972. pp. 135-146.

2. Schatz, Sayre P., "Government Lending to African Businessmen: Inept Incentives," Journal of Modern African Studies. 6,4, December 1968. pp. 521-522.

At the level of the national economy, however, some observers have pointed to the same types of problems Perera, White and Schatz identified with respect to specific specialised financial institutions. For example, arguments of insufficient infrastructure have been used by Bauer and Yamey to explain the alleged lack of profitable investment opportunities in developing economies:<sup>1</sup>

The productivity of resources depends upon the availability of complementary resources and of a market for the output. This is as true of capital as it is of natural resources. There are at present a number of underdeveloped countries which cannot use all the capital to which they have access on easy terms; there is an insufficiency of suitable opportunities for the profitable employment of the available funds and of personnel with the required experience and skill.... Indeed, it is not unlikely that inexperience, lack of training and acquired skills in the population and inappropriate social and economic institutions curb the economic development of backward countries more effectively than the lack of physical capital assets.

Schatz develops the same theme by stressing the crucial role of capital formation -- in the broadest social sense -- in the provision of externalities which create growth.<sup>2</sup> He hypothesises that accumulation of capital is the most effective way to induce changes which remove constraints to growth. Sociological, technical, attitudinal and economic barriers to growth crumble under a high rate of investment. Many investments which could be most effective may not be financially attractive, and governments generally, according to Schatz in 1968, lacked the power and inclination to undertake many useful social investments with substantial positive externalities.

Other writers have stated merely that rates of return in developing countries tend to be low, regardless of the availability

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1. Bauer, P.T., and B.S. Yamey, The Economics of Underdeveloped Countries. Cambridge, at the University Press, 1957. p. 129.

2. Schatz, Sayre P., "The Role of Capital Accumulation in Economic Development," Journal of Development Studies. V, 1, October 1968. p. 40.

of financial capital. Nurkse, as an early articulator of the low returns hypothesis, noted that "the inducement to invest is limited by the size of the market," and that the small size of markets in low income countries with attendant high inelasticities of demand constitutes a formidable barrier to economic progress.<sup>1</sup> Technical discontinuities or lumpiness in investment requirements further serve to depress the rate of investment in such economies, according to Nurkse.<sup>2</sup>

Nurkse's examples may reflect contemporary thinking of the time at which he wrote in the early 1950's,<sup>3</sup> and suggest that his concern appears to be with the injection of relatively large increments of capital in capital intensive production processes rather than with the gradual accretion of investment or with the development of local solutions to questions of capital intensity. This concern appears to have been overtaken by events since Nurkse wrote, however. Large increments of capital tend, in the real world of development, to be associated with extractive industries, foreign investment, development monuments and in general with the fat rather than the lean side of the dual economy.

#### c. Dualism as an explanation

Myint has argued that the most significant aspect of dualism is the provision of scarce inputs on excessively favourable terms to the modern sector, including the public sector, and on excessively

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1. Nurkse, Ragnar, "Problems of Capital Formation in Underdeveloped Countries," in Problems of Capital Formation in Underdeveloped Countries and Patterns of Trade and Development. New York, Oxford University Press, 1957. pp. 6-8.

2. Ibid., p. 10.

3. Lewis, also writing in the 1950's, took a less simplistic approach, noting that very little hard data was in fact available for judgements concerning the productivity of capital in developing countries. His discussion of why marginal capital-income ratios should vary between developed and developing countries closes with the observation that the arguments are inconclusive and that any comparisons can be no more than guesses. See Lewis, W. Arthur, Theory of Economic Growth. London, George Allen and Unwin, 1955. pp. 201 ff.

unfavourable terms to the traditional sector.<sup>1</sup> Scarce inputs identified by Myint as being of special relevance to his argument include capital funds, foreign exchange and public economic facilities such as transport, communications and power. To the extent Myint's observations are correct with respect to capital funds, they provide an explanation of the phenomenon which Schatz called the "capital shortage illusion." The types of financial institutions studied by Schatz in Nigeria, as part of the public sector and having the accoutrements of formal finance, would obviously, as a priority function in planning preferences, have preferential access to funds for on-lending. Their access would no doubt be on "excessively favourable terms," as noted by Myint. Thus, one blade of the scissors of the capital shortage illusion could be formed by the preferential access to funds enjoyed by certain lending institutions in developing countries.

On the other hand, the intended borrowers from the sources which occupied Schatz's attention, African businessmen engaged in small and medium scale enterprises outside agriculture and trade, would in general come from and be seeking materials and markets in the traditional sector in which product markets are depressed by the "excessively unfavourable" terms of access to scarce resources noted by Myint. The depressed level of access would constrict demand by rendering abundant factors, such as labour, less productive than would otherwise be the case, and tend to restrict the investment opportunities available in the traditional sector, providing the other blade of the scissors of the capital shortage illusion.

Thus, the arguments that rates of return available in situations of low levels of material development are generally unattractive, and that low rates of return often coexist with an abundance of financial capital may be seriously questioned to the extent that they are held to portray an inherent characteristic rather than simply the result of public policy.

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1. Myint, H., "Dualism and Internal Integration." p. 128.

### 3. Liberalisation, Interest Rates and Levels of Investment

The question of available rates of return and related investment opportunities is central to the consideration of alternative financial strategies for promoting growth. Shaw and McKinnon prefer market rates of interest rather than administered rates because the former are held to be superior on allocative and equity grounds. As one of the prime raison d'être of administered rates is to ensure cheap credit for borrowers in general or for specific borrowers in particular, the abandonment of administered rates with financial liberalisation strongly implies a rise in borrowing rates. Rises could be especially notable with respect to credit for small farmers, given the costs of its provision as suggested by the financial statements -- frequently indicating losses, either directly or through an accumulation of bad loans -- of agencies attempting to use credit as a means of promoting rural development.

Another indication that market rates would be substantially above administered rates is seen in the negative real rates of interest which result from "low" nominal rates in economies with "high" rates of inflation. Negative real rates suggest financial repression and would be likely to disappear with liberalisation in financial markets and related fiscal and foreign trade and investment arrangements.

The increase in interest rates which could be expected to accompany liberalisation would in most cases not be of the order to which financial institutions are accustomed, which are frequently expressed in fractions of a percent.<sup>1</sup> Rather, the rate rises would in most cases be substantial. The interest rate reforms in Korea in 1965 involved a jump in the standard bank loan rate from 14% to 26%, with roughly commensurate rises in deposit rates.<sup>2</sup> McKinnon notes that real rates of between

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1. U Tun Wai documents changes in central bank rates in a number of developing countries, indicating a range of changes of between ½% and 2% in any given step. See "Interest Rates in the Organized Money Markets," Table 6, p. 261.

2. Kanasa-Thanan, S., op.cit., pp. 9 ff.



15% and 25% on agricultural and other small scale lending would probably be required to make this type of business attractive to formal sector intermediaries.<sup>1</sup> His justification of such rates, that they "would be high enough to divert funds from low-yield investments in urban enclaves but still dramatically undercut some extremely high rates of interest charged in traditional credit markets,"<sup>2</sup> returns the reader to the crux of the debate: would "high" real lending rates in fact narrow the gap between the cost of capital and its marginal efficiency to the extent that total investment or investment in sectors such as agriculture would be depressed?

Shaw notes that higher interest rates are frequently held to be beyond the financial capabilities of borrowers and that it is averred that loan demand at higher rates would fail to materialise, i.e., that higher rates of interest would depress the rate of investment.<sup>3</sup> Shaw's assertion that such fears are unfounded is based on the observation that investment opportunities emerge with liberalisation on a broad financial and economic front which reduce investment costs.

These costs include those transactions expenses which face petitioners for rationed resources such as credit from banks, licenses from the government bureaucracy, foreign exchange, etc. Repression also deprives the clients of financial institutions of benefits of competition within the financial sector. Banking concentration based on a restrictive charter policy, bankers' agreements which restrict competition, lenders' risk aversion at low interest rates and appropriation of banks' resources by public sector debt issues which cannot be refused by banks are listed by Shaw as typical examples.<sup>4</sup>

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1. Op.cit., p. 77.

2. Ibid.

3. Op.cit., pp. 122-123.

4. Ibid., p. 123. The social opportunity costs of central bank imposition of subscription quota requirements on commercial banks to ensure that government securities issues are fully taken

An additional cost of transactions which Shaw contends is reduced by liberalisation is the cost of the learning process to lenders and to borrowers. Freed from restrictions which limit their possibilities, a refinement and specialisation of skills is encouraged. Lenders find themselves in a better position to undertake risks, and borrowers find themselves in a position to expand their operations. Shaw indicates that the learning process is one cost of capital accumulation.<sup>1</sup>

This area of cost reduction is less readily apparent than others itemised by Shaw. From the point of view of the individual intermediary it is perhaps unlikely that liberalisation will lower his costs of decision-making. While certain constraints imposed by regulations will be removed with liberalisation, eliminating their contribution to the complexities of risk taking, liberalisation also assails those comfortable little devices which characterise quiescent as opposed to competitive markets. With liberalisation, old friends may wither before new and stancher competitors, and upstarts may usurp positions of importance and infringe on time-honoured boundaries established in more relaxed times. The things that liberalisation tends to sweep away are of course the things which debilitate markets as efficient allocative devices. More workable markets, which must be evaluated from the point of view of the borrower and the community as well as that of the lender, will not be welcomed by intermediaries who have shielded themselves from the effects of competition.

Shaw's point might more easily be couched widely in terms of the costs of allocative decision making rather than narrowly in terms of markets. Under regimes of financial repression markets play a restricted role in resource allocation. Allocative

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(continued) up at par are explored by Porter, who indicates that such requirements immobilise tools of monetary control. See Porter, Richard C., "Narrow Security Markets and Monetary Policy: Lessons from Pakistan," Economic Development and Cultural Change, XIV, 2, October 1965. pp. 48-60.

1. Op.cit., p. 124.

decisions are taken to a large extent by government, which intervenes in a financially repressive manner. With liberalisation the allocative role of government is either diminished outright or else changed in form from one of direct controls to one of indirect controls. Liberalisation shifts back to the market some of the costs of allocative decision making. That these costs could be lower when directed towards market decision making rather than towards intervention is suggested by the economies of the function of financial intermediation as outlined by Van Horne. And, as liberalisation provokes expansion of market activity it may allow economies to be realised.

#### 4. Alternative Techniques for Mobilising the Economic Surplus

Each economy begins its development by intensive exploitation of a savings-investment technology that is chosen for historical, political, social and perhaps economic reasons, and then...experiments with alternative technologies that are marginally superior in terms of their capitalised returns and costs.<sup>1</sup>

This abstract and somewhat forced observation by Gurley and Shaw suggests that economies face a number of options in "savings-investment technology" -- i.e., the methods by which savings are stimulated and transformed into investment. It also implies that a gradually evolving system will require continual experimentation with alternatives in order to sustain its growth. Accordingly, alternative techniques of mobilising the economic surplus are reflected in different financial structures.<sup>2</sup> Advocacy of intermediation as a development tool must be in the context of alternative techniques which provide channels for the flow of savings or surplus to real investment.

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1. Gurley, John G., and E.S. Shaw, "Financial Structure and Economic Development," Economic Development and Cultural Change. 15, 3, April 1967. p. 268.

2. Ibid., p. 261.

a. The alternatives stated

As a means of mobilising and deploying the economic surplus, financial technique is one of four alternatives. The other three consist of central planning, fiscal technique and inflation.<sup>1</sup>

Central planning is a means of directing saving and investment which does not rely on financial markets to transfer savings from the primary source to the investment use. Gurley cites self-finance, the pooling of surplus funds and their allocation to state enterprises' investment priorities, the appropriation of state enterprises' profits, and commodity pricing measures as the mechanics of resource mobilisation and allocation under the central planning alternative.<sup>2</sup>

Fiscal technique may be used to mobilise the economic surplus by taxing those generating the surplus, which turns the surplus into government savings which may be allocated to the sectors to which the government accords priority. Allocation may be through grant, subsidy or direct investment, and the recipients may be in either the private or public sectors. The government budget rather than financial markets is used to capture and deploy the surplus.<sup>3</sup>

Inflation is the third alternative to financial markets, and is in fact closely related to fiscal technique in the sense that it alters relative prices and incomes and hence changes the locus of savings and investment.<sup>4</sup> Financial assets with fixed nominal values suffer a decline in real value with inflation, penalising their holders and rewarding their issuers.

b. The alternatives examined

The examination of alternative techniques should be broad enough to identify "losers" and "gainers" from each channel or means, as required for normative judgements of the merits of

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1. Gurley, John G., "Financial Structures in Developing Economies," in Krivine, David, ed., Fiscal and Monetary Problems in Developing States. Proceedings of the Third Rehovoth Conference. New York and London, Frederick A. Praeger, 1967. pp. 105-106.

2. Ibid., p. 105.

3. Ibid., p. 106.

4. Ibid.

of each and positive considerations of the impact of each on investment flows and portfolios of financial and real assets in the economy.

At the outset of any examination of the four alternatives mentioned, it may be noted that financial technique is the only option which is potentially free of coercive or involuntary aspects. The other three are in varying degrees and ways inherently coercive. To be more precise, the financial technique is the only alternative which operates through markets -- "the automatic processes of self-expression and mutual adjustment"<sup>1</sup> -- which means not that participants can do exactly as they wish, but that in most cases participants have a range of choice and some influence, however small, on the range of choices which will be available in the market in the future. The statement that the financial technique does not rely on coercion or behaviour which is not voluntary is based on this understanding of the concept of voluntary behaviour within human society, on a relative rather than absolute basis, consistent with the concern for workable mechanisms rather than with abstract perfection. Most important is the implication that the range of choice can be expanded, and, as discussed earlier, tends naturally to expand as financial technique is relied upon more fully and as financial markets are made more workable.

For the saver, and assuming a given amount of economic surplus generated by the saver,<sup>2</sup> voluntary aspects of the use of the financial technique to mobilise the surplus he controls are seen in the fact that the saver is free to place his savings as he desires. In a workable financial market the saver will have access to several intermediaries whose facilities are "imperfect"

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1. Powell, J. Enoch, "Exchange Rates and Liquidity." Occasional Paper 18, The Institute of Economic Affairs, London, 1967. p. 17.

2. Later in this chapter it will be demonstrated that "the economic surplus" is inferior, for the purposes of rural financial market analysis, to the concept of working balances, which are held by virtually all production units in an economy, as the basis for advocacy of financial deepening.

substitutes for each other, affording the saver several choices. If the behaviour of the financial sector is such that he chooses not to entrust his funds to intermediaries at hand, he may undertaken investment in real assets, dabble in direct finance, try to expand his range of choice by, say, evading exchange controls and obtaining access to intermediaries and financial services in foreign markets, hoard, or spend his money for consumption.

The prospective investor likewise has potential access to several alternative sources of finance through the formal market, where his proposal will be judged more or less on its financial merits.

Central planning and economic management has a coercive flavour. This aspect is seen most clearly in many of the economies which rely most heavily on this technique of mobilising and allocating the economic surplus, which appears to require the use of considerable police power. Central planning is frequently associated with the elimination or limitation of competing economic and non-economic centres of decision-making, and with the repression of the liberal intellect and the institutions compatible with popular participation in critical decision making. Even if enlightened or benign, the monopoly elements in centrally planned systems tend, often purposely, to limit the range of choice compared with the range which otherwise might exist, and in so doing embodies coercion, however subtle. While the financial technique evolves a wider range of choices for savers and for investors and potential investors as financial deepening occurs, recourse to central planning and economic management as a means of mobilising and deploying resources tends in practice to keep the range of choices narrow.

The fiscal technique also tends often in practice to embody preemptive elements as suggested by the popularity of tax evasion and the quest for tax avoidance in many developing countries. Taxes cannot be considered to reflect the will of the governed in many countries in which governments are not chosen via means

involving a significant degree of political choice for the electorate or citizenry.

Several means of fiscal redistribution may be used: The government may direct the financial resources it removes from their owners towards investment in real assets or financial assets held by public sector institutions. It may also pass these funds to private sector investors in the form of subsidies. In either case the preemptive element is seen in the extent to which access to resources by the units preferred by the government may not be determined through processes such as markets and elections which are based on broad popular participation and meaningful alternatives, and in the extent to which preferred access to investment resources for a given purpose may restrict the access of those who do not enjoy preferred access but who otherwise would have sought or committed resources to the purpose for which another party enjoys preferred access. Controls, licensing systems, quotas and other access rationing devices abound in the typical developing economy, and as Friedman notes, "In many underdeveloped countries in recent decades the easiest route to wealth has been special access to import permits and to foreign exchange at pegged rates."<sup>1</sup> Given certain assumptions about the social costs and benefits of the use to which any surplus is put, preemptiveness is also present when the returns generated by those with preferred access are inferior to those which otherwise would have been generated using the same amount of society's resources.

Changing the real value of money through inflation also provides a means of transferring resources, as noted above. Decreases in the value of nominal money transfer command over real assets from nominal money and financial assets denominated in nominal money to outstanding debt denominated in nominal money. Changes in the value of nominal money may reflect

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1. Friedman, Milton, Money and Economic Development. The Horowitz Lectures of 1972. New York, Praeger Publishers, 1973. p. 53.

government policies in economies in which nominal money is issued by the state. Using increases in the nominal money supply through note issue or increases in the deposit liabilities of the central bank to finance government expenditure is a means by which the state appropriates for itself command over real resources and expropriates via the inflation tax a portion of the command over such resources enjoyed by holders of nominal money and other financial assets denominated in nominal money. In practice this process is frequently covert in the sense that it occurs without explicit "legislative approval or executive announcement," to use Friedman's term.<sup>1</sup>

Not all inflation is the result of government recourse to the printing press or of fiscal extravagance, of course, but whatever the cause the effect is a change in command over real assets between the issuers and the holders of debt. Also, inflation redistributes income in society in somewhat the same manner in which it redistributes capital value. The flows from capital asset ownership are affected, and economic groups are not equal in their ability to protect themselves from inflation or to capture the redistributive benefits it may create. Inflation tends to have a differential impact on the return to different types of productive factors, reflecting the cause of any particular inflation and the manner in which it spreads through an economy.

It might be argued that, in theory, a constant rate of actual and expected inflation could be countered by economic units blessed with perfect information which would adjust their portfolios in such a way to compensate for the expected future effect of inflation. In practice, inflation rates seldom remain constant over any other than the short run. Protective behaviour over the longer run by those who can expect to suffer from inflation no doubt occurs, but cannot be finely tuned because of the imperfection of information and foresight upon which such behaviour is based. While of theoretical interest, the

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1. Friedman, Milton, op.cit., p. 48 ff.



possibility of perfect insulation of a portfolio from the effects of inflation has severely limited implementational scope.

To the extent that inflation is used as a means of transferring resources to the state, the same concerns noted with respect to fiscal technique apply to the deployment of the fruits of the inflation tax. To the extent that inflation transfers resources directly among private economic groups, the same reservations apply, and in addition the possibility of capriciousness arises with respect to secondary effects.

Some critics may suggest that the issue of coercion or preemptiveness, which is invoked here in support of the case for financial technique, is not very relevant to the case of developing countries which have a large proportion of their population living at levels such as those which prevail in Kenya. They may argue that non-market alternatives offer greater promise than financial technique for the mobilisation and deployment of the economic surplus in a manner consistent with the goals and concept of broadly-based rural development. These critics may argue that the sacrifice of present and future choice is justified by the benefits of future incremental production and by the type of society which they believe can be evolved through non-market means of whatever type they propose. Exchanges on these subjects show that they are matters "on which empirical judgement (are) frequently inseparable from fundamental political attitudes."<sup>1</sup>

It is not the purpose of this study to suggest that financial technique should be relied upon exclusively for the mobilisation and deployment of the economic surplus. Rather, it is to note that the use of financial technique appears often to be under-rated as a development alternative, that its use provides certain opportunities not available through non-market alternatives, and that it is by no means inherently in conflict

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1. Johnson, Harry G., "The Case for Flexible Exchange Rates, 1969," in Johnson, Harry G., and John E. Nash, "UK and Floating Exchanges." Hobart Papers 46, Institute of Economic Affairs, London, 1969. p. 11.

with the desire to increase popular participation in the monetary economy -- in fact, quite the reverse. The particular emphasis of this study is to enquire to what extent and in what ways the use of financial technique may be enhanced and improved to accord more farmers -- Kenya's largest economic class -- access to formal farm credit in a developing mixed economy.

But, before leaving the topic of the four alternatives, some further aspects of their operations and assumptions deserve consideration.

Taxes as a means of raising funds for real investment and subsidies to support investment are frequently justified in economic theory by the divergence between private maximisation or optimisation and social maximisation or optimisation. This view is abstract and based on the assumptions that the government in question has the ability to identify socially desirable or socially undesirable investments, design appropriate taxes and subsidies to redress the imbalances created by divergences between private and social welfare, and efficiently implement the appropriate measures according to plan. Thus, the economist's model assumes a socially responsible form of government and an efficient civil service with relatively sophisticated analytical tools and implementational procedures at its disposal. The assumption is always of a "clean" or surgical mode of intervention which does not create unforeseen problems or secondary effects which outweigh or compromise the social advantages upon which the decision to intervene was presumably based. The interventionist model frequently assumes a disembodied state having perfect information and perfect foresight as well as a commitment to economic logic. This abstract state is unencumbered by bureaucratic inefficiency or by pressure groups capable of blunting or distorting administrative initiatives or of capturing benefits intended for others. Even if the assumptions of perfection were admissible, transactions and administrative costs must be fully considered in any attempt to justify the decision to intervene.

The practice of endeavouring to maximise social welfare through the activities of the state often appears to be less elegant or comprehensive than the theory, and it is on this basis that fiscal technique and planning as alternative investment technologies are frequently criticised.<sup>1</sup> The gap between the theory and the practice may be especially marked in less developed countries where the civil service may not be well educated; where data upon which to make intervention decisions is not complete and accurate; where administrative traditions may be complicated by ethnic loyalties, distorted by corruption, and limited by extreme risk aversion in bureaucratic behaviour; where governments are not constituted democratically; and where competition as a means of securing a measure of comparative performance is dampened by market structures as well as by cultural traditions. In these situations it may be asked whether the economist's models for augmenting social welfare where such is held to differ from private welfare have broad practical applicability. Shaw and Friedman are among those who note the existence of "development monuments" in the form of loss-making public sector enterprises, and conclude that in general intervention is not in the public's best interest when government attempts to undertake investments which could conveniently be undertaken on a private basis relying on self finance, direct finance, and most importantly, financial intermediation.

c. Tactical devices which affect control over the surplus

The four techniques listed above work on a more or less continuous basis. However, there are certain tactics which alter the command of financial assets over real assets and which tend to be invoked occasionally. Some by their nature provide no or only limited scope for repetition with respect

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1. "Government 'encouragement' to business is sometimes as much to be feared as government hostility." Hazlitt, Henry, "Credit Diverts Production." Ch. 6. Economics in One Lesson. New York, Pocket Books Inc., 1955. p. 27.

to any given financial asset.

These tactics are not always amenable to precise classification as instruments of one alternative technology or another. To some extent they are hybrids. However, each is within the bag of tools of public sector interventionists given the manner in which mixed economies are commonly organised. These devices are frequently inherently neutral with respect to their ultimate effect on the workability of financial markets, but the manner in which they are employed may often be considered as financially repressive in that they make the operation of the financial technique more difficult.

Command over real resources is redistributed between holders of financial assets denominated in different currencies when there is a change in the exchange parities between currencies in question, which is one such tactic. To the extent that entities in country A have long or short positions in foreign currency B, a change in parity between currencies A and B will redistribute the value in terms of currency A of opposite positions in currency B, and of these positions relative to portfolios denominated wholly in currency A. Opportunities for windfall gains from changes in parity are one cause of foreign exchange black markets in nations which restrict the financial freedom of their citizens through exchange controls, which tend to make the domestic currency less attractive as a financial asset by moving its functions away from the ideal of money as a means of exchange, unit of value and store of value. As in most developing mixed economies there is an "official" international value of the domestic currency, the tactics of changing official values rests with the government, and is beyond the day-to-day play of forces of financial markets.

Another tactic consists of changing the inclusiveness of money as legal tender as through demonétisation. Historical examples include the windfall gains of holders of monetary gold and silver, following their demonitisation by government authorities, when the market value of the metal content of the

former money exceeded its former value as legal tender. A not uncommon example is also found in the demonitisation of a paper currency series. A recent East African example was the replacement of the Kenyan Sh 100 note, involving the demonitisation of the former notes, within a short period of time in December 1974 and January 1975. Those holders of the old notes who for whatever reason failed to exchange them for the new issue were left, following demonitisation, with only a piece of paper of possible decorative or historical interest.

A very important tactic in certain developing mixed economies is simply expropriation without full compensation. The involuntary surrender or compulsory dispossession of specified financial assets on a once-and-for-all basis in real terms occurs most often through the action of the state and to the direct benefit of the government. An example is the failure of the Ugandan Government to make sufficient official provision for the expatriation of financial assets by Asians expelled in 1972. The blocking of bank accounts by the state is also a form of expropriation, although of course the loss to the holder may be only temporary and partial if the block is eventually removed.

It might be possible to add further and more exotic specific tactics to this list, but it is unlikely that these would have much practical value because of their infrequent use. For example, it is conceivable that a government could intentionally and purposely cause the collapse of a financial institution in an effort to deprive depositors and other holders of claims against the institution in question of a portion of their financial assets and hence redistribute economic power.<sup>1</sup>

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1. A variation on this theme is found in the treatment of the Italian banks in Ethiopia following the collapse of the Italian Occupation in 1941. Italian colonial currency was replaced by the East African shilling but the Italian banks were precluded from accepting shilling deposits. With their business restricted to dealings in a currency which was being withdrawn from circulation, they doubtless would have failed had they not been branches of large Italian banking groups. Details of currency and banking history during the Occupation and the succeeding British Administration in Ethiopia are included in Mauri, Arnaldo, Il Mercato del Credito in Etiopia. Milano, Dott. A. Guiffre Editore, 1967. 494 pp.

d. Problems facing the enhancement of financial technique

The four alternative techniques for mobilising and deploying the economic surplus are imperfect substitutes. As substitutes, there is a degree of trade-off at the margin between them. For example, it is very difficult to build workable financial markets where inflation proceeds at a rapid rate. It is also obvious that by preempting the economic surplus through mechanisms of self-finance within the public sector, the opportunity for the development of financial markets is diminished by central economic management and planning. Likewise, fiscal technique may reduce the discretionary income of savers, diminishing the extent to which savers seek recourse to financial markets. The dynamic effects of competition between the techniques are more subtle, and their results more open to discussion, as suggested by the observations of Gurley and his colleague that the mix of techniques regarded as optimal by those in a position to determine the mix will change over time.

If it is accepted that because of its decentralised nature and dependence upon voluntary responses financial technique is the most subtle and intricate of all of the alternatives, it should come as little surprise that it is also the most vulnerable in many important respects. Its vulnerability is also very apparent because of the role information plays in the financial marketplace. While it may be possible for a centralised system of economic management, for example, to commit fundamental errors in strategy and execution, these systems often work in such a manner that their performance cannot be impartially and thoroughly evaluated because the facts are never fully known or discussed publicly and hence are beyond the access of the interested layman in a society dominated by the Plan. Financial markets are very transparent, however, and are acutely sensitive to performance. They give signals to participants with the consummation of every transaction. Gurley calls the vulnerability of financial technique to public sector intervention -- in effect, to each of the other three techniques he discusses -- the "dark side of finance."<sup>1</sup>

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1. Gurley, John G., op.cit., p. 110.

The vulnerability of the financial technique is illustrated by two lists compiled by McKinnon and by Gurley and Shaw. McKinnon discusses the "intervention syndrome," while Gurley and Shaw point to ways in which centralised economic management and planning diminish the scope of financial markets.

The intervention syndrome is defined to include seven common policies or measures found in developing mixed economies which circumvent domestic capital markets and hence deprive these markets of opportunities for development.<sup>1</sup> These measures consist of:

1. Tariff protection for infant industries, which is frequently a key element in import substitution strategies. This form of intervention replaces reliance on capital markets to undertake the risks of infant ventures.
2. Import licenses and financial (balance sheet) gearing provided on a specific basis, in effect providing monopoly privileges for the favoured few or supporting fragmentation while discouraging competition among the many who might be interested in investing if such licenses were widely distributed.
3. Corruption and monopoly privilege in the form of special access to concessionary channels in the rationing network.
4. Cheapening of capital goods through foreign exchange and trade controls, which are non-market allocative devices.
5. Manipulation of commodity prices in favour of industry and against agriculture, thereby shifting the savings capacity of agricultural producers into the hands of industrialists.
6. Land reform not occurring through the land market.
7. Reliance on foreign direct investment and commercial credits.

These measures are ubiquitous in the development and planning literature and require little further comment. To the extent they are relied upon, even assuming they are not accompanied by inflation, they tend to reduce the scope and potential scope for financial development of a broadly based nature.

Gurley and Shaw cite the case of a "socialist economy" in which the development of financial markets is retarded by the economic and financial policies of the state. They note that

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1. McKinnon, Ronald I., op.cit., pp. 22-29.

the centralised design of an economy is incompatible with relatively high ratios of financial assets to either income or wealth:<sup>1</sup>

1. Private savings are of minor importance, as major emphasis is placed on internal finance and balanced budgets.
2. Savings and investment are concentrated in the state sector.
3. Division of labour in finance tends to be restricted by centralisation.
4. Constraints are imposed by the state on personal income and wealth.
5. State provision of services for which people save in capitalistic societies lowers the level of precautionary portfolios.
6. There is insignificant accumulation of financial claims abroad by many socialist societies.

Thus, the alternative techniques of mobilising and deploying the economic surplus given by Gurley cannot be considered as independent of each other.

#### 5. The Problem of Credit Rationing

Price is the device which clears competitive markets, equating supply and demand. The preference for market rates of interest rather than "administered" rates is based on the observation that the market rate is the one which maximises allocative efficiency in competitive markets permitting the richest mixture of intermediation and the greatest flowering of finance. Prices not determined in competitive markets imply allocative distortions. Yet, it would appear that price is only rarely the sole allocative criterion in credit markets, or in any possible credit market that might be conceived as workable or realistic.

What in fact predominates is credit rationing, defined as reliance to some degree upon non-price mechanisms to allocate credit. Does this observation invalidate the basis for the preference for market rates of interest?

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1. Gurley, John G., and E.S. Shaw, "Financial Structure." pp. 262-263.



Consideration of this question begins with a discussion of the difficulties of identifying the price of credit, which leads into an examination of the areas of congruence and divergence between the interests of borrowers and of lenders. Areas of divergence prompt lenders to screen proposals carefully, invoking credit rationing mechanisms. The ubiquity of such mechanisms is generally misunderstood by observers who equate credit rationing with other non-price allocative devices. The role of information in the administration of credit rationing is then discussed, and the relationships between financial market structure and credit rationing are discussed within the context of uncertainty. Finally, it is noted that credit rationing by an intermediary or class of intermediaries is different from credit rationing by the financial market.

a. Problems in the specification of the price of credit

The problems attached to specification of a price for credit involve two dimensions: complexity or inclusiveness, and uncertainty. The first is most readily seen in the cost of credit to the borrower, the second in the return to the lender. Problems of complexity or inclusiveness make it difficult to specify a definition of the price of credit. An operative definition may be narrow or broad, and four levels of definition are presented here in ascending order of inclusiveness.

i) Price equals interest charged. The first and most narrow is that the price of credit is the amount of interest charged on any particular loan. This definition, specified independently of the loan amount and with reference to a given unit of time, is the rate of interest. This form of specification of the price of credit is the one which is conventionally used by economists and which receives most popular attention. Even the rate of interest as the price of credit is not without ambiguity, however, because of the numerous ways in which a rate of interest may be applied to a given loan transaction to derive an amount payable. The difference between simple and compound interest

provides one illustration, the difference between interest on actual amounts outstanding and interest discounted in advance provides another, while the use of standard 30 day months as well as calendar months or 360 and 365 day years for calculational purposes offers yet a third. Another area of distortion is the analytical convention of using a concept of the rate of interest rather than considering relevant rates of interest for particular cases or the band of rates found in the marketplace.<sup>1</sup>

ii) Price equals the borrower's out of pocket costs. The second level definition is broader, including the interest paid for a loan plus other cash or out of pocket costs borne by the borrower. These additional costs may include an application fee, perhaps paid for the purchase of a loan application form as required by the Agricultural Finance Corporation in Kenya or in the form of an entry fee for cooperative members, some portion of which may be conceptually pro-rated to the access to credit, among other services, which is one of the benefits of membership in a cooperative society. To the extent that cooperative share holdings do not yield competitive returns they are also subject, conceptually, to pro-rating of their cost over the various services to which they provide access.

In addition to these formalised expenses of obtaining access to credit, there may also be other charges which the borrower must bear to secure and retain the favour of the lender. These would normally include travel costs to and from the lender's office and any related correspondence costs. Bribes<sup>2</sup> and gifts may also be required, and it is normal practice as a gesture of hospitality to provide refreshment to any representative of the lender who visits the farm or premises of the borrower.

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1. Robinson, Joan, The Rate of Interest and Other Essays. London, Macmillan & Co., 1952. p. 5.

2. The writer encountered no instances of alleged or actual bribery with respect to farm credit in Kenya, and heard no reports suggesting that corruption of this type is common in Kenya's farm credit mechanism or that bribery is involved in securing access to credit or in prompting public sector lenders to turn a blind eye towards lax repayment performance.

The borrower's cost may also involve outlays to third parties. Illiterate borrowers may have to hire the services of a scribe or other literate person to cope with certain loan application formalities. If the loan is secured, there are usually costs associated with the provision of security. Favours and obligations to guarantors may be common with respect to certain classes of farm credit. The borrower may have to pay the travel expenses of his guarantors from their farms to the lender's office in connection with the loan application process.

Once a loan is obtained, stamp duties and other taxes may be payable in connection with the receipt of funds, as may legal fees relating to the execution of security documents and their verification.

If the lender disburses loans in the form of cheques payable to the borrower, borrowers without accounts with a formal financial institution may have to deal with a third party to cash their loan cheque. The third party may well extract a commission for his services. If the lender disburses loans by paying suppliers directly, the borrower may not be able to obtain loan-financed goods at the best price. Some suppliers may not be interested at all in making any other than cash sales. Others may be willing to deal, but only after making provision for the disadvantages of delayed payment. For example, suppliers would not be expected to give any cash discount in such cases, and to the extent the lender is slow in honouring disbursement claims suppliers may impose a premium of loan financed goods. The premium may of course be payable by the borrower directly to the supplier so that the lender's accountants will not question the price shown on the invoice.

If the loan goes into default, defined as any breach of the loan agreement, the borrower may be liable for other out of pocket costs. These may include surcharges in the form of interest premia, charges for farm visits by representatives of the borrower, legal expenses, etc.

iii) Price includes the borrower's out of pocket and opportunity costs. The third level definition of the price of credit includes interest and other out of pocket costs as outlined above, and also various opportunity costs borne by the borrower. The latter include the value of alternative uses of time which are foregone because of the time requirements of obtaining a loan -- time consumed travelling to the lender's office, filling in forms, undertaking correspondence, marshalling the security required, follow up visits as required, and planning and worrying. Another opportunity cost may be the loss of access to markets because of lender delays in credit provision. This type of cost may be especially important with respect to investment in non-homogeneous goods, such as land and cattle. A borrower with access to funds may not be able to secure disbursement quickly enough when the most favourable transactions might be concluded, leaving the borrower to take less attractive alternatives. Another type of opportunity cost results from requirements which tie up the borrower's funds, such as cooperative share capital and compensating balances in bank accounts, as well as devices which otherwise limit his freedom of economic action. Credit is often linked to specific marketing channels or input sources, and borrowers may not be permitted to shop around for inputs financed by credit or to dispose of produce through the outlet offering the best market price.

iv) Price includes the costs of uncertainty borne by the borrower. The fourth level definition includes all of the above elements in the cost of credit to the borrower and also the costs to the borrower of uncertainty associated with credit access, which could include, for example, the level of lender efficiency. One variety of lender inefficiency may occur in seasonal production credit issued in kind at various times over the production cycle. The costs to the borrower of untimeliness may be substantial. If the achievement of yields required to make credit remunerative to the borrower is sensitive to a number of input applications at critical periods, failure of supply of an input at a late stage in the production cycle jeopardises the investment in those inputs previously applied by causing an interruption . . .

of the production process and reducing final output by shifting the enterprise to a lower production function. In addition, positive opportunity costs of the inputs applied up to the point of untimeliness by the lender work to the borrower's disadvantage.<sup>1</sup>

Uncertainty associated with credit use includes the opportunity credit may and often does offer for the borrower to undertake new practices or to adopt new enterprises. Changes of this sort, by virtue of their being untried by the borrower, frequently tend to increase the farmer's level of economic uncertainty. To the extent that credit permits the borrower to take risks which otherwise would not have been engaged or which would have been faced only on a much reduced level, and to the extent these risks eventuate adversely upon the borrower, the "cost" of credit may be very high indeed, including not only the unrequited outlay of expenses and effort, but also the accumulation of debt, the repayment of which may have been expected from the fruits of the defunct enterprise. If the nature and level of uncertainty inherent in the loan-financed enterprise are perceived not at all or only very imperfectly by a naive borrower, the results may involve an element of pathos as well as of financial misfortune and of resource misallocation by giving an inept entrepreneur access to assets which he is not capable of handling.

v) A digression on social costs of credit. The question of the social costs of credit warrants a brief discussion. Resource misallocation is possible through credit mechanisms,<sup>2</sup> and impose a cost on society. Misallocation based on access to credit may involve not only the provision of real resources to less competent operators, imposing higher costs on the more competent in their efforts to obtain resources, but also impose problems of access on services which the user does not pay for directly. One example

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1. A simple statement of this general concern is found in "Credit Institutions and their Impact on Agricultural Development in Africa," Monthly Bulletin of Agricultural Economics and Statistics. 22, 10/11, October-November 1974. p. 13.

2. Hazlett, Henry, op.cit., pp. 27-35.

of this type of service is the dispensation of justice.<sup>1</sup> Actions against defaulters may swell the queue of litigants, causing others to wait longer to receive a hearing. In the context of rural development this may involve delays in application of the law to routine claims such as boundary disputes, cattle theft and inheritance.<sup>2</sup> To the extent the court is unable to uphold loan contracts because of social considerations the basis for finance is weakened. To the extent the court upholds loan contracts in the face of great social opposition it may weaken its own status and that of the state as lawgiver. If the state is also the lender, and hence the plaintiff, rulings in its favour may tend to alienate groups of rural people who accord primacy to the welfare of their members, not the welfare of society as a whole. On the other hand rulings against the state as lender may diminish its authority and ability to provide the administration which many assume is an important element in rural development.

These problems are transferred rather than solved if loan administration does not depend ultimately on the sanction of the courts. Administrative or legal arrangements which circumvent the courts, granting special privileges to lenders to priority sectors, are also not without social costs, especially if there is no mechanism of appeal. Powers may be abused by administrators,

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1. Examples of problems in enforcing farmer loan repayment through the courts in rural development projects in Ethiopia and Malawi are found in Lele, Uma, The Design of Rural Development. pp. 93, 95, 96.

2. In certain countries public sector agricultural credit institutions chartered under special acts, such as Kenya's Agricultural Finance Corporation, may be empowered to seize a borrower's assets pledged as loan security, without recourse to the courts. The broad powers given to the AFC in this respect are found in Section 33 of its Act, Cap. 323 of The Laws of Kenya: "...the Corporation may, without recourse to any court, enter upon the land and either take possession of or sell by public auction...the land upon such terms and conditions as the (AFC) Board (of Directors) may in all the circumstances consider proper."

and consistency in application and impartiality in judgement may be more difficult to ensure through administrative rather than legal institutions.

If the state as lender refrains from insisting on borrowers' compliance with loan contract terms, it undermines its own authority and also complicates the administration of any future direct intervention it may wish to take in the form of providing credit or with respect to those who are aware of its weakness in enforcing regulations of this type. To the extent things go wrong with public sector credit programmes, the state as lender places at some risk the position of the state as administrator and as guarantor of the rights of individuals under the law.

b. Problems of the specification of the price of credit by the lender

The theme of uncertainty introduced in the fourth level definition of the cost of credit to the borrower leads naturally to the consideration of the equally vexing problem of specifying ex ante the lender's cost of providing credit. Once again, the most convenient starting point is that provided by conventional economic theory, in which price is usually regarded as a quantity easily identified and unambiguous. At any given time, no uncertainty is attached to a current price. This approach is not well suited to primary securities in the form of debt instruments, however, as the essence of debt is delayed payment. Thus, the time element which characterises credit transactions automatically introduces uncertainty into the cost-benefit calculations of borrower and lender -- the future may be foreseen only imperfectly. Not all promises to pay carry an equal probability of fruition. These promises involve at least two elements: one is the obligation for payment of interest and other charges due the lender, and the other is the obligation to repay the principal amount of the loan.

The probability of default with respect to these obligations

inevitably enters into the lender's calculations of the costs of lending. For analytical purposes the importance of the distinction between payment of interest and repayment of principal appears to be a function of the time perspective employed. In the short run non-payment of interest impairs the earnings of the lender, while non-repayment of principal poses a threat to the lender's capital. In the long run the return realised by the lender reflects his degree of success in collecting both interest and principal.

However, the distinction operative in the short run complicates the application of conventional production cost theory to the operations of financial intermediaries. Loss of principal in the short run may possibly be accommodated by considering it as analogous to production for which there is no effective demand, in which case the costs of production are unrequited to the producer. This analogy is imperfect in one sense because the costs of production of credit also include administrative expenses which are one of the elements of interest rate determination in competitive markets according to interest theory and accounting logic. From the opportunity cost perspective the analogy remains intact, as the costs of a failed investment include the returns which would have been realised from the resources were they devoted to their best alternative use.

The lender's difficulty in ascertaining ex ante the cost of any particular transaction fall into several classifications. Exploration of these classifications suggests that there may be considerable uncovered ground between the banker's concern for the ability and the willingness of the borrower to repay and the economist's concern for the marginal efficiency of capital as a determinant of the rate of investment.

Does credit rationing affect the rate or pattern of investment? With the use of criteria other than price for the allocation of finance, the possibility arises that credit rationing distorts the pattern of investment away from that which might be expected



if price were the sole allocative criterion in a competitive market. This concern has not been very widely explored in the literature, but one interesting attempt in this direction was made by Catt in the construction of a static allocative model of homogeneous investment based on inherent elements of difference between the positions of borrowers and lenders. Catt attempts to reconcile the observations that the marginal efficiency of capital may be elastic with respect to changes in the interest rate, while individual entrepreneurs frequently indicate that their investment decisions are not sensitive to changes in market rates of interest.<sup>1</sup> The existence of an "unsatisfied fringe" of rejected loan applicants suggests that the rate and pattern of investment, according to Catt's model, depends upon lenders' perceptions of investment opportunities facing perspective borrowers, not primarily on the perceptions of the borrowers.<sup>2</sup>

The Catt model assumes that all investment is financed by borrowing, the limiting case in a real world of capital gearing. So long as the limiting case is the focus of analysis, the downside risk -- i.e., the probability of unremunerative investment -- is identical for both borrower and lender, assuming away the existence of borrower net worth and the lender's costs of providing credit. The borrower's potential loss is also the lender's potential loss. However, the upside possibilities diverge even in this case, providing a basis for greater risk aversion by the lender than on the part of the borrower. While the borrower's potential maximum return is the potential maximum return from the investment less the costs of borrowing, the lender's maximum return is limited to the repayment of principal plus receipt of interest and associated fees in a timely manner. Thus, the lender's schedule of the marginal efficiency of capital is held to be lower than that of the borrower as suggested by the greater risk aversion of lenders compared to investors.

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1. Catt, A.J.L., "Credit Risk and Credit Rationing: Comment," Quarterly Journal of Economics. 77, August 1963. p. 506.

2. Ibid., p. 507.

The marginal borrower's yield expectations on the marginal units of investment may be so much above the market rate of interest (to which he may or may not have access), that a significant increase in the loan rate would not cause him to abandon his project or his attempts to secure finance. Credit rationing makes funds "scarce" but not "too dear."<sup>1</sup>

With the relaxation of the limiting assumptions of the model the lender obtains the opportunity to vary his downside risk relative to that of the borrower. For example, the lender may require security in the form of other free assets owned by the borrower. More importantly, the lender may require the borrower to subscribe some of his own funds to the project. The borrower's contribution constitutes a cushion, or sacrifice to the lender's greater risk aversion, by permitting the lender to provide a smaller quantity of funds than he would have under the limiting assumption and by giving the borrower a greater incentive to see the project through successfully by virtue of his relegation to a residual position in the event of liquidation. The lender may be able to conclude that, within the possible range of uncertainty facing the investment, his own position as a risk taker with respect to the particular project is minimised to an extent consistent with the level of his expected returns from the loan.

The Catt model dissolves into indeterminacy under these relaxations of assumptions, having served the useful purpose of focussing on the different perceptions between borrower and lender. These differences are hardly surprising,<sup>2</sup> and reflect larger divergences than simply those related to the mathematics of differential income and loss expectations as outlined above.

One aspect of credit rationing which is not cited by Catt but which would add force to his assertion of differing expectations

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1. Ibid.

2. Chase, Sam B., Jr., "Credit Risk and Credit Rationing: Comment," Quarterly Journal of Economics. LXXV, 2, May 1961. p. 326; Hodgman, Donald R., "Credit Risk and Credit Rationing: Reply," loc. cit. LXXV, 2, May 1961. pp. 327-329.

regarding the marginal efficiency of capital is that the borrower-investor presumably treats his own resourcefulness as a given or constant, built into his perceptions of investment opportunities. The more resourceful see greater scope for investment than the less resourceful. However, the lender must weigh not only the investment opportunity as perceived by the loan applicant but also the ability or capacity of the applicant to meet the projections implicitly or explicitly contained in his loan application. This fact of lending is known as "lender's risk."<sup>1</sup> As it is unlikely that the lender would be more optimistic than the applicant about the applicant's prospects in the applicant's industry, the lender would tend to project a lower marginal efficiency of capital with respect to any given project and also with respect to the totality of investment.

Catt also suggests that lenders tend to be better informed about alternative investment opportunities than are loan applicants, as lenders are in the market continuously while applicants allegedly tend to think only in terms of their own proposal.<sup>2</sup> However, this is not plausible when Catt's unstated assumption of homogeneous investment is abandoned. Lenders are likely to be able to discriminate closely among applicants because as lenders, rather than equity holders excluded from Catt's basic model, they are concerned with the borrower as well as with his efficiency as an investor. However, to the extent lenders do not regularly and in a specialised manner undertake equity risks in collaboration with their borrowers it is unlikely that they would attain the specialisation necessary in the applicant's industry to have the ability to discriminate closely between investment alternatives in that industry. In practice, it is a brave lender who operates on the assumption that he knows his borrower's business better than his borrower does.

In addition to problems of differential cultivation of

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1. "Lender's risk, that is, fear of partial or total failure of the borrower," is Joan Robinson's definition. The Rate of Interest. p. 6.

2. Op.cit., p. 508.

specialised knowledge, the lender's perceptions will tend to be more conservative than the borrower's because the lender does not exercise complete control over the borrower's activity or use of the funds borrowed.<sup>1</sup> In the narrow sense the lender can attempt to control loan use through a variety of devices ranging from loan disbursement through remuneration of suppliers of agreed goods, to disbursement in kind, and to field inspections to verify that funds have been spent as agreed. These precautions are prudent and useful, but they achieve no more than a limited control over the borrower's total expenditure. The fungible nature of credit implies that to the extent credit is a substitute for a portion of the borrower's own finite resources it permits him to undertake additional investments with his own resources which he would otherwise have been unable to undertake. On a broader basis the lender may impose and the borrower may accept certain restrictions under a loan agreement, such as a limitation on other borrowing and on the payment of dividends or of salaries to principals. However, the costs to the lender of securing total control over the borrower's activities is extremely high, both in terms of administrative expenses and in terms of the loss of borrower initiative such could involve.

Another basis for differing approaches to risk between borrowers and lenders is that although they come together in the financial market, they are also dependent on other markets which they do not share. For example, the financial intermediary may bid for resources in a market segment which is quite different from the one in which he makes loans. The borrower may be most heavily oriented towards the market for his product. Because of the differences in the markets in which they operate, borrower and lender face different complexes of risks. The normal expectation would be that these risk complexes would be distinguishable from each other and that this difference would be reflected in the tactics

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1. Freimer, Marshall, and Myron J. Gordon, "Why Bankers Ration Credit," Quarterly Journal of Economics. LXXIX, 3, August 1965. p. 413.

used by borrower and lender within their overall optimising strategies. Differences in tactics would influence their perceptions of any particular transaction. While a transaction normally implies an area of shared perception,<sup>1</sup> there is reason to suspect that relevant areas of differing perception would also exist.

Consideration of the lender's market position in isolation may also explain the greater risk aversion of lenders relative to investors. To the extent lenders compete for financial resources alternatives are created for depositors. The maintenance of the value of deposits is of course of great interest to depositors, regardless of whether their financial resources have been accumulated for reasons of convenience (money as a means of payment), precaution (money as a store of value), or speculation. If the intermediary receiving these deposits lends them out at high risk their value may be impaired.<sup>2</sup> Thus, the intermediary must balance conflicting considerations. The quantity of funds he can lend will increase as he is willing to accommodate increasing uncertainty. At the same time, the supply of his loanable funds provided by deposits will tend to shrink. Hence, banker's conservatism "may simply be the result of competition among rational institutions trying to attract customers on both the loan and deposit sides."<sup>3</sup>

#### c. The utility of credit rationing

The lender's exposure on both sides of the market, as a competitor for financial resources and as a competitor issuing loans, provides special incentives for good credit decision making. The possibility that poor decisions will have repercussions on

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1. Although it is conventionally held that a transaction in a competitive market occurs only when buyer and seller reach an agreement, it may also be argued that transactions occur only when the parties involved disagree -- the buyer being convinced that the price warrants a purchase, the seller convinced that the same price warrants the opposite response, a sale.

2. Deposit insurance may offset this risk to the extent it is available for the amount of money and class of intermediary concerned.

3. Chase, Sam B., Jr., op.cit., p. 326.

both sides of an intermediary's operations highlights the requirement of confidence for successful continuation of the intermediary's function. Given this vulnerability imposed by the fact that a relatively small number of errors in credit decision making will cause not only losses -- a normal business risk -- but also the loss of financial resources required for continued functioning,<sup>1</sup> lenders customarily employ screening devices designed to ensure that only those propositions and prospective borrowers most attractive to the lender's particular specialisation will receive serious consideration.

These screening devices are credit rationing mechanisms. Common examples of such requirements include having a registered title deed to land to pledge as security, having a previously-established non-borrowing relationship with the lender in order to be considered for credit, membership in a credit cooperative or group, having an annual income above a certain minimum, having a demonstrable capacity to repay a loan within a specified period of time, and others known by all who have used modern formal credit.

However, credit rationing is not usually defined in terms of these non-price screening devices. Price is the variable which is more familiar to economic analysis, and credit rationing is generally said to consist of the lender's establishing an interest rate (narrowly defined) and lending at this rate up to a limit determined by the borrower's financial circumstances.<sup>2</sup> It must be noted that the implicit ceteris paribus convention upon which this definition is based means that this definition assumes that only one type of transaction is under consideration. For any one type of transaction, the lender would deal with all customers at the same rate or within a narrow band of rates reflecting small projected differences in risks and other costs. In other words,

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1. While deposit insurance and central banks diminish this risk for certain types of intermediaries, they do not altogether eliminate it. The odium of being placed on bank examiners' and other authorities' danger lists and the loss of executive control of management when this occurs also contributes to intermediaries' caution.

2. Freimer, Marshall, and Myron J. Gordon, op.cit., p. 397.

if a prospective borrower meets the non-price rationing criteria and as a result of or in conjunction with the application of these criteria is judged capable of meeting his obligations, he receives credit at the standard rate or within the standard rate range.

The definition commonly used implies that the amount, the term to maturity and any other terms and conditions of the loan are subject to negotiation, while the interest rate is not negotiable or negotiable within only a very narrow range.<sup>1</sup> In the absence of non-price rationing, the interest rate would also be subject to negotiation, with considerable flexibility exercised by the lender in making opening bids and a resulting wide range of interest rates applied to different customers with whom the lender engages in otherwise more or less similar transactions as defined by loan agreements. The different rates charged to different customers would be a reflection of customers' differential bargaining powers, ceteris paribus.

Freimer and Gordon's econometric treatment of credit rationing lead them to conclude that credit rationing is rational behaviour<sup>2</sup> for a profit and utility maximising lender. Their models include cases of fixed size investments as well as cases in which investment size is highly interest elastic, as where credit rationing is not applied.<sup>3</sup> An important aspect of the types of considerations with which they attempted to deal may be illustrated quite simply in an intuitive manner.

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1. Freimer and Gordon use the term "strict" credit rationing to denote the situation in which lenders will not vary their rate and "weak" credit rationing to denote cases in which lenders will vary the amount they are willing to lend with the interest rate, up to a limit. Ibid., p. 398.

The contention that credit rationing is a cost saving mechanism through its removal of the interest rate from the subject of loan negotiation may be countered by the contention that this removal leads simply to more protracted negotiation of other loan terms.

2. A review of various credit rationing models by Harris indicates that most models produce the conclusion that non-price rationing of credit by lenders is rational behaviour. Harris, Duane Gail, Credit Rationing at Commercial Banks: Theory and Evidence. Unpublished PhD dissertation, University of Pennsylvania, 1971. (University Microfilms 72-06163). p. 38.

3. Op.cit., pp. 398 ff.

The use of a standard rate of interest by credit rationing lenders would, ceteris paribus, paradoxically lead a rational "high risk" borrower to increase his estimation of his own debt capacity. If his costs of borrowing are restricted to a level appropriate to a low level of uncertainty, that portion of the high risk borrower's projected debt servicing capacity which would be available for the payment of loan principal would be larger than if his costs of borrowing were fixed at a higher level appropriate to his level of uncertainty. Under the same assumptions the lender may not be able to improve significantly the expected value of his returns from a loan by increasing the rate of interest charged. Increases in the borrower's costs of credit decrease the surplus or "free cash flow" from the borrower's investment which is a source of long run protection for the lender under conditions of certainty. Likewise, decreases in interest and other charges increase the portion of the projected free cash flow available for repayment of loan principal, which increases the borrower's debt capacity under assumptions of ceteris paribus. Given a certain projected free cash flow, a rational lender could seek to protect or enhance his position in ways other than charging a higher rate of interest, in ways not directly associated with the rate of interest charged on the loan. The lender's options include subjecting prospective borrowers to requirements relating to the provision of security or to the possession of certain qualifications or evidence of characteristics which are perceived by the lender as being associated with good repayment behaviour. Such requirements constitute the tools of credit rationing.

#### d. Credit rationing as the norm

Does the persistence of credit rationing imply that the price system is foresaken in financial markets? This suggestion is contained in Ladman's definition of "external non-price rationing" of credit (the phenomenon discussed here) as a



condition which prevails when<sup>1</sup>

the suppliers of credit for any reason limit the amount of money they will lend the farmer at going rates of interest where this limit keeps the farmer from borrowing the amount he wants to borrow and in fact would borrow in the absence of such limit.

The same approach is manifest in Wilson's definitional discussion:<sup>2</sup>

Under certain circumstances we find that banks and other credit institutions are only prepared to allow their customers a limited amount of accommodation at current rates of interest. For some reason it has been decided, either by the monetary authorities or...by the banks themselves that the demand for credit cannot be fully met at current rates and the authorities (or the banks) are unwilling that interest rates should rise. Partially, at least, the price mechanism is abandoned, but somehow or other a proportion of the demand for credit must be chocked off.

Ladman's statement fails to recognise that the use of "going rates of interest" by formal lenders (the type of lender studied by Ladman) in itself implies credit rationing. If the interest rate were the sole rationing criterion the range of rates charged by the lender would be broad, given an ample supply of loanable funds, reflecting differing levels of uncertainty associated with different loans in the lender's portfolio. In terms of equilibrium analysis, the diversity of rates produced in markets which are competitive but not enjoying perfect foresight would produce a uniform return to lenders over the long run because of lenders' differential loss experience.

The opening phrase of Wilson's discussion (i.e., "under certain circumstances") suggests that credit rationing is an occasional condition in the credit market, occurring at the expense of the price system. However, this possibility is contradicted by his later observation that with credit rationing lenders "are only prepared to allow their customers a limited amount of accommodation," as financial theory and experience

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1. Ladman, Jerry Ray, The Marginal Value Productivity of Short Term Credit and an Examination of External Credit Rationing for Representative Farm Firms in Two Mexican Municipios. Unpublished PhD dissertation, Iowa State University, 1968. (University Microfilms 68 - 14,803). p. 7.

2. Wilson, J.S.G., "Credit Rationing and the Relevant Rate of Interest," Economica. NS, XXI, 81, February 1954. p. 22.

offer no examples of unlimited accommodation.<sup>1</sup> The credit-worthiness of governments may appear to be without bounds (at least within the geographical and functional confines of their monopoly powers as states), given the assumption that such loans are riskless, but even in this special case it may be argued that in any given short period lenders to government do not have unlimited access to or supplies of loanable funds because ipso facto they are not government and thus cannot issue riskless claims on themselves. This circularity returns us to Ladman's observation that credit rationing prevents a farmer from obtaining all the credit he would like to have, apparently in the same sense that rationing of petrol would force some consumers to use less than they would in the absence of such a control. In fact, the amount of debt the farmer wants to incur and the amount that he would be able to borrow frequently diverge, given lender's risk. The amount that he would be able to borrow is a function of the lender's assessment of the farmer's debt capacity as well as of the farmer's willingness to borrow, while the amount the farmer wants to borrow is simply a function of his own willingness to incur a certain type of financial obligation.

However, this approach to the problem of credit rationing does lead to an interesting consideration. If the prospective borrower and prospective lender honestly disagree in their perceptions of the borrower's financial circumstances, specifically, about the borrower's debt capacity, and the loan eventually negotiated is for a smaller amount than the borrower believes he can handle within the terms and conditions agreed, is non-price credit rationing present? The previous discussion of the inevitability of differences in interests and perceptions between

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1. Joan Robinson provides the justification: "A world in which entrepreneurs could borrow without limit at the regular rate of interest would be much unlike the world we live in. Unlimited borrowing would be possible only where there was no uncertainty about future profits, not only in the broad, but in respect to the fortunes of individual enterprises." The Rate of Interest. p. 80.

borrowers and lenders suggests that haggling is bound to occur, even in circumstances of full disclosure and mutual goodwill. The financial market is a means by which such differences are reconciled. Non-price rationing is a device employed in the search and bargain process in the financial marketplace, and arises from uncertainty and reactions to uncertainty.

Reflecting the unique nature of the "price" of credit, it is tempting to conclude that credit rationing is a special case of the general phenomenon on non-price allocative systems. However, credit rationing is in fact a different genus from the conventional type of rationing which occurs under the imposition of a ceiling price. Credit rationing is unique because:<sup>1</sup>

i) the lender rations as a rational response to risk and is not denying himself or being denied an advantage which would otherwise be attractive -- e.g., greater returns from lending, and  
 ii) the supply of loanable funds to some borrowers within the margin may remain interest elastic even after becoming completely inelastic to those at the margin. The ceiling price model assumes no scope for elasticity of supply.

e. Specialisation as a means of reducing uncertainty and risk

Credit rationing, as a response to uncertainty within a situation of divergent interests, operates through devices which support specialisation in financial intermediation. Specialisation implies that the financial market consists of several reasonably well defined segments. Each segment involves a somewhat differentiated product or service and is served by a peculiar type of specialist intermediary. Development finance or venture capital companies, mainstream merchant bankers, commercial bankers, credit unions, mortgage bankers, housing finance institutions, savings banks, hire purchase companies and industrial finance companies are common examples of specialised

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1. These observations follow closely those given by Donald R. Hodgman in "Credit Risk and Credit Rationing," Quarterly Journal of Economics. LXXIV, 2, May 1960. p. 275.

financial institutions. Each of these intermediaries tends to specialise both as a buyer and as a seller of financial assets, serving a certain type of borrower as defined by credit rationing criteria, as well as a certain type of purchaser of its own financial liabilities.

There are two types of impetus for specialisation in financial markets: one is in response to market forces, while the other is in response to statutory limitations.

1) Specialisation and survival in the market. Information occupies probably the most prominent position among the requirements of a lender in a competitive market. A borrower or prospective borrower's promise to pay may be evaluated only by access to information. Information of relevance includes not only the status of the borrower's own affairs, but of the nature of the markets in which the borrower deals and the forces acting upon these markets. While the lender's uncertainty with respect to a given borrower may be offset ultimately by the existence of some form of security, the value of security is also frequently not without uncertainty, and realisation is not a costless affair. Late repayment of even a fully secured loan may temporarily embarrass the lender if the maturity of his assets and his liabilities are tightly balanced with insufficient provision of a margin for manoeuvre. This type of problem is not borne costlessly by an intermediary. Thus, there is an incentive to reduce uncertainty through specialisation in lending, to restrict the range of transactions to those about which the intermediary is best informed. Specialisation on this basis permits economies, as noted in a previous section, and contributes to the allocative efficiency of financial markets.

Along with the premium imposed on information by market forces and its impetus towards specialisation, a strategy for reducing risk (in this case defined as the characteristic of combined uncertainties) is pooling. Diversification of activities is compatible with a strategy of growth, reduces the impact of

risk, and retains the advantages of specialisation in each of the activities combined within one firm. Thus, the financial sector is composed of a variety of institutions, some of which are narrowly specialised, such as mortgage banks or factors to the garment trade, while others are diversified, such as commercial banks.

The concept of the optimum financial structure for an intermediary has been reasonably well explored. Specification of the optimum involves a balancing of conflicting goals and also includes achieving a satisfactory balance -- relative to the goals, capital structure and operating alternatives open to the intermediary -- between portfolio risk and portfolio yield.<sup>1</sup> The minimisation of portfolio risk and uncertainty is directed ultimately toward the avoidance of insolvency, defined as the inability to meet financial obligations as they fall due. Illiquidity, the inability to convert assets into cash, poses the threat of insolvency. Given the need for some illiquidity, as a property of non-cash financial assets, financial management harmonises the probability of insolvency with the fruitful employment of financial assets, usually under a maximising or optimising strategy.

However, the concept of an optimum financial structure for an economy involves more complexity and a multiplicity of goals and has not been so well explored.<sup>2</sup> The configuration of financial markets is the result of many forces with varying strengths peculiar to each economy.<sup>3</sup> In addition to market forces, perfect and imperfect, governments also generally play a role in determining the scope of intermediaries' activities.

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1. Consult any work on bank management. A discussion is found in Chapter 8, "Commercial Bank Liquidity and Lending Policy," of Sayers, R.S., Modern Banking. 7th ed. Oxford, at the Clarendon Press, 1967. pp. 175-196.

2. Cameron, Rondo, Banking in the Early Stages of Industrialization. pp. 2, 307 ff. Since Cameron made this observation the work of Shaw and McKinnon has provided a framework for this type of consideration, of course.

3. Ibid., pp. 290 ff.

ii) Specialisation enforced by intervention. Because of the critical nature of financial intermediation in a country's economic life, intermediaries are normally subject to statutory limitations or to administrative controls which limit their scope. Controls by government have frequently developed through efforts to protect the public from poor financial management stemming from a lack of specialisation. Poor management may result from management spread too thinly. Diversification, as reflected in a firm's dealing in a wide variety of types of financial assets simultaneously, appears at times to be contrary to the public interest as when an intermediary has the opportunity to substitute internal transactions for market transactions across or between various specialisations. This type of substitution (e.g., the use of pension funds managed by a bank to purchase shares or obligations of a faltering borrower indebted to the same bank) is frequently associated with financial imprudence.<sup>1</sup> Consequently, intermediaries are frequently prohibited by law from engaging in certain activities deemed to be beyond the range of their traditional expertise or which for other reasons public sector authorities wish to reserve for special sorts of institutions.<sup>2</sup>

Statutory limitations usually begin with barriers to entry. In order to participate in formal financial markets as an intermediary, certain statutory requirements must usually be met, such as the possession of at least a minimum amount of capital. An intermediary's capital offers a "cushion" against insolvency,<sup>3</sup>

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1. The manipulations by IOS management as detailed in a popular exposé provide ample illustration. See Raw, Charles; Bruce Page and Godfrey Hodgson, Do You Sincerely Want to be Rich? Harmondsworth, Middlesex, Penguin Books Ltd., 1972. 480 pp.

2. Part III of The Banking Act of Kenya is entitled "Prohibited Business," and the Acts applying to other financial institutions likewise place limitations on the type of business each is empowered to conduct.

3. "The concept of liquidity, although separate from that of capital adequacy, is very closely related to it in some aspects. The need for (bank) liquidity arises from:  
(i) the need to be able to meet overall increases in demand for

hence protecting to some extent those to whom the intermediary is indebted. The existence of an undercapitalised intermediary may threaten the solvency of many participants in the market, given the transactions linkages between intermediaries in an active market. A loss of liquidity through the insolvency of one participant may trigger a chain reaction of insolvencies, thus providing a basis for barriers to entry based on capitalisation.<sup>1</sup>

Statutory or administrative limitations which result in the rationing of credit to users of credit outside the financial sector are also common. In Kenya, for example, credit was rationed on the basis of race prior to independence.<sup>2</sup> Distinctions based on residence or citizenship and race have been used since independence.<sup>3</sup> In India as of 1969, the position of commercial banks as holders of charges on peasants' land was not at all secure, given that cooperatives could in many cases obtain a first charge regardless of any prior charges registered, and that commercial banks were in many cases not allowed to dispose

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(continued) advances and/or withdrawal of deposits or from timing differences in the maturity of assets and liabilities; (ii) a shortfall in the anticipated inward cash flow usually as a result of the inability of a borrower to repay on the due date; (iii) additional operating or capital expenditure; (iv) losses."

"The Capital and Liquidity Adequacy of Banks," Bank of England Quarterly Bulletin. September 1975. p. 242.

1. A rationale for special regulation of financial markets is well expressed by the following quotation: "The public interest is involved in the solvency as well as the competitiveness of financial institutions. We allow restaurants and grocery stores to fail freely, believing that free entry assures competition. The burden of their failure falls mainly on the owners of such enterprises. But the losses that result from the insolvency of financial institutions, particularly those that handle the money of the relatively unsophisticated public, are thought to be socially or not economically intolerable." Robinson, Roland I., and Dwayne Wrightman, Financial Markets: The Accumulation and Allocation of Wealth. New York, McGraw-Hill Book Co., 1974. pp. 403-404.

2. East Africa Royal Commission 1953-1955. Chapter 9. pp. 96-104.

3. Central Bank of Kenya, Eighth Annual Report for the Year Ended 30th June 1974. pp. 57, 58, 62, 65.

of foreclosed land.<sup>1</sup> Naturally, Indian banks severely rationed their credit to peasant cultivators as a result.

The existence of statutory limitations on intermediation should not be confused with the justification of such limitations. Intervention in this form also has its social costs: Prohibitions against horizontal and vertical integration in financial markets would appear to involve a sacrifice of economies of scale, judging from the general tendency of intermediaries to diversify on functional and geographical bases.<sup>2</sup>

Limitations on entry, for example, may permit the realisation of monopoly rents on equity capital, the existence of geographic differences in interest rates, or discrimination -- in terms of interest rates -- not related to the performance of various classes of borrowers, and differences in long run rates of return on equity capital among different classes of intermediaries subjected to different entry barriers.<sup>3</sup> Deposit insurance not paid for directly by depositors may make them indifferent to comparative lending performance, shielding poor lenders from the sanctions of loss of deposits and depositors.<sup>4</sup>

On an historical basis the most rapid expansion of banking in industrialised countries appears to have occurred when entry into banking was relatively free and banks were not restrained by law from issuing their own banknotes.<sup>5</sup> While freedom of note issue is often considered to characterise one of the most irresponsible

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1. Reserve Bank of India, Report of the Expert Group on State Enactments. pp. 4-5 contain a summary.

2. One motive for this tendency is suggested by the title of the annual world financial survey published by The Economist, 253, 6851, 14 December 1974 issue, in the wake of several spectacular failures of major banks and the efforts of others to reorganise: "When Bigger Looks Safer."

3. Borts, George H., "Agenda for a Commission to Study Financial Markets, their Structure and Regulation," Journal of Money, Credit, and Banking. III,1, February 1971. pp. 3-4.

4. Ibid., pp. 4-5.

5. Cameron, Rondo, Banking in the Early Stages of Industrialization. p. 305.



and socially harmful chapters in banking history,<sup>1</sup> it is frequently overlooked that the rapid expansion of banking that competitive note issue encouraged provided society with certain benefits, too, as manifested by the public's demand for a means of payment -- as demonstrated by their willingness to hold and accept private banknotes -- a point apparently missed by commentators such as Hammond and Cagan. Their error, of course, lies in comparing the disadvantages of a non-unified national currency with the advantages of a unified one, of comparing a particular condition with its successors rather than its antecedents or with alternatives available at the time. Joan Robertson's comment that, "if the stock (of money) is inconveniently small, even an unsophisticated society soon finds ways to augment it with acceptable tokens,"<sup>2</sup> provides a more useful approach to the problem. In any event, "unregulated" private note issues eventually engendered market responses in the form of internal controls within the industry which bankers applied to each other.<sup>3</sup> The purpose of raising these issues is not to deny the case for bank regulation, but simply to point out various sides of the case and the existence of alternative approaches to the minimisation of the social risk inherent in private intermediation.

iii) A summary of causes of specialisation in financial markets. To return to and summarise the theme outlined above, the relation between uncertainty and risk and the structure

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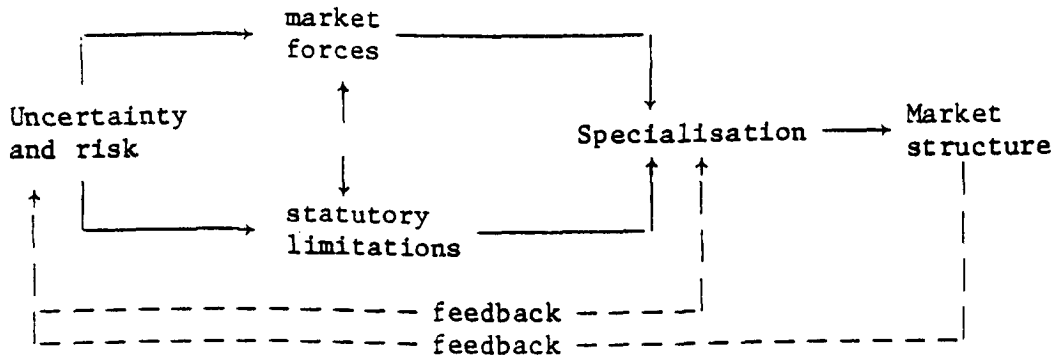
1. Hammond, Bray, "Banking before the Civil War," in Carson, Deane, ed., Banking and Monetary Studies. Homewood, Illinois, Richard D. Irwin, Inc., 1963. pp. 1-14; Cagan, Phillip, "The First Fifty Years of the National Banking System -- an Historical Appraisal," loc.cit., pp. 15-42.

2. The Rate of Interest. p. 146.

3. Hammond, Bray, op.cit., pp. 12-13; Cameron, Rondo, op.cit., on the development of Scottish banking, especially pp. 68-70. The chronicle of note issue, oligopoly, failure, bank wars and other aspects of the most colourful periods of Scottish banking history is found in Checkland, S.G., Scottish Banking: A History, 1695-1973. Glasgow, Collins, 1975. See especially Ch. 5 and 6, pp. 89-135, 137-179.

of financial markets is forceful but indirect. The main dynamics may be illustrated diagrammatically as shown in Figure II-a.

Figure II-a. Uncertainty, Risk and Market Structure



Uncertainty and risk induce specialisation in financial intermediaries, both through the operation of market forces and through statutory devices. Specialisation in turn determines market structure. Thus, secular changes in uncertainty and risk would be reflected in alterations in market structure, as through, for example, bank failure and amalgamation. The existence of specialisation and a certain market structure serve to modify uncertainty and risk through feedback processes, too. To this simplified model could be added the acknowledgement of interaction between market forces and statutory limitations, as indicated by the broken line in Figure II-a.

Market structure based on specialisation and segmentation provides a basis for the specification of credit rationing criteria by financial firms. Each specialised intermediary is best equipped to take certain types of risks and to face certain types of uncertainties, reflecting the advantages of specialisation. Undertaking risks and becoming subject to uncertainties outside the established area of expertise could increase the probability of illiquidity and insolvency. An increase in the risk and uncertainty attached to an intermediary's portfolio could increase this probability in two ways.<sup>1</sup> The first is the effect of non-repayment on liquidity

1. Chase, Sam B., Jr., op.cit., p. 326.

and solvency, and the second is the change in the lender's access to resources which could follow such an increase. Depositors and other purchasers of the intermediary's liabilities might react to an increase in risk and uncertainty by converting these liabilities to cash, which could also place strains on the intermediary's liquidity and solvency.

f. Differential credit rationing inherent  
in specialisation in financial markets

Prospective borrowers may find it in their best interests to negotiate with several lenders in an effort to obtain the most advantageous terms possible,<sup>1</sup> and the utility of such behaviour is enhanced by product differentiation in financial markets. Product differentiation, as reflected in a diversity of financial assets, and in more stringent rationing by any single-product intermediary, tends to offset the effects of credit rationing by any single intermediary or class of intermediaries. Prospective individual borrowers who cannot meet the requirements of a commercial bank may have access to hire purchase, and those who do not qualify for hire purchase may find accommodation at pawn shops. Firms which cannot obtain further debt may be able to raise additional equity capital with venture capital companies or investment banks, and so forth.

A diversified and competitive financial market cannot exist independently of specialisation among intermediaries. Specialisation enhances the potential for the market as a whole to be an efficient allocative mechanism, even though each intermediary uses non-price criteria for the allocation of the resources under his control. Increasing diversity implies increasing specialisation, which provides an avenue for the reduction of uncertainty through economies of information access in each particular market segment. Better information

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1. Wilson, J.F.G., "Credit Rationing," pp. 21-31.

allows the market to function more efficiently as an allocative mechanism. Far from restricting the scope of borrowers, credit rationing is part of a mechanism which expands the range of choice and may enhance prospective borrowers' access to finance under workably competitive conditions. Credit rationing need not inherently distort investment allocation under conditions of uncertainty and workable competition.

#### D. Financial Deepening from a Rural Development Perspective

##### 1. Toward a Concept of Saving Appropriate for Rural Development

The relative neglect of the financial process as a contributor or potential contributor to economic progress would also appear to be related to the application to developing countries of the basic conventional model which envisages the composition of an economy consisting of households, firms and government. According to this typology, households are consuming units and firms are producing units.<sup>1</sup> Households are capable of consumption because they provide the factors of production required by firms. Returns to labour, land and capital flow from firms to households through factor markets, ultimately if not directly.

##### a. Interdependence and functions of abstract economic units

That this dichotomy between households and firms, or variations upon it found in basic textbooks, is not suited to developing economies is apparent. The model assumes a high degree of economic interdependence, and nowhere are these assumptions less tenable than with respect to the fragmented markets in the rural economies which constitute substantial portions of the national economy and occupy the majority of the population in

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1. A variation on the basic theme views economic units as consisting of the "public" and "business". See Samuelson, Paul A., Economics: An Introductory Analysis. 7th ed. New York, McGraw-Hill Book Co., 1967. p. 44.

most Third World countries. The extent of the isolation in which economic activities take place varies between areas and over time, and perception of this isolation is also diverse. For example, Marx saw the mid-Nineteenth Century French peasant as having almost no economic links with the larger economy.<sup>1</sup>

The smallholding peasants form a vast mass, the members of which live in similar conditions but without entering into manifold relations with one another. Their mode of production isolates them from one another instead of bringing them into mutual intercourse....Their field of production, the smallholding, admits of no division of labour in its cultivation, no application of science and, therefore, no diversity of development, no variety of talent, no wealth of social relationships. Each individual peasant family is almost self-sufficient; it itself directly produces the major part of its consumption and thus acquires its means of life more through exchange with nature than in intercourse with society.

Few observers of African peasantry today would accept this definition as applicable. The richness and complexity of the "manifold relations" of traditional society in Africa have been widely commented upon, as has the division of labour, by age and by sex, ordained by the same traditions. However, the validity of Marx's observation for narrowly economic, as opposed to more broadly social, relationships may approach the admissible in certain cases, the number of which is declining with the spread of markets.

A more comprehensive view of the peasantry stressing interdependence on several planes, is offered by Firth.<sup>2</sup>

'Peasant' describes a socio-economic system of small-scale producers with a relatively simple, non-industrial technology. The system is a rural one, though...it depends on a rural-urban antimony and interrelationship, particularly upon the existence of a market. Definition of a system as 'peasant' implies that it has its own particular local character, partly because of intricate

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1. Marx, Karl, "The Eighteenth Brumaire of Louis Bonaparte," Karl Marx and Frederick Engels: Selected Works. Vol. 1. Moscow, Foreign Languages Publishing House, 1950. pp. 202-203.

2. Firth, Raymond, "Capital, Saving and Credit in Peasant Societies: A Viewpoint from Economic Anthropology," in Firth, Raymond, and B.S. Yamey, eds., op.cit., p. 17.

community interrelationships and partly because, in economic and social affairs, it both contributes to and draws upon a town in trade, cultural exchange and general ideology. (emphasis added)

Firth would presumably not quarrel with the assertion that a major share of peasant agricultural produce is consumed on the farm rather than sold in the market, although the studies assembled by him and his co-editor suggest that Marx's view cannot be generalised as it does not accord with the data available from a variety of economies.

Whichever view is taken of the extent of isolation of households in a rural economy, it is easily seen that the economically abstract household has little resemblance to reality. While the sociological abstraction of a household may perhaps be applied without great difficulty, at least for purposes of census enumeration, the economic abstraction of the household is less applicable to the rural communities of the Third World. But in spite of its distortion, the economic concept of the household appears to be in harmony with certain predilections in current economic and political thought which put primary emphasis on consumption rather than production as the main focus in the development arena. Briefly, the population of the Third World are popularly viewed basically as consumers in the household sense rather than as producers.<sup>1</sup> Difficulties in securing superior levels of consumption for the masses are a matter of prime concern. Indeed, the direct relationship between consumption and survival, with the former a necessary condition for the latter, provides a basis for this view of a materially poor population and the rhetoric which this view produces. Concern for the Gross Domestic Product as an indicator of economic performance is being re-fined by concern for standards of living and the quality of

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1. Contrast "Seventy percent of the world's people get only 30% of the world's income" (United Nations, "The Seventh Special Session of the General Assembly, 1-12 September 1975: Issues and Background. New York, 1975. p. 7) with "Roughly half the world's population are neither contributing significantly to economic growth nor sharing equitably in its benefits." (McNamara, Robert S., "Address to the Board of Governors." Washington, DC, IBRD, 1 September 1975. p. 13).

life, which emphasises consumption. Levels of consumption on a global scale are being projected beyond the year 2000 in exercises which suggest that the present economic order cannot be sustained by the planet's material resources.

Given these considerations and their obvious utility in identifying certain aspects of major current economic problems, it is not surprising that saving is generally thought of as a residual, a left-over after consumption is taken care of. Consumption is, after all, the ultimate purpose of economic activity -- saving and investment are only means to that end. It is also consistent with this view that the essentially negative definition of saving as an act of abstention is not conducive to identifying certain opportunities which are inherent in a monetised economy. The popular view should be considered by those concerned with development as a harmful simplification suitable only at the level of a Robinson Crusoe type of economy.

b. Saving as a normal economic activity

A more productive approach to saving is found in the nature of the financial function. To preserve the symmetry of simplicity, a quaint quotation from Paish suffices to illustrate the point:<sup>1</sup>

Probably the only living creatures which do not require any form of finance are those for whom the enjoyment of the fruits of their efforts to obtain food is simultaneous with the making of the efforts. For all other creatures there is some interval of time between effort and enjoyment, and it is for the provision of the means of existence during this interval that we need finance.

So, finance is necessary for human survival and its utility arises from the lack of simultaneity between the realisation of income and the act of expenditure. The existence of intervals between the occurrence of these two types of event is normal and virtually universal. Furness lists four reasons why differing

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1. Paish, F.W., Business Finance. London, Sir Issac Pitman and Sons Ltd., 1957. p. 5.

time patterns may characterise flows of receipts and flows of payments:<sup>1</sup>

1. It is frequently inconvenient to pay for a continuous service on a continuous basis. Convenience favours periodic settlement. (This phenomenon also applies to collection of payment for a continuous service, of course, and Furness' statement could easily be expanded to include both sides of the transaction.
2. Many commodities are characterised by indivisibilities. They are costly in relation to the amount of income earned over a short period, and their purchase requires a build-up of wealth or else payment out of expected future income.
3. Flows may vary over life cycles. With reference to individuals, accumulation in the economically most productive years or periods is a rational response to the probability of diminished real income in the future due to illness, advanced age, uncertainty of employment, and similar factors.
4. Time periods required for production may not coincide with the time periods applicable to producers' needs. Roundabout methods of production involve long gestation periods which must be financed so that shorter cycles may continue. Workers may be paid on a weekly or monthly basis in an industry in which units of production are considerably longer, as in construction and shipbuilding, for example. Lack of simultaneity of this variety is also easily illustrated by an agricultural economy in which harvests occur once or twice a year while consumption of agricultural produce occurs continuously.

Thus, abstention from consumption is in fact an integral part of the economic process and cannot on a priori grounds be relegated to the position of a residual, especially a residual which may not always eventuate. Given the assumption of monetised income and expenditure and the lack of access to credit, saving in fact has precedence over consumption in terms of timing. Timing is an appropriate and valid context because of the lack of simultaneity in income and expenditure (i.e., a time dimension), which is the basis of finance.<sup>2</sup> Still on a very simple level,

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1. Furness, E.L., An Introduction to Financial Economics. London, Heinemann, 1972. p. 9.

2. It should be noted that the concept presented here has little connection with the notion of the obligatory surplus and optional surplus used by Clive Bell. By defining the former as the peasant response to direct taxes and industrially produced agricultural inputs, its utility as an analytical device is diminished -- e.g., cash flows related to the exchange of inputs within the rural sector are ignored. By defining



any income not disbursed the moment it is received may be regarded as "saved" until such time as it is disbursed.

The progression is illustrated schematically in Figure II-b, which defines income received but not yet disbursed for the purchase of consumption goods and services or for "investment" purposes as working balances. These balances are saving in the traditional sense of representing an abstention from consumption, as well as an abstention from investment by the unit receiving monetary income. The inclusiveness of the various definitions of money poses no problem for this model. As money lies within the frontier provided by its definition, non-monetary financial assets lie beyond that frontier and consist of two types of claims: evidence of ownership and evidence of debt (other than that which constitutes money).

Excepting deductions at source, which are common in developing countries only in monetary transactions involving governments or moneylenders as principals, monetary income provides the recipient with savings in a financial form. This observation adds other dimensions to the "real" model according to which income is used either for consumption or investment in real goods. These new dimensions include the length of time between receipt and disbursement and the form in which the funds are held, and both lead directly to the consideration of the structure of an economy's financial sector.

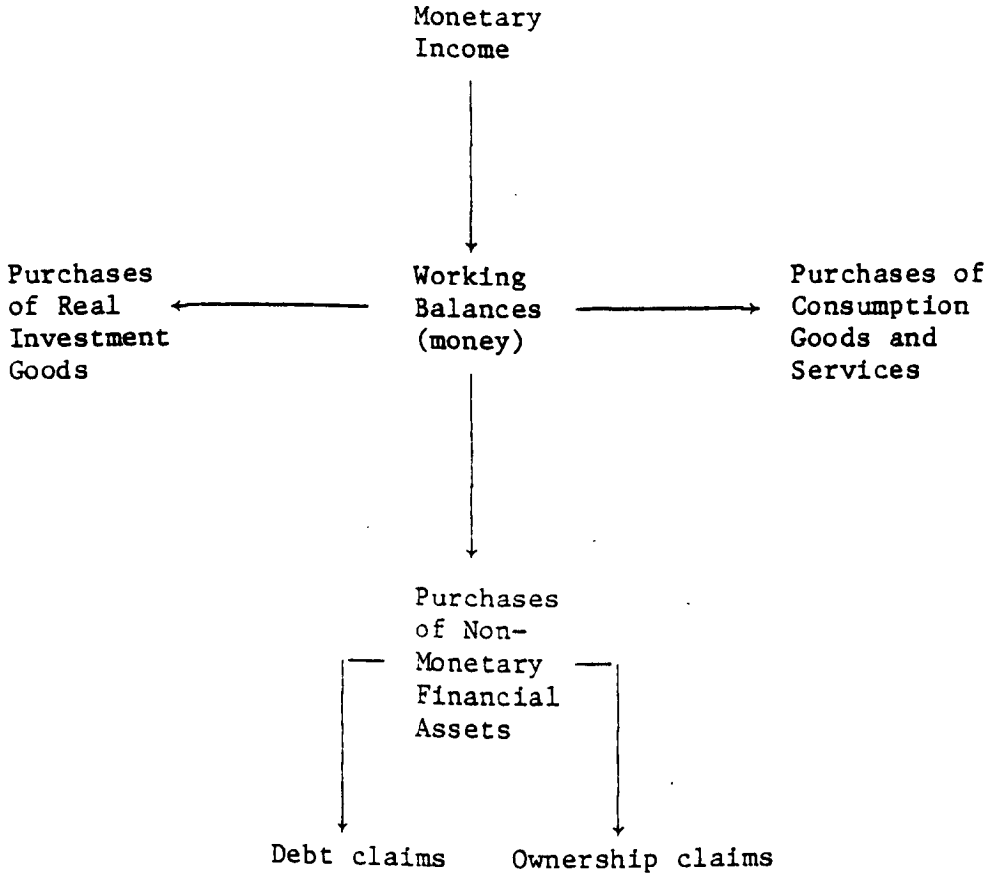
#### c. Time and form as keys to mobilising savings

The form in which monetary income is held, other things remaining equal, is a function of the alternatives available. If no financial intermediaries are convenient to the location

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(continued) the latter as the "counterpart transactions of rural households' purchases of industrial consumption goods," definitional awkwardness appears to complicate the dichotomy between industrial and non-industrial goods and services noted previously. See "Ideology and Economic Interests in Indian Land Reform," in Lehmann, David, ed., Agrarian Reform and Agrarian Reformism. London, Faber and Faber, 1974. p. 210.

Figure II-b. Savings, Investment and the Finance Function.



in which monetary income is received, there is a higher probability that the transaction will involve cash than if an intermediary is convenient. Likewise, without convenient intermediation cash balances will probably be relatively higher than with such a service. With intermediation cash balances may be exchanged for alternative financial assets.

The opportunities for intermediation provided by the length of time funds are held, other things remaining equal, depend upon the nature of intermediaries and the markets in which they deal. While in major financial centres it is possible to place funds at interest for periods as short as one night, in rural areas it may not be possible to find employment for funds during periods several months long between agricultural production cycles. Bottomley notes, for example, that rural moneylenders in areas where loan demand is greatest during the period between sowing and harvest may have no attractive use for their funds between harvest and sowing.<sup>1</sup> The length of the shortest feasible holding period for non-monetary financial assets tends to vary inversely with the intensity of financial market activity. When markets are active the financial structure can mobilise resources which would otherwise remain idle for short periods, while inactive markets mobilise sluggishly or to only a small degree. The active market is also characterised by a wide selection of financial assets. One basis for differentiation of financial assets is maturity or term, and increasing the choice of maturities makes non-monetary financial assets relatively more attractive to holders of monetary savings, providing an impetus to the purchase of non-monetary financial assets, thereby making a more active market. As market activity increases over the medium and long term, more savings, as defined here, are translated into savings as erroneously viewed by those who maintain that peasants cannot save.

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1. Bottomley, Anthony, "The Cost of Administering Private Loans in Underdeveloped Rural Areas," Oxford Economic Papers. NS, 15, 2, June 1963. p. 160 f; "The Determination of Pure Rates of Interest in Underdeveloped Rural Areas," Review of Economics and Statistics. XLVI, 3, August 1964. p. 302.

## 2. Indivisibilities and Agricultural Progress

Are indivisibilities in rural investment a major barrier to development? Is intervention required to overcome any indivisibilities which may constrain rural progress? Do indivisibilities provide a grounds for justifying intervention?

Evidence suggests that indivisibilities are frequently not an insuperable financial problem within the context of rural development. Savings capacities are often underestimated, and various social mechanisms help to overcome discontinuities in investment scale.

Some problems of indivisibility may be overcome by joint action, as when people voluntarily join together to take advantage of bulk buying and delivery. In Malawi, for example, the state-owned supplier of agricultural inputs has offered a discount to cash purchasers of lorry load lots of fertiliser and also delivers the fertiliser to the point designated by the buyer, which is an important consideration given the state of transport facilities in that country. Small farmers without access to formal credit for inputs or for farm development have in many instances spontaneously grouped themselves together for the purchase of a lorry loan for delivery to their village, overcoming an indivisibility through joint action.

In Kenya the experience of the Cooperative Savings Scheme suggests that farmers are capable of saving substantial amounts of cash. The absolute accumulation of savings lowers the relative threshold of indivisibility. Women's harambee societies formed in the countryside are also dedicated to overcoming indivisibilities. A Society of the Iron Sheets, such as encountered by the writer in Central Province, was formed as a rotating credit association for the purpose of assisting members to roof their houses with iron sheets.

These examples may be criticised as being homely and humble, not relevant to "productive" investment and the problems of scale it may involve. Evidence to the contrary is found in the over-

whelming importance of self-finance of major innovations by smallholders in Kenya as outlined in the next chapter. In addition, the existence of indivisibilities is in fact an argument for financial liberalisation. McKinnon stresses that well functioning financial markets free entrepreneurs to overcome indivisibilities in a socially beneficial manner consistent with broadly-based development policies:<sup>1</sup>

With indivisibilities so important in practice, however, financially isolated entrepreneurs can easily be caught in a low-level equilibrium trap, when innovation is completely blocked except for a small handful of the very wealthy, who get wealthier.

The financial isolation of entrepreneurs is a function of financial markets which are performing poorly from the standpoint of rural development and the small scale activities found in rural areas. In the terminology of rural development, rural people do not have effective access to such markets.

McKinnon's observations that indivisibilities are important in practice should not necessarily be interpreted as meaning that indivisibilities frequently constitute barriers to agricultural progress. In contrast to the modern, urban investor, the rural innovator or potential innovator is seldom entirely isolated. Kinship and friendship ties form a basis for informal financial markets and for his access to such markets. Such ties also provide a basis for dealing with indivisibilities through group action, as noted above. While in certain cases, such as large scale irrigation, indivisibilities may be critical constraints, most development in rural areas is an incremental process which proceeds primarily through the addition of small units, as will be seen in the discussion of the development of small scale farming in Kenya. McKinnon's assertion that innovation may be completely blocked may apply in certain circumstances, but once again these cases are probably less frequent in rural areas than might be supposed. Innovation seems to occur in most rural areas most of the time, even without the benefit of dynamic formal financial markets. That financial markets can contribute to hastening the

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1. Op.cit., p. 13.

pace of innovation and accord a greater number of rural people access to innovation is obvious, though, as argued by McKinnon throughout his work on the subject treated here.

#### E. Other Considerations Related to Financial Liberalisation

##### 1. The Track Record -- Without a Track or a Stopwatch

Historically, a number of countries have achieved impressive real economic growth since the mid-1960's under regimes which have been highly repressive financially in the sense that the term is used in the literature. However, others following policies of financial repression have not achieved impressive growth, and some of the most financially repressive of the non-centrally planned economies are not, by their own admissions, sure winners in the development game. But, on the basis of recent experience the case for repression cannot be dismissed out of hand.

The growth of financially repressed economies does not in itself vindicate repression; nor does their laggardliness vindicate liberalisation. The measure required to vindicate repression or liberalisation is the rate and quality of growth which would have been achieved by the same economy had it taken the alternate fork in the financial road, from repression towards liberalisation or from liberalisation towards repression, and the comparison of performance under that alternative with that actually realised. The real world does not permit controlled experiments of this magnitude, and the close relationship between financial policy, fiscal policy and foreign trade policy destroys the basis for the ceteris paribus requirement essential for rigorous proof. Much of the argument for and against repression is based on perceptions of the sanctity and utility of individual liberty and on perceptions of the economic rationality and entrepreneurial initiative of the population participating in the national economy.

The case for liberalisation is possibly less ambiguous than the case for repression. Those developing economies which have undertaken liberalisation on a marked scale have prospered according to conventional measures of economic growth, as discussed by McKinnon with respect to South Korea in 1964-1970, Indonesia for several years following financial reforms in 1968, and the Republic of China since the 1950's. Hong Kong, Singapore and Malaysia may be added to this list, and a number of lesser examples of small steps towards liberalisation could also be appended. None of these experiments seems to have "failed", although McKinnon demonstrates how foreign suppliers' credits can cause their course to get out of control at a critical stage. It must be noted, however, that liberalisation is not a one way street -- for various of their own reasons governments have found it expedient to reimpose repression when the non-economic cost of liberalisation appeared from the perspective of the government to be becoming too high.

Each of the major examples of liberalisation conforms to the social scientist's expectation that the real world is complex. The cause or nature of certain features of experiments in liberalisation are open to dispute. One basis of attack is that it is not necessarily valid to conclude from trends before and after some measure of liberalisation that their difference reflects the impact of liberalisation. Other factors could well contribute, and a narrow view of causality is not acceptable. Pre-liberalisation Korea, for example, had been experiencing a decreasing rate of inflation from 1953 through mid-1961 with an attendant increase in real money balances, relative to units of output, over the period.<sup>1</sup> Other features of the Korean experience which complicate the analysis of the effects of the reforms are many. They include: the effects of Japanese occupation and of two wars, the clout of American foreign assistance, the monetary

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1. Campbell, Colin D., "The Velocity of Money and the Rate of Inflation: Recent Experiences in South Korea and Brazil," in Meiselman, David, ed., Varieties of Monetary Experience. Chicago, The University of Chicago Press, 1970. pp. 343, 349.

importance of a large stock of foreign currencies readily and easily available to private individuals, the role and peculiar bias of American advisors in devising responses to the monetary chaos which reflected South Korea's inability to govern its own monetary affairs in a socially useful manner, the increase in American investment following reforms, the spin-off of military spending by the Americans in Vietnam, and the simultaneous leap in Japanese investment in response both to the reforms and to the normalisation of relations, among other factors.<sup>1</sup>

Other examples of marked liberalisation (among Third World nations limited primarily to those which are semi-industrialised)<sup>2</sup> may also be characterised by critics of liberalisation as being special cases in some way or another: accidents of geography, favourable cultural variables, special relationships with highly developed economies, and similar features. Nevertheless, this type of characterisation is not without weaknesses and it is unrealistic to conclude on a priori grounds that these examples are irrelevant to the problems of development in other countries. If any other countries had managed to devise policies and administrative arrangements which resulted in rapid growth, reasons would no doubt have been found to classify them as special cases, too, leaving critics no more willing to ask more searching questions.<sup>3</sup> That undisputed economic success is not necessarily

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1. Relevant chronicles include Bloomfield, A.I., and J.P. Jensen, Banking Reform in South Korea. New York, Federal Reserve Bank of New York, 1951; Campbell, Colin D., op.cit.; Campbell, Colin D., and Gordon Tullock, "Some Little Understood Aspects of Korea's Monetary and Fiscal Systems," American Economic Review. 47, 1957; De Alessi, L., "An Analysis of Foreign Aid Administration in Korea," Southern Economic Journal. 25, 1958; Kanasa-Thasan, S., op.cit.; Youngil, Lim, "Foreign Influence on the Economic Change in Korea: A Survey," The Journal of Asian Studies. XXVIII, 1. November 1968, pp. 77-99.

2. "Brazil, Chile, Pakistan and Turkey will be covered more directly than will the pristine economies of Africa. Socialist economies will be included insofar as they use prices to allocate resources in commodity and factor markets." McKinnon, Ronald I., op.cit., p. 2.

3. Jagdish Bagwati noted the tendency to rationalise planning non-success by recourse to the special case argument: "In the



a normal situation under any form of economic organisation needs little elaboration. The genius and fortuity which permit success are probably always a special case. If this proposition is accepted, it remains to consider the propriety of any given policy or recommendation in the particular circumstances in which it is engendered. The number of special cases of success suggests that the uniqueness of each is essentially the precise manner in which growth was accelerated, not that growth was in fact accelerated.

## 2. The Beat of the Different Drummer

Another development of historical interest is the manner in which pressures for liberalisation which might have been expected to be generated within financial sectors in developing economies appear to have been diffused, notably by two related phenomena. The first is the movement of the public sector into the financial sector at the level of agricultural and development finance institutions and in commercial banking. As little published data is available on optimising strategies and management behaviour in state-owned financial institutions in general and in those in developing countries in particular, attempts to assess the impact of state ownership of such organisations must remain speculative and tentative. The following comments are offered with this qualification.

While there is nothing inherent in state ownership which necessarily causes a lack of independence on the part of state-

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(continued) 1950's (Indian) economic programmes were considered by the progressive and democratic opinion abroad to be a model of what other developing countries might aspire to and emulate. Today (in 1973) many of us spend our time trying to convince others that somehow all the success stories elsewhere are special cases and that our performance is not as unsatisfactory as it appears." Cited by Moynihan, Daniel P., "America in Opposition," Commentary. March 1975. p. 42. Parenthetical insertions added. Hla Myint has implied that the tendency to look for special cases rather than general or common features was enhanced by the popularity of Rostow's "take-off" concept. See "Economic Theory and the Underdeveloped Countries," Journal of Political Economy. 73, 5, October 1965. p. 479.

owned enterprises, the effect would often seem to be one of emasculation. Perhaps the prospect of assured institutional existence or assured personal employment, with government or the civil service perceived as the most solid going concern, dulls the sense of enterprise or the desire for independent action. Such institutions are frequently monopolies or quasi-monopolies and hence may involve some of the problems with respect to the determination of the volume of their output which are suggested by the theory of monopoly. Schatz documents in detail the activities of Federal Loans Boards in Nigeria, where political interference was rampant and where their activities were eventually suspended (to arise later in another form) by a coup rather than by their own lagging performance.<sup>1</sup> It would also appear that the requirements of patronage, defined to include a preference for local staff over management contracts or qualified expatriates, may limit the competence of management in some respects and in the short or medium term. Laxity in accounting performance, manifested most simply in the length of time between the close of financial years and the subsequent appearance of annual financial reports, is symptomatic. The elevation of social goals, as perceived by politicians and civil servants, at the expense of market or financial goals, may also tend to diminish the independence and perhaps creativity of management of state owned financial institutions of the varieties mentioned above. Evidence in this direction often consists of management's approach to its borrowers and potential borrowers. Are such borrowers perceived as "poor and needy", as providing some "indispensable" good or service for the country, or are they perceived as a market for financial services, to be developed?<sup>2</sup>

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1. Schatz, Sayre P., Economics, Politics and Administration in Government Lending.

2. Bureaucrats belonging to the non-market tradition often appear disturbed by peripheral issues, such as peasants' illiteracy and lack of formal education, and cite these as contributing to the failure of credit schemes to achieve financial viability or farm-level goals. Market-oriented players can offer greater insights into borrowers' decision making strategies, criteria and performance.

To the extent that management is not market oriented it will probably not perform very brilliantly in broadening its services in a viable manner, financially and socially.

Related to this creation of client institutions of the state is the second weakening element: the willingness of external donors to support such intermediaries, often to the extent of overwhelming their ability to deliver (and collect). Such support may easily tend to decrease management's concern about its access to funds locally, in effect insulating these institutions from local financial markets. Insulation can easily lead to unconcern for market information and little attention to the development of methods of monitoring and interpreting local market forces.

### 3. Perspectives on Performance under Intervention

Finally, on the political side, the recent trend does not appear to have been one of increasing reverence for market performance. To the extent that financial liberalisation involves decontrol, the substitution of indirect for direct controls, and decentralisation and the encouragement of competition to stimulate the market, it is out of touch with important trends in political fashion and with the inertia of entrenched civil services and the ease with which they absorb a certain segment of the unemployed in the majority of developing countries. Thus, at the moment, to study the benefits of financial liberalisation or the consequences of financial repression does not appear to deserve a very high priority among many of those concerned with the production of policies palatable to present power configurations in many parts of the Third World.

Controls and intervention have become the conventional wisdom with respect to private goods, and governments in developing countries and in donor countries appear often to prefer functionaries working several hours a day to market mechanisms working all the time or at least whenever competitive buyers meet competitive sellers in the search-and-bargain process in markets for private

goods. The quality of intervention is of course as important as the goal of intervention, especially in developing countries with high expectations relative to the ability of the public sector to deliver. The general nature of the key problem inherent in the nature of development administration has been summarised by Jackson with reference to Kenya:<sup>1</sup>

Securing resources for public administration is one problem; putting them to their most productive administrative use is another and possibly the most difficult one confronting public officials and governments in new states. The most striking feature of government administration (in Kenya) is...its rather rigid bureaucratic nature which is a contemporary legacy of the colonial past. This structure is well adapted to the quest for control but was not fashioned with the aim of initiating and guiding development change. The formal bureaucratic character of the civil service is revealed by the concentration of authority at the top and by the general resistance of top managers to the idea of delegating some decision-making responsibilities to subordinates and more junior staff. The bureaucratic character of the Kenya civil service is also revealed in its highly centralised organisational structure. But development administration, as indeed all administration which must service fluid, changing and uncertain environments, would seem to require organisational patterns which significantly differ from the bureaucratic model.

If bureaucratic structure, especially in technical ministries, can be viewed as an obstacle to the creation of a development administration, so can the norms and behaviour associated with such a structure. Bureaucratic administration requires and fashions leaders who tend to be preoccupied with procedure and routine and with correctly applying predetermined rules to every decision confronted. But development and social change generate novel problems and new situations for which pre-existing rules and decision-making precedents may offer no solution. Situations of novelty and uncertainty seem to demand leaders who are flexible, who will seek new solutions and are willing to take risks much as economic entrepreneurs do.

If these somewhat severe judgements can be applied justifiably to

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1. Jackson, Robert H., "Administration and Development in Kenya: A Review of Problems Outstanding," in Hyden, Goran; Robert Jackson and John Okumu, Development Administration: The Kenyan Experience. Nairobi, Oxford University Press, 1970. Excerpts from pp. 328- 331.

Kenya's not unimpressive public sector performance, what order of criticisms may be levied at the public sectors in many of the lesser nation-state contenders in the development game?

Another aspect of the quality of intervention is the degree of subtlety, fineness or refinement of the tools employed. This consideration is important if it is assumed that private initiative has certain social advantages in certain situations over public enterprise and that one task of intervention should be to reconcile the advantages of private decision making with goals of social importance as perceived by a government.

For example, one of the most notable developments in the financial sector in Africa since the mid-1960's has been the partial and total nationalisations with compensation of commercial banks, and it may be hypothesised that outright control through 50%, majority or total ownership is the bluntest policy instrument available to a government, sacrificing any advantages which private decision making in a competitive market may have to offer. It may be asked, in those cases in which state ownership of banks was not perceived as an end in itself but rather as a means to an end, whether alternative approaches were seriously considered. Did governments consider experimenting with intervention or with liberalisation to stimulate competitiveness among banks or to make it advantageous, for offensive rather than defensive reasons, for banks to adjust their portfolios and services in a manner considered socially advantageous by governments? Were the financial and social opportunity costs of the sacrifice of private initiative considered? Was the selective use of reserve requirements, re-discounting facilities and government balances seriously reviewed, and was recourse to the power to tax and the power of the courts mooted in the councils concerned with making the banking sector more responsive to priorities as perceived by governments?<sup>1</sup>

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1. Charles Harvey concluded that the powers of the central bank constituted as effective a means of channelling credit to priority sectors as outright ownership of banks by the state in Zambia. See "State Participation and the Zambian Banks." IDS Discussion

The history of many of these nationalisations has yet to be written, but it would appear that in many cases government interest has not brought about sweeping changes or improvements in the ability of commercial banks to serve the public.<sup>1</sup> In those cases in which state banking and private banking exist in the same market it is not always obvious that state banks are providing greater social benefits than private banks,<sup>2</sup> although they may simplify the tasks and perhaps relax the discipline of Treasury officials concerned with public finances.

It may be useful at this point to note that, given a propensity to intervene, the Kenya Government has in the past generally opted for plurality and subtlety rather than monopoly

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(continued) Paper, Institute of Development Studies at the University of Sussex, August 1972. W.T. Newlyn indicates that central banking legislation in Kenya, Uganda and Tanzania provides "adequate powers for the effective control of the commercial banks," including qualitative and quantitative powers over advances. If Newlyn's statement is valid, nationalisation of banks in Uganda and Tanzania must have been for purposes other than ensuring effective control. See Newlyn's Finance for Development. Nairobi, East African Publishing House, 1968. p. 25.

1. Various aspects of administrative problems encountered by the nationalised banking system in Tanzania in its first five years, which should give pause for consideration, are found in Mwapachu, Juma V., and Bruno P. Kwelukilwa, "Manpower Development and Training in the National Bank of Commerce, Tanzania," Prajnan (quarterly journal of the National Institute of Bank Management, Bombay), II, 3, July-September 1973. pp. 329-351. Discussion of early problems faced by this system is also found in Binhammer, H.H., "Financial Infrastructure and the Availability of Credit and Finance to the Rural Sector of the Tanzanian Economy," Economic Papers. University of East Africa Social Sciences Council Conference, 1968/69. pp. 1-26.
2. Gershenberg's interpretation of the role of the Uganda Commercial Bank comes to broadly this conclusion, and notes that its predecessor, the Uganda Savings and Loan Association, made so many commercially ill-advised loans that by the mid-1960's it had to curtail new lending because of the accumulation of overdue amounts, which resulted in a liquidity shortage. See Gershenberg, Irving, "The Impact of Independence on the Role of Commercial Banking in Uganda's Economic Development, 1960-1968." Paper presented at the University of East Africa, University Social Sciences Council Conference, December 8-12, 1969. pp. 2, 9.

and bluntness in controlling the banking sector.<sup>1</sup> By taking a majority interest in one of the three large banks and by forming a small bank wholly owned by the Government, the authorities have put their foot into the market and are in a position to stimulate competition and internal reforms they may deem desirable. At the same time, the powers and competence of central banking have been enhanced, and Government support for the Cooperative Bank has provided special impetus in a priority sector (which is also served by the large commercial banks). The banking system is probably slightly more competitive than it was previously, although this assessment is quite subjective. Each of the major banks appears rather consistently in recent years to have exercised initiatives and to have attempted innovations in the spirit of Government's priorities in development.

#### 4. Linkages

An extremely important consideration with respect to the implementation of financial liberalisation is that it implies, and to be very effective must be accompanied by, liberalisation in other key areas. Shaw and McKinnon are both emphatic concerning the inter-relationship between various aspects of intervention. Neither advocates financial liberalisation alone as a satisfactory means of achieving a high rate of economic expansion.<sup>2</sup> In introductory pages both stress the utility of liberalisation on three fronts: in financial policy, in fiscal policy and in foreign trade policy.

(These relationships are not explored further here. This

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1. Something of a change in policy or approach is seen in the 26 July 1975 instructions from the Central Bank to the commercial banks requiring them to increase agricultural lending to a level equal to at least 17% of net deposits by 30 June 1976. Levels prevailing at the close of years between 1972 and 1974 did not exceed 10%. See Central Bank of Kenya, Ninth Annual Report for the Financial Year Ended 30th June 1975. Nairobi, 1975. p. 75.

2. Shaw, Edward S., op.cit., p. 4; McKinnon, Ronald I., op.cit., p. 3.

study is oriented primarily towards the question of whether the theory of financial deepening is relevant to the performance of the agricultural credit market in Kenya. Relationships between this market and fiscal and foreign trade policies would be in many cases indirect, and of secondary importance relative to the impact of financial policies.)

##### 5. A Note on Farm Credit as a Cause of Inflation

Unless a unique set of conditions apply, the provision of credit is inflationary. Under the conventional assumptions of resource agility and of no excess stocks or unutilised capacity, inflationary tendencies result from credit provision except in those cases in which there is a coincidence of incremental, credit-based demand and of incremental supply in the particular markets and for the particular goods purchased by those receiving credit.

The inflationary tendency of credit provision is seen clearly in Schumpeter's development model, according to which development is a structural phenomenon produced by entrepreneurs who rearrange existing resources in new combinations.<sup>1</sup> Through a different employment of existing resources total output is increased and, more importantly, the equilibrium of the previous situation is displaced through the intervention of the entrepreneur in such a way that the path from the old to the new equilibrium is characterised by a discontinuity.<sup>2</sup>

The intervention of Schumpeter's entrepreneur is possible only with the support of credit, given the assumption of fully committed resources in the stable circular flow of economic activity sketched in Schumpeter's model. The credit upon which the entrepreneur relies is defined to exclude circulating or trade credit (Betriebskredit), but is rather credit in the form of newly created pur-

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1. Schumpeter, Joseph A., The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle. Cambridge, Mass., Harvard University Press, 1934. p. 66.

2. Ibid., p. 64n.



chasing power furnished expressly to enable the entrepreneur to bid resources away from their old niches in the circular flow so that their services may be rearranged in a more productive manner.<sup>1</sup> The process of outbidding those using scarce resources in the old equilibrium would, ceteris paribus, raise the general price level and hence is essentially inflationary.

This inflationary impact is a short run phenomenon. The long run impact will depend upon the manner in which the post-intervention equilibrium is achieved. In Schumpeter's model the long run equilibrium is achieved as competitive initiatives swamp the entrepreneur's intervention and force his return down to the level prevailing in the competitive market. This process is in fact development by Schumpeter's definition, and the greater productivity of resources in the new as compared to the former equilibrium may result in a removal of the temporary inflation resulting from the creation of additional purchasing power. In fact, it may lead to deflation through increasing society's production on the one hand while on the other enabling the entrepreneur to repay his loan with interest, which diminishes the amount of purchasing power in the circular flow; and also removes from the circular flow an entrepreneurial profit.<sup>2</sup>

To return to short run inflationary effects, Schumpeter's model presents the situation at one extreme. At the other, for example, credit to farmers could be and at times is provided in kind, the goods involved being donated or furnished at a very low

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1. Ibid., pp. 103, 107. Schumpeter relies on several different assumptions to simplify his presentation. At one point he indicates that in the stable circular flow no necessary gap exists between product and means of production, making credit for trade purposes superfluous; i.e., homogeneity prevails. He suggests elsewhere that the assumption that all transactions in the stable circular flow are cash transactions is acceptable for expository purposes.

2. Ibid., pp. 109 ff. These assumptions are warranted given the unique and restricted role of credit and, by implication, of financial intermediation in his model.

cost by an external donor.<sup>1</sup> In this case the provision of credit occurs simultaneously with the provision of credit-demanded goods, through the tying device of provision of credit in kind. Assuming that the goods originate from outside the economy, this type of design of credit schemes is not inflationary to the economy in question except to the extent that the administration of the loan scheme or the transport, delivery and use of the incremental goods supplied diverts resources from other domestic uses involving positive opportunity costs.

Between Schumpeter's model and its opposite in terms of the extent to which incremental credit reallocates a fixed or inelastic supply of resources, there are many real world cases involving more or less inflation. The magnitude of inflation engendered by farm credit depends upon many factors. To the extent that credit is not provided in kind and is used to bid resources away from alternative uses having a positive opportunity cost, it will have inflationary tendencies. Its inflationary potential is especially evident in cases in which credit is used as a "supply leading" device specifically to stimulate growth through the transfer of resources from a traditional to a modern sector including innovative agriculture.<sup>2</sup>

The inflationary impact of formal agricultural credit on the larger economy in developing countries is limited by its narrow scope. In India, for example, such credit is available for only roughly a quarter of the country's farmers,<sup>3</sup> while in Africa the proportion appears rarely to exceed 15%.<sup>4</sup> The value

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1. FAO pilot fertiliser distribution programmes in Kenya fall within this category. For a description see Donaldson, G.F., and J.D. Von Pischke, op.cit., pp. 151-156.

2. Patrick, Hugh T., "Financial Development and Economic Growth in Underdeveloped Countries," Economic Development and Cultural Change. XIV, 2, January 1966. pp. 175-177.

3. "Agricultural Credit Institutions in Asia and Latin America," Monthly Bulletin of Agricultural Economics and Statistics. 24, 6, June 1975. p. 6.

4. "Credit Institutions in Africa." p. 13.

of formal farm credit extended appears to be well below 25% of the value of agricultural output in most African countries,<sup>1</sup> but is apparently larger in Latin America due to the infusion of massive amounts of funds from United States' assistance and other donors.<sup>2</sup>

Thus, the overall inflationary impact of farm credit provision, as reflected in increases in the general price level of the economy, is generally not likely to be substantial. However, the impact of credit provision on prices in specific markets may be substantial, along Schumpeterian lines. Specific cases do not appear to be frequently documented, but it is apparent that an increase in the availability of credit for some given purpose, such as the purchase of land or cattle, could, other things remaining equal, have the effect of raising prices in land and cattle markets. Such price changes would have a distributive and hence structural impact, similar in operation to those inherent in inflation, but the result in terms of rural welfare and development would depend upon the existing distribution of resources and the organisation of the rural economy.

In the interests of economy no further or detailed consideration is accorded the inflationary impact of farm credit in this paper. One basis for justifying this simplification is that the central focus, i.e., farm credit, is inherently neither more nor less inflationary than any other sort of credit. A second rationale is that inflation has not traditionally been considered a problem in Kenya, although the country has since about 1972 been exposed to a higher rate than it previously had experienced,<sup>3</sup> due

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1. Ibid. However, the basis for calculation apparently used by FAO seems quite generous. For an alternative attempt to quantify the situation with respect to Kenya, see Von Pischke, J.D., "A Critical Survey of Approaches to the Role of Credit in Smallholder Development," Working Paper No. 145, Institute for Development Studies, University of Nairobi, February 1974. pp. 1-4.

2. Adams, Dale W., "Agricultural Credit in Latin America." pp. 163-172.

3. Central Bank of Kenya, Ninth Annual Report, 1975. p. 63.

in significant measure to external factors. Finally, the position accorded inflation by the approach to development taken here is clear. Inflation at any rate beyond a very low threshold is counterproductive in terms of financial development. Financial development is held to be an essential element in balanced and equitable growth and economic vitality. Implementation of policies consistent with the promotion of financial deepening combat inflation at the same time they promote redistribution and development through competitive markets.

## CHAPTER III

SOURCES AND FLOWS OF FINANCE FOR FARM  
PRODUCTION AND DEVELOPMENT IN KENYA

There is insufficient published data to permit, within the limitations of this study, the construction of a useful sources and uses of funds statement for the agricultural sector in Kenya.<sup>1</sup> Examples of two major problems which would arise in the construction of a sources and uses of funds statement suffice to indicate the magnitude of such a task. The first consists of the role of non-monetary inputs, and the second centres on classificatory problems.

The importance of non-cash inputs in Kenya's agriculture would require an estimation of their value for useful economic analysis. However, the only figure found in national accounts presentation for capital formation outside the monetary sector appears under the heading "traditional dwellings."<sup>2</sup> Thus, a major farm investment flow, consisting of capital formation in kind, is not monitored or estimated, with the exception of the construction of traditional dwellings. The source of this type of capital formation consists of household labour and natural materials for physical capital formation obtained by the farmer at no cash expenditure.

An additional barrier to the construction of a funds flow statement for agriculture is posed by the difficulty of interpreting quantitatively the role of commercial banks in financing agriculture. The sectoral classification of commercial bank advances is indistinct in the case of agriculture. While some of

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1. Data on inter-sectoral capital flows in Kenya is being developed by Jennifer Sharpley at Northwestern University and should be presented in a forthcoming PhD dissertation.

2. Republic of Kenya, Statistical Abstract 1973. p. 47.

these shortcomings reflect the possibility of inconsistencies in reporting, a major cause is simply that banks frequently have little effective control over the precise use of their funds, as is the case for overdraft facilities. Another difficulty is interpretation of bank lending statistics stems from the convention of presenting outstandings (a stock) rather than turnover (a flow).<sup>1</sup>

In view of the shortcomings of the data base, no attempt is made in this paper to assign anything but the most general of relative weights to different sources of funds tapped by agriculture. What is not possible on the macro level may be attempted on a disaggregated basis, however, and the three subsector classification outlined in Chapter I provides a basis for considering broadly the problem of access to capital in each of these major types of farms.

#### A. Formal Credit Schemes and Sources

The major credit institutions and programmes serving agriculture in Kenya have been outlined in considerable detail elsewhere,<sup>2</sup> and for present purposes a brief recapitulation is sufficient. The array of formal credit sources available to Kenyan may be classified into three types. The first consists of structures which date from before the close of the colonial era which are oriented towards large scale agriculture. The second consists of a series of programmes formed to support the transfer of agricultural land from European to African ownership, and the third is composed of relatively new institutions and programmes serving smallholders. While this basis for classification is of greatest interest from a policy analysis or problem solving point

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1. A more detailed discussion of the problems of interpreting banks' agricultural lending statistics is found in Von Pischke, J.D., "A Review," pp. 92, 94-95.

2. Donaldson, G.F., and J.D. Von Pischke, *op.cit.*; Von Pischke, J.D., "A Review." These sources are not footnoted further in this section in the interests of economy.

of view, a discussion of credit sources is most conveniently structured around the institutional configuration on the supply side of the formal farm credit market. For practical purposes that latter type of classification is not greatly different from the former. In addition, the supply side of the formal farm credit market is organised largely according to the classificatory convention employed earlier in this paper, with separate institutions and programmes directed towards large scale, settlement and small scale agriculture and towards differing loan terms. Thus, the latter three headings are also used for the purposes of this discussion. Attention is focussed only on the major formal lenders and schemes, which would have an aggregate market share, in terms of disbursements and amounts outstanding, probably exceeding 80%.

An estimation of the total amount of agricultural credit in use in Kenya in 1972 is given in Table III-1. The reliability of the figures for the various schemes and institutions may be specified according to indicators of accounting standards employed or other, more subjective, data confidence indicators as follows:

Highly reliable:	Kenya Tea Development Authority Pyrethrum Marketing Board
Reasonably reliable:	Agricultural Settlement Fund Agricultural Finance Corporation
Reasonable estimates:	Commercial banks <sup>1</sup> Cooperative Production Credit Scheme Distribution of commercial bank credit between small and large farmers Guaranteed Minimum Return scheme
Guesstimates:	Other Government sources Cooperative societies' credit sales and other credit Merchant credit Other formal sector credit Total number of small farmer borrowers

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1. Commercial bank data is regarded as only a reasonable estimate because of the difficulties involved in identifying facilities extended to farmers for agricultural purposes and in specifying how these funds are actually used. Classification problems, not accounting standards, are the basis for this qualification.

Table III-1. Estimated Formal Agricultural Credit in Use in Kenya, 1972

Credit Source	Small Farm Sector		Settlement Sector		Large Farm Sector	
	Borrowers No.	Amount Sh 000	Borrowers No.	Amount Sh 000	Borrowers No.	Amount Sh 000
Annual amounts advanced under seasonal schemes:						
Guaranteed Minimum Scheme (GMR)	-	-	-	-	3,000 <sup>a/</sup>	60,000
Merchant credit, incl. Kenya Farmers' Assoc.	5,000	20,000	-	-	2,200	44,250
Cooperative societies' credit sales	22,500	1,500	-	-	-	-
Kenya Tea Development Authority (KTDA)	21,000	2,000	-	-	-	-
Pyrethrum Marketing Board	10,000	600	-	-	-	-
Other formal sector	2,000	300	-	-	400	3,450
Gross amounts outstanding from other schemes and lenders:						
Agricultural Settlement Fund	-	-	34,000	240,000	450	63,000
Commercial banks	7,000	50,000	100	500	2,000	180,000
Agricultural Finance Corporation (AFC)	15,000	32,000	-	-	2,300	186,000

continued



Credit Source (continued)	Small Farm Sector		Settlement Sector		Large Farm Sector	
	Borrowers No.	Amount Sh 000	Borrowers No.	Amount Sh 000	Borrowers No.	Amount Sh 000
Cooperative Production Credit Scheme (CPCS)	23,000	8,000	-	-	-	-
Other cooperative credit	22,500	1,500	-	-	-	-
Merchant credit for machinery purchase	-	-	-	-	800	21,200
Other Government schemes	8,000	15,000	-	-	-	-
<b>Totals</b>	<b>65,000<sup>b/</sup></b>	<b>130,000</b>	<b>34,100</b>	<b>240,500</b>	<b>3,200<sup>b/</sup></b>	<b>557,900</b>

Source: Estimated by G.F. Donaldson and the writer, based on annual reports, statistical publications, and personal interviews. Gross outstandings include a substantial portion of loans in arrears.

a/ The state of CMR records in 1972 was such that some double counting may have occurred with respect to the number of borrowers. Also, some borrowers, having several farms, no doubt had several accounts.

b/ The total numbers of borrowers are adjusted in an attempt to exclude double counting.

The table should be interpreted with caution. It is composed of hard figures as well as rough estimates. It also mixes apples and oranges (and perhaps a few lemons, too) by treating credit as a homogeneous commodity, implying that the grand total outstanding is calculable and meaningful. Although all types of credit have elements in common (just as do apples, oranges and lemons), their functions and significance differ greatly. Comparing or adding together amounts offered by KFA on 90 day terms and by the Settlement Fund on 30 year terms, for example, suggests some of the conceptual problems involved.

Another caveat concerns the quality of the portfolios of the various schemes and lenders, which to some extent reflects the efficiency of credit use. The Kenya Tea Development Authority, for example, collects from its borrowers over 99% of the money they owe the Authority, while the Agricultural Settlement Fund collects approximately 50%.

The purposes for which credit is used in agriculture frequently vary with the terms for which it is issued. Long term credit commonly provides access to or control over land as a factor of production. Medium term credit frequently is used for the development or purchase of farm assets other than land. Short term credit often facilitates commercial transactions. The statistics given in Table III-1 give an incomplete breakdown with respect to these variables and provide no indication of the qualitative problems of evaluating the impact of credit. For example, it has been observed that long term credit in Kenya is not sufficiently supplemented by short term facilities for working capital purposes, and that this absence of linkage may endanger borrowers' ability to repay their long term obligations.<sup>1</sup>

An attempt is made in the table to eliminate double counting in estimating the total number of borrowers, but the totals showing credit in use are not so adjusted and thus include some

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1. Republic of Kenya, Department of Settlement, "A Memorandum to the Tootell Mission on Agricultural Credit from the Director of Settlement." Nairobi, 1970 (?). (mimeographed).

double counting. Commercial bank agricultural lending, for example, includes loans not only to farmers, but also to some suppliers and cooperatives which provide credit to farmers. (Reported commercial bank lending to agriculture has been deflated in the table by an amount estimated to equal KFA's use of bank credit, thus eliminating or minimising one major potential source of double counting.)

The description of the agricultural credit system which follows is based on data collected between 1972 and 1975. The farm credit situation in Kenya is by no means static, and hence the material is inevitably somewhat dated. Nonetheless it is offered as a basis for the model sketched later in this study. The model will become dated at a much slower rate because of its abstract nature, and is sufficient to accommodate major changes in the system which have occurred since the data was collected, including the continued growth and expansion of the cooperative banking structure, the imposition of agricultural lending minima on the commercial banks by the Central Bank, and AFC's experiments in the provision of short term credit.

#### 1. Credit for Large Scale Agriculture

Traditionally having a commercial orientation, large scale agriculture in Kenya has generally had access to credit on commercial terms. It is reasonably safe to conclude that of the 3,000 or so large farms which comprise this sector, those which are operating in a commercial manner have access to several sources of formal credit, sufficiently differentiated by terms and conditions, to serve a variety of commercial purposes. Those which are not operating on a commercially viable basis are generally indebted, too -- an inheritance from the colonial era or from the transfer of large farms to Africans.<sup>1</sup> Having noted this, no close counts of borrowers will be attempted in the following descriptions.

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1. "...AFC...provide(s) credit coverage to virtually 100% of the large scale farm sector." Republic of Kenya, Development Plan 1974-1978. Part I. p. 212.

a. Long term credit for the large scale sector

Long term credit<sup>1</sup> for the purchase of large farms is issued almost exclusively by the Agricultural Finance Corporation (AFC), a statutory body established under the Agricultural Credit Act of 1963 as a new institution to serve African farmers. In 1969 the AFC was reconstituted and absorbed the Land and Agricultural Bank, which was formed in 1931 for the purpose of assisting European farmers requiring mortgage facilities and refinancing in those adverse times. The AFC is the major specialised lender to Kenyan agriculture.

Financing large scale agriculture remains AFC's primary function in terms of amounts disbursed and outstanding, although in terms of numbers of accounts small scale loans approved or outstanding have predominated over the last decade. As of 31 March 1971 (the latest data for which audited published data was available in early 1975) gross large scale loans outstanding amounted to Sh 179 million, while gross small scale loans outstanding amounted to Sh 24 million.<sup>2</sup> In percentage terms, 88% of AFC's portfolio consisted of large scale loans while 12% represented small scale loans.

Carrying on the traditional functions of the Land and Agricultural Bank, but in a multiracial context, AFC provides farm purchase mortgage finance on terms of up to 30 years at an interest rate of 8% per annum. AFC provides financing for up to 80% of the purchase price of land obtained by borrowers. Land purchase loan disbursements to large scale farmers for various periods between 1967 and 1972 were as follows:

27 months to 31 March 1969	Sh 11.7 million
12 months to 31 March 1970	12.8 million

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1. Long term is defined here as greater than five years, medium term as one through five years, and short term as one year or less.

2. Agricultural Finance Corporation, Report of the Board and Accounts, 31st March 1971. Nairobi, undated. p. 10. Small scale loans were issued in amounts ranging from Sh 1,000 to Sh 10,000 through the end of 1972, when the upper limit was raised to Sh 15,000.

12 months to 31 March 1971	Sh 13.0 million <sup>1</sup>
12 months to 31 December 1972	22.0 million <sup>1</sup>

Fewer than 200 loans accounted for the Sh 22.0 million disbursed in 1972. Of course, most of these loans were not to individuals, but to groups of Africans organised under various forms for the acquisition of large farms.

AFC's large scale long term land purchase lending is funded from its own resources and also from the proceeds of facilities provided by the British Government under the Land Transfer Programme, the purpose of which was to assist the orderly transfer of farms from Europeans to Africans on a "willing buyer willing seller" basis. Between July 1966 and March 1971 loans made under the Programme amounted to less than half of AFC's land purchase loans approved.

Long term credit is also available to large scale agriculture from AFC for development purposes, including the purchase of live-stock and machinery and the construction of farm buildings. Development loans are provided on terms ranging from between five and 15 years, at 8% interest per annum. Disbursements are made under two programmes. One is the large scale loan scheme under which land purchase finance is made available, and the other is an exercise supported by Kreditanstalt für Wiederaufbau (KFW), the development finance institution of the Federal Republic of Germany. The KFW large scale scheme is limited to assisting large scale African farmers in Trans-Nzoia District, one of the areas in which the German Agricultural Team in Kenya has concentrated its activities. Disbursements under these two long term land development and farm improvement schemes operated by AFC exceeded Sh 35 million between 1967 and 1972, as summarised below:

27 months to 31 March 1969	AFC scheme:	Sh 7.8 million
12 months to 31 March 1970	AFC scheme:	6.8 million
12 months to 31 March 1971	AFC scheme:	5.7 million

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1. Birgegard, Lars, and Ralph Campbell, "The Agricultural Finance Corporation." Nairobi, AFC, February 1972. (mimeo). Tables 2, 7. 1972 data is from other AFC sources.

21 months to 31 December 1971	KFW scheme:	Sh 1.4 million
12 months to 31 December 1972	AFC scheme:	14.2 million
	KFW scheme:	(not available) <sup>1</sup>

Long term funds are also available to selected large scale African farms which have performed poorly and are in need of rehabilitation. The rehabilitation scheme, which has World Bank support, began in 1975<sup>2</sup> and is directed at the entire financial requirements of the farms in question. Hence, long, medium and short term funds are made available to these borrowers. During the project's projected five year disbursement period about Sh 90 million is expected to be employed for on-farm investment on 90 large mixed farms and on 36 coffee estates. Of this amount, about 41.6 million is expected to be used for incremental working capital.

Long term credit from other sources for large scale agriculture is not well documented in the aggregate. Finance companies in Nairobi may provide some credit of this type, and indeed, one house began collaborating with AFC on the rehabilitation of coffee estates around 1974. Plantations of various types owned by multinational corporations would of course frequently have access to a variety of sources of funds outside Kenya.

b. Medium term credit for the large scale sector

Medium term credit for large scale agriculture is defined here as having a maturity of between one and five years. Excluding a relatively small number of tractor loans, AFC is not a general supplier of funds on these terms to the large scale sector, but has provided working capital facilities, which may be outstanding for more than one year, to various ranching and fattening operations and also to large African farms included in its rehabilitation programme.

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1. Ibid. and Agricultural Finance Corporation, "KFW Loan to Large Scale Farmers in Trans Nzoia District, Half Yearly Report for the Period 1st July - 31st December, 1971." Nairobi, AFC, 1972. (mimeo). Data listed as not available refers to the data situation at the time research was underway.

2. AFC had been forced by borrowers' defaults into rehabilitation activities prior to the advent of IBRD support, but on something of an ad hoc basis.

The AFC programme oriented towards ranching is supported by the World Bank and by the Swedish International Development Agency, as part of a larger range development project. The project became effective in 1969, and its budget envisaged loans of approximately Sh 24 million to be borrowed for working capital purposes. However, by the end of 1972 it was apparent that on-ranch investment requirements were small relative to working capital requirements. The project design assumed a 0.71:1 ratio of working capital to medium and long term lending, while the actual ratio was 1.44:1. Fattening proved relatively more profitable than expected, and ranchers accordingly preferred investment in this enterprise, with a relatively rapid turnover, rather than in overheads required for alternative enterprises with a slower turnover.

Commercial banks provide medium term finance to large scale agriculture in the form of loans for the acquisition of specific assets such as livestock and machinery, in personal loans having a term exceeding 12 months, and in overdraft facilities which are not "cleaned up" annually. The exact proportion of commercial bank lending which is used for medium term as opposed to short term purposes cannot be specified from published data with any great degree of accuracy.

Medium term finance for the purchase of farm machinery was available from one finance company in Nairobi as of 1973 and is also provided by certain equipment dealers from resources made available by tied finance companies operated by manufacturers overseas.

### c. Short term credit for the large scale sector

Short term finance is available to large scale agriculture from a variety of sources. The Guaranteed Minimum Return scheme (GMR) serves several thousand growers of hybrid maize and wheat, providing facilities up to a fixed limit per acre for specified inputs for each crop, as well as including crop insurance to the

extent of the per acre limit. The per acre limit of Sh 180 prevailing in 1972 was subsequently raised to Sh 250, although this amount may still have provided less than half the working capital required on farms using recommended input quantities and husbandry practices.<sup>1</sup> Interest on GMR loans has been 8.5% per annum. The scope of this scheme is indicated in Table III-2. The credit aspects of the GMR scheme are administered by AFC.

Many large scale farming proprietorships and organisations are members of the Kenya Farmers (Cooperative) Association (KFA) which extends trade credit to more than 2,000 creditworthy members who have supply purchase accounts at KFA branches. Goods may be purchased from these branches on 90-EOM terms, up to limits specified by KFA's credit controller on the basis of past performance as a borrower and other indications of creditworthiness. Interest is levied at the rate of 10% per annum on amounts outstanding beyond 60 days EOM.

Commercial banks come into their own in the provision of short term finance, and play an important role in furnishing working capital advances to large farms in Kenya which are sufficiently well organised and productive enough to meet the standard of creditworthiness demanded by the banks' role as custodians of depositors' funds. The banks have specialised to the extent of providing funds under specific schemes, such as Barley Growers Finance for growers supervised by the brewing monopoly and the Grazier's Scheme for livestock operators availing themselves of supervision given by a stock management company. However, the bulk of their facilities for large scale agriculture are not specialised in this manner but rather are conducted along customary bank-customer relationship lines. One of the commercial banks had a full time agricultural officer in

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1. This problem -- extensive credit rationing -- has characterised GMR credit for some time. When the limit for wheat advances was Sh 150 per acre in 1969, the Chairman of the Kenya Farmers Association estimated that production costs amounted to Sh 240-280 per acre. KFA, Directors' Report and Statement of Accounts 1968-1969. p. 4.



Table III-2. Guaranteed Minimum Return Rates per Acre, Authorisations and Advances, 1966-1974

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974<sup>a/</sup></u>
<b>GMR Rates (Sh per acre)</b>									
Maize	100	100	100	-	-	-	-	-	-
Hybrid Maize	180	180	180	180	180	180	180	180	250
Wheat	170	170	170	150	150	150	180	180	250
<b>Acreage Eligible for GMR Coverage (0000)</b>									
Maize	63	21	4	-	-	-	-	-	-
Hybrid Maize	82	152	139	100	133	171	237	-	-
Wheat	344	303	406	403	320	275	222	-	-
<b>Total</b>	<u>489</u>	<u>556</u>	<u>549</u>	<u>503</u>	<u>453</u>	<u>446</u>	<u>459</u>	-	-
<b>Potential Authorisations (Sh million)</b>									
Maize	6.3	2.1	.4	-	-	-	-	-	-
Hybrid Maize	14.8	27.3	25.0	18.0	23.9	30.8	42.7	-	-
Wheat	58.5	65.1	69.0	60.4	48.0	41.2	40.0	-	-
<b>Total</b>	<u>79.6</u>	<u>94.5</u>	<u>94.4</u>	<u>78.4</u>	<u>71.9</u>	<u>72.0</u>	<u>82.7</u>	-	-
<b>Actual Authorisations (Sh million)</b>									
Maize	)	)	)	-	-	-	-	-	-
Hybrid Maize	14.2)	22.5)	18.3)	12.6	23.6	30.7	46.0	29.3	15.8
Wheat	48.0	52.9	57.6	51.4	47.7	40.9	43.8	38.8	37.4
<b>Total</b>	<u>62.2</u>	<u>75.4</u>	<u>75.9</u>	<u>64.0</u>	<u>71.3</u>	<u>71.6</u>	<u>89.8</u>	<u>68.1</u>	<u>53.2</u>
<b>Advances -- 12 months from 1 July (Sh million)</b>	36.1	56.5	51.8	63.2	63.5	49.4	58.7		

Sources: Ministry of Agriculture, Agricultural Finance Corporation, and Republic of Kenya, Statistical Abstract 1971. The possibility of inconsistencies in this series is great.

a/ Data for 1974 related to the first six months of the year only.

Table III-3. Commercial Bank Credit Outstanding to Selected Categories of Borrowers, 1967-1974  
(Sh million)

<u>Item</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
1. Total bills discounted, loans & advances outstanding	1,360	1,336	1,401	1,739	2,403	2,428	3,228	4,163
Annual rate of increase		(1.8%)	4.8%	24.2%	38.2%	1.0%	33.0%	29.0%
2. Total bills discounted, loans and advances outstanding to the private sector	1,296	1,274	1,366	1,637	2,227	2,244	3,004	3,998
Annual rate of increase		(1.7%)	7.2%	19.8%	36.0%	0.8%	33.9%	33.1%
As a % of total credit outstanding (Item 1)	95.3%	95.4%	97.5%	94.1%	92.7%	92.4%	93.1%	96.0%
3. Credit outstanding to private agricultural enterprises	133	156	172	186	252	240	356	481
Annual rate of increase		17.3%	10.3%	8.1%	35.5%	(4.8%)	48.3%	35.1%
As a % of total private sector credit outstanding (Item 2)	10.3%	12.2%	12.6%	11.3%	11.3%	10.7%	11.9%	12.0%
4. Credit outstanding to commercial statutory boards & other public sector entities <sup>a/</sup>	40	40	22	48	56	66	91	110

Source: Derived from Central Bank of Kenya data. Outstandings are as of 31 December each year.

a/ Credit outstanding to commercial statutory boards and other public sector entities excludes credit to central and local governments and the East African Community.

in Nairobi as of 1975 and several specialists attached to main branches in agricultural areas, another had an agricultural loan officer operating out of its main Nairobi office, and a third was using the services of an agriculturalist on its London staff.

Bank loans outstanding to agriculture, perhaps three-fourths of which are to large scale agriculture, have since independence remained fairly constant in relative terms at about 10% of total bank loans outstanding and at around 15% in relation to the contribution of monetised agriculture to GDP, as indicated in Tables III-3, 4, and 5. However, Table III-5 suggests that the volume of bank credit outstanding to agriculture may have started an upward drift in relation to the value of marketed agricultural production in the early 1970's. These tables attempt to place bank lending in a financial and agricultural perspective, although data problems relating to loan characteristics and use render difficult the accurate analysis and interpretation of the statistics given.

Other sources of short term funds for large scale agriculture include several minor official credit schemes, external sources available to multi-national enterprises engaged in agricultural production in Kenya, and credit sales arrangements with individual suppliers of inputs and other resources. Not a great deal of detail is readily available regarding these latter two sources of short term credit in the literature.

## 2. Credit for Settlement Agriculture

Settlement agriculture is a child of credit. Settlement credit is the major example of facilities designed to support the transfer of land from European to African ownership. From the start of the settlement programme in 1961 through the end of 1970 land purchase loans approximating Sh 170 million and development loans approximating Sh 118 million had been issued to settlers by the Agricultural Settlement Fund through the Department of Settlement and its predecessor agencies as shown

Table III-4. Commercial Bank Lending to Agriculture, 1946-1974

<u>Year</u> <u>Ending</u> <u>31</u> <u>December</u>	<u>Total Bank</u> <u>Credit</u> <u>Out-</u> <u>standing</u> <sup>a/</sup>	<u>Bank Credit</u> <u>Outstanding</u> <u>to Agricultural</u> <u>Enterprises</u>	<u>Agricultural</u> <u>Lending as a</u> <u>% of Total</u> <u>Bank Credit</u>
	- - (Sh millions)	- - -	(%)
1946	56.2	17.1	30.5
1947	109.6	25.5	23.3
1948	167.6	36.8	22.0
1949	219.2	44.6	20.4
1950	228.4	35.2	15.4
1951	410.8	42.3	10.3
1952	406.7	55.0	13.5
1953	406.9	96.0	23.6
1954	619.2	104.9	16.9
1955	825.4	114.5	13.9
1956	713.8	97.6	13.7
1957	784.7	118.1	15.1
1958	685.0	124.4	18.2
1959	749.7	121.7	16.2
1960	844.5	129.0	15.3
1961	780.2	144.9	18.4
1962	833.4	88.3 <sup>b/</sup>	10.6
1963	1,007.2	117.6	11.7
1964	1,092.9	144.8	13.2
1965	1,148.1 <sup>c/</sup>	139.9 <sup>c/</sup> <sup>d/</sup>	12.2
1966	1,110.3	125.5	11.3
1967	1,360.0	186.5	13.7
1967 <sup>e/</sup>	1,360.0	133.0 <sup>f/</sup>	9.8
1968	1,335.8	155.5	11.6
1969	1,400.5	172.4	12.3
1970	1,738.9	185.7	10.7
1971	2,402.5	251.5	10.5
1972	2,427.5	240.3	9.9
1973	3,228.1	356.0	11.0
1974	4,163.2	481.4	11.6

continued

Notes to Table III-4

Sources: Central Bank of Kenya, Economic and Financial Review; East African Statistical Department, Economic and Statistical Review and Quarterly Economic and Statistical Bulletin; Government of Kenya, Economics and Statistics Division, Kenya Statistical Digest.

a/ Total Bank Credit Outstanding consists of bills discounted, loans and advances. (See d/ below.)

b/ Beginning in 1962 certain "indirect" lending to agriculture is omitted from the statistics for Bank Credit Outstanding to Agricultural Enterprises.

c/ Beginning in 1965 statistics show gross amounts outstanding. Prior to that year the figures refer to amounts outstanding net of provisions for bad debts.

d/ Beginning in 1965 Bank Credit Outstanding to Agricultural Enterprises includes bills discounted. This category of credit was not included in the data under this heading prior to 1965, and hence these figures may understate bank credit to the agricultural sector.

e/ A new statistical series was inaugurated by the Central Bank in 1967.

f/ In 1967 the reporting base for Bank Credit Outstanding to Agricultural Enterprises was altered to include only private agricultural enterprises. Prior to that date public sector institutions in the agricultural sector were included in the series. Borrowers in which the Government has a minority interest are classified as private sector enterprises for reporting purposes with respect to this series.

Table III-5. Agricultural Production and Commercial Bank Lending to Private Agricultural Enterprises, 1967-1973  
(Sh million)

<u>Item</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
1. Contribution of the monetised agricultural sector to GDP <sup>a/</sup>	1,090	1,155	1,276	1,454	1,390	1,779	2,089
2. Gross marketed production from large and small farms	1,338	1,404	1,524	1,734	1,672	2,118	2,468
3. Gross marketed production from large farms	658	688	758	824	822	1,006	1,206
As a % of gross marketed production from large and small farms (Item 2)	49%	49%	50%	48%	49%	48%	49%
4. Commercial bank credit outstanding to private agricultural enterprises <sup>b/</sup>	133	156	172	186	252	240	356
As a % of monetised agricultural GDP (Item 1)	12%	13%	13%	13%	18%	14%	17%
As a % of gross marketed production from large and small farms (Item 2)	10%	11%	11%	11%	15%	11%	14%
As a % of gross marketed production from large farms (Item 3)	20%	23%	23%	23%	31%	24%	30%

Sources: Central Bank of Kenya, Annual Reports; Republic of Kenya, Economic Survey 1972 and Economic Survey 1974.

a/ GDP on a factor cost basis at current prices.

b/ Total bills discounted, loans and advances to private agricultural enterprises by commercial banks.

in Table III-6. By the end of June 1972 the total of these two categories has increased to more than Sh 300 million. Collections on this massive portfolio -- the largest agricultural portfolio in Kenya -- have not kept up with the rate at which interest has accumulated and the total outstanding balance of Agricultural Settlement Fund loans as of the end of June 1972 exceeded Sh 310 million, as indicated in Table III-7 on page 204.

Settlers were installed on their plots heavily indebted. Three aspects of the settlement programme were responsible for the heavy debt burden of the settlers. One was the "willing buyer willing seller" basis for the acquisition of European farms by the authorities for settlement purposes. European farms were not to be sold at knock-down prices by their owners, but rather the changeover was to be made on an orderly basis and in line with market prices prevailing in the period immediately before the British Government's unexpected announcement of early independence at the Lancaster House Conference in January 1960.<sup>1</sup> European settlement in the Scheduled Areas had in fact been encouraged right until 1960,<sup>2</sup> a factor which made it morally imperative, in the climate of the times, for the British Government to ensure that those whose commitment to remaining in Kenya were reversed by the fact of independence were in fact compensated for their investment of labour and money in their farms.

The second aspect which resulted in settlers' heavy indebtedness was the use of settlement as a means of providing land to the landless. Although numerous difficulties of defining landlessness in the context of African society and of in fact identifying those possessing this qualification complicated this aspect

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1. An interpretation which claims that this and other British initiatives had the effect of keeping power in the hands of moderates favouring a multiracial approach to Kenya's development in the 1960's is found in Harbeson, John W., Nation Building in Kenya. Evanston, Illinois, Northwestern University Press, 1973.

2. Cone, L.W., "Two-Stream Development -- An Overview," in Cone, L. Winston, and J.F. Lipscomb, op.cit., p. 25.

Table III-6. Loans Issued by the Agricultural Settlement Fund, 1962-1972 (Sh million)

	1962 <sup>a/</sup>	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
<b>Land Purchase Loans Issued to Settlers</b>											
High density schemes	.8	7.5	37.5	27.5	21.1	6.9	4.2	3.3	2.9		
Low density schemes	2.0	2.5	1.5	8.2	6.4	2.6	.3	.3	.1		
Others	1.7	5.7	9.7	2.4	.9	.3	1.4	9.3	2.6		
Total	4.6	15.7	48.7	38.1	28.4	9.8	6.0	12.9	5.5		
Cumulative	4.6	20.3	69.0	107.1	135.5	145.3	151.3	164.2	169.7		
<b>Development Loans Issued to Settlers</b>											
High density schemes -		2.9	14.7	13.4	10.2	7.1	5.6	3.1	5.7		
Low density schemes	1.0	2.1	2.8 <sup>b/</sup>	4.7	6.9	3.0	1.3	3.5	.5		
Others	.4	2.3	3.4	1.0	1.2	2.3	3.9	9.8	4.6		
Total	1.4	7.3	20.8	19.1	18.4	12.5	10.9	16.5	10.9		
Cumulative	1.4	8.7	29.5	48.6	67.1	79.4	90.4	106.8	117.7		
<b>Total Loans Issued</b>	<b>5.9</b>	<b>23.0</b>	<b>69.5</b>	<b>57.2</b>	<b>46.8</b>	<b>22.3</b>	<b>17.0</b>	<b>29.4</b>	<b>16.4</b>	<b>15.3</b>	<b>3.8</b>
<b>Cumulative Total</b>	<b>5.9</b>	<b>28.9</b>	<b>98.4</b>	<b>155.6</b>	<b>202.4</b>	<b>224.7</b>	<b>241.7</b>	<b>271.0</b>	<b>287.4</b>	<b>302.7</b>	<b>306.5</b>

continued



Notes to Table III-6

Source: Annual Reports of the Settlement Fund Trustees.

Note: - denotes no loans issued. Total may vary from column sums due to rounding errors.

- a/ Data for 1962 is cumulative, including small amounts of loans issued in 1961.
- b/ Includes an unspecified amount of West German contributions to high density schemes which are classified under high density loans in subsequent years.

Table III-7. Measures of Agricultural Settlement Fund Portfolio Performance, 1962-1972 (Sh million)

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Loans Issued per period	5.9	23.0	69.5	57.2	46.8	22.3	17.0	29.4	16.4	15.2	3.8
Cumulative loans issued	5.9	28.9	98.4	155.6	202.4	224.7	241.7	271.1	287.4	302.7	306.5
Cumulative principal billed	-	.1	.8	5.7	12.1	20.5	30.4	41.3	53.0	66.9	85.2
Principal not yet due	5.9	28.8	97.7	149.9	190.4	204.3	211.3	229.8	234.4	235.8	221.3
Cumulative billings	-	?	3.2	15.1	33.7	57.6	83.5	111.1	140.2	173.6	191.5
Cumulative collections	-	.5	2.1	7.4	16.0	31.2	47.2	63.6	75.3	89.0	102.3
Amounts overdue <sup>a/</sup>	-	?	1.1	7.7	17.7	26.4	36.3	47.5	64.9	84.6	89.2
Cumulative interest earned	.0	1.0	3.6	12.6	24.8	40.3	56.3	73.0	90.4	109.9	
Interest not covered by collections	-	.5	1.5	5.1	8.8	9.1	9.1	9.4	15.1	20.9	
As a % of cumulative interest earned	-	53%	57%	59%	65%	77%	84%	88%	83%	81%	
Principal not yet due <sup>b/</sup>	5.9	28.8	97.7	149.9	190.4	204.3	211.3	229.8	234.4	235.8	
Amounts overdue	-	.7	1.8	10.3	16.9	28.8	38.6	51.3	67.3	87.5	
Total portfolio	5.9	29.5	99.5	160.2	209.2	233.0	249.9	281.0	301.7	323.4	

Sources: Annual Reports of the Settlement Fund Trustees and of the Land Development and Settlement Board, and Department of Settlement files.

Note: - denotes nil quantities; .0 denotes quantities between Sh 1 and Sh 50,000. Columns may not sum to totals because of rounding errors. ? indicates an absence of plausible data. 1962 data cover an 18 month period. No accounts were published for the financial year ending in 1963, and data for that year is derived from 1962 and 1964 figures or estimated.

a/ As computed in this Table. b/ As reported by settlement authorities.

of the ostensible purposes of the settlement programme, it would appear that many, many of the 35,000 settlers eventually installed on the major schemes were people of modest means by Kenyan standards.

The third aspect of settlement which resulted in settlers' heavy debt burdens was the decision that settlers should be made to pay for their land. The "settlement charge" was derived from the value of the land under European ownership and management. Farm budgets were drawn up which indicated that settlers could expect to receive a reasonable income by local African standards after the deduction of land purchase loan installments and development loan installments. Ignoring minor changes which have been introduced from time to time for reasons of political intervention and administrative convenience, land purchase loans are repayable over 30 years and development loans are repayable over ten years from the period when the settler takes up his plot, and carry an interest rate of 6.5% per annum. Financing was provided for 100% of the purchase price of the land on the High Density schemes which include the great majority of settlers on individual plots, and for 90% of the purchase price in the case of Low Density schemes. Development loans were oriented towards capital items (housing, fencing, water supply and livestock) on Low Density schemes, but also included provision for seasonal inputs for the initial crop on High Density schemes.<sup>1</sup>

Once launched on their debt-laden venture, settlers without other land or full time employment have been largely unable to obtain additional funds. The Settlement Fund Trustees hold charges over settlers' plots as security for land purchase and development loans, and most settlers have no other assets suitable for the security requirements of the main providers of formal credit in Kenya. (A few settlers, however, have prepaid in full

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1. An early summary of the mechanics of settlement implementation is contained in Storrar, A., "A Guide to the Principles and Practices of Land Settlement in Kenya," Journal of Local Administration Overseas. III, 1, January 1964. pp. 14-19.

their settlement loans, probably in order to gain access to commercial bank credit.) The lack of access to seasonal credit<sup>1</sup> may have been partially overcome by 1975 in some cases by settlers' belonging to certain primary cooperative societies, and it is expected that the role of cooperative credit will expand in the settlement schemes throughout the 1970's. However, in general, it appears that settlers do not have access to seasonal credit from the formal sector, as the loans of the Settlement Fund were in virtually all cases made on a once-and-for-all basis with security requirements such that no unencumbered assets remained to support further debt.

### 3. Credit for Small Scale Agriculture

As noted elsewhere in this paper, the supply of formal credit to Africans was severely restricted by regulations in force until the closing days of the colonial era. As the small farm sector is exclusively African, these restrictions meant that no formal credit was available to smallholders until the 1950's, ignoring a few pilot and local schemes.<sup>2</sup>

The implementation of the Swynnerton Plan<sup>3</sup> beginning in 1954 appears to have provided the real start of the tradition of smallholder credit in Kenya which is now strongly established. This tradition is centred on medium term facilities to individuals for "productive" on-farm investment, supported on the technical side by farm planning but without intensive supervision, and on the banking side by land pledged as loan collateral. The tradition is based on the assumption that government intervention

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1. Department of Settlement, "Agricultural Credit: A Memorandum to the Tootell Mission," p. 1; Republic of Kenya, An Economic Appraisal of the Settlement Schemes 1964/65-1967/68. Farm Economic Survey Report No. 27. Nairobi, Ministry of Finance and Economic Planning, November 1971. pp. 92-93.

2. Mention of early schemes is found in Colony and Protectorate of Kenya, Report of Committee on Agricultural Credit for Africans. Nairobi, Government Printer, 1950. pp. 3, 26 ff.

3. Swynnerton, R.J.M., op.cit.

as a lender is essential to the goal of increasing smallholder access to loans, and that smallholders "need" loans at rates of interest within a point or two of the prime lending rates of commercial banks.

Since 1954 smallholder access to formal credit has been expanded rather slowly, by 1972 reaching perhaps 65,000 of Kenya's more than one million families on the land. In spite of the caution exhibited by the rate of increase, the financial results generally have not been encouraging. However, this point will be explored in later chapters, while the intent of this section is merely to outline the profile of the supply side of the smallholder credit market.

a. Long term credit for the small farm sector

Long term credit for land purchase by smallholders is not generally provided by any of Kenya's formal lenders. However, AFC has issued a handfull of loans to enable small farmers to obtain land contiguous to their present holdings, and funds from commercial banks and other sources are sometimes used by borrowers for the acquisition of land. The term to maturity of these loans is not especially suited to the financing of fixed assets such as land, as AFC loans to smallholders rarely exceed maturities of five years and commercial banks are quite reluctant to go beyond three years. However, the attractiveness of land as an investment prompts some borrowers to use medium term funds for land purchase. Long term credit -- here defined as having a maturity in excess of five years -- for other purposes is likewise virtually unavailable to smallholders from formal credit sources.

b. Medium term credit for the small farm sector

Medium term credit for smallholder agriculture is provided by the Agricultural Finance Corporation, the commercial banks and the Cooperative Production Credit Scheme.

AFC operates three credit schemes which specifically provide

medium term credit for small scale farmers. The major scheme is funded by the International Development Association, the second is funded by resources provided by West Germany through KFW, and the third and smallest is financed out of AFC's own resources. Accordingly, these schemes are known as the IDA, KFW and AFC small scale schemes.

The IDA scheme began in 1967, the KFW programme commenced in 1969, and the AFC scheme, which is now more or less a residual programme used to make loans to farmers outside areas where the land is registered, was the major but still not very sizeable scheme in operation before these two initiatives in external assistance. Prior to the IDA and KFW involvement, AFC made few loans to small scale farmers (1964 - nil, 1965 - nil, 1966 - 1,380, 1967 - 523, as given in annual reports), and the predecessor small scale schemes which were taken over by AFC at its formation were also small in relation to the volume of lending and number of loans issued since the advent of the IDA and KFW schemes. The number of loans issued under the various small schemes designed to serve African farmers between the early 1950's and June 1964 is given as 7,850 in the Lawrance Report.<sup>1</sup> However, earlier reports published by the Ministry of Agriculture<sup>2</sup> suggest ALDEV loans may have reached 5,365 borrowers rather than the 1,336 cited under the ALDEV heading in the Lawrance Report, which would boost the Report's estimate to approximately 12,000.

As noted previously, the upper limit of small scale loans was increased from Sh 10,000 to Sh 15,000 in 1972, while for reasons of administrative economy the smallest AFC approval is Sh 1,000. Loans under these schemes have been generally provided on five year terms, requiring repayment in five equal

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1. Republic of Kenya, Report of the Mission on Land Consolidation and Registration. This estimate excludes tea development loans given in kind. See p. 125.

2. See the final chapters of Colony and Protectorate of Kenya, Ministry of Agriculture, Animal Husbandry and Water Resources, African Land Development in Kenya 1940-1955 and African Land Development in Kenya 1946-1962. Nairobi, Government Printer, 1956 and 1962.

annual installments of principal and interest. AFC's lending rate was 6.5% through April 1967, 7.5% through early 1973, and 8% since 1973. In terms of coverage, the first phase of the IDA scheme reached over 8,000 borrowers between 1967 and 1973, and a further tranche of 8,000 borrowers was included in the programme's second phase by 1975. The KFW scheme, which is restricted to Kericho and Kisii Districts, where German Agricultural Team staff are deployed in extension activities, included more than 1,000 borrowers by 1972, when a second phase designed to reach 2,750 farmers was implemented. The number of AFC small scale loans issued since 1967 appears to have averaged not more than 300 per year. The number of these loans outstanding on 31 March 1969 was 2,785, and lending under the AFC scheme heading was sharply curtailed in the following years for which annual reports were available early in 1975.

The great majority of smallholder medium term loans issued since AFC's formation in 1963 have been primarily for the purchase of grade dairy stock and for related on-farm investments in fencing, water supply and dairying equipment. The sizes of loans issued under the IDA and KFW programmes have averaged less than Sh 4,000 and have frequently included two in-calf heifers.

An orientation towards the acquisition of grade cattle has also been apparent in commercial bank lending to smallholders, although no records are kept and little control is exercised by the banks concerning the use made of their facilities, in terms of items purchased, by their borrowers. Hence, specification of the impact of these loans on smallholder development, with respect both to asset acquisition and number of borrowers, is extremely difficult using published data. However, it was observed by the Lawrance Commission that the amount of commercial bank loans to smallholders -- many of whom had sources of income outside farming -- exceeded that made available from official sources between 1959 and 1966.<sup>1</sup> A Ministry of Agriculture estimate

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1. Republic of Kenya, Report of the Mission on Land Consolidation and Registration. p. 126. This comparison excludes tea development loans made in kind from official sources.

quoted by Vasthoff indicates that as of the end of 1965 about 3,400 African farmers had commercial bank loans outstanding,<sup>1</sup> but this would not necessarily be incompatible with the Lawrance Report figures which represent the cumulative total number of loans issued by official sources, rather than the number then outstanding.

The Lawrance Report's assertion was supported, although not conclusively because of non-random sample selection, by Fleming's field study. His sample of 5,077 plots and plot-holders in several smallholder Districts studied in 1966-1968 included 379 farmers who were identified as borrowers, and of these 255 had received loans from banks. Of the remaining 124, most had borrowed from AFC.<sup>2</sup> It is quite possible that in many areas the commercial banks have remained a larger source of farm credit for a larger number of farmers than has AFC, in spite of the growth of AFC based on external assistance. In Murang'a in 1970 the District Agricultural Officer reported that banks made 326 loans to small farmers in two of the four smallholder Divisions in the District,<sup>3</sup> while AFC made 124 loans under the IDA scheme and not more than a handful of other loans to farmers throughout the District. During the first quarter of 1973 a similar pattern was found during the writer's examination of Murang'a Land Registry records. AFC accounted for only 11% of the total number of new loans secured by land and 5% of the shilling volume of such loans.<sup>4</sup> The two commercial bank offices in Murang'a town reported having a total of approximately 1,200 loans secured

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1. Vasthoff, Josef, Small Farm Credit and Development: Some Experiences in East Africa with Special Reference to Kenya. IFO-Institut für Wirtschaftsforschung, Afrika-Studien 33. Munich, Weltforum Verlag, 1968. p. 22.

2. Fleming, J.T., "Analysis and Review." p. 37.

3. Republic of Kenya, Ministry of Agriculture, Murang'a District Annual Report, 1971. Nairobi, Government Printer, 1971. p. 21.

4. Credit Use and Development. pp. 30-33.



by small farm plots on their books as of mid-1973, while as of that date AFC had issued approximately 1,000 IDA loans in Murang'a, and also had a number of additional loans outstanding under predecessor smallholder schemes discontinued or virtually dormant since 1967. As indicated above, however, the usage of bank loans is generally not monitored, and it is not possible to ascertain without further research the investments made by borrowers. While many plottolders in small farm areas may have used their bank loans for on-farm development, others may have used the funds for other purposes.

Commercial bank loans to owners of small farms are frequently given for periods of from roughly 15 months to three years, with repayment required monthly. The repayment terms have the effect of rationing credit to those with non-farm sources of income, as farmers' income is frequently not received monthly and smallholder cooperatives have frequently been administratively incapable of honouring stop orders under which members have given instructions for crop delivery proceeds to be remitted to specified banks for the settlement of loans. The rate of interest on small loans issued by the banks is 1% to 2% above the prime lending rate which was 7% for many years until raised to 8% in 1974, at which time an interest ceiling of 10% was imposed on all new lending.<sup>1</sup>

A range of credit facilities are accorded to creditworthy members of qualifying cooperative societies under the Cooperative Production Credit Scheme which is in many respects the most impressive of the new institutions designed to serve the smallholder market for financial services. CPCS expanded into the provision of credit at maturities of three years on a routine basis in mid-1974, and it was envisaged that the primary demand for such credit would be for the purchase of grade cattle. The Department of Cooperative Development expects that medium term credit having maturities of from three to five years will be made widely

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1. Central Bank of Kenya, Eighth Annual Report for the Year Ended 30th June 1974. pp. 13, 64.

available to qualifying cooperators during the second half of the 1970's.<sup>1</sup> The basic credit facilities offered under CPCS are credit sales and loans having an 18-month maximum maturity. Credit sales are unambiguously short term in nature. Some of the 18-month loans are probably repaid in a period of less than one year, but all will be considered as medium term facilities in this discussion.

Eligibility requirements are such that virtually all loyal members of primary produce marketing societies which meet the standards of CPCS eligibility have access to loans. CPCS was operated on a pilot basis prior to 1972, and by the end of 1973 over 26,000 members had loans outstanding. The average balance per loan account was less than Sh 500. Coverage is expected to increase as more unions and primary societies meet the eligibility requirements for participation. Credit limits of CPCS borrowers are fixed at two-thirds of the average values of their annual deliveries over the preceding three years, with a minimum loan of Sh 100. Interest is charged at rates between 8% and 12% fixed on a decentralised basis at the discretion of participating unions. Repayments are deducted from members' individual deposit accounts at the time these accounts are credited with crop delivery proceeds.

c. Short term credit for the small farm sector

Short term formal credit for small scale agriculture is provided by the Cooperative Production Credit Scheme in the form of credit sales, by the tea and pyrethrum authorities for inputs specific to these crops, and under several minor programmes including, inter alia, cotton farmers and irrigation scheme tenants.

Short term cooperative credit is extended in the form of credit sales facilities under which all members of produce marketing societies who are not in default may purchase inputs

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1. Republic of Kenya, Ministry of Cooperatives and Social Services, Department of Cooperative Development, "Policy for Credit Sales and Loans to Members," and Revised Plan for Cooperative Development in Kenya with Nordic Assistance. Vol. 1. Plan of Operation. Nairobi, 1974? "Credit and Finance Division" section. pp. 2-3.

from specified cooperative stores. Credit limits are fixed in relation to the average value of each member's annual deliveries to his society, and credit sales accounts are cleared by deductions from the next payout for crop deliveries.<sup>1</sup> The limit is set at 10% in the case of coffee societies and 5% in the case of dairy and pyrethrum societies. As coffee payments are made roughly quarterly and dairy and pyrethrum payments monthly, these limits equal 40% and 60% of annual delivery proceeds.

Before leaving the subject of cooperative credit, it should be noted that Table III-1 on pages 186-187 indicates a sizeable amount of "other" cooperative credit outstanding in 1972. This category is the legacy of the disorganised state of cooperative credit which prevailed in the mid-1960's. Little data is available on the numerous uses and abuses of such credit, and no further discussion is warranted as this sad chapter is being progressively closed as more and more unions and societies formalise old debts and discontinue lending on a somewhat haphazard financial basis in order to qualify for participation in CPCS.

Details of two minor seasonal input supply schemes suffice to outline the general nature of credit facilities operated by certain crop authorities and similar agencies involved with smallholder production. The Kenya Tea Development Authority (KTDA) operates the largest such scheme, under which growers obtain fertiliser on credit for their tea stands. The type of fertiliser required for tea is not usually used on other crops with the exception of coffee, and hence the possibility of diversion is minimised. Credit limits are established for each grower on the basis of the number of mature stumps registered in his name with KTDA. The loans carry no interest but include a 4% service charge. Deductions are made from tea delivery

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1. Republic of Kenya, Ministry of Cooperatives and Social Services, Department of Cooperative Development, "Policy for Credit Sales and Loans to Members."

proceeds at a fixed rate per kilo of green leaf delivered beginning in October, one or two months following fertiliser application, and are virtually always cleared over a period not exceeding 12 months. Approximately half of the growing number of growers having mature stands usually participate in this scheme in any given year.

The Pyrethrum Marketing Board distributes interest-free credit in the form of fertiliser and planting materials to pyrethrum marketing cooperative societies. Approximately half of the total number of such societies have availed themselves of this facility in typical recent years. These loans are recovered in months seven through 12 following disbursement, by deductions from delivery proceeds paid by the Board to societies. As of 1974 little information had been collected by the Board or others concerning the nature of the relationships between pyrethrum societies and their members with respect to this credit, although it appeared on the basis of crop production rates and cycles that the terms to members might be somewhat longer than those extended by the Board.

It should be noted that the assertion could be made that in AFC and commercial bank loans to smallholders there are included elements which are essentially short term in nature. The borrower in each case may use a portion of his facility for the purchase of seasonal inputs. (While typically being primarily for the acquisition of grade cattle and related on-farm investments, AFC loans to smallholders have generally included a small amount for arable enterprises, such as an acre of potatoes.) As repayment begins within a month in the case of bank credit and within approximately a year in the case of standard AFC terms for smallholders, it might be argued that there is a short term element in these facilities in spite of the final maturity's extending beyond the short term. While this interpretation has some technical justification, it fails to note that the usual presumption with respect to short term loans is that such credit is renewable each season to support the production cycle. AFC and even commercial bank credit for small scale agriculture fail to meet this require-

ment. However, AFC has experimented with pilot seasonal small-holder credit schemes, and may well provide more facilities of this nature on a routine basis in the years ahead.

#### B. Equity Finance from Sources Outside the Firm

Kenyan agriculture in general does not have access to equity funds from sources outside the firm or extended farm family household. Exceptions include several large corporations in the plantation sector and a handful of venture capital undertakings in ranching by foreign investors. These exceptions are sufficiently infrequent and their capitalisation sufficiently divorced from the main concern of this paper not to warrant further consideration. The acquisition of large European holdings by groups of Africans, including "hidden partners", also constitutes an exception, and is treated elsewhere in this paper.

Agriculture's lack of access to outside equity capital is not peculiar to Kenya. The Wilson Report notes that the typical scale of operation of farm firms in Britain is small:<sup>1</sup>

The consequences of small scale for agriculture's access to additional capital are that the majority of farm businesses obtain finance for additional capital formation either from retained earnings or by borrowing. It is not practicable for them to obtain finance by issuing equity or share capital, as it is possible for quoted companies.

Small scale operations dominate Kenya's population of farm firms, too, which would lead to the same type of result as in Britain even if the Nairobi Stock Exchange and other institutions active in the provision of equity finance were of the same relative importance to the Kenyan economy as similar institutions in Britain are to Britain's economy.<sup>2</sup>

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1. Ministry of Agriculture, Fisheries and Food, Availability of Capital and Credit to United Kingdom Agriculture. (The Wilson Report). London, HMSO, 1973. p. 2.

2. The operation and performance of the Nairobi exchange is dealt with in Arowolo, Edward A., "The Development of Capital

An exploration of the reasons why agriculture in general does not have access to equity markets is beyond the scope of this study. However, a brief summary by Warriner cites technological and economic causes.<sup>1</sup> On the technical side, agriculture does not face requirements for capital equipment in large, indivisible quantities, so large scale capitalistic forms of organisation possess few or no inherent advantages in agriculture. On the economic side, agriculture tends to be associated with relatively uncertain and low returns to investment, which fail to attract large scale capital. Uncertain returns reflect the nature of the production process in agriculture; low returns reflect the tendency of agriculture to expand the supply of food-stuffs more rapidly than the demand for them grows. Also, farming is characterised by a certain heterogeneity because of the different land and labour endowments of individual farms. The individual farmer, as the best judge of the risk of investment in his own enterprise, is also the logical source of investment funds.

These observations, made in the late 1930's with respect to peasant farming in Eastern Europe, may be expanded upon with three basic observations concerning the nature of agricultural enterprises. The first is that, by and large, agriculture appears to be characterised by constant costs once a certain farm size is reached, given the technological characteristics of agricultural production. On a priori grounds one would expect that an industry with constant returns to size would be at a disadvantage in attracting capital, which would flow more readily to those industries characterised by increasing returns to size, i.e., by decreasing costs.

Secondly, as an atomistic industry facing low and uncertain returns, agriculture does not generally permit the accumulation of large profits which might attract outside capital, except in those

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(continued) Markets in Africa with Particular Reference to Kenya and Nigeria," IMF Staff Papers. XVII, 2, July 1971. pp. 420-472.

1. Warriner, Doreen, Economics of Peasant Farming. 2nd ed. London, Frank Cass & Co., Ltd., 1964. pp. 4-5.

cases where technology changes rapidly and unevenly or where the technological and institutional constraints encourage large scale production, as in plantation agriculture. Among the institutional constraints is frequently the shortage of contiguous land for expansion. Expansion by multiplying locations may increase costs of management and operations unless distances are very short or indivisibilities convenient to common denominators or multiples.

The third observation is also institutional. Starting from a base of family farms, it may be very difficult to change farm management structures in a manner conducive to securing outside finance. Farmers may be unwilling to risk their main asset, their land, in partnerships or corporate undertakings on the one hand and as security to support loans to operations organised according to those forms on the other.

### C. Informal Credit Mechanisms

No comprehensive data is available concerning informal credit mechanisms in Kenya. Can this absence of attention be interpreted as evidence that rural indebtedness is not a social problem in Kenya? An affirmative conclusion appears warranted: three major and one minor official sources have dealt in some detail with farm credit for Africans during the last 30 years, with scant attention or reference to informal credit and its possible burdens.<sup>1</sup> The minor source, known as the Ingham Report, noted in 1949 that:<sup>2</sup>

The use of credit by the African agricultural community is still on a very small scale. So far as we can ascertain, there is little private borrowing, except in the Coast Province where the practice of borrowing

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1. Colony and Protectorate of Kenya, Report of Committee on Agricultural Credit for Africans; East Africa Royal Commission 1953-55; Government of Kenya, The Economic Development of Kenya; Republic of Kenya, Report of the Mission on Land Consolidation and Registration.

2. Colony and Protectorate of Kenya, Agricultural Credit for Africans. p. 1.

from traders in anticipation of the harvest is prevalent....<sup>1</sup>

The possibility that widespread rural indebtedness may have escaped official notice may be discounted. Colonial administrators were certainly aware of the scope of rural indebtedness as a social and economic problem in India. In the early phase of the colonial era Indian laws provided the basis for Kenya's legal system,<sup>2</sup> and the Rupee was used as legal tender. In the latter part of the colonial era the East Africa Royal Commission mentioned in passing the problem of massive rural indebtedness in India but gave no indication of any similar problem in East Africa.<sup>3</sup> That the Colonial authorities were not oblivious to the problems of massive rural indebtedness when these arose within the East African sphere is shown by the investigation undertaken by Bartlett and Last on behalf of the Government of Zanzibar in 1933.<sup>4</sup> Their report, not accepted by that Government, alleged widespread rural indebtedness and recommended debt remission, land registration and licensing of lenders.<sup>5</sup>

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1. "Those who borrow live, those who work die." See Knappert, Jan, Myths and Legends of the Swahili. London, Heinemann Educational Books Ltd., 1970. p. 147.

2. Administrative links between East Africa and India are mentioned in Ghai, Y.P., and J.P.W.B. McAuslan, op.cit., pp. 127 ff.

3. p. 98. Diana Hunt confirms the absence of a tradition of rural indebtedness in Uganda in "The Ugandan Agricultural Co-operative Credit Scheme," East African Journal of Rural Development. 5, 1-2, 1972. p. 2.

4. Bartlett, C.A.; and J.L. Last, Report on the Indebtedness of the Agricultural Classes, 1933. Zanzibar, Government Printer, 1934.

5. The parallels between rural indebtedness in Zanzibar as described by Bartlett and Last, op.cit., and in India as described, for example, by the Reserve Bank of India, Report of the Agricultural Finance Sub-Committee, may to some extent reflect the similarity of financial practice in both areas as well as a coincidence of social, economic and other factors beyond the scope of finance and economics. Details concerning the role of Indian entrepreneurs as financiers in Zanzibar in the Nineteenth Century are found in Mangat, J.S., A History of the Asians in East Africa, c. 1886 to 1945. Oxford, at the Clarendon Press, 1969. See especially Chapter I, "The Nineteenth Century Origins." pp. 1-26.



However, the fact that rural indebtedness is and has not been a problem in Kenya does not mean that informal credit does not exist. Culturally, giving and asking for assistance is a strong tradition which has been adapted to the monetisation of the rural economy. Several dimensions of informal credit can be identified: kinship and friendship credit, "traditional" credit, merchant credit, moneylender credit, and large farm purchase credit. Brief discussions of each type appear warranted, in spite of the paucity of information, to provide some perspective both to informal credit itself and to the importance of formal credit.

#### 1. Kinship and Friendship Credit

Kinship and friendship credit, surely the most informal type of credit, appears to be common.<sup>1</sup> It appears reasonable to assume that the amounts of kinship and friendship loans are generally small in relation to formal sector credit transactions and that they are frequently solicited to meet consumption needs, the payment of school fees, and for special opportunities which may arise from time to time, such as the acquisition of cattle or small parcels of land. No systematic or tightly-defined basis for these transactions appears to have been identified by social scientists, attesting perhaps the small scale nature of such credit and a lack of uniformity with respect to such transactions among Kenya's various ethnic traditions.

#### 2. "Traditional Credit"

"Traditional credit" is defined to include three types of transactions. One contains arrangements under which the seller

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1. It has been hypothesised that visibly better-off individuals, such as civil servants, have an ill-liquidity preference which ensures that the cupboard is bare when less prosperous relatives and friends come to ask for gifts and loans. See Walden, Thorn, "Entrepreneurial Ill-Liquidity Preference and the Extended Family." Working Paper No. 205, Institute for Development Studies, University of Nairobi. December 1974.

retains certain options which render the transfer reversable. The reversable aspect gives those transactions a "future" element in addition to their "spot" characteristics, and the future element gives them something in common with credit as commonly understood in modern business English. The second involves unregistered land as a commodity and the third includes the rotating credit association and similar types of group arrangements. The following traditional credit arrangements, reported by farmers interviewed by the writer in Murang'a District, are illustrative.

One case involved the "sale" of standing wattle trees. Wattle trees may be sold when they are quite young and left standing on the seller's farm by the buyer until they have grown to a size attractive for harvest, which may take as long as seven or ten years. While the trees are standing the seller may buy them back, in effect redeeming the loan. The seller mentioned that the price at which he could buy back the trees was their current market price, determined by the market for bark (used in processed form by the tanning industry), firewood and charcoal. He could also order the buyer to cut the trees at any time if he wanted to use the land for other purposes.

The second type of traditional credit arrangement was reportedly widespread with respect to land purchases and sales prior to registration of the land. One of the Murang'a respondents had obtained his land just prior to demarcation by survey and registration in his area, where the process was completed in 1970. As purchaser he was allowed to occupy and work the land prior to paying for it in full. The arrangement he was a party to involved a down payment of about 30% of the agreed-upon purchase price. No fixed installment schedule was specified nor was there any provision for the payment of interest, although the price was specified in a written agreement witnessed by third parties. Payments in kind as well as payments in cash could be made, and the seller had an informal claim to an unspecified portion of the farm's produce while the debt was outstanding. An especially interesting feature of the transaction was that the

buyer had acquired his land in a serial fashion, several acres at a time. As he completed paying for one block, he would strike a new agreement for another block. Prices ranged from Sh 300 to Sh 550 per acre, according to the buyer, and one agreement required the exchange of a cow in addition to the cash involved. The buyer had cultivated a patch of the farm on a rent-free basis prior to his undertaking to purchase it, but the land was mostly bush and had no building on it. The seller was reported to have sold the land in order to obtain money for bride price.

Prior to registration "sellers" or their offspring could reclaim the unimproved land from the "buyer" simply by refunding the purchase price. (This arrangement of conditional sale is known technically as "pledging" or "customary mortgage".)<sup>1</sup> Improved land could not be recovered in this manner, although certain types of recourse existed and special considerations were examined by the elders who would be called upon to settle any claims which might arise.<sup>2</sup>

One scrap of historical interest, quoted by R.A. Bullock, indicates that Kikuyu tenants (ahoi) in the Nineteenth Century loaned out goats as one means of increasing their herds, so that they might one day obtain a herd large enough to pay for a plot of land and cease to be tenants.<sup>3</sup> Lending out goats increased

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1. Private communication from Mr J.C.D. Lawrance, Ministry of Overseas Development, London. 21 May 1975.

2. An official source suggests that before land registration covered Central Province land transfers paid for in stock were redeemable, while those paid for in cash were not. See Kolbe, L.H., and S.J. Fouché, Land Consolidation and Farm Planning in the Central Province. Nairobi, Government Printer, 1959. Maini suggests that in Murang'a (formerly Ft Hall) District land for which more than 10 goats had been paid was not redeemable. See Maini, Krishan M., Land Law in East Africa. Nairobi, Oxford University Press, 1967. p. 10. Further details regarding customary tenure arrangements are found in Fleming, J.T., "Analysis and Review," especially Appendix I, pp. 94-115; and in Obol-Ochola, James, ed., Land Law Reform in East Africa. Kampala, Milton Obote Foundation, 1969.

3. "Subsistence to Cash: Economic Change in Rural Kiambu," Cahiers d'Etudes Africaines. 56, XIV, 4, 1974. p. 702.

herds through the receipt of interest at a rate of one additional goat per goat borrowed per annum and through the dispersal of herds to minimise risks of disease, predators, etc. The anonymous source cited by Bullock records that the ahoi loaned goats to landlords who used the livestock to pay for land acquired from the Ndorobo during the southward migration of the Kikuyu from Murang'a to Kiambu in the Nineteenth Century.

In another instance reported to the writer in Murang'a, the wife of a respondent acknowledged being a member of a harambee<sup>1</sup> group of ladies who worked together on each others' farms and also on the farms of non-members. The person having the work done by this particular group was required to pay the leader of the group a specified amount, and the leader distributed the sum to a different member each time. Three other respondents reported using groups of this sort for various tasks on their farms, but these other groups evidently did not have special payment arrangements -- the proceeds of each day's work were simply divided among the members by the group leader. The general impression given was that the number and cohesion of such groups is declining with the increasing sophistication of farming, deeper monetisation of the rural economy and greater demands upon members' time reflecting increased labour requirements on their own farms.

Another respondent reported that he and his two wives belonged to a mutual savings society, and the arrangements he outlined have much in common with the rotating payments practice of the work group described above. The savings group was reported also to consist primarily of women. Each member contributed Sh 16 monthly and the total accumulated at each monthly meeting is given to a different member each time until all have received the pooled amount, when the cycle is repeated. These types of procedures involve a credit element in that until the cycle is completed

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1. Harambee is Kiswahili for together, and is the motto of the Republic of Kenya. When applied to rural development, harambee denotes self-help activities based on local initiative. Such activities play a significant role in rural development in Kenya.

and each member has received one payment, members who have not yet received payment are in effect creditors of members who have been paid.

The savings group participant indicated that the group member who received the pool was chosen by lot at each meeting and that there were no arrangements within the group for departures from this method of selection.<sup>1</sup> However, a member especially in need of funds might be able to obtain a loan from the winner through private negotiation at the conclusion of the meeting.

It is interesting to note that the respondent who belonged to the mutual savings group was also probably the most financially sophisticated cooperating member of the writer's sample. In addition to his participation in a traditional association specialising in finance, he also reported having substantial savings account balances and owning shares, in the firm for which he worked, quoted on the Nairobi exchange. Greater involvement in the modern sector is not necessarily incompatible with the maintenance or strengthening of traditional financial practices.

Little published material is available about traditional credit in Kenya. While it includes devices to overcome indivisibilities involved in the adoption of certain enterprises and investments, hence constituting a traditional means of obtaining modernity, it may also be that the social organisation on which these arrangements are based tends to weaken with increased mobility and economic individuality. Registration of land, for

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1. The absence of any such formal device contrasts with practice in Ethiopia and India where groups of this sort -- chit funds or rotating credit associations -- appear to occupy a larger social-financial role. A summary of the nature of these types of groups is found in Geertz, Clifford, "The Rotating Credit Association: A Middle Rung in Development," Economic Development and Cultural Change. X, 3, April 1962. pp. 241-263, reprinted with other articles on the topic in Small Farmer Credit: Informal Credit. XV. AID Spring Review of Small Farmer Credit. June 1973. A typology of chit funds is found in Anderson, Robert T., "Rotating Credit Associations in India," Economic Development and Cultural Change. XIV, 3, April 1966. pp. 334-339.

example, has no doubt had the effect of rendering conditional sales legally unenforceable, and hence relatively unattractive as a means of obtaining "credit". In addition, increased access to formal credit by the economic upper stratum of rural society may dampen leadership initiative for the organisation of traditional groups oriented towards overcoming investment indivisibilities.

### 3. Merchant Credit

Harper's study of 169 shops in Nyeri and Machakos Districts indicates that more than three-quarters gave trade credit.<sup>1</sup> The sample was neither survey oriented nor random, being selected from "average" establishments open at the time of field selection visits in an experiment in providing business advice. In spite of this shortcoming from the point of view of this study, Harper's work provides some interesting insights. Of his 169 shops, 136 reported extending credit to customers. Of these 136, sufficient data was gathered from 125 to provide the basis for several observations concerning the position of credit in traders' finances. The first is that the 125 shops reported a 20% higher level of sales, on the average, than the remainder of the sample. While the average monthly turnover reported for the entire sample was Sh 2,388, for the 125 it was Sh 2,498, yielding an average of only Sh 2,081 for the remainder. For the sample as a whole, the mean amount of credit reported outstanding at the time of the interviews, Sh 343, represented about 15% of average monthly sales and, interestingly, more than two-months' estimated average profits. For the 125 shops giving credit for which complete data was available, the reported average amount of credit outstanding

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1. Data provided personally by Malcolm E. Harper in 1974. Harper was at that time lecturing in the Faculty of Commerce at the University of Nairobi. Further details of his study of small shops and his field experiments in providing low cost extension assistance to small shopkeepers are available in his PhD dissertation submitted to the University of Nairobi in 1974, entitled The Development of a Cost Effective Extension Service for Small Business: A Kenyan Experiment.

was Sh 435, equal to about 17% of reported average monthly sales turnover.

While only 36% of the sample reported having bank accounts, only 6% indicated having loans. Six percent also reported using trade credit extended by wholesalers. Thus, most of these shopkeepers giving credit appear to be financing their customers out of their own resources rather than constituting a link in a chain of credit relationships.

For the subgroup of 125 as a whole, manipulation of Harper's data suggests that those with access to credit had a higher level of credit outstanding, relative to sales turnover, than those lacking access to credit. On a District basis, however, this correlation applies only to sample shops in Machakos, while in Nyeri access to credit appears to be associated with relatively lower amounts outstanding to customers. However, the small number of Harper's merchants extending credit who also reported having access to loans and trade credit and for whom complete information was available -- seven in Nyeri, six in Machakos -- and the non-random nature of the sample make generalisations on this matter tenuous. The terms on which credit was extended and the merchants' loss experiences were not monitored by Harper.

The Ingham Committee, which in 1949 investigated the possibilities of providing farm credit for Africans, received evidence from Sheikh Mbarak Ali, Liwali for the Coast, which suggests that merchant credit was not uncommon in that part of Kenya:<sup>1</sup>

There exists, however, the undesirable practice of shopkeepers advancing sums ranging from Sh 10 to Sh 500 in any year on that year's crop which is sold to the shopkeeper at a lower price than would be obtainable in an open market. The credit is usually asked for either to pay for assistance in clearing and preparing the area or for purchase of food should the farmer's reserve of food be exhausted before the next crop.

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1. Colony and Protectorate of Kenya, Agricultural Credit for Africans. p. 53.

The Administration has for years tried to eradicate this practice, but it unfortunately exists and it appears that it is of some assistance to the borrower.

Moock notes that farmers in Vihiga Division included in his samples appeared to use too little fertiliser and too much labour in maize cultivation, given rational economic goals. Moock suggests that this tendency is not the result of irrationality but rather of the bias inserted primarily by limitations on his range of cost data. Among the four unmeasured factors he suggests which might explain the tendency to use too little fertiliser he includes the costs of borrowing in informal credit markets.<sup>1</sup> The suppliers of credit in these markets would presumably be shopkeepers or pure moneylenders, as friendship and kinship credit probably would not carry any interest obligation.

Six of the 19 respondents interviewed by the writer in Murang'a indicated having accounts with local shops for the purchase of provisions such as salt, sugar, cooking fat, fuel oil and other requisites.<sup>2</sup> Repayment was reportedly expected monthly in cases in which salary or tea cheques were major sources of regular cash income, or at the time when income was received from the sale of charcoal or similar goods sold on a frequent but irregular basis. Maximum balances due at month-end were less than Sh 40 in four cases, and Sh 80 in one case. Four respondents indicated that there were no interest charges or other conditions involved in this type of credit, and one felt that traders might charge slightly higher prices on household items sold on credit than on cash sales. The sixth respondent who reported using merchant credit had done so on a substantial scale, obtaining supplies from a merchant in Thika for his poultry enterprise. Payments were required monthly, and frequently amounted to Sh 500. The respondent reported that a bag of chicken feed could be purchased for cash for Sh 42, but that the credit price was Sh 43. The rate of interest represented by this premium would be a

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1. Moock, Peter Russell, *op.cit.*, p. 244.

2. "Credit Use and Development," p. 76.



function of the time between the date of purchase and the monthly settlement date. If the balance were outstanding for a full month a rate of about 28% per annum would obtain.

#### 4. Moneylender Credit

Moneylender credit appears to be relatively rare in rural Kenya. The term is used here to apply only to transactions in which the relationship between creditor and debtor is limited primarily to credit, as opposed to the carrying on of a trade or as an adjunct to relationships involving access to land or similar situations in which credit is an accessory. Only one of the Murang'a farmers interviewed by the writer indicated having recourse to a moneylender, who allegedly charged what amounted to an annual interest rate of 200%.<sup>1</sup>

The Lindquist Report indicates that registered moneylenders, mostly Asians, operated in urban markets at the time of writing in 1967, while unregistered African moneylenders were found in the countryside who levied interest at 360% per annum and used physical force against defaulters.<sup>2</sup> However, Lindquist did not indicate whether this was a general occurrence in the countryside or limited to a small number of instances. The scant data which does exist and the overwhelming silence of many of the most obvious sources suggest that the situation reported by Lindquist is one of infrequent occurrence.

#### 5. Large Farm Purchase Credit

Large farm purchase credit arrangements arose in response to the opportunity to buy large farms which resulted from the fact of independence. As noted above, individual Africans generally had insufficient capital to purchase a farm in the former Scheduled

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1. Credit Use and Development, pp. 80-81.

2. Lindquist, Sven, Report on Credit and Finance in the Agricultural Cooperative Movement in Kenya. Nairobi, The Nordic Project for Cooperative Assistance to Kenya, 18 May 1967. p. 27.

Areas once the racial barriers to such purchases were removed. Various devices were used to solicit funds from a number of people for such purchases of farms from Europeans. Some of these devices are well within the realms of formal credit arrangements, such as cooperative thrift or savings societies which hoped in due course to accumulate sufficient funds to purchase a large farm. However, other devices were primarily informal.

A common arrangement, described by Onyonka,<sup>1</sup> involved the formation of a nuclear group for the purchase of a farm. The group would find it impossible or undesirable to obtain commercial bank credit to assist with the purchase. Banks felt the risk of such loans to be high and preferred fairly short maturities. In any event, potential borrowers frequently did not like the amount of disclosure required by banks. The Land Bank and later the Agricultural Finance Corporation, with which it was merged, provided funds on 20 (later 30) year terms, but required a substantial deposit representing the intending purchasers' equity contribution. This deposit was as great as 40% of the purchase price, but was later reduced to 20%, and in addition borrowers were expected to have cash for working capital purposes. Ruthenberg noted with respect to the situation prevailing as of 1965 that<sup>2</sup>

The Land Bank demands that the applicants possess 50% of the price of the land and the fixed assets in ready cash or readily available assets. The buyer then usually gets a loan of 70-80% of the land price.

As the nuclear group was often unable to raise the required cash among themselves, funds were raised from a number of other sources. Of 60 farmers interviewed by Onyonka, 32 had obtained credit from kin and friends, and in 30 of these cases no interest charge was involved. Loan agreements were verbal. However, the relationship was frequently seen as involving certain obligations, as in at least 10 of the 32 cases the borrowers reported having been requested by their creditors to engage workers recommended

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1. Onyonka, Z.T., Agricultural Development Banking.

2. Ruthenberg, Hans, African Agricultural Production Development Policy in Kenya. p. 92.

by creditors. These workers were frequently unpaid or paid only nominal amounts, which in effect made them squatters on the farm. Cash constraints encountered by the borrowers would also frequently lead them to default on their informal sources of funds,<sup>1</sup> who would then be accepted as partners in the venture rather than as creditors. Hence, the term "hidden partner" is used in this context. As partners, some of the former creditors would take up residence on the farm, or allow a kinsman to do so. The effect of this influx of retinue was to dismember the large farm into a collection of small family plots, which by increasing the subsistence output requirement from the large farm could decrease the marketable surplus.<sup>2</sup> The owners would then go further into arrears with the Land Bank or AFC, attempt to obtain more credit from a wider range of informal sources, or liquidate loose assets on the farm, etc., which often further impaired the debt servicing capacity of the operation financed by formal credit. This syndrome eventually led to the request to the World Bank for assistance in rehabilitating problem farms in the former Scheduled Areas, for which the Bank and IDA provided \$15 million in 1975. •

D. Self-Finance and Reinvested Earnings as Sources of Investment Funds in Kenyan Agricultural Development

1. Self-Finance as a Residual

While conceptually of primary importance, self-finance, including retained earnings, must be treated here as a residual, reflecting the absence of data on investment in the agricultural sector. Self-finance is obviously more important than credit as a motive force in increasing the productivity of land on the bulk

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1. Ruthenberg indicates that funds obtained informally to meet Land Bank deposit requirements were usually repaid out of loan proceeds when the loan was drawn down. This practice implies that many farms financed by the Land Bank would have quickly suffered severe working capital constraints. Op.cit., p. 93.

2. Ruthenberg, Hans, op.cit., pp. 93-94.

of Kenya's farms. That this is the case may be inferred from the impressive development in small scale agriculture which has occurred and from the limited coverage of credit schemes and the relative lack of informal credit mechanisms extending much beyond the family. De Wilde, noting that increases in agricultural production in tropical Africa frequently occurred with little or no support in the form of formal credit, made an early attempt to quantify this argument. His study states that credit advanced to African farmers in Kenya did not exceed a cumulative total of Sh 22 million between 1948 and 1964, including lending by the banks and by public sector schemes. However, the annual value of African agricultural production was roughly nine times that amount as of the latter date.<sup>1</sup>

Official statistics indicate that by the early 1970's the situation was in certain respects not greatly different from that prevailing in 1964, at least with respect to the small farm sector, which is essentially what de Wilde meant by his reference to African agriculture. Table III-8 on pages 232-233 suggests some of the relative magnitudes involved. However, the data are suspect from many points of view and should not be considered a definitive statement of reality. In addition, the data are mixed in the sense that they include both stocks and flows, and some arbitrary assumptions have been applied to obtain the comparisons required for useful analysis. The table suggests that while formal sector short term credit amounted at most to 15-20% of monetised private sector gross agricultural output and of gross marketed agricultural output, short term credit to small farms probably amounted to not more than 5% of small farm marketed output. (Cooperative credit given outside the operations of CPCS would have the effect of increasing somewhat the 3% figure given in the table. The extent of such credit is not fully known.) As noted in a previous section, small farmers receive little formal credit for working capital purposes.

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1. De Wilde, John C., op.cit., Vol. I, The Synthesis. p. 198.

Since the time of de Wilde's work the use of credit to support gross monetised capital formation on small farms has probably increased in relative terms. Quantification of the relationship between the supply of credit and levels of capital formation is difficult, but it appears that not more than 15-20% of gross monetised capital formation on small farms would be financed by formal sector credit. This very rough estimate is derived from Table III-8, which attempts to outline some orders of magnitude. The very generous assumptions found in Item 35 of the table yield an estimation of a 37% level of financing.<sup>1</sup> This estimate must be deflated, however, to reflect problems of comparing stocks of credit with flows of capital formation, and also to reflect credit rationing criteria which limit the access of small farmers to credit relative to the access enjoyed by large scale agriculture.

In any event, the manipulations presented in Table III-8 suggest that self-finance rather than credit provides the bulk of financial resources for monetised agricultural capital formation. Credit support for working capital also appears to be quite small, especially in the small farm sector, although the expansion of the Cooperative Production Credit Scheme since 1971 would have the effect of increasing small farmer access to credit on a significant scale.

## 2. Self-finance and the Adoption of Major Innovations

An alternative approach to assessing the role of self-finance lies in enquiring to what extent major innovations in agriculture have been supported by credit. If formal credit has not been relied upon by farmers adopting new enterprises, it may be assumed that the financial requirements of adoption have been met by self-finance, including reinvested earnings, or by informal credit.

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1. Capital:output ratios by enterprise and subsector would permit a more sophisticated and less arbitrary set of assumptions to be applied. However, definitive data of this sort is not yet available.



Table III-8 (continued)

<u>Item</u>	<u>Percentage</u>	
30	Percentage comparisons of the magnitude of farm credit relative to key variables:	
31	Short term credit issued by parastatal corporations (Item 24) plus commercial bank and CPCS credit outstanding to agriculture (Items 28 & 29) as a percentage of:	
32	Private sector monetary agricultural GDP (Item 4)	19%
33	Gross marketed agricultural production (Item 10)	16%
34	Short term parastatal credit to small farmers (Item 19) plus CPCS credit outstanding (Item 29) plus 10% of bank credit outstanding to agriculture <sup>b/</sup> (Item 28) as a percentage of small farm gross marketed production (Item 8)	3%
35	25% of bank credit outstanding to private agriculture <sup>c/</sup> (Item 28) plus total parastatal medium term credit (Item 25) plus 25% of total parastatal long term agricultural credit <sup>d/</sup> (Item 26) as a percentage of gross monetary capital formation by the private agricultural sector (Item 14)	37%

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Sources: Republic of Kenya, Economic Survey 1973. Various tables. CPCS data (Item 29) provided by the Department of Cooperative Development.

a/ Non-monetary capital formation (with the exception of "construction of traditional dwellings") is not included in Government statistics pertaining to non-monetised activity.

b/ This calculation assumes that 10% of banks' agricultural lending is used to finance short term production inputs on small farms.

c/ This calculation assumes that 25% of banks' agricultural lending is for medium term (exceeding one year) investment.

d/ This calculation assumes that 25% of parastatal long term agricultural credit is devoted to capital formation.

Note: The assumptions used, as given in footnotes b/, c/ and d/, are very inaccurate estimates and are made in an attempt to avoid overstatement resulting from double counting. Banks lend to parastatal corporations in the agricultural sector, for example. Also, ambiguities in the classification of bank lending result in the inclusion in the credit data of some credit which is extended to entities in the production-processing-distribution chains beyond the point at which the flows in question are valued as agricultural production for national income accounting purposes.

As noted earlier in this paper, it appears warranted to assume that informal credit has in general played a very restricted role in small farm capital formation.

Smallholder agricultural production has altered in volume and composition over the last 25 years. Kenya's African population growth rate is estimated at about 3% per annum,<sup>1</sup> and leaving aside the population drift from rural to urban areas (on the grounds that the African urban population approximated only 7.5% of the total African population in 1969),<sup>2</sup> it would appear that as a whole the smallholder sector was able to feed itself on at least the same scale between the late 1950's and the last 1960's. This conclusion is admittedly based on estimations of tons of maize and pulses produced for the market, which was variable in amount but with a flat trend over the period,<sup>3</sup> and on the assumption that home consumption of these crops on smallholdings takes absolute priority over sales in the market.

Against this background, production of several cash crops has increased markedly in both physical and current money value terms, while no major crop other than sisal registered consistent decline in current money output value in the intermediate term in recent years.<sup>4</sup> The increase in cash crop production has to a large extent been based on the adoption of the crops in question, as smallholder access to these enterprises was frequently restricted, by administrative means or by economic reality or by both, until late in the colonial period. Thus, innovation, always carrying risks, is at the root of much of the dynamism exhibited in smallholder cash cropping in recent years.

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1. Republic of Kenya, Statistical Abstract 1973. p. 13.

2. Ibid., pp. 14, 15.

3. The volume series for smallholder production of principal crops, found in Republic of Kenya, Economic Survey (annual), was unfortunately discontinued after 1967.

4. See Republic of Kenya, Economic Survey (annual) and Statistical Abstract (annual).



The major innovations which have swept through smallholder agriculture in Kenya during the past 25 years and the probable role of formal credit in supporting the adoption of each may be summarised as follows:<sup>1</sup>

<u>Enterprise</u>	<u>Approximate Period of Rapid Adoption</u>	<u>Estimated Level of Support by Formal Credit</u>
Coffee	Early 1950's to 1964	Low
Pyrethrum	1955 to 1962, 1964 to 1968	Low
Tea	1963 to present	High to 1968, nil thereafter
Dairying	1963 to present	High for adoption involving the purchase of grade cattle
Hybrid maize and fertilisers	1964 to present	Moderate

Details of smallholder credit schemes not tied to specific crops were given in a previous section. At this point it may be worthwhile to recall that there was hardly any formal credit for African farmers before 1955, that commercial banks did little lending to Africans until the late 1950's in view of statutory limitations and other factors, that settlement credit began in 1961 and that significant smallholder credit schemes not tied to specific crops got underway in the latter half of the 1960's. Thus, access to credit has tended to widen over roughly the same period in which cash cropping has spread among smallholders. However, this does not imply that credit has been responsible for this spread. In fact, credit's role has been varied, as examination of the evidence with regard to each of the major innovations indicates.

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1. The principal source of data on innovations and adoption is Heyer, Judith, "Survey," with supplemental information pertaining to maize from Streeter, Carroll P., "Reaching the Developing World's Small Farmers," pp. 45-49; The Pyrethrum Board of Kenya and the Pyrethrum Marketing Board, Annual Report and Accounts for the Period 1st October 1972 to 30th September 1973, p. 18; Garst, Ronald D., op.cit., p. 122; and Acland, J.D., op.cit.

## a. Coffee

Coffee planting on African farms was severely restricted until late in the colonial era, whereas since 1966 smallholder production has accounted for approximately half of Kenya's total clean coffee tonnage.<sup>1</sup> (The constancy of this percentage in the decade following 1964 reflects limitations on plantings under Kenya's participation in the International Coffee Agreement.<sup>2</sup>)

The adoption of coffee by smallholders appears generally not to have been supported by formal credit. By 1964 the Agricultural Department was able to report the existence of over 50,000 ha of coffee managed by more than 235,000 growers.<sup>3</sup> At the same time, the cumulative number of loans issued by the principal public sector credit programmes for African farmers approximated 8,000.<sup>4</sup> If it is assumed that the commercial banks and minor Government schemes had provided funds for an additional 8,000 African farmers by 1964, it would still appear that only a small portion of coffee growers were using credit, even if all of the beneficiaries of credit used the funds for establishing coffee plantations. That such would not have been the case is suggested by the fact that coffee requires roughly two to four years after planting to come into bearing, and full bearing for multiple-stemmed trees does not occur until between the fourth and eighth year.<sup>5</sup> As the establishment period is too long to be attractive to commercial banks, it is unlikely that commercial bank credit was available to many farmers for the purpose of establishing the crop and carrying the costs of adoption until production was

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1. Republic of Kenya, Economic Survey 1974. p. 64; Economic Survey 1966. pp. 30, 35.

2. Heyer, Judith, "Survey," p. 29.

3. Ibid., p. 59.

4. Vasthoff, Josef., op.cit., pp 30-31.

5. Minimum estimates are from Acland, J.D., op.cit., p. 80, and maximum estimates from Government of Kenya, The Economic Development of Kenya. p. 84.

sufficient to repay the loan. It is possible that some farmers borrowed to assist with establishment, and in such instances two alternatives are implied. One is that the farmer would have defaulted on his loan, not repaying -- if repaying at all -- until the crop was mature. This no doubt happened in a few instances, but widespread recurrence is unlikely in view of the banks' modus operandi. The second possibility is that borrowings would have been repaid from sources other than coffee earnings, implying another aspect of the probable role of self-finance.

It appears that the theoretical maximum number of borrowers, 16,000 as derived above, would have been expanded, in the case of coffee, by credit from the cooperatives which have been intimately associated with smallholder coffee production as monopsonistic marketing channels and operators of wet processing factories. Although cooperatives provided credit to the point of imperiling their own solvency by the mid-1960's, de Wilde reported in the early 1960's that societies' advances to their members were generally restricted to seasonal loans for input supplies.<sup>1</sup> The mathematics of the rate of adoption of coffee and the time required for the crop to come into bearing also suggest that few societies could have accumulated sufficient resources until quite late in the period of most rapid adoption to have been in a position to have extended sufficient loans to members to have had a material impact on expansion of crop acreage.

Data from Kisii collected in a field survey employing random sampling procedures also indicate a very low correlation between reported credit use and adoption of coffee. The survey covered a portion of Kisii including an estimated 40,000 homesteads. From data gathered in short interviews with 1,935 cases, Garst estimates that as of 1950 fewer than 5% of farms in the study area were growing coffee.<sup>2</sup> By 1971 the proportion had stabilised at around

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1. Op.cit. Vol. II, The Case Studies. p. 68.

2. Garst, Ronald D., op.cit., pp. 106-107.

44%, the growth curve for the period showing rapid expansion between 1950 and 1964.<sup>1</sup> Of the 485 farmers interviewed in depth by Garst and his colleagues, only 14 reported using formal credit.<sup>2</sup> A search of AFC files by the writer yielded an additional seven among the 485 who had received AFC loans as of the time of the field interviews conducted by Garst and his colleagues. It is probable that the level of misrepresentation in responses by sample members with regard to credit is higher than suggested by this comparison (which discounts the possibility of enumeration errors), as the number and variety of names used by an individual pose a major barrier to achieving accuracy in comparing lists of farmers. However, the level of misrepresentation implied is not surprising, given the sensitive nature of credit as a subject of inquiry and the fact that the interviews designed by Garst and his associates were conducted by Government employees.<sup>3</sup>

Even under generous assumptions, Garst's data suggest a low reliance on formal credit for coffee adoption. Such assumptions might be formulated as follows:

1. the 3% of the sample who reported using formal credit comprised only a quarter of those who had actually obtained loans.
2. all sample members using formal credit were coffee adopters, and
3. all sample borrowers used their loans for coffee adoption.

Even under these assumptions no more than one in three coffee adopters relied on formal credit — and these assumptions are such that this hypothetical upper limit exceeds greatly the actual level of reliance.

Thus, the evidence suggests that de Wilde's observations

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1. Garst, Ronald D., op.cit., p. 122.

2. This count was obtained by the writer from the original field questionnaire forms, provided for this purpose by Miss Carolyn Barnes, one of Garst's co-researchers, formerly of the Institute for Development Studies, University of Nairobi.

3. Garst's dissertation does not cite the data on credit use generated by the field survey.

that the spread of coffee in Nyeri District was not financed by (formal) credit<sup>1</sup> would also be applicable to other parts of Kenya. The formal credit delivery system was simply too undeveloped at the time of the coffee planting boom to have contributed materially to its progress.

That coffee could have been adopted so rapidly without credit is consistent with the scale on which adoption frequently occurred. Until 1958 new African growers were limited initially to 100 trees, and in that year the limit was raised to 280 for new growers on land which had been consolidated under the process which eventually culminated in land registration.<sup>2</sup> The financial requirements of adoption were thus also limited and it would appear that the scale involved was within the self-financing capacities of a large number of framers.

Given the standard smallholder planting density of 540 trees per acre, these limits were indeed restrictive. Controls certainly diminished the planter's exposure to the risk of innovation, and such risks were further reduced by supervision of land preparation and planting by the extension service. Supervision no doubt contributed to the very high quality of coffee produced by the early adopters,<sup>3</sup> and to the establishment of a tradition of higher quality production from smallholdings than from estates,<sup>4</sup> a tradition no doubt preserved by price incentives and cost considerations.

#### b. Pyrethrum

Pyrethrum is another crop which was adopted on a significant scale by African growers after 1955. The spread of pyrethrum was more localised and had less overall impact than that of coffee, reflecting the more severe ecological limitations to which pyrethrum is subject. Specifically, pyrethrum requires rainfall

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1. Op.cit. Vol. II. The Case Studies. p. 61.

2. Heyer, J., "Survey," p. 23.

3. Ibid.

4. Republic of Kenya, Economic Survey 1974. p. 65, and corresponding tables from earlier editions.

quantities and patterns and also temperature levels which are found within a contour band of approximately  $\pm 1,500$  feet from the optimum altitude of about 8,000 - 8,300 feet.<sup>1</sup>

Field data gathered by Garst and others in Kisii, where nearly half of Kenya's pyrethrum is produced,<sup>2</sup> yields an estimate that while only about 1% of Kisii farmers had adopted pyrethrum in 1950, the level stood at more than 75% by 1970.<sup>3</sup> The adoption curve plotted by Garst is quite steep between 1955 and 1970, indicating a very rapid spread of pyrethrum. The curve broke in 1960, and the slightly less rapid rate of adoption following that year is attributed by Garst to a decline in the price paid to growers.<sup>4</sup> Acland notes that seed propagation gave way to vegetative propagation in the 1960's,<sup>5</sup> but this change would not appear to be relevant to the behaviour of the adoption curve reported by Garst for Kisii.

As for coffee, the Kisii data suggests that use of formal credit was not widespread enough to have contributed greatly to pyrethrum adoption. The assumptions listed for coffee,<sup>6</sup> applied to pyrethrum, suggest that no more than one in six adopters could have relied on formal credit, and again this theoretical maximum no doubt greatly exceeds the actual level, as discussed below.

Data from the Pyrethrum Board provides further evidence that growers tend not to rely on credit from the Board for replanting, as noted in an earlier section.<sup>7</sup> The lack of credit use may be related to the nature of the crop, which may be regenerated by "splitting" plant clusters at the conclusion of each three year

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1. Acland, J.D., op.cit., pp. 153-154.

2. The Pyrethrum Board of Kenya and the Pyrethrum Marketing Board, Annual Report and Accounts for the Period 1st October 1972 to 30th September 1973. p. 4.

3. Garst, Ronald D., op.cit., pp. 122, 149.

4. Ibid., pp. 122, 231.

5. Op.cit., p. 154.

6. See p. 238.

7. See p. 214.

optimum biological yield cycle. Growers have been encouraged by the Board to do their own splitting. Thus, it is conceivable that the adoption of pyrethrum could have spread by transfers of splittings among friends and extended family members with only minimal demands on self-financing. The availability of surplus splittings is ensured by the nature of the crop. On the one hand, each cluster of mature plants can usually provide at least ten splits, each the nucleus for a further cluster during the following production cycle.<sup>1</sup> On the other hand, the labour requirements of the crop limit the amount the average smallholder grower plants to less than one acre.<sup>2</sup>

The price for plants furnished by the Board was Sh 20 per 100 plant lot collected at the nursery in 1972.<sup>1</sup> It is probable that private nurseries supplied plants at lower prices. Fertiliser appears to be rarely used by growers, even though it is available from the Pyrethrum Board on credit terms.<sup>4</sup> The costs of entry into pyrethrum production are relatively low, which no doubt also contributed to the rapid spread of this innovation and the low level of recourse to formal credit by adopters in the small farm sector.

Pyrethrum is also a major crop on certain settlement schemes, which contributed between one-quarter and one-third of Kenya's production in the early 1970's.<sup>5</sup> Settlement producers became increasingly important during the second spurt in production which occurred between 1964 and 1968.<sup>6</sup> This expansion reflected the transfer of large scale production units to settlers, as well as the suitability of the crop to exploitation by settlers. Von

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1. Acland, J.D., op.cit., pp. 154-155.

2. Donaldson, G.F., and J.D. Von Pischke, op.cit., p. 132, Von Pischke, J.D., A Review. p. 116.

3. Ibid.

4. Ibid.

5. Ibid., pp. 129, 116, respectively.

6. Department of Settlement Annual Reports for the period show an increase in settlement cooperative marketing societies' pyrethrum turnover from Sh 2.2 million in 1964/65 to Sh 22.1 million in 1967/68.

Haugwitz indicates that even in the case of credit-supported settlement farms, outlays on pyrethrum were small:<sup>1</sup>

In the past few years next to no money has been spent on the establishment of pyrethrum on settlement farms. The farmers fetched splits from neighbours and then, by dividing their own plants, increased pyrethrum acreage. Fertilizers, almost without exception, were not used.... The control of pests and diseases is expensive, but until now it has hardly been necessary.

In the cases in which pyrethrum adoption involved no cash outlay, there was obviously no role for credit. Farmers' labour would appear to constitute the primary path to adoption.

### c. Tea

Tea adoption was fully integrated with credit for about ten years following 1959.<sup>2</sup> The Kenya Tea Development Authority (KTDA) provided stumps to applicants within specified tea areas who met certain minimal requirements. Growers were charged 30 cents per stump and the first 3,000 stumps were issued to newly-licensed growers against a down payment of 12 cents per stump. Few allotments of fewer than 1,000 stumps were made, and all stumps in excess of the original 3,000 per grower had to be purchased for cash. The credit extended under the Stump Purchase Programme, i.e., 18 cents per stump on the first 3,000 stumps per grower, was scheduled for recovery over approximately 15 years out of the proceeds of green leaf deliveries.

The Stump Purchase Programme was discontinued with the change to vegetative propagation (VP) between 1967 and 1970.<sup>3</sup> VP plants have been sold to growers for cash. It is interesting to note

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1. Haugwitz, Hans-Wilhelm von, Some Experiences with Smallholder Settlement in Kenya: 1963/64 to 1966/67. IFO-Institut für Wirtschaftsforschung, Afrika-Studien 72. Munich, Weltforum Verlag, 1972. p. 51.

2. Data on the Stump Purchase Programme is found in the annual reports and other publications of the Kenya Tea Development Authority; in Vasthoff, Josef, op.cit., pp. 27-28; and in Donaldson, G.F., and J.D. Von Pischke, op.cit., pp. 127-128.

3. The Kenya Tea Development Authority, Annual Report and Accounts for the Period 1st July 1968 to 30th June 1969. p. 14; Annual Report and Accounts for the Period 1st July 1969 to 30th June 1970. p. 13.



that the annual increase in land area under tea and in the number of growers was not adversely affected by the discontinuation of the credit scheme, as shown in Table III-9.

Of greatest interest from the point of view of self-financing capacity is the increase in the number of new growers following the discontinuation of the credit programme. Established growers would have had tea delivery proceeds as a source of income from which to finance expansion of their acreage. New growers would not have had that source of income, of course, therefore opening to question their capacity to finance their entry into tea production. Between 1970 and 1973, following the introduction of VP, the average number of new growers each year was twice the 1965-1967 average, suggesting considerable self-financing capacity.

This conclusion need be modified only very slightly to accommodate the impact of other credit sources in facilitating the entry of new growers. AFC has given only a handful of smallholder loans containing a tea development element; the three year waiting period before new plants produce their first harvest makes the enterprise unattractive to commercial banks; and the maximum term of credit extended under the Cooperative Production Credit Scheme until 1974 was 18 months, also too short to finance tea adoption. Tea growers' access to cooperative credit would in any event be limited by institutional factors: excluding areas such as Kisii where coffee and pyrethrum occur within a common altitude zone, only those growers at the lower margin and in the upper altitude band of tea areas would be likely to have access to cooperative credit. Those at the lower margin may also be coffee farmers, and those in the upper band may also be pyrethrum growers. Both coffee and pyrethrum marketing societies provide credit to their members. (Dairy societies are generally not involved in the issue of credit to members.) Given the three year waiting period it appears that in any event the financing of tea with cooperative credit alone would involve serious default. To the extent any cooperative

Table III-9. The Growth of Smallholder Tea Land and Number of Growers, 1965-1973

Method of Propagation	Year Ending June 30	Hectares of Tea Planted		Number of Growers	
		Cumulative Total	Annual Increase	Cumulative Total	Annual Increase
Planting of seedling stumps	1965	5,133		22,343	
	1966	6,479	1,346	26,693	4,350
	1967 <sup>a/</sup>	8,424	1,945	32,599	5,906
Average annual increases 1965-1967			1,646		5,128
Transition	1968	10,772	2,348	37,953	5,354
	1969	13,409	2,637	42,596	4,643
Vegetative propagation	1970 <sup>b/</sup>	16,229	2,820	48,443	5,847
	1971	19,230	3,001	53,400	4,957
	1972	26,228	6,998	66,897	13,497
	1973	30,895	4,667	79,314	12,417
Average annual increases 1970-1973			4,889		9,174

Sources: Republic of Kenya, Economic Survey 1974. p. 65. Footnotes below are from annual reports of the Kenya Tea Development Authority.

a/ 600,000 VP cuttings were issued in January 1967. This amount equals only 2% of the annual volume attained in 1969/70 when the transition was virtually completed.

b/ 1,500,000 stumps, sufficient for planting approximately 173 ha, were distributed in 1969/70, closing out KTDA's stocks.

loans used for tea are repaid prior to or in advance of the cash flow from tea deliveries, self-finance is involved. It is unlikely that cooperative loans are repaid from other borrowings, given restricted small farmer access to alternative sources of formal credit and the unliklihood of using informal credit for such a low priority purpose.

#### d. Dairying

Dairying has spread outside the large farm sector with a degree of credit support which has varied greatly according to the context in which adoption has taken place. The absence of reliable data on cattle populations makes it difficult to assess credit's overall contribution very precisely, and the analysis must rest primarily on the extent to which credit for the establishment and expansion of dairy enterprises has been provided by public sector credit schemes.

The spread of dairying is indicated by the remarkable increase in several data series. One consists of estimates of the small farm and settlement dairy herds. Peberdy, sometime head of the Animal Production Division in the Ministry of Agriculture, is quoted as estimating a doubling of the small farm dairy herd from 49,400 to 100,000 between 1963 and 1967,<sup>1</sup> and it appears that there are grounds for suspicion that these estimates were conservative.<sup>2</sup> Settlement dairy cows and heifers numbered 9,000 in 1963 and almost 100,000 by 1968.<sup>3</sup>

The volume of milk sales to Kenya Cooperative Creameries (KCC), the apex dairy monopoly, by subsector between 1967 and 1969

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1. Smith, L.D., and R. von Kaufmann, "An Evaluation of the Kenya Artificial Insemination Service." Draft report, Institute for Development Studies, University of Nairobi, March 1971. p. 13.

2. Peberdy, J.R., "Animal Production: 1970-1980 and Beyond." November 1970. (No publication data given). pp. 11 ff; Heyer, J., "Survey," p. 36.

3. Smith, L.D., and R. von Kaufmann, *op.cit.*, p. 13. A somewhat larger settlement herd estimate is attributed to Peberdy by Heyer, J., "Survey," p. 36.

is given by Peberdy as:<sup>1</sup>

<u>Subsector</u>	<u>Millions of Gallons</u>		
	<u>1967</u>	<u>1968</u>	<u>1969</u>
Large scale	31.0	32.0	31.4
Settlement	6.7	6.8	7.0
Small scale	<u>6.8</u>	<u>8.4</u>	<u>8.2</u>
Total	<u>44.5</u>	<u>47.2</u>	<u>46.7</u>

While the increase in settlement and smallholder deliveries are not so dramatic as the estimated expansion of the respective herds, Peberdy notes and the writer's fieldwork confirms that expansion in output reaches KCC only after local milk demand is saturated.

A longer time series is readily available for the value of dairy products marketed by small farmers. In the late 1950's the small farm sector's marketed output of dairy products was somewhat below Sh 4.0 million according to the statistical series then in use, while by 1965 the same series recorded a volume in excess of Sh 16.0 million.<sup>2</sup> By 1969/70 the value of milk delivered to KCC by primary marketing societies was Sh 23.0 million.<sup>3</sup> The existence of a quota system with differential prices makes it futile to attempt to derive delivery volumes from payout and average price data alone.

The expansion of smallholder dairying is based on the increasing popularity and more widely spread ownership of "grade" cattle. Grade cattle are defined by The Concise Oxford Dictionary as a "variety produced by crossing native stock with superior breed," and the derivation of the term is suggested by Musangi's observation that "mating purebred sires with grade stock for several generations is termed 'grading up'."<sup>4</sup> A description of

1. Op.cit., p. 70. Data on p. 69 suggests these figures may apply not to calendar years but to KCC accounting periods beginning in these years.

2. Colony and Protectorate of Kenya, Economic Survey 1961. p. 22; Republic of Kenya, Economic Survey 1967. p. 47.

3. Republic of Kenya, Department of Cooperative Development, Ministry of Cooperatives and Social Services, Report for the Year 1968-1970. p. 49.

4. Musangi, R.S., Dairy Husbandry in Eastern Africa. New ed.

the strategy of grading up is given by Williamson and Payne:<sup>1</sup>

(Grading) is a method of crossbreeding which is particularly suitable when it is desired radically to change the character of a considerable number of animals rather than of individuals or small groups where, for economic or other reasons, it is not practicable to change one breed for another merely by supplanting individuals of the old breed for those of the new.

Although not so resistant to disease and tolerant of heat as local varieties, grade cattle inherit a higher degree of such resistance and tolerance than is found in pure European stock imported into Kenya. At the same time, crosses produced through grading up achieve a milk yield several times as high as that of their local ancestors. Peberdy estimated in 1970 that the average zebu (local variety) milk yield was 120 gallons per calving, while grade animals in smallholder areas averaged 300 gallons per year.<sup>2</sup> While others close to smallholder dairying have given less optimistic yields for grade dairy cattle,<sup>3</sup> it would appear that grading up with proven bulls' semen frequently permits at least a doubling of yields compared to the average achieved by local varieties.

Thus, for genetic and economic reasons grading up constitutes a suitable method of improving the productivity of Kenya's smallholder dairy herd, and even of starting a commercial smallholder dairy herd from a subsistence herd. Their characteristics made grade cattle attractive to many European farmers in Kenya when the Scheduled Areas provided the bulk of the Colony's dairy produce.

The term "grade" appears to be applied rather loosely in Kenya, frequently to animals of mixed breed having visible traits

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(continued) Nairobi, Longman Kenya, Ltd., 1971. p. 97.

1. Williamson, G., and W.J.A. Payne, An Introduction to Animal Husbandry in the Tropics. 2nd ed. London, English Language Book Society and Longman Group Ltd., 1968. p. 116.

2. Op.cit., p. 16, app. 17.

3. German Agricultural Team technicians estimated average yields of 250 gallons per cow per year in well developed dairy Districts in 1973. Meyn, Klaus, private communication, June 1975.

of European breeds but not sired by purebred bulls. Purists would distinguish between grade cattle and inferior crosses, but this distinction is seldom observed in rural parlance. The generally accepted technical application of the term is reserved for animals having more than 50% European ancestry and sired by proven bulls.<sup>1</sup>

Smallholders have obtained grade cows primarily in two ways. The first is through purchase, and the second is through artificial insemination (AI) services provided by the Kenya National Insemination Service (KNIS) of the Ministry of Agriculture. Through AI a farmer can grade up his herd with little or no cash investment in stock, although good husbandry and the reduced resistance to disease in grade as opposed to native varieties frequently requires investment in support facilities, such as water supplies, and in animal health and disease prevention. Writing in 1974, the Director of KNIS estimated that 9,000 AI dairy heifer calves were produced monthly,<sup>2</sup> and the great majority of these would be produced in small farm and settlement areas, which are served by motorised insemination officers. An average of 91 routes were covered daily in 1973, and an average of 11.6 inseminations was performed per run per day.<sup>3</sup>

Building a grade herd through AI on a small farm requires considerable time. The time consuming aspects include the calving interval; the culling of male AI progeny in the interests of economy; and the increased probability of mortality among AI stock as opposed to native stock, especially when managerial capacity is not fully tuned to the requirements of adoption of this enterprise. Rather than depending upon natural reproduction cycles and their actuarial characteristics, many farmers prefer to purchase grade cows to begin or expand dairy enterprises.

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1. See, for example, Meyn, K., and J.V. Wilkins, "Breeding for Milk in Kenya, with particular reference to the Sahiwal Stud," World Animal Review. 11, 1974. pp. 24-30.

2. Republic of Kenya, Ministry of Agriculture, Veterinary Services Division, National AI Service Annual Report 1973. Kebete, KNIS, 1974. (mimeo). p. 4.

3. Ibid., p. 5.

General purpose public sector farm credit programmes have been characterised by a high degree of concentration in dairying, and it is probable that commercial bank lending to smallholders has also been devoted substantially to dairying. Data presented by Vasthoff suggests that this pattern was well established by the early 1960's. Under the German Loan Fund disbursed in 1963 and 1964, 2,103 loans were made to smallholders, and approximately 1,450 or 69% were for the purchase of cattle and equipment related to dairying.<sup>1</sup> Likewise, of Sh 3.2 million in loans to smallholders issued by AFC between July 1965 and June 1966, Sh 1.1 million (35%) was disbursed for the purchase of cattle and an additional Sh 0.8 million (25%) for the purchase of fencing and the installation of water supplies, and for dipping and spraying equipment.<sup>2</sup>

Since 1967 the principal medium term smallholder credit scheme operated by AFC, funded largely by the World Bank Group, has also turned out to be mainly a dairy project. Between June 1967 and March 1973 an estimated 15,000 in-calf grade heifers were purchased by recipients of these loans.<sup>3</sup> In terms of amounts disbursed, Sh 14.9 million (44%) of the Sh 34.3 million loaned under the project was for the purchase of grade cattle, and Sh 10.4 million (30%) was provided for related investments.<sup>4</sup> Smallholder enthusiasm for grade cattle loans has shown little sign of abatement under the second phase of this project which began in 1973. A parallel loan scheme funded by West German sources and operated by AFC in Kisii and Kericho Districts has also exhibited similar preoccupations with smallholder dairy development.<sup>5</sup>

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1. Op.cit., pp. 32-33.

2. Ibid., pp. 34-35. Although not specified by Vasthoff, these cattle were primarily dairy animals.

3. Agricultural Finance Corporation, "The IDA 105-KE Smallholder Agricultural Credit Project." p. 3. This project is described on pp. 207 ff above.

4. Ibid. These figures are estimates and the dairying component has also been reported to have included 19,000 head and to have accounted for 85% of AFC's disbursements under the project.

5. Agricultural Finance Corporation, "KFW Smallholder Credit

Settlement credit has also included a substantial grade cattle element. As noted above, the transfer of European holdings to settlers was especially notable in the mixed farming areas, and dairying was an important enterprise on European mixed farms. In the Scheduled Areas and Coastal Strip from 1958 to 1960, for example, dairy products provided about 13% of gross farm revenue, in these terms the largest single enterprise after coffee.<sup>1</sup> Accordingly, dairying was incorporated into model settlement budgets and cooperatives were formed on the schemes to provide a channel for settlers' production. The importance of dairy products as a cash crop is suggested by a comparison of these societies' milk and butterfat turnover with the total turnover of settlement cooperatives, as shown in Table III-10. During the period between 1963 and 1971 dairy products accounted for between one-third and one-half of these societies' total turnover.

The extent of purchases of dairy cattle from large farms by settlement farmers between mid-1964 and mid-1967 is shown in Table III-11. The data suggest that, in relation to the size of the settlement herd and its rate of growth, the volume of the acquisition of dairy cattle from large farms was significant. Unfortunately, the published series on the sale of cattle from large farms has been discontinued and it is not possible to indicate the extent to which large farms performed the role of supplying cattle to other farms since 1967. Such data would be especially interesting because the size of the settlement herd has grown greatly since 1967, having a net increase of 20,000 in 1967/68 alone.<sup>2</sup>

The initial build up in the settlement herd, during the period in which settlers were drawing their development loans, would have

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(continued) Project Loan No. AL 430 Half Yearly Reports." Nairobi. (mimeo). This project is described on pp. 207 ff above, and in Donaldson, G.F., and J.D. Von Pischke, op.cit., pp. 53-59.

1. Colony and Protectorate of Kenya, Economic Survey 1961. p. 18.
2. Republic of Kenya, Department of Settlement, Five Year Review. p. 60.



Table III-10. Dairy Products as a Proportion of Settlement  
Cooperative Marketing Societies' Turnover, 1963-1971

<u>Year</u>	<u>Total Turnover in Sh million</u>	<u>Of which Milk, Cream &amp; Butterfat</u>
to May 1963	0.8	76%
1963/64	4.3	81%
1964/65	12.3	57%
1965/66	23.6	45%
1966/67	35.6	35%
1967/68	48.5	31%
1968/69	38.5	42%
July-December 1969	16.7	52%
1970	49.4	43%
1971	60.9	54%

Sources: Republic of Kenya, Department of Settlement, Five Year Review and Annual Report 1967/68. p. 37; and Annual Reports for later periods listed.

Table III-11. Sales of Dairy Cattle from Large Farm Areas to  
Settlement Schemes, and Other Sources of Increase  
in the Settlement Dairy Herd, 1964/65 to 1966/67

<u>Year</u>	<u>Mature Settlement Dairy Herd at Start of Year</u> (a)	<u>Purchases from Large Farm Areas</u> (b)	<u>Net Increase (or Disposal) from Other Sources</u> (c)	<u>Mature Settlement Dairy Herd at Close of Year</u> (d)
1964/65	25,896	6,342	7,186	39,424
1965/66	39,424	10,415	(346)	49,493
1966/67	49,493	5,228	9,371	64,092

Sources: Columns (a) and (d) are taken from Republic of Kenya, Department of Settlement, Annual Reports and refer to cows having calved. Column (b) is from Republic of Kenya, Economic Survey 1968, p. 57, and probably includes a small portion of bulls. However, this distortion is probably not greater than 5% of the total. Column (c) is a residual.

been financed largely by credit, although some settlers brought animals to their plots from Trust Areas. Virtually all settlement dairy stock obtained from large farms would have been purchased with loan proceeds. (Indeed, the "shortage" of grade cows available to small farmers was probably to a large degree a function of settlers' credit-based demand for these animals.)

The role of commercial bank credit in the expansion of small-holder dairying is difficult to quantify because banks have little control over the use of their funds and do not keep records showing farm credit usage. Bankers indicate that many of their small loans to full time and part time farmers were requested for the purchase of grade cattle, which is consistent with the expression of small-holder interest seen in the high degree of concentration in dairying found in the general purpose smallholder loan schemes run by AFC.

To summarise this discussion of the role of credit in small-holder dairy development, the impact of credit appears to have been highly concentrated in settlement agriculture and in that stratum of small farm operators having access to AFC and commercial bank funds. In contrast, self-finance and natural increase assisted by artificial insemination appears to have been a much more potent and generalised contributor to the adoption and expansion of dairying based on grade cattle on small farms. This conclusion is drawn from a simple comparison of the number of female head financed by the settlement authorities through about 1967 (estimated at not more than 30,000 head), when most settlers' development loans were drawn down, plus the number of dairy cattle financed by AFC between 1963 and 1974 in small farm areas (also estimated at not more than 30,000), with the estimated rate of AI calf production. Given the 9,000 AI dairy heifer calf production level estimated in 1974, AFC's efforts over the decade in terms of head transferred, plus the bulk of settlement credit-financed dairy animals together amounted to about seven months' AI activity at the estimated 1974 level. This simple statistic is probably the most powerful fact related to the role of credit in rural development to have been generated by Kenyan experience through the mid-1970's.

e. Hybrid maize and fertiliser

Hybrid maize and fertiliser constitute the two purchased inputs which are most important from the point of view of rural development in Kenya. The importance of maize rests upon its place as a staple food and its consequent importance as a subsistence and as a commercial crop. The importance of fertiliser is, of course, based on its yield-increasing capability, rendering labour and land more productive.

The adoption of hybrid maize by large farmers engaged in commercial production was virtually complete by 1967. Evidence for this assertion includes observations by those concerned with hybrid maize seed production<sup>1</sup> and from the complete phasing out of ordinary maize from the Guaranteed Minimum Return seasonal credit scheme by the close of 1968.<sup>2</sup>

Smallholders and settlement plotters have not been far behind in adoption of improved varieties, although for a number of reasons, including consumer preference and risk aversion,<sup>3</sup> it is not expected that the new varieties will assume the same importance in production for own use by smallholders as in commercial production by large scale operators. Nevertheless, small farm and settlement hectareage devoted to hybrid maize increased from nil in the early 1960's to over a third of smallholders' estimated one million hectares of maize by 1971.<sup>4</sup> The growth of smallholder high yielding variety maize planting is shown in Table III-12.

The general shape and timing of the national trend outlined by data for selected years in Table III-12 is confirmed by field-

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1. Wakhungu, J., and C. Nyambare, "Hybrid Maize Seed Production and Certification," Annual Report for 1967. Kitale, National Agricultural Research Station, 1968. p. 22.

2. See Table III-2 on p. 195.

3. Heyer, Judith, "Some Problems in the Valuation of Subsistence Output." Discussion Paper 14, Centre for Economic Research, University College, Nairobi, August 1965, discusses key variables in the farmer's decision making calculus.

4. Allan estimated that more than 2.5 million acres (1.0 million

Table III-12. The Expansion of Smallholder HYV Maize,<sup>a/</sup>  
Selected Years, 1964-1971

<u>Year</u>	<u>Hectares of Hybrid Maize Planted by Smallholders</u>
1964	700
1966	37,000
1967	134,000
1970	250,000
1971	344,300

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Sources: 1964 and 1971 - Streeter, Carroll P., Reaching the  
Developing World's Small Farmers. New York, The  
Rockefeller Foundation, 1973? p. 48.  
1966 and 1967 - Wakhungu, J., and C. Nyambare, "Hybrid  
Maize Seed Production and Certification," Annual Report  
for 1967. Kitale, National Agricultural Research  
Station, 1968. p. 22.  
1970 - Allan, A.Y., "Fertiliser Use on Maize in Kenya."  
Kitale? National Agricultural Research Station? 1970?  
p. 16.

a/ HYV = High Yielding Varieties

work conducted by Moock in Vihiga Division and by Garst in Kisii District. In addition, these field studies suggest that the rate of adoption in terms of the proportion of smallholders and settlers growing improved varieties exceeds the rate of adoption measured in terms of the proportion of total land under maize which is devoted to hybrids. Moock found in his random sample survey in an area containing very small smallholdings that whereas only 2% of Vihiga farmers reported growing hybrid maize in 1962, 59% in fact did so in 1970.<sup>1</sup> Likewise, Garst's random sample survey indicated that while in the area studied in Kisii District less than 15% of the farmers grew hybrid maize in 1960, more than 98% did so in 1970.<sup>2</sup> The high level of adoption reached by the early 1970's is also reflected in the estimation that approximately 85% of all farmers in Kericho District were growing hybrid varieties by 1972.<sup>3</sup>

The spread of hybrid maize to settlement areas seems to have been particularly rapid. By 1968, "all maize planted on some 40,000 acres in the Western Province schemes was of the improved Hybrid varieties,"<sup>4</sup> as opposed to only 13,500 acres the previous year in this major settlement maize area.<sup>5</sup>

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(continued) ha) of maize were planted in 1970, 95% of which was on smallholdings. Allan, A.Y., "Fertiliser Use on Maize in Kenya." Kitale? National Agricultural Research Station? 1970? p. 1.

1. Moock, Peter Russell, op.cit., pp. 110-111.

2. Garst, Ronald D., op.cit., p. 190. The levels of adoption reported by Garst for the early 1960's suggest that his respondents may not have been referring to the Green Revolution varieties produced by contract growers for the Kenya Seed Company (the sole producer) but perhaps to earlier improved varieties which farmers could distinguish from local varieties. The first Green Revolution variety, G11, was developed in 1963 and achieved a 30% higher yield than improved Kenyan maize. An account of this aspect of Kenya's agronomic history is found in Streeter, Carroll P., op.cit., pp. 46-48.

3. Ströbel, Herbert, et al., An Economic Analysis of Smallholder Agriculture in the Kericho District (Kenya). Berlin, Technical University of Berlin, 1973. p. 59.

4. Republic of Kenya, Department of Settlement, Five Year Review. p. 7.

5. Republic of Kenya, Department of Settlement, Annual Report 1966-1967. p. 3. In 1968/69, 72% of all settlement maize was planted in Western Province. See Annual Report 1968/69. p. 3.

The adoption of fertiliser in the small farm and settlement sectors has been less well documented than the spread of improved varieties of maize. However, it appears that fertiliser for maize production is adopted following the adoption of improved seed,<sup>1</sup> and that for many crops fertiliser is used not at all or only sporadically or in small quantities.<sup>2</sup> Allan noted around 1970 that most small farm maize was not fertilised.<sup>3</sup> A lag in maize fertiliser adoption is consistent with the research finding that yields are responsive to fertiliser only when its application is accompanied by changes in traditional cultural practices, and that with unchanged cultural practices the impact of fertiliser alone is small.<sup>4</sup> Thus, farmers may choose to improve their husbandry practices by small increments which may not necessarily involve a cash outlay for purchased inputs such as fertiliser, but which nonetheless may increase their risks of production. In other cases farmers may not adopt fertilisers in spite of exhortations from extension agents and various officials because they have found out that fertiliser recommendations are often not appropriate, or if agronomically appropriate not finely enough tuned to their particular locality and circumstance to warrant serious consideration.<sup>5</sup>

Nevertheless, use of fertiliser by smallholders and settlers

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1. Allan, A.Y., "Fertiliser Use on Maize." 2 July 1970 circular of the National Agricultural Research Station, Kitale. Ref: MRS/AGRON/118. p. 1; see also the Annual Reports of the Department of Settlement for 1966/67 through 1968/69.

2. Fertiliser use on tea and pyrethrum is discussed in Donaldson, G.F., and J.D. Von Pischke, op.cit., pp. 121-126, 129-139.

3. Allan, A.Y., "Fertiliser Use on Maize in Kenya," op.cit., p. 1.

4. Ibid., p. 2; Allan, A.Y., "Maize Diamonds," op.cit., pp. 18-19. Allan's findings are also given in Streeter, Carroll P., op.cit., pp. 46 ff.

5. The problem of the absence of appropriate recommendations is discussed on pp. 27-28 above. Details are found in Republic of Kenya, Report of the Working Party on Agricultural Inputs, pp. 3-7, 11; and Report of the Select Committee on the Maize Industry, p. 3. The situation has no doubt improved to some extent since the appearance of these reports in 1971 and 1973, especially with the results from widely scattered field trials and demonstrations

has grown considerably. The exact extent of the adoption of fertiliser cannot readily be ascertained, as field surveys on the scale required are not available and because point-of-sale recording has not been undertaken. The basis for the contention that smallholder usage has expanded rapidly is the observation that fertiliser use on large farms had reached a plateau by the late 1960's,<sup>1</sup> while the volume of imports has grown markedly. (Kenya has no domestic manufacture of inorganic fertilisers.) However, the same rationality which led smallholders and settlers to adopt fertilisers may lead them to abandon them in the face of fertiliser price rises not offset by rises in the farmgate prices of produce, and this effect no doubt contributed to the flattening of the fertiliser import trend by 1972. The trend is shown by data for selected years between 1962 and 1972 in Table III-13.

The contention that fertiliser use on small farms increased rapidly following the spread of hybrid maize is also supported by turnover data for the five largest Kenya Farmers' Association branches situated in smallholder areas. The number of 50 kg bags of fertiliser sold by these branches during a period of considerable expansion was as follows:<sup>2</sup>

<u>Year</u>	<u>Bags</u>
1968/69	24,190
1969/70	46,917
1970/71	57,271
1971/72	141,304

The commercial response to the small scale market potential is seen in the introduction of smaller packages of fertiliser and hybrid maize seed, including a 10 kg seed packet, enough for about one acre, and fertiliser in sacks of 33.3 kg, also adequate for one acre.<sup>3</sup>

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(continued) mounted under FAO assistance. Details of this programme are summarised in Von Pischke, J.D., A Review, pp. 129 ff.

1. Allan, A.Y., "Fertiliser Use on Maize." p. 2; Republic of Kenya, Report of the Working Party on Agricultural Inputs. p. 11.

2. Donaldson, G.F., and J.D. Von Pischke, op.cit., p. 151.

3. The Kenya Farmers' Association (Cooperative) Ltd., Directors' Report and Statement of Accounts 1970-1971. p. 5.

Table III-13. Net Fertiliser Imports, Selected Years, 1962-1972

<u>Fertiliser Imports</u>	<u>1962</u>	<u>1964</u>	<u>1966</u>	<u>1968</u>	<u>1970</u>	<u>1972</u>
Value (Sh 000)	15,620	26,600	40,880	37,500	60,820	74,920
Volume (000 metric tons)						
Nitrogenous	17.4	32.2	31.2	38.3	50.2	54.7
Phosphatic	11.9	12.4	17.8	19.4	19.3	15.4
Other	4.4	10.5	19.0	14.4	48.9	59.7

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Sources: Republic of Kenya, Statistical Abstract 1973, Tables 67(a), 67(b); and corresponding tables from Statistical Abstract 1971. Report of the Working Party on Agricultural Inputs gives slightly different figures.



Has the spread of improved maize varieties and fertilisers among Kenyan smallholders and settlers been supported by expanded access to credit? The evidence suggests that, at most, credit has played only a moderate role in adoption of these innovations. The most fundamental piece of evidence is the widespread nature of adoption -- Mook's 59% in Vihiga, Garst's 98% in Kisii, Western Province settlers' 100% and the tendency for the rate of adoption in terms of the proportion of farmers to exceed the rate of adoption in terms of land area under maize. No credit programme in Kenya, and no combination of credit schemes, has the coverage achieved by improved varieties. Also, there is no major credit programme to which smallholders and settlers have access which is oriented primarily towards hybrid seeds and fertilisers for use on improved varieties, and as noted previously there is no general seasonal or short term credit source for smallholders.

The most widespread source of seasonal credit for smallholders is the Cooperative Production Credit Scheme, but even this innovative programme recorded only 26,100 loans outstanding at the end of 1973, up from 16,677 at the end of 1972, the first year that CPCS was extended beyond the union in which it was initiated and operated on a pilot basis. Although CPCS credit is in theory provided in kind for specific uses according to priorities established on a District level, in fact it has often been disbursed in cash and used by farmers according to their own individual priorities, which have surely included the purchase of improved seeds and fertiliser. However, CPCS did not really get underway until 1972, several years after the level of adoption was such that hybrid maize occupied about one-third of smallholder maize land. The role of CPCS credit in fertiliser adoption is probably greater, given the lagged adoption of fertiliser, but even in this case the growth of smallholder fertiliser usage appears to have been substantial prior to 1972. While CPCS funds may be used for purposes of convenience by smallholders to finance

purchases of seasonal inputs, it was not in existence at the time when substantial numbers of smallholders were purchasing their first sacks of hybrid planting materials.

Two other sources of formal credit could have contributed to smallholder adoption of hybrids and fertilisers, but in each case the evidence suggests the contribution could have been no more than marginal. The first source is commercial bank credit, but access to this source is beyond the capacity of all but a small minority of smallholders, even in 1976, long after the initial wave of adoption had penetrated smallholder ranks rather deeply. The other source consists of pre-CPCS cooperative credit, the extent and nature of which is not well documented in any aggregate sense. It is possible that many coffee and pyrethrum farmers had access to such credit, but this does not mean that such credit would necessarily have been used for purposes of adoption of improved varieties and it does not explain adoption by farmers outside the coffee and pyrethrum zones where cooperatives have tended to be weak or non-existent.

The expansion of hybrid maize acreage on settlement schemes from 13,500 acres in 1967 to 40,000 acres in 1968 coincided with the experimental provision of Guaranteed Minimum Return scheme loans to many settlement farmers in Western Province, but obviously not all of the increase is attributable to access to a new source of credit, as adoption was already well underway. This experiment was discontinued after 1969 because of massive defaults, which no doubt helped many farmers to finance their crops themselves in following years. Of the 1969 settlement maize planting, only 1.5% was supported by GMR credit, while acreage continued to expand.<sup>1</sup> It should also be noted that a few settlement farmers, who took up their plots after the availability of hybrid maize in Kenya, may have used settlement credit for improved maize, but that the great majority of

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1. Republic of Kenya, Department of Settlement, Annual Report 1968/69. p. 3.

settlers were already established by that time and would no longer have had access to settlement credit, having spent their allotments.<sup>1</sup>

In summary, access to credit appears to have played a moderate facilitating role in hybrid maize and fertiliser adoption on settlement schemes as a result of an experiment which was financially unsuccessful and discontinued after only one year of operation. On smallholdings, self-finance appears to have been the dominant enabling force in the adoption of hybrid maize and fertilisers.

f. Summary

To summarise this series of observations, the general situation sketched by de Wilde, that of smallholder self-finance of the adoption of new enterprises, appears to have been the general case through at least the first half of the 1970's with respect to coffee and pyrethrum. Per shilling of adoption costs, self-finance appears to have been slightly less important in the spread of hybrid maize and fertilisers and in the adoption of dairying based on grade cattle. Tea adoption prior to 1968 was accompanied by the use of credit in virtually all cases. Certain doubts remain about the importance of informal credit and pre-CPCS cooperative credit, but it appears improbable that these sources could have contributed more than a limited exception to the general rule of self-finance of major innovations by smallholders.

The importance of self-finance does not constitute a condemnation of credit authorities, lenders or planners, as resources (land, labour and cash) are manifestly available on a broad and general scale to those who want to try something new. Self-finance is simpler for the farmer and involves him in less financial risk than participation in a credit scheme. It also leaves the farmer in greater control over his activities, subject to the performance

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1. Republic of Kenya, Department of Settlement, Annual Report 1966/67. p. 3.

of markets in supplying the things he is willing to pay for and in purchasing from him the things he is willing to produce. Self-finance is also compatible with gradual, risk-averting innovation with respect to enterprises not subject to indivisibilities. Even in the case of dairying based on grade cattle, the strategy of grading up overcomes what may appear to constitute an indivisibility. Judging from the performance of most efforts in Kenya to provide small farmers with credit, greater use of credit to stimulate innovation would probably have resulted in a greater number of faltering credit schemes and institutions, not without their social costs, as will be shown in following chapters. Reliance on self-finance provided a suitable strategy for stimulating the widespread adoption of most of the innovations which penetrated smallholder agriculture in Kenya through the mid-1970's.

## CHAPTER IV

FARM CREDIT POLICY AND  
INSTITUTIONAL PERFORMANCE IN KENYA

The previous chapter was addressed to the question of the sources of funds, including credit, used by Kenyan farmers. This chapter outlines the sources of funds available to the providers of formal credit to Kenyan agriculture. This subject must be viewed within the context of public policy, because of its pervasive influence on farm credit, and also cannot be divorced from the repayment performance of borrowers. Public policy greatly influences the structure of the formal farm credit market, while loan collection performance serves as a barometer of the financial success of farm credit provision as well as reflecting and influencing the sources of funds which may be tapped by financial institutions endeavouring to lend to farmers and to promote rural development through such lending.

A. State Control and Public Policy

## 1. Ownership of Financial Institutions

Government ownership and control pervade the farm credit structure in Kenya.<sup>1</sup> The primary institution, the Agricultural Finance Corporation, is entirely owned by the Government and has a prominent civil servant as its Chairman. The Agricultural Settlement Fund is administered by the Department of Settlement in the Ministry of Lands and Settlement on behalf of the three Ministers who serve as Settlement Fund Trustees. The Ministry of Finance is represented on the Board of the Cooperative Bank, and the cooperative structure in Kenya is closely regulated by the Government through the Ministry of Cooperatives. The Cereals and Sugar Finance Corporation is part of the Ministry of Finance and Planning. The Kenya Tea Development Authority is a para-

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1. See Republic of Kenya, Development Plan 1974-1978, Part I, pp. 6-7, for an enumeration of the Government's portfolio of shareholdings.

statal body. The Government owns a small commercial bank and has a 60% shareholding in one of the three large commercial banks, and provides resources to the Cooperative Bank to assist it in its role as the apex financial institution in the cooperative structure.

## 2. Administrative Controls

In spite of this high degree of Government penetration or support in the farm credit market, agricultural credit policy or advice is not the domain of a specialised body. Of course, questions and debates touching farm credit occur from time to time in Parliament, but this interest largely takes the form of monitoring institutional performance and reacting to legislation drafted by civil servants. Responsibility for credit policy is as fragmented as the institutions providing credit. However, an admirable degree of consistency in execution is ensured by the role of key members of the Ministry of Finance and Planning in various public sector credit institutions. Cooperative credit appears to operate to some extent outside this centralised policy framework, however.

It is probable that the subjection of agricultural credit to greater centralisation of direction will occur over time. Suggestions for an advisory policy board or council were put forward by the World Bank in 1973, but had come to nothing through early 1975 in spite of two or more attempts by various concerned Government entities to set up a collaborative mechanism. That agricultural credit might be singled out for more intensive direction by Government is suggested by the fact that the agricultural sector is large, largely in Kenyan hands, and a priority sector in development planning and political life. An intensification of interest in farm credit has occurred within the Central Bank, which in 1972 began an exercise to obtain more information about agricultural lending by commercial banks and other financial institutions. A marked change in Central Bank policy may be noted

between 1974 and 1975. In the former year the Governor issued a directive to the chief executives of commercial banks entitled "Monetary Policy -- Guidelines for Bank Advances, Loans, Advances and Investments," and relevant excerpts indicated the nature of Central Bank "moral suasion":<sup>1</sup>

Certain key sectors must be supported (in spite of a 12% limitation on the expansion of credit to the private sector). Agriculture and small African enterprises in general, should be protected from the effects of any shortage of credit, and it is well understood that the needs of industry for finance of raw materials at higher prices must also be met.

Each bank will naturally plan the management of its funds in the light of its own position having due regard to necessary maintenance of required liquidity....

In 1975, however, the Governor sent another directive to the chief executives of commercial banks, announcing that,<sup>2</sup>

Each bank is now required to bring its agricultural lending up to at least 17% of net deposits by 30th June 1975. This implies additional lending of the order of Sh 300 million....

The directive noted that at the close of March 1975 agricultural credit amounted to about 11% of net deposits. An accompanying circular defined agricultural credit in largely the same terms as previously specified for reporting purposes,<sup>3</sup> and the directive indicated that promissory notes of the Cereals and Sugar Finance Corporation held by banks would be considered as agricultural lending so that through the purchase of such notes the smaller banks dealing mainly in Nairobi and Mombasa could adjust their portfolios accordingly. Replenishment of Cereals and Sugar Finance Corporation resources may in fact have been the main expediency fostering this intervention, as tighter credit conditions and rising prices not accompanied by higher interest rates on deposits reportedly resulted in a drying up of deposits placed with the Corporation in 1974.

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1. Central Bank of Kenya, Eighth Annual Report for the Year Ended 30th June 1974. p. 62.

2. Central Bank of Kenya, Ninth Annual Report for the Year Ended 30th June 1975. p. 75.

3. Ibid., p. 76.

The history of controls suggests that moves of this type are more often reinforced and strengthened than abandoned or permitted to decay gracefully as the difficulties they create are reflected in increased costs of enforcement and compliance. It is also improbable, given the importance of agriculture and access to land as a political issue in Kenya, that the 17% specification, once established, could be easily lowered without major changes in Kenya's political system. Its most probable trend is upward. Someone concerned with equity will no doubt ask why a sector that accounts for a third of Kenya's GDP has effective access to only a sixth of the country's commercial bank credit.

### 3. Policy Goals and Format

It is obvious that one of Government's major goals is to increase the supply of credit to agriculture. The activities of the Central Bank manifest this policy, as does the bold assertion in the Development Plan 1974-1978 that "the principal constraints in agriculture are knowledge, technology and credit,"<sup>1</sup> elaborated in the restatement that "the fundamental causes of low incomes include lack of land to cultivate, insufficient education and training, and insufficient access to credit and technical knowledge."<sup>2</sup> The Plan document states:<sup>3</sup>

The monetary system has not contributed much to the development of the rural and informal sectors in this country. Yet these are important areas in the development strategy of the current plan. Therefore, during the present plan period it is the Government's intention to bring banking to the people, especially in rural areas, to make them more credit conscious, and to awaken them to the opportunities of operating within a modern, credit economy.

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1. Republic of Kenya, Part I. p. 18.

2. Ibid., p. 97.

3. Ibid., p. 28. It is difficult to understand how people would not already be acutely credit conscious if lack of access to credit in fact constituted one of the major constraints to their increasing their low incomes. It is also interesting that the planners apparently believe that Kenya's rural and informal sectors operate largely on a barter basis rather than on a monetary basis, as suggested by the initial sentence of this excerpt.



In fact, the Plan's comments on monetary policy and strategy and objectives make it abundantly clear that the Government is strongly committed to increasing the supply of credit to rural areas and that changes in the procedures and conventions in effect in the early 1970's would be expected to give way to greater prodding of financial intermediaries by Government.<sup>1</sup>

It is interesting to note, in passing, that constraints cited in the current Plan are different from those mentioned in the previous Plan, which held that marketing and pricing problems were the major impediments to the rapid development of the agricultural sector.<sup>2</sup> However, that Plan also devoted considerable attention to rural credit and its hoped-for role in rural development.

To return to the current Plan, the chapter on strategy and objectives does not go very far beyond the exhibition of the big stick to the financial sector. With respect to rural credit it fails to recognise that the supply curve may bear some relation to the cost curve in markets which are workably competitive. Neither does it discuss cross-subsidisation of small scale lending by large scale loans or other, profitable, financial services offered by lenders. That the drafters of this section had considerable prior exposure to economics is betrayed, however, by their use of the conventional macro theory assumption that the financial function can be performed without cost. This approach bears the thumbprint of the academic economist -- it could not have been conceived by a profit seeking or even a loss avoiding financier or by an intuitive layman who places some value on his own time and who periodically finds himself in a queue in a post office or banking office in Nairobi to withdraw funds or make a deposit or transfer.

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1. Ibid., pp. 28-31.

2. Republic of Kenya, Development Plan for the Period 1970 to 1974. Nairobi, Government Printer, 1970. p. 179.

Agricultural credit in Kenya is, as a whole, provided to borrowers at less than cost, especially in the case of small scale loans. This generalisation may be supported by the financial statements of the AFC and by conversations with commercial bankers and officials of the Department of Cooperative Development. AFC and cooperative financial statements and reckonings exclude the overhead cost of time devoted to loan application formalities and other chores associated with credit by field staff and other staff of their respective Ministries, including the full costs of expatriates provided by donor agencies, etc. If an accounting profit is not earned by lenders even with the selective approach to costs found in traditional financial accounting, it is probable that credit is provided to farmers also at less than its economic cost measured in terms of alternatives foregone by not using the funds for other purposes. Considerations of social and political welfare should be included in opportunity cost reckonings, but there is presently little hard evidence that credit is helping a large or critical group of small farmers (excluding those on settlement schemes -- a special case), propelling subsistence farmers into the larger economy, reducing rural to urban migration, stimulating diversification of production or otherwise playing a significant social welfare role.

The official policy is one of preferential interest rates on loans to farmers,<sup>1</sup> i.e., rates not exceeding those charged on loans issued for non-agricultural purposes as exemplified by

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1. In spite of the fact that the system obviously operates under this constraint, it is difficult to find an official articulation of this policy. A draft paper on agricultural credit for the 1974-1978 Development Plan acknowledged that a preferential interest rate policy is followed, but the final version of the Plan does not contain the passage in question. The Five Year Plans and Republic of Kenya, African Socialism and Its Application to Planning in Kenya, Sessional Paper No. 10 of 1963/65, Nairobi, Government Printer, 1965, are silent on the question of interest rates. A hint of the special status of agriculture is found in the interest rate structure applying to Central Bank discounts and advances. Bills and notes generated by crop financing (i.e., financing the purchase of har-

commercial banking practice. The commercial bank prime rate had not exceeded 8% up to mid-1975, and most commercial borrowers have become accustomed to paying between 8% and 10%. The Industrial and Commercial Development Corporation charged between 8% and 9% on its loans through 1975.

In the early part of 1973 AFC increased its lending rate on most loans from 7½% to 8%, in accordance with conditions imposed by the World Bank in connection with a smallholder loan scheme largely funded by the Bank. Agricultural Settlement Fund loans, relatively few of which have been issued since 1968, carry a 6½% interest obligation. Commercial bank loans to farmers are generally at 8-10%. Seasonal advances to large scale growers of wheat and hybrid maize administered by AFC under the Guaranteed Minimum Return scheme (GMR) are made at 8½%. Kenya Tea Development Authority planting material loans are interest-free. CPCS credit is available to loyal cooperators at between 8% and 12%, the highest rates on programmes serving large numbers of smallholders. Table IV-1 lists interest rates charged by various lenders and programmes.

It should be noted that many quoted interest rates are relatively straightforward in Kenya. Discounting in advance is relatively rare, and interest is usually charged on actual balances outstanding. Interest premia or penalty rates are not usually levied on overdue balances. Fees and other charges for the account of the borrower do not appreciably raise the costs of borrowing from most formal lenders. Mortgage and hire purchase true rates may depart widely from nominal rates, however.

Interest rate policy underlies much of the argument presented here. Before continuing the development of the position taken in this paper, it may be instructive to consider the historical background of the official policy of low rates.

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(continued) vested produce) carry a 0.5% lower rate than those relating to other commercial bills and notes. See Central Bank of Kenya, Annual Reports or the quarterly Economic and Financial Review.

Table IV-1. Selected Comparative Lending Rates of Interest  
in Kenya, 1974

<u>Lender, Scheme or Purpose</u>	<u>Approximate True Rates of Interest Per Annum</u>
Kenya Tea Development Authority	Nil. A service charge of approximately 4% is included in the price of fertiliser supplied on credit by KTDA.
Agricultural Settlement Fund	6½% <sup>a/</sup>
Agricultural Finance Corporation	6½% to April 1967 7½% to December 1972- March 1973 <sup>b/</sup> 8% from January-April 1973 <sup>b/</sup>
Guaranteed Minimum Return scheme	8½%
Commercial banks	8-10% (7% prime rate to June 1974, 8% thereafter)
Industrial and Commercial Development Corporation	8-9%
Cooperative Production Credit Scheme	8-12%
Residential mortgages	8½-11% and above
Kenya Farmers' Association members' accounts	10% after 60 days EOM <sup>c/</sup>
Hire purchase finance for new farm machinery	Above 15%

Sources: The data was gathered directly from lenders.

a/ Loans issued by the Agricultural Settlement Fund after 22 May 1967 carry a slightly lower true rate of interest because interest is capitalised at lower rates over the initial 18 month moratorium allowed on these loans.

b/ The interest rate on the IDA 105 smallholder credit scheme was raised on 1 January 1973, and that applying to most other programmes followed on 1 April 1973.

c/ EOM denotes End Of Month. 60 days EOM signifies that interest is levied on amounts outstanding for more than 60 days following the end of the month in which the debt was incurred.

Interest rates in the colonial period were determined by those prevailing in the London capital market, to which Kenya was closely linked through the operation of the currency board system which made the East African shilling freely convertible into Sterling, and vice versa, at a fixed rate of exchange, over most of the colonial era. (Appendix A contains an outline of Kenya's colonial monetary arrangements.) It may be argued that the rates at which funds were supplied to and available in Kenya were not a function of the domestic supply and demand for funds, as the influence of Kenya on London rates was quantitatively small, although the links between the metropolitan economy and the colonial economies were numerous and complex. It appears that except in cases of coincidence the London rate level and structure would not have been identical to that which would have developed in an isolated Kenya, as there is little reason to believe that the supply and demand relationship and institutional factors would in each case have produced the same result. Logic suggests that the Kenya rates would have been higher than the London rates, given the higher risks of a predominantly agricultural economy, the inefficiencies of a thin capital market, the problems inherent in poor economic infrastructure, and, presumably, a relatively greater demand for and smaller supply of capital in a young enclave economy. However, policies of cheap land, cheap labour and cheap capital stimulated colonial development and set the stage for policies after independence.

Agricultural development was a primary theme of colonial economic policy. Although the immigrant farmers suffered many casualties to economic reality, they did form the backbone of an expatriate-settler sector which attained a higher standard of living on the average than that enjoyed by Englishmen at home by the time Kenya achieved independence.<sup>1</sup> Agricultural policy in the early colonial period seems to have been preoccupied

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1. van Arkadie, B., and D. Ghai, "The East African Economies," in Robson, P., and D. Lury, eds., The Economies of Africa. London, Allen and Unwin, 1969. p. 317.

with the development of land and the provision of African labour to support increased settlement. Capital was not neglected, of course, and some campaigns to encourage European settlement provided loans on easy terms.<sup>1</sup> However, the public sector did not become significantly involved in the provision of credit prior to the formation of the Land and Agricultural Bank in 1931, which began in a very modest way, and the institution of the Guaranteed Minimum Return scheme of seasonal advances and crop insurance for large scale farmers during World War II. Loan schemes for Africans began very cautiously in the 1940's.<sup>2</sup>

The present interest rate policy of the Government is a reflection of the colonial past.<sup>3</sup> Early evidence of the thinking of African policymakers is perhaps found in the Ingham Committee Report published in 1950 concerning agricultural credit for Africans. The committee consisted of six members with European surnames and one member with an African surname. The majority favoured the establishment of a credit scheme using Government funds supplied at not less than 3% and a lending rate to farmers of at least 8%, which was intended to ensure that Government funds would be recovered in full after an allowance for bad debts. The member with an African surname wrote a brief dissent:<sup>4</sup>

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1. Lipscomb, J.F., "Soldier Settlers," in Cone, L. Winston, and J.F. Lipscomb, eds., op.cit., pp. 55-57.

2. Colony and Protectorate of Kenya, Agricultural Credit for Africans. pp. 31, 34-35; African Land Development in Kenya: 1946-1955. p. 213; African Land Development in Kenya: 1946-1962. pp. 288 ff.; Republic of Kenya, Report of the Mission on Land Consolidation and Registration. pp. 122-127.

3. "The structure of interest rates which prevailed during the regime of the East African Currency Board has generally been maintained. This is mainly because the majority of commercial banks in Kenya have traditionally operated an arrangement whereby they collectively agree on maximum deposit rates and minimum advance rates...." This quote, suggesting that the monetary authorities play a passive role with regard to interest rates, is from Central Bank of Kenya, Money and Banking in Kenya. Nairobi, 1972. p. 20.

4. Colony and Protectorate of Kenya, Agricultural Credit for Africans. p. 9.

I disagree with the majority on the question of rates of interest to be charged on loans....I hold the view that a rate of 4½% in cases where loans are secured on the land is reasonable. This is the rate at which European farmers borrow money from the Land Bank with land as security. In cases where land is not the security I think that 6% would be a fair rate.

This sentiment is certainly in harmony with the Golden Rule implications of national sovereignty as opposed to colonial administration. This approach may also be reflected in the view that if cheap credit contributed to the impressive development of the large farms owned by Europeans in Kenya, it must also be an appropriate tool for the development of African agriculture.

Because of the importance of the agricultural sector as the source of about 30% of Kenya's GDP, the fact that 90% of the population is on the land, the traditional importance attached to landholding and the relative paucity of opportunities in other sectors for large numbers of people,<sup>1</sup> it is only reasonable that agricultural development is a major concern of Government. Preferential treatment and its political aspects, as in the colonial period for British settlers on the land, continue to be extremely important issues. Low interest rates are included in this area of policy and concern.

In summary, Government policy consists of keeping interest rates low for agricultural borrowers and attempting to increase the supply of agricultural credit through the creation of specialised public sector financial institutions and through an apparent crescendo of "moral suasion" and directives to commercial banks.

#### B. Lenders' Sources of Funds

The twin policy goals of increasing the supply of credit to farmers while keeping its cost low (and even negative during periods when rates of inflation exceed nominal interest rates)

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1. ILO, op.cit., pp. 33-104.

embody a conflict. As the supply will not increase dramatically at the rates of interest in effect, intervention is attempted to ensure the desired results. One form of this intervention is Government subscriptions of capital to specialised farm credit institutions and the pouring in of resources by bilateral and multilateral donors to support institutions which are not able to compete for resources on their own strength in Kenya's financial and potential financial markets. Another form of this intervention is to force broad-spectrum lenders, such as the commercial banks, to adjust their portfolios in response to directives from the Central Bank rather than in response to the opportunities manifest in the market for commercial bank credit. The implementation of these directives may entail cross-subsidisation, especially at the high-cost margin of small loans to small farmers.

Because Government policy forces the supply of farm credit beyond the quantity which is available in the domestic market in response to market forces repressed by artificially low interest rates, the question of sources of funds and dependence upon external donors for agricultural lending assumes special importance in any analysis of the performance of the formal farm credit structure in Kenya. Accordingly, this section summarises the major sources available to major lenders.

1. External Sources -- Dependence on  
Bilateral and Multilateral Assistance

This discussion treats only the provision of funds by external donors for on-lending by financial intermediaries serving the agricultural sector in Kenya. It excludes other aspects of external assistance, largely the provision of expatriate technicians at a financial cost to Kenya below that which would be required to obtain the services of these or similar specialists if the Kenyan authorities had to bid for them in the market. While the development of local expertise measured in terms of performance has progressed at an admirable rate in AFC and in the cooperative structure,



it is abundantly clear that on a narrowly technical basis, if not on a wider institutional basis, AFC and cooperative lending could not have reached their present levels of quantity and quality, measured in terms of the financial performance of these lenders, without reliance on imported technical expertise for training and operations purposes.<sup>1</sup>

a. External resources used by the Agricultural Settlement Fund

The Agricultural Settlement Fund was established by the British prior to Kenya's independence, and it has provided the financial mechanism for the orderly transfer of land from European farmers to Africans. The Fund has no continuing functions as a source of credit to individual farmers, as loans are made available on a once-for-all basis at the time the settler takes up his plot. Once the farmer has fully drawn his loan he has no further access to ASF credit. Disbursement of settlement development loans customarily takes several months or even two to three years, reflecting the time required for settlers to get their operations organised for the effective use of credit, as well as the "shortage" of grade cattle which existed for many years since the advent of the settlement programme.

While the sources of funds indicated on the ASF balance sheet consist primarily of loans from the Kenya Government, these in fact reflect loans and grants from abroad to the Kenya Government for employment through the Agricultural Settlement Fund. The sources of finance for settlement expenditure (land purchase, plot development, administrative expenses and purchase of loose

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1. This statement is not meant to imply any judgement concerning the quality of the expatriate technical assistance used by Kenya in developing its farm credit mechanism. It is based simply on a head count of expatriates and on the improvement in the performance of the AFC and the cooperative banking system over the last 10 years in disbursing and collecting loans. Likewise, expatriate technical assistance by itself could obviously never have accomplished what has been achieved by the mutual cooperation and efforts of Kenyans and contract personnel working together to serve Government priorities related to credit for Kenyan agriculture.

assets) as of the end of 1971 included British grants and loans (69%), West German loans (4%), World Bank loans (3%) and also local funds (24%).<sup>1</sup> However, the balance of local funds (Sh 156.2 million) was exceeded by the administrative expenses of the settlement programme (Sh 200.3 million), both viewed on a cumulative basis through the end of 1971, indicating the overwhelming role of foreign assistance in giving the settlement administrators a programme to run.

b. External resources used by the Agricultural Finance Corporation

Founded as an agency designed to direct its activities towards the small farmer, AFC has been dependent from the outset on the largess of donor agencies. Vasthoff indicates that at the time the AFC was founded in 1963 it took over the administration on an agency basis of four smallholder loan schemes, three of which were funded from foreign sources, as indicated in Table IV-2. Thus, even at such an early stage, on the eve of independence, World Bank, West German and American Government sources had supplied a large part of the resources for schemes under which the public sector distributed loans directly to individual African smallholders.<sup>2</sup>

Vasthoff further indicates that foreign funds for such lending (excluding settlement and land transfer loans) were exhausted by 1964 and that Kenya Government funds were used during the following two years to make about 2,500 loans amounting to Sh 6.1 million. Beginning in 1967 the IDA smallholder loan project became effective, and in 1971 disbursements began under the KFW smallholder loan scheme. By that time AFC had been reconstituted through the merger of the Land and Agricultural Bank, in effect being charged with the provision of long and medium term credit to both the large scale and small scale agricultural

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1. Republic of Kenya, Department of Settlement, Annual Report 1971. p. 6.

2. Vasthoff does not indicate whether the externally financed schemes also involved a local contribution to the funds disbursed.

Table IV-2. Smallholder Loan Schemes for which the  
Agricultural Finance Corporation  
Assumed Administrative Responsibility  
in 1963

<u>Scheme</u>	<u>Loan Disbursement Period</u>	<u>No. of Loans</u>	<u>Amount (Sh million)</u>
ALDEV (Kenya Government)	1948-1959	1,336	1.6
ICA (American aid)	1959-1960	426	.6
IBRD	1960-1963	3,903	6.4
West German	1962-1964	2,103	3.6
Total		<u>7,768</u>	<u>12.1</u>

Source: Vasthoff, Josef, Small Farm Credit and Development:  
Some Experiences in East Africa with Special Reference  
to Kenya. IFO-Institut für Wirtschaftsforschung, Afrika-  
Studien 33. Munich, Weltforum Verlag, 1968. p. 28.

sectors, as well as with the administration of GMR advances. While external assistance funds the overwhelming share of AFC's small scale lending (75-80% of total lending under the IDA programme, 100% under the KFW small scale scheme), the resources of the Land and Agricultural Bank have permitted AFC to operate with relatively less dependence in its large scale lending operations.<sup>1</sup> Officials estimate that less than half of AFC's large scale lending was financed by foreign sources as of the early 1970's. AFC ranch loans are funded largely by IDA and the Swedish International Development Authority, and the rehabilitation scheme for large mixed farms and coffee estates is backed by the World Bank Group.

Unfortunately for the purposes of this exercise, AFC annual reports do not provide a breakdown of its capital in a manner which permits precise specification of its reliance on external funds. The Kenya shilling proceeds of external funds are in fact provided to AFC by the Kenya Treasury under specific agricultural credit project agreements, which further obscures the analysis of published data. The application of reasonable assumptions to AFC's March 1971 statement suggests that resources provided by external assistance accounted for between roughly 28-38% of AFC's balance sheet.

The Guaranteed Minimum Return scheme of seasonal advances to large scale growers of wheat and hybrid maize has traditionally been funded locally by the Cereals and Sugar Finance Corporation and administered by AFC on an agency basis. C&SFC raises funds for this purpose by issuing short term obligations bought by the Treasury, financial institutions and other Government entities, a few members of the general public, and private businesses with funds to place. The drying up of these resources during tight money conditions and a period of relatively rapid inflation in 1974 generated proposals from at least one external donor interested in supplying funds for seasonal credit to Kenyan agriculture through AFC and possibly through cooperative channels.

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1. Dependence is defined here as AFC's use of reimbursement facilities provided by external sources. Donors provide funds to AFC against proof of its loan disbursements.

c. External resources used by other major agricultural lenders

Cooperative credit through the mid-1970's was entirely locally financed. No external assistance schemes had been designed to swell the coffers of the Cooperative Bank through the provision of external funds, although several proposals for Nordic and British assistance in the form of loans and/or grants were at various stages of design and discussion. The Cooperative Bank, characterised by a rapid turnover in members' accounts, had made it known that additional long term debt would make a desirable improvement in its capital structure.

Commercial bank access to foreign sources of funds for everyday lending operations has been increasingly curtailed and discouraged. The establishment of the national currency and the inevitable imposition of controls on capital movement which followed from the country's national monetary arrangements have played their role. The efforts of first the Currency Board and later its successor, the Central Bank, to replace the London head offices of the major banks as lenders of last resort and as suppliers of funds to finance the seasonal peak demands for credit characteristic of economies with a relatively large agricultural sector have also been effective in this respect. Borrowing abroad to finance everyday lending by the banks has also been discouraged by the increase in market rates of interest in major financial centres beyond the repressed levels maintained in Kenya.

The Kenya Tea Development Authority balance sheet includes loans from external sources. As of 30 June 1972 outstanding World Bank loans equalled 28% of KTDA's total assets, while Commonwealth Development Corporation and KFW loans amounted to 25% and 4% respectively.<sup>1</sup> However, none of these sources is earmarked specifically to support the KTDA fertiliser credit scheme.

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1. Kenya Tea Development Authority, Annual Report and Accounts for the period 1st July 1971 to 30th June 1973. pp. 28, 32.

The Kenya Farmers' Association and the Pyrethrum Board and Pyrethrum Marketing Board traditionally have not relied on external funds.

## 2. Dependence on the Treasury

Dependence on the Kenya Treasury is easily demonstrated by the balance sheets of major agricultural lenders. Table IV-3 shows relationships which prevailed on the financial statements of the AFC, the Agricultural Settlement Fund and the Cooperative Bank as of recent dates for which data was readily available in published form.

It has already been noted that external loans are passed to the AFC and the Agricultural Settlement Fund through the Treasury, as these entities themselves are not empowered to borrow directly from abroad. Also as discussed above, the Agricultural Settlement Fund may fairly be said, according to accounting and analytical convention, to have been funded entirely by external sources, while the Cooperative Bank had received no such external financial resources as of the date indicated. The AFC has received substantial local resources from the Treasury, however. Some of these have been contributed under agreements with external donors whereby AFC claims reimbursement for 100% of loans made under specific schemes. AFC's claims are submitted to the Treasury, which in turn is empowered to draw on the relevant donor to the extent of 75-80% of the claims submitted by AFC. Other loans from the Treasury on AFC's balance sheet, however, were received long ago by the Land and Agricultural Bank and, without going into the mechanics of colonial public finance, may be considered as local sources. Table IV-3 indicates that Treasury loans from local sources probably exceeded the volume of Treasury finance from foreign sources on AFC's balance sheet in 1971.

With the exception of the capital accounts of the small National Bank of Kenya, which is entirely Government-owned, the Treasury has not supplied the commercial banking system with

Table IV-3. Reliance on Treasury and External Funds  
by Major Agricultural Credit Institutions  
in Kenya

(Sh 000)

Item	Balance Sheet Data	A F C	Agricultural Settlement Fund	Cooperative Bank
a.	Date of balance sheet	31 March 1971	30 June 1970	30 June 1974
b.	Total liabilities & net worth	232,300	346,058	146,585
c.	less: current liabilities	<u>23,080</u>	<u>40,871</u>	<u>125,602</u>
d.	Long term debt & net worth	<u>209,220</u>	<u>305,186</u>	<u>10,983</u>
e.	Long term debt owing to the Kenya Treasury	78,697	275,611	3,015
f.	Capital subscribed by the Kenya Treasury	<u>124,761</u>	<u>3,607</u>	<u>-</u>
g.	Total Treasury funds	<u>203,458</u>	<u>279,218</u>	<u>3,015</u>
h.	Estimated external loans supporting Treasury funds	<u>59,022<sup>a/</sup></u>	<u>279,218</u>	<u>-</u>
i.	Local Treasury funds in use	<u>144,436</u>	<u>-</u>	<u>3,015</u>
j.	Treasury dependency ratio (Item g as a % of item d)	97%	91%	27%
k.	External funding dependency ratio (Item h as a % of item d)	28%	91%	-
l.	Local Treasury funding dependency ratio (Item i as a % of item d)	69%	-	27%

a/ The exact amount of external debt supporting AFC operations is not given in the annual reports of the Corporation. The figure shown in this table is the estimated minimum probable level. The maximum would not exceed 38%. Major smallholder schemes are financed by external donors to the extent of about 75% of funds loaned to farmers.

resources other than in the form of working balances in accounts maintained for transactions purposes. Since the formation of the Central Bank in 1966 many Treasury accounts have been transferred from the commercial banking system to the Central Bank, although the volume of net public sector deposits held with commercial banks has expanded greatly with the expansion of the public sector at a more rapid rate than the economy as a whole.<sup>1</sup>

Some of the smaller lenders to Kenyan farmers, such as KTDA and the Pyrethrum Marketing Board, have not customarily used Treasury funds to support their credit operations. KFA has enjoyed the use of short term Government credit, but only in connection with several of the commercial functions it has performed for Government entities such as crop marketing boards.

### 3. The Mobilisation of Private Domestic Savings by Agricultural Lenders

#### a. Agricultural lenders which do not rely on private domestic savings as sources of funds

As noted previously, the Agricultural Settlement Fund provides no services to the public other than issuing credit for settlement land purchase and development and several related minor purposes. It does not attempt to solicit deposits from the public or from settlers and thus plays no role in the mobilisation of domestic savings.

The Agricultural Finance Corporation sells virtually no financial liabilities to the public, offering little scope for private domestic savings mobilisation. AFC has shown some deposit liabilities on its balance sheets, however. These arise in two ways. One is that AFC has very occasionally accepted deposits from other public sector institutions such as the Wheat Board. The other is that AFC requires applicants for large scale land purchase loans to place a deposit, consisting of the required

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1. Public sector deposit balances held with and advances outstanding from the commercial banks and the Central Bank are listed in Central Bank of Kenya, Ninth Annual Report 1975, pp. 30, 31, 37.



downpayment by borrowers amounting to up to 40% of the price of the land in question. This device ensures that borrowers can provide the downpayment, and these deposits are applied toward the purchase along with loan proceeds disbursed at the time the land transaction occurs. As of 31 March 1971 both types of deposits on AFC's balance sheet were of roughly equal size, and together equalled about 2% of AFC's total liabilities and net worth.

Most of the crop authorities which have modest credit schemes for farmers, such as the Kenya Tea Development Authority, do not attempt to raise funds from the public.

b. Agricultural lenders dependent on private domestic savings as sources of funds

The commercial banks obviously rely on their ability to mobilise private domestic savings to support their lending operations. The relationship between deposits from and credit outstanding to the private sector at recent year-end reporting dates is indicated in Table IV-4. Data in the table indicates that the private sector provides the greatest part of commercial bank deposits and receives the great majority of commercial bank credit. However, the banks in Kenya, like commercial banks virtually everywhere, do not customarily issue credit amounting to the sum of the deposits they hold. This is largely explained by the necessity of maintaining some cash on hand and additional liquidity reserves in the form of government securities, which leaves only a certain portion of deposits balances available for credit creation. These requirements in effect transfer resources to the Government as the issuer of currency and securities and as the owner of the Central Bank.

The proportion of commercial bank deposits arising from agriculture is not known, and it is perhaps indicative of the conventional wisdom of development finance and financial development in Kenya that while statistics on loans are collected on a functional, sectoral basis, sources of funds are not, with the exception of their

Table IV-4. Commercial Bank Loans and Deposits, 1965-1974 (Sh million)

	1965	1966	1967 <sup>a/</sup>	1967 <sup>a/</sup>	1968	1969	1970	1971	1972	1973	1974
Total Deposit Balances <sup>b/</sup>	1,392	1,549	1,702	1,701	1,909	2,259	2,924	3,187	3,545	4,559	4,955
Less: Public Sector Deposits	336	251	254	252	226	332	518	539	568	723	836
Private Sector Deposits	1,056	1,298	1,448	1,449	1,683	1,927	2,406	2,648	2,977	3,836	4,118
Total Credit Outstanding <sup>c/</sup>	1,152	1,110	1,360	1,360	1,336	1,401	1,739	2,402	2,427	3,228	4,163
Less: Credit Outstanding to the Public Sector	146	38	55	64	61	34	102	176	184	224	165
Credit Outstanding to the Private Sector	1,006	1,072	1,305	1,296	1,274	1,366	1,637	2,227	2,244	3,004	3,998

Source: Central Bank of Kenya, Ninth Annual Report for the Financial Year Ended 30th June 1975. pp. 33, 34, 36, 37.

- a/ The New Series begun in 1967 provides a stricter definition of the Private Sector than the Old Series.
  - b/ Deposit Balances exclude amounts due to banks.
  - c/ Credit includes loans, advances and bills discounted.
- Note: Columns may not sum to totals because of rounding errors.

classification into public sector and private sector sources.<sup>1</sup> Therefore, analysis of the net position of agriculture as a supplier and user of commercial bank funds is not possible from data presently maintained by the banks or collected by the Central Bank.

However, one of the large banks very obligingly requested several of their offices selected by the writer and a colleague to conduct a modified random sampling of deposit accounts and to note the balance on hand during selected reporting dates in April 1974. Each balance noted was to be classified as either "agricultural" or "non-agricultural" according to the criterion of whether or not the depositor's primary income was believed to be derived from farming, ranching or plantation agriculture. While the sampling was in principle random, the instructions being to note each 35th account, an element of non-randomness was introduced by another instruction that branch management should disregard accounts in overdraft and those accounts maintained by depositors not well enough known to branch management to permit classification into either of the two categories. If either of these disqualifying conditions applied to a sampled account, the following account was to be chosen instead, and so on until a qualifying account was found.

The results of this survey were disparate, as shown in Table IV-5, which classifies agricultural and non-agricultural accounts on the basis of branch location. Interpretation of the data should be qualified by several observations about the nature of specialisation and competition in branch banking. The compo-

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1. Reporting categories applied to credit outstanding consist of 1) Public Sector borrowers, broken down into a) Government, including East African Community institutions and Local Government, and b) commercial statutory boards and other public entities; and 2) Private Sector borrowers, classified as being within a) agriculture, b) manufacturing, c) building and construction, d) trade, with subclassifications export, import, and domestic, e) transport, f) financial institutions, g) other business; and 3) private households, etc. See Central Bank of Kenya Annual Reports and the quarterly Economic and Financial Review.

sition of deposits at any single branch, especially in an area served by more than one bank, reflects history, commercial strategy and the effectiveness of a succession of managers. Certain banks or branches may develop special types of expertise or relationships which influence the composition of their deposits. Banks also face competition from other types of financial intermediaries in most of the agricultural areas they serve. Their depositors also have access to the Post Office Savings Bank and in many cases also to the Cooperative Savings Scheme, and competitive dynamics involving these institutions would influence the composition of the banks' deposit balances.

As might be expected, Table IV-5 indicates that the relative importance of agricultural deposits is small at large urban branches. However, at the opposite extreme, certain branches in rural centres are deeply involved in providing deposit facilities to agriculture, both in terms of the numbers of accounts on their books and in terms of the shilling amount of deposits from the agricultural sector relative to the total deposit liabilities of such branches. The survey data suggests that commercial banks have a significant and at times considerable role in bringing the financial sector together with the agricultural sector through the provision of services to depositors.

The Guaranteed Minimum Return scheme is funded entirely from local sources, through the Cereals and Sugar Finance Corporation. As of 1973 this intermediary was staffed by two full-time employees in the Ministry of Finance and Planning and managed by two senior Ministry officials who also had other responsibilities. The Corporation issues Government-guaranteed short term securities which are purchased by financial intermediaries and others with funds to invest. Under its charter the Corporation has access to the Treasury in the event that insufficient funds to finance its activities are forthcoming from the market. The Corporation's funds are used to finance the Guaranteed Minimum Return scheme administered by AFC, Cereals Finance Advances administered by the Kenya Farmers'

Table IV-5. The Relative Importance of Agricultural Deposits at Selected Banking Offices, April 1974

<u>Branch Location</u> <sup>a/</sup>	Proportion of time, saving and current accounts classified as agricultural	
	<u>No. of Accounts</u>	<u>Total Balances</u>
Large urban branches		
large Nairobi branch	3%	n.a.
large Mombasa branch	1%	0%
Urban branches in high potential agricultural areas		
branch in large farm & settlement area	45%	63%
branch in large farm & small farm area	21%	n.a.
branch in small farm area	7%	1%
branch in small farm & estate area	13%	9%
Urban branches in other agricultural areas		
branch in small farm area including both high & low potential land	68%	35%
Rural branches		
branch in high potential smallholder area	1%	0%
branch in high potential small farm & settlement area	34%	85%

<sup>a/</sup> Most of the urban branches referred to are located in Provincial headquarters towns. Classification of agricultural land is based on Republic of Kenya, Statistical Abstract 1973, p. 99.

Association, and imports of cereals and sugar. Loans under the two credit programmes are made only to large scale growers of wheat and hybrid maize, as discussed elsewhere with respect to GRM advances.<sup>1</sup>

The cooperative banking structure in Kenya has provided the most startling example of private domestic savings mobilisation among small farmers.<sup>2</sup> The Cooperative Savings Scheme (CSS) was started on a pilot basis in 1970 in the Kiambu Coffee Growers' Cooperative Union of primary coffee marketing societies. By the end of 1973 it had expanded to include seven unions, and savings account balances approximated Sh 36.9 million while the number of accounts stood at 112,500. Table IV-6 shows the growth of CSS from 1970 to 1973.<sup>3</sup>

The bookkeeping mechanics of CSS are simple. Cooperative societies maintain an account for each member. Prior to the introduction of CSS these accounts were used simply to record payments made for crop deliveries and certain other transactions of the member with his society. Payments for crops were disbursed on fixed dates at specified local places, such as coffee pulping factories owned by primary societies. With CSS, introduced only with a majority vote of the membership of each society in participating unions, the function of these accounts was extended to allow the member to leave a portion of his crop delivery proceeds on deposit, in his account, with the union with which his society is affiliated. This extension of function involved majority acceptance of a minimum balance requirement, generally Sh 50, to be accumulated in coffee societies over up to five payouts at Sh 10 per payout, and was accompanied by the provision of other facilities, such as the establishment of a banking office

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1. See pp. 193 ff.

2. Further details are found in Von Pischke, J.D., "A Penny Saved....Kenya's Cooperative Savings Scheme and Some Related Aspects of Rural Finance." Working Paper 204, Institute for Development Studies, University of Nairobi, January 1975. 49 pp.

3. The rate of increase in savings mobilisation in unions where CSS was already established appears to have diminished in 1974/75 according to partial data contained in The Nordic Project for Cooperative Assistance to Kenya, Annual Report 1975. Nairobi, 10 January 1976. (mimeo) Appendix 5.

at the union headquarters at which cash deposits and withdrawals can be effected, generally six days a week, and at which a very limited number of other banking transactions may be conducted.

A striking feature of balance behaviour in CSS is that the required minimum balance has been exceeded quite rapidly by the average balance per account, not requiring retentions from five payouts to reach the required level. At the end of 1972, for example, average balances per account stood at Sh 148, while a year later the level was Sh 328. Examination of the records of individual societies also indicates that within two years, at the longest, following the introduction of CSS over half of the members succeed in maintaining balances in excess of the required minimum at the low point in total balances which occurs just prior to a payout. Given that perhaps 15% of the members of most societies appear on the basis of account activity to be inactive, this statistic suggests the existence of a high degree of willingness by farmers with a cash crop to save by accumulating financial assets other than currency, providing scope for intermediaries with appropriate cost and revenue structures and appropriate types of financial liabilities and services to sell to small farmers.

It should be noted that the type of saving done by probably the majority of CSS account holders is not yet of the pattern generally associated with savings accounts maintained with commercial banks, building societies or savings banks. The turnover of account balances is relatively high. As of 1973 and 1974 it appeared that members were leaving their payouts in their accounts for an average of between 60 and 90 days. Nevertheless, resource mobilisation does not require the long term point of view or motivation. It simply involves the institutionalisation of funds, an expansion of money holders' interaction with financial intermediaries.

CSS has been so successful in mobilising rural savings -- and it is an entirely rural programme -- that it has generated

Table IV-6. Cooperative Savings Scheme Balances and Participation, 1970-1973

<u>Participating Unions</u>	<u>Progress Indicators</u>	30 Nov.	31	<u>D e c e m b e r<sup>a/</sup></u>		
		1970	1971	1972	1973	1973
<u>Kiambu<sup>b/</sup></u>	Savings balances (Sh 000)	1,053	2,308	4,514	9,080	
	Number of accounts	7,000	n.a.	17,106	17,200	
	Average balance (Sh)	150		264	528	
<u>Embu</u>	Savings balances (Sh 000)			589	1,460	
	Number of accounts			14,471	14,500	
	Average balance (Sh)			41	101	
<u>Machakos</u>	Savings balances (Sh 000)			2,084	4,500	
	Number of accounts			14,000	14,800	
	Average balance (Sh)			149	304	
<u>Murang<sup>c/</sup></u>	Savings balances (Sh 000)			3,946	13,400	
	Number of accounts			20,387	33,000	
	Average balance (Sh)			194	406	
<u>Kirinyaga</u>	Savings balances (Sh 000)			1,180	5,000	
	Number of accounts			17,088	17,000	
	Average balance (Sh)			69	294	
<u>Masaba<sup>d/</sup></u>	Savings balances (Sh 000)				80	
	Number of accounts				2,600	
	Average balance (Sh)				31	

continued



Meru South	Savings balances (Sh 000)			3,370
	Number of accounts			13,400
	Average balance (Sh)			251
Total Cooperative Savings Scheme (CSS)	Savings balances (Sh 000)	1,053	2,308	12,314
	Number of accounts	7,000	n.a.	83,052
	Average balance (Sh)	150	148	36,890
				112,500
				328

Source: Department of Cooperative Development

Note: n.a. signifies data not available in the files consulted

a/ Year-end data is not necessarily representative of performance throughout the year because of the bulking of coffee payouts during the last quarter in some unions.

b/ All references to the Kiambu Union refer to the Kiambu Coffee Growers' Cooperative Union.

c/ The Murang'a Union absorbed a credit and savings society which began operations in 1967. Loan and deposit balance data at year end prior to the introduction of CSS in Murang'a were as follows: (Sh 000)

	1967	1968	1969	1970	1971
Deposit balances	103	160	466	2,439	3,380
Loans outstanding	81	243	360	1,339	1,617

d/ The Masaba Union consists of primary pyrethrum marketing societies, while the other unions listed in the table are oriented primarily towards coffee.

funds for employment elsewhere in the cooperative structure. Table IV-7 indicates the extent to which savings accumulated in CSS through the end of 1973 exceeded the amount of credit outstanding under the Cooperative Production Credit Scheme. CSS resources not required for funding CPCS loans to members and for till money, etc., in union banking section offices are pooled at the Cooperative Bank, the apex financial institution in the cooperative structure. With the expansion of CPCS into medium term lending in 1974 it was expected by cooperative planners that the difference between CSS savings balances and CPCS loans outstanding would be reduced, and that in the latter half of the 1970's the two schemes would be more nearly equal in balance sheet terms.

Two minor suppliers of agricultural credit offer examples of alternative approaches to the mobilisation of private domestic savings. The Pyrethrum Board is in principle owned by those licenced to deliver pyrethrum, i.e., the growers and growers' cooperatives, and thus involves an element of resource mobilisation through the issue of its shares along the lines of cooperative finance. However, Pyrethrum Board shares are transferable and are traded from time to time in Nairobi through a share dealer. As of the end of September 1973 the par value of Pyrethrum Board stock stood at Sh 14.1 million, having increased by Sh 3.2 million over the previous five years.<sup>1</sup>

The Kenya Farmers' Association has for many years accepted deposits from members and from the public, although it does not solicit these deposits at all vigorously. In fact, KFA appears virtually passive as a recipient of these funds. At the time that the rate paid by commercial banks on savings accounts was 4%, KFA was offering 5%. The utility of these funds to KFA rests on the fact that they carry a lower interest obligation than bank overdrafts, which are traditionally heavily used by KFA.

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1. The Pyrethrum Board of Kenya and the Pyrethrum Board, Annual Report and Accounts for the respective periods.

Table IV-7. A Comparison of Cooperative Savings Scheme (CSS) Balances and Cooperative Production Credit Scheme (CPCS) Loans Outstanding, 1970-1973

		(Sh 000)			
Union	Members' Accounts <sup>e/</sup>	30 Nov. 1970	1971	31 December	
		<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Kiambu	Savings balances	1,053	2,308	4,514	9,080
	Loans outstanding	<u>2,167</u>	<u>5,081</u>	<u>1,790</u>	<u>3,630</u>
	Net savings	<u>(1,114)</u>	<u>(2,774)</u>	<u>2,724</u>	<u>5,450</u>
Embu	Savings balances			589	1,458
	Loans outstanding			701	688
	Net savings			<u>(112)</u>	<u>769</u>
Machakos	Savings balances			2,084	4,500
	Loans outstanding			561	1,000
	Net savings			<u>1,523</u>	<u>3,500</u>
Murang'a	Savings balances			3,946	13,400
	Loans outstanding			<u>1,916</u>	<u>4,400</u>
	Net savings			<u>2,030</u>	<u>9,000</u>
Kiri-nyaga	Savings balances			1,180	5,000
	Loans outstanding			796	1,400
	Net savings			<u>384</u>	<u>3,600</u>
Other Unions	Savings balances				3,450
	Loans outstanding				<u>1,050</u>
	Net savings				<u>2,400</u>
Total	Savings balances	1,053	2,308	12,314	36,890
CSS	Loans outstanding	<u>2,167</u>	<u>5,081</u>	<u>5,765</u>	<u>12,170</u>
Unions	Net savings	<u>(1,114)</u>	<u>(2,774)</u>	<u>6,549</u>	<u>24,720</u>
Non-CSS Unions	Loans outstanding	<u>-</u>	<u>3,456</u>	<u>2,299</u>	<u>2,540</u>
Total	CSS savings balances less CPCS loans outstanding	<u>(1,114)</u>	<u>(6,230)</u>	<u>4,250</u>	<u>22,180</u>

Refer to footnotes to Table IV-6 on p. 291, which also apply to this Table.

<sup>e/</sup> Under the Members' Accounts heading, savings balances refer to balances accumulated under the Cooperative Savings Scheme, while loans outstanding refer to amounts outstanding under the Cooperative Production Credit Scheme.

These accounts probably are included in the aggregated "unsecured loans" heading on KFA balance sheets, which have amounted to between Sh 2 million and Sh 3 million in the years just prior to 1975. The presumption must be that these accounts are rather few in number and not large in the aggregate relative to the scale of KFA's finances, as suggested by total assets of almost Sh 100 million as of 31 March 1973.<sup>1</sup> No published data is available on the administrative cost to KFA of maintaining these accounts, although KFA's computerised accounting system may enable the provision of this service at a very small marginal cost. One wonders whether this little-known function of KFA did not begin as a service to European farmers in the pioneering days of European penetration when commercial banking facilities were not readily available to some European settlers, in a manner reminiscent of the circumstances in which merchant banks were spawned in Europe several hundred years ago.

Several other types of financial institutions operating in Kenya also mobilise funds in the domestic market for local lending, some of which is to farmers. While such lending is primarily to large scale agriculture, although not in the aggregate of much quantitative significance, these lenders deserve brief mention.

East African Acceptances, a finance company owned by Standard Bank, Arbuthnot Latham of London and Brooke Bond Liebig, is mentioned by Dillon as engaging in medium term lending (three to five years) to industry and agriculture, as well as acting as managing secretaries for large agricultural companies to which they also extend short term credit.<sup>2</sup> East African Acceptances is also involved in the provision of short term facilities to coffee estates under the large farm rehabilitation project funded primarily by the World Bank.

Several other finance companies of various types also issue

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1. The Kenya Farmers' Association (Cooperative) Ltd., Directors Report and Statement of Accounts 1972-1973. p. 6.

2. Dillon, B., "Financial Institutions in Kenya 1964-1971: A Preliminary Analysis." Working Paper 61, Institute for Development Studies, University of Nairobi, September 1972. pp. 15-16.

credit to farmers and provide other facilities useful to agriculture. Hire purchase is one type of service such companies offer.

The capital and liabilities sides of combined balance sheets constructed by Dillon for hire purchase companies and for the commercial finance companies indicate that the overwhelming majority of their resources come from local sources, although it is entirely possible that a portion of the local sources noted in capital accounts may have been funded externally.<sup>1</sup> No statistics are readily available to indicate the proportion of the assets of these institutions outstanding to the agricultural sector or the importance of agriculture as a source of funds for these intermediaries. The total credit outstanding from hire purchase companies in 1971 was roughly Sh 120 million according to Dillon, while finance companies' credit approximated Sh 45 million.<sup>2</sup> Central Bank data indicates that the credit outstanding to the private sector from private non-bank intermediaries in the formal sector trebled between 1971 and 1975.<sup>3</sup>

### C. Loan Collection Rates Achieved by Selected Agricultural Lenders

Any discussion of lenders' sources of funds is incomplete without some attention to the turnover of loan portfolios.<sup>4</sup> As

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1. Ibid., Appendix and Notes.

2. Ibid., pp. A2, D1.

3. Ninth Annual Report, 1975. p. 42.

4. No attempt is made here to construct flow of funds statements for the major lenders dealt with in this chapter as the points to be made for present purposes do not require that level of analysis for verification. To construct such statements would be a large task and involve many data problems. To be fully instructive it would require some measure or estimation of turnover rather than simply the net changes in different account headings from year to year as shown on financial statements. Flow of funds statements for major classes of financial institutions in Kenya have been developed on the conventional net changes basis by Dillon, B., op. cit., and the subject should be explored in detail by that researcher's forthcoming PhD dissertation to be submitted to Yale University.

loans mature and are repaid, resources are made available for the issue of new loans. A lender's success in recovering loans as they fall due will therefore be a major determinant of the supply of funds which the lender will have at his disposal in the long run. While some losses are to be expected, and are in fact a tribute to the lender's willingness to take risks, the margins upon which many types of financial institutions customarily operate are such that a failure to collect a relatively small proportion of total loans falling due can have very serious implications for the intermediary's future standing, as noted previously in the discussion of credit rationing.<sup>1</sup>

#### 1. Problems of Measurement

Three types of data problems compromise attempts to analyse the repayment performance of agricultural borrowers in Kenya. The first is simply that some key intermediaries have not been capable of keeping tight accounting records. Evidence for this assertion consists of the liberal use of suspense accounts, delays in postings and the consequent tardiness of the publication of annual reports and accounts. The reports of an apparently fearless Auditor General which are reproduced with the accounts of some public sector institutions also contain suggestions of this sort, although most of his observations are of a routine nature. The extent to which published financial data misrepresent the actual position would appear, intuitively, to be a function of the level of accounting performance achieved. (By "actual position" is meant the position which would be indicated by statements produced at a professional standard of accounting performance.)

The second problem of measurement is that the particular emphasis of this study may not be identical to those of the managements of the various lenders studied. This is in no way a criticism of these managements, for it must be assumed that their information systems have been developed with an eye to

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1. See pp. 143-144.

economy to give them the data they deem useful and no other. Commercial bankers, for example, may not feel it worthwhile in terms of accounting time and energy to produce separate performance data for agricultural loans. As the researchers' requirements vary from those of the manager, so would the accounting systems best suited for each.

The third problem in measuring repayment performance is one of interpretation and comparison. Two lenders reporting the same collection ratio may not be achieving the same level of performance because accountancy provides a number of choices to those who wish to compute a collection ratio. The general case and a complex case serve to illustrate the range. The general case is simply

$$R_n = \frac{C_n}{M_n} \quad (1)$$

where  $R_n$  is the collection ratio for period  $n$ , generally expressed as a percentage,  $C_n$  is the volume of collections or repayments received during period  $n$ , and  $M_n$  is the volume of loans or installments maturing, i.e., falling due, within period  $n$ .

The complex case may be represented as

$$R_n = \frac{C_{Pn} + C_{in} - Z_n - Q_n}{M_{Pn} + M_{in} + A_{n-1} - Z_n} \quad (2)$$

where  $C_{Pn}$  refers to collections of principal during period  $n$ ,  
 $C_{in}$  refers to collections of interest during period  $n$ ,  
 $Z_n$  refers to loans renewed or rescheduled during period  $n$ ,  
 $Q_n$  denotes prepayments included in  $C_{Pn}$  and  $C_{in}$ ,  
 $M$  refers to amounts maturing during period  $n$ , with subscripts as for  $C$  in the numerator, and

$A_{n-1}$  denotes amounts in arrears at the close of the previous period.

Present purposes require no more than a realisation that

collection ratios should be interpreted as specifying no more than relative orders of magnitude unless the exact basis of computation is given. With these caveats in mind, it remains to examine loan repayment performance in Kenyan agriculture.

## 2. The Repayment Performance of Large Scale Agriculture

Repayment of seasonal Guaranteed Minimum Return scheme advances for the production of wheat and maize appears to have varied widely over the nine years ending in 1971.<sup>1</sup> Comparing annual advances with repayments received during each of the financial years in question, the collection ratio ranged from 76% to 103%, with a mean of 88%. Two analysts of GMR's financial performance indicated in 1972 that the ultimate recovery ratio for a given year's advances, with interest, exceeded 95% after five years.<sup>2</sup> The precise analysis of GMR performance is complicated by the lag in the payment of insurance claims by the Treasury, which permits the accumulation of a backlog of arrears,<sup>3</sup> and also by various accounting problems which appear to limit the amount and utility of data which is available. Lax administration and inefficient procedures have also been taken advantage of by certain borrowers, as for example, by borrowing under different identities in different years so that their access to GMR funds is maintained in spite of non-repayment of amounts overdue not related to crop insurance claims which remain unsettled. Following a large accumulation of arrears in the early 1970's, AFC began to take significant steps towards reforming GMR administrative arrangements.

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1. Von Pischke, J.D., A Review. p. 79.

2. Birgegard, Lars, and Ralph Campbell, "The Agricultural Finance Corporation -- 1967 to 1971 to 1975." Nairobi, AFC, 1971. (mimeo) p. 7. This calculation may be based on amounts due written down to reflect losses, thus overstating collection performance. No renewals of GMR credit overdue are given.

3. Unpublished AFC data indicate that towards the end of November 1973 claims validated but not paid amounted to about Sh 1.4 million, while claims submitted but not approved amounted to about Sh 1.8 million. Arrears outstanding from periods before 1973 stood at more than Sh 80 million at that time.



The repayment performance experienced by KFA on its credit accounts appears to be within the realms of commercial viability, although KFA's published accounts provide insufficient information concerning amounts overdue to justify a definitive statement of portfolio performance. Bad debt provisions on KFA balance sheets between 1966 and 1972 ranged from 5% to 7% of total amounts due from members and other debtors, while the amounts written off ranged from roughly Sh 200,000 to Sh 1.8 million, averaging about Sh 600,000 per year. Against total credit sales of perhaps Sh 80 million annually towards the end of that period, loss experience would not appear to have been excessive, assuming that arrears have not been permitted to accumulate in the portfolio.

The situation with respect to commercial bank collection performance on loans to large scale agriculture cannot be specified precisely from information readily available to the public or to the Central Bank. There would appear to be little reason to suspect that loans to large farmers, ranchers and to plantations are of a quality grossly inferior to the general run of commercial bank loans. Commercial bankers interviewed by the writer on numerous occasions provided no indications that loans outstanding to large farmers are especially troublesome, and there is apparently no local financial folklore concerning big losses suffered by the banks through lending to large farmers. Therefore, it appears that bank lending to large farmers is conducted on a commercially attractive basis.

AFC collection performance on working capital loans to ranches and feedlots is also difficult to assess because of the use of the overdraft system. Balances outstanding fluctuate and turn over in a manner greatly influenced by herd fluctuations and turnover. There need not be an annual "clean up" of these facilities because the production cycle of the borrowers is not characterised by annual fluctuations of this nature.

AFC loans for development and land purchase have been typified by collection ratios, defined as amounts falling due during the

period plus amounts overdue at the start of the period as the denominator and collections received as the numerator, of approximately 80%.<sup>1</sup> However, for the large scale KFW programme collections at the end of 1971 stood at less than 20% of the amount billed. If the KFW figures are adjusted to remove billings which fell due at the end of 1971 the ratio would have stood at about 40%, still indicating a low level of collection performance.

### 3. The Repayment Performance of Settlement Agriculture

Cumulative loan collection ratios as of the close of the accounting years of the Department of Settlement between 1965 and 1971 were as follows:<sup>2</sup>

through 30 June 1965	47%
through 30 June 1966	46%
through 30 June 1967	58%
through 30 June 1968	60%
through 30 June 1969	59%
through 31 December 1970	53%
through 31 December 1971	50%

The annual collection rates, computed as collections during the year as a proportion of amounts billed during the year, appear to have ranged from about 39% to about 64%.<sup>3</sup> For the settlement portfolio as a whole, collections had failed to equal the amount of interest due from settlers by the end of 1971.<sup>4</sup> As of 30 June 1971 only 1,214 of the 31,251 plottolders billed were current in their payments, although there were none billed who had not made at least one repayment.<sup>5</sup> Thus, it is apparent that the largest public sector creditor of the agricultural sector, the Agricultural

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1. Birgegard, Lars, and Ralph Campbell, "The Agricultural Finance Corporation: A Set of Revised Projections." Tables 2, 7. AFC rarely renew overdue balances.

2. Republic of Kenya, Department of Settlement, Annual Report 1970. p. 59; Annual Report 1971. p. 42. These collection ratios are computed as collections minus prepayments divided by amounts billed. Settlement loan arrears are never renewed.

3. Von Pischke, J.D., A Review. p. 18.

4. Ibid., pp. 18, 20.

5. Republic of Kenya, Ministry of Lands and Settlement, Settlement Fund Trustees, "Statement of Repayment Position as at 30 June 1971." Nairobi, Department of Settlement, 1971. (mimeo) p. 1.

Settlement Fund, has achieved loan collection levels far below the level required for financial viability. Although commercial viability was perhaps never expected of the Fund, it is obvious that loan repayments have been grossly below the level projected by the installment schedules on loans to settlers.

#### 4. The Repayment Performance of Small Scale Agriculture

AFC collection ratios on small scale loans have varied greatly. Collections as a percent of amounts falling due under the IDA scheme approximated 75% in 1969/70 and 1971/72 according to Birgegard and Campbell, while comparative figures for the KFW small scale scheme for 1970/71 showed a 90% collection ratio, and those for the AFC small scale scheme ranged from 38% in 1967/69 to more than 60% in 1970/71.<sup>1</sup> During one quarter of 1974 the arrears on the IDA scheme were actually reduced by collections in excess of billings, suggesting that AFC's efforts to rationalise its loan administration and accounting procedures appears to be having the desired positive impact on financial performance. On the side of loan administration those efforts included a quantum leap in the number of foreclosure notices served on the most blatant defaulters. However, it would appear that AFC still has a considerable distance to travel before its small scale loan activities will be placed on a financially sound basis.

Loan repayment performance under the Cooperative Production Credit Scheme is not centrally monitored and has not been an area of great concern to the cooperative authorities. The credit rationing mechanism employed by CPCS is such that loans are available only to active members of primary marketing societies. The short term nature of the facilities also creates an incentive for borrowers to play within the rules of the system so that their future access to funds is not jeopardised. An additional means of generating good repayment performance lies in the coffee payment

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1. "The Agricultural Finance Corporation: A Set of Revised Projections." Table 2. AFC rarely renew overdue loans.

system, which in many cases involves a considerable lag between a member's delivering his coffee and the final payment to the member for the delivery. With substantial amounts in the payments pipeline, CPCS loans are often in fact no more than advances against deliveries already effected.

While it is probable that CPCS loans are largely ultimately recoverable, barring catastrophic drops in prices paid for coffee and other cooperative commodities, the accounting information systems of the unions did not appear as of early 1975 to provide collection ratios as a measure of CPCS performance. In Murang'a in 1973 it was reported that about 45% of the union's portfolio was in arrears, although those responsible for its administration were confident that the amounts due would be recovered without difficulty in the normal course of events.<sup>1</sup>

Commercial bank collection performance data for small agricultural loans are not available because the banks do not maintain their records on a basis which readily yields this information disaggregated by sector. However, several commercial bankers interviewed indicated to the writer that such loans in general achieve a break-even level of performance, defined as losses in the form of amounts uncollectable roughly equal to interest earned, i.e., around 8-10% per year. This comparison suggests that the banks are not directly compensated for the time and administrative overheads required to provide these facilities to small farmers.

In certain instances the banks have incurred quite disappointing losses on small farm loans in specific geographic areas. The local financial folklore includes tales of experiences of this type by each of the three large banks as a result of their experimenting with small scale agricultural loans in response to government pressure and the banks' desire to attempt to sound out potential new markets.

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1. Von Pischke, J.D., Credit Use and Development. pp. 34-37.

Loans to small farmers by the various crop authorities have produced a variety of collection experiences. These range from the recovery performance of KTDA, which succeeds in collecting over 99% of amounts due under its fertiliser credit scheme, to generally disappointing results achieved by certain other parastatal bodies.

## 5. The Impact of Repayment Performance

The impact of repayment performance on the prospects for rural development are large, as indicated at various points in this paper. For example, it is apparent that there is a cost to the community of the abuse of credit access and of flaws in the design of farm credit schemes which result in a use of resources which diverges from the optimum, whether specified in social or economic or financial terms. In the context of this discussion, however, only those aspects of repayment performance which affect the performance of financial institutions are considered. These effects are summarised under two headings: institutional development and access to rural financial services.

### a. Institutional development

The impact of poor repayment on institutional development may be illustrated by considering the 80% collection rate achieved by AFC, as computed by Birgegard and Campbell. Their repayment ratio cited here is computed simply as collections in any given period as a proportion of interest and principal falling due during the period.<sup>1</sup> Assume the following: loans amounting to 9 units are disbursed annually at the start of each period and fall due at the close of the period in which they are disbursed. Interest is charged at 11% per period, but no interest is charged on amounts in arrears. Collections are achieved on 80% of the amounts of principal and interest falling due each period. The development of a portfolio with these characteristics proceeds as

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1. "The Agricultural Finance Corporation: A Set of Revised Projections." Table 2.

follows:

<u>Period</u>	<u>Disbursed</u>	<u>Due</u>	<u>Collected</u>	<u>Arrears Carried Forward</u>	<u>Total Arrears</u>
1	9	10	8	2	2
2	9	10	8	2	4
3	9	10	8	2	6
4	9	10	8	2	8
5	9	10	8	2	10

This type of performance can be sustained only with recourse to other funds to keep putting into the hole. These may come from cross-subsidisation from a profitable line, from Treasury subvention, from continued access to the beneficence of external donors to fund new lending, etc. Without such recourse, the capital base of the loan scheme is exhausted by the accumulation of arrears. It is apparent that if the loan scheme were established with an initial and once-for-all funding and was designed to be self-sufficient, the 80% collection ratio as defined above would lead to its rapid decline:

<u>Period</u>	<u>Disbursed</u>	<u>Principal &amp; Interest Due</u>	<u>Collected</u>	<u>Available for Relending</u>
1	9	10	8	8
2	8	8.9	7.1	7.1
3	7.1	7.9	6.3	6.3
4	6.3	7.0	5.6	5.6
5	5.6	6.2	5.0	5.0
6	5.0	5.5	4.4	4.4

Under these assumptions, the initial seasonal lending programme would be halved in size by the end of the sixth period.

A financial institution which followed conservative accounting procedures in this situation would write off uncollected amounts each year equal to 20% of the amount disbursed. These losses would exceed the amount of interest earned on an accrual basis, equal to 11% of disbursements under these assumptions, and hence a loss would be shown on the operation of the scheme.

Financial institutions which consistently shown losses are in a poor position to attract funds in the market on their own strength.

Thus, private sector financial institutions dependent upon the quality of their lending performance as a means of securing resources will generally not be willing to undertake lending programmes which show little promise of being viable unless such programmes are small in relation to their total portfolio and carry some compensating benefit to other portions of their operations.

Public sector lenders may be able to sustain consistent losses for a very long period. This posture requires dependence upon the Treasury in some respect. Perhaps the dependence extends only to Treasury guarantees of funds entrusted to such lenders by the market, as in the case of Kenya's Cereals and Sugar Finance Corporation. It may, however, take the form of dependence on Treasury rather than market funding, either in the form of loans, as is generally the case with AFC, or in the form of grants. This level of dependence appears to involve a cost in terms of the quality of lending decisions, if AFC's performance provides any indications which may sustain generalisation. The cost has two dimensions. One is the scope and quality of information which is available to AFC decision makers on a routine basis. If AFC were dependent upon rural people for a significant portion of its resources it would know more about the rural economy than it does simply from its activities as a lender. The other dimension is the relative absence of discipline applied to loan decision making. The Treasury is no doubt a more lenient source of direction and correction than the market, and one suspects that the application of market discipline to decision makers produces better decisions and decision makers in the long run, not so much because of the negative sanctions on poor performance, but because of the greater scope and encouragement of creativity by the market than by bureaucratic administration.

With losses eroding capital available for lending, without access to funds in the market and without a very demanding hand on the till, financial institutions are hardly able to expand rapidly unless they have access to outside funds on public sector terms. When access to such funds is provided, the result may be that the managerial capacity of the institution is overwhelmed, as

suggested by AFC's accounting difficulties and related problems which suggest that the size of the portfolio outran the pace of management development. With accounting problems of the magnitude which characterised AFC through perhaps 1974 or 1975, management becomes preoccupied with housekeeping problems rather than with issues of long run policy and growth. Such preoccupation, however necessary, may have its cost in terms of long run growth foregone — although of course long run growth is also repressed until a financial institution has its housekeeping in good order, too. Thus, poor repayment performance retards institutional development as well as being a symptom of a low level of institutional development.

b. The development of rural financial services

Poor repayment performance on agricultural loans is one factor which may discourage lenders from expanding their activities in rural areas. While poor prospects for lending profitably may not entirely discourage banks, for example, from expanding into the countryside to obtain deposits for deployment in urban areas of the modern sector,<sup>1</sup> the difficulties in rural lending doubtless have some impact on the type and variety of financial services to which rural people have ready access.

Poor repayment performance increases the administrative costs of lending as well as posing a threat to the recovery of resources committed in the form of balances in arrears. Given the interest rate repression imposed on formal sector lenders, rural loan portfolios are relatively or absolutely unattractive. This unattractiveness is reflected in the standards of credit rationing

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1. M.D. McWilliam suggests that the commercial banks' rapid expansion of branch office locations from 12 in 1949 to 65 locations in 1960 was in response to the growth of monetised African economic activity in general, as reflected in a growing wage bill, and in an increasing number of African trading and commercial farming enterprises. See "Banking in Kenya, 1950-1960," The East African Economics Review. 9, 1, June 1962. p. 24.



employed by such lenders and in the existence of specialised lenders which have no alternative but to lend in rural areas. Credit standards employed by commercial banks largely restrict their rural lending to businessmen who can provide reasonable security and a reasonable assurance of repayment, and to part-time farmers who have modern sector jobs, in the civil service for example, in addition to title deeds to land. The Agricultural Settlement Fund and the Agricultural Finance Corporation are examples of specialised lenders with no alternative but agricultural lending, created to fill gaps in the financial infrastructure beyond the margins of profitability limited by interest rate repression.

The extreme selectivity forced upon formal lenders operating in rural areas may affect more than simply the availability of credit for rural people. To the extent it discourages the expansion of intermediaries in rural areas it deprives the rural population of access to a wide range of financial services, including deposit facilities, money transfer mechanisms and safe-keeping facilities. This deprivation and selectivity are obscured by the wide geographical coverage of banks and the Post Office in Kenya. Few small farms would be more than 30 miles from an office of some sort of formal sector financial intermediary. However, the commercial banks have minimum savings account balance requirements of Sh 300 and above which discourage many small savers from using deposit facilities, even though certain banks are lenient in enforcement and several waive the requirement for the opening of accounts with deposits below the minimum on the understanding that no withdrawals will be permitted until the minimum balance is exceeded through the accumulation of several small deposits.

The Post Office is also widely spread and provides savings and money transfer facilities within the reach of many rural people. The minimum balance requirement is Sh 50, and that amount and two photos are the main requirements for opening an account. The greater use of these facilities may be discouraged by the narrow range of financial services provided and also by lengthy queues

in urban post offices at which the majority of transfers originate or terminate.

That the rural market for small scale savings and loans was not fully tapped by the facilities existing in 1974 is suggested by the rapid growth of the Cooperative Savings Scheme. An unspecified portion of the growth of CSS of course results from its performance as a competitor at the small scale end of the financial market, drawing business away from the Post Office and commercial banks. However, there are substantial grounds for assuming that a significant portion of CSS growth was innovative in the sense that it brought savings facilities to many who did not use such services previously or who would have ceased to have access to such facilities with the introduction in the early 1970's of the commercial bank minimum balance requirements mentioned above. By the end of 1973 there were approximately 112,500 CSS accounts, which indicates that perhaps as many as 10% of Kenya's rural households were being served.

The profitability of the provision of cooperative financial services through CPCS, CSS and credit sales, etc., has not been measured on a detailed or consistent basis by the Cooperative authorities. However, there are grounds for hoping that they could be commercially viable by conventional accounting standards. For a start, the interest rates paid by borrowers are high relative to those charged by banks, usually being at least 10% and ranging up to 12%. Interest paid on savings accounts is nominally equal to that paid by the banks and the Post Office, although the non-payment of interest on accounts with only the minimum balance and the rounding of balances downwards to the nearest Sh 20 multiple for purposes of interest calculation no doubt lowers the effective rate significantly, given the size of the average balance. Delays in crediting interest at year end also reduce the amount of interest payable during the period between the end of the year and the addition of interest to the depositor's balance. (Delays of this type were noted by the writer during visits to several unions.) The operating costs of CSS are also small in the sense that the

commodity marketing activities of unions require an accounting staff in any event. The addition of CSS to the activities of a union thus requires only a marginal bookkeeping staff increment. Overheads are minimised by the humble nature of most union banking offices and by the relatively small number of cashiers or counter clerks required. On peak days, additional staff can be drawn from other activities.

But even if cooperative banking showed an accounting profit, the economic costs are such that shadow pricing would almost certainly seriously affect the reckoning, even if only moderate amounts of such costs were imputed for CSS. Cooperative banking receives certain subsidies. One of these is a major service, for which unions are not charged, which consists of the supervision accorded by the Ministry of Cooperative Development, including specialists from the Nordic Project for Cooperative Assistance to Kenya. This supervision is much, much more detailed and innovative than that exercised over the commercial banks by the Central Bank and other authorities, which puts the commercial banks and other financial intermediaries at a disadvantage in competing with cooperative banking. However, it may be argued that the supervision requirements for cooperative banking are also marginal relative to the level of resources devoted to cooperative supervision as a whole.

## 6. Reasons for Poor Repayment Performance

Agricultural loan repayment performance in Kenya varies greatly, as shown in Table IV-8. Performance ranges from the 50% level achieved by the settlement authorities through the 75-80% range typical of AFC programmes to the upper limit of virtually 100% realised by KTDA on its fertiliser loan scheme. What factors contribute to this wide range of performance?

### a. Project design

The impact of unrealistic project design on repayment per-

Table IV-8. Estimated Repayment Rates for Selected Lenders and Farm Credit Schemes in Kenya

<u>Scheme or Lender</u>	<u>Approximate Repayment Rate</u> <sup>a/</sup>
Kenya Tea Development Authority fertiliser loans	99%
Pyrethrum Marketing Board credit to growers' cooperatives	99%
Cooperative Bank CPCS lending to cooperatives	99% <sup>b/</sup>
Commercial banks' loans to African farmers	92% <sup>c/</sup>
Guaranteed Minimum Return Scheme	75% <sup>d/</sup>
Agricultural Finance Corporation	75%
Agricultural Settlement Fund	50%

a/ The repayment rate is computed as:

$$\frac{\text{collections of principal and interest per period}}{\text{principal and interest falling due per period, including interest on arrears}}$$

b/ The 99% applies to repayments to the ultimate lender, the Cooperative Bank, by cooperative organisations participating in the Cooperative Production Credit Scheme. Repayments by members to their societies are no doubt considerably lower in many cases.

c/ The commercial bank performance estimate is probably inflated by the occasional renegotiation of loans in arrears, which has the effect of reducing the denominator in the formula given in footnote a/ above.

d/ Birgegard, Lars, and Ralph Campbell, "The Agricultural Finance Corporation -- 1967 to 1971 to 1975." Nairobi, AFC, 1971. (mimeo) demonstrated that recoveries for a given year's GMR advances approximated 99% after five years, although this may have been after certain debts were written off or written down. However, there is evidence that this record worsened considerably by 1975. As of 1974 no GMR balances had been written off since 1967.

formance is most notable in the case of settlement credit. Until the Presidential proclamation in 1967 of a two year grace period for all new settlers with respect to loan repayments, settlers were expected to pay their first installment between six and 12 months after acquiring their land. In contrast to the constant level of installments required twice yearly on development and on land purchase loans, model farm budgets indicated that settlement farms would not reach full production for several years. Many farms were hardly in production at all by the time the first installment fell due, and the loan repayment schedules did not allow for any learning curve effect on farm cash flows. These problems and those of settlers' getting organised for the use of loans are reflected in the fact that development loan disbursement was planned to require up to 18 months in normal circumstances.<sup>1</sup> Thus, settlers were in effect initially required to pay installments appropriate to the size of their development loan limit, not to the amount actually drawn. In addition, the realism of a six-monthly billing cycle may be questioned on most grounds other than that of administrative convenience. Settlers may find it very difficult on managerial, psychological and social grounds to accumulate sums adequate for twice yearly payments which are relatively large in relation to the size of routine financial transactions in the rural economy. The Van Arkadie Report summarises the effect of the design of loan repayment schedules by noting that "the system and timing of billing could not possibly lead to any other result but an arrears position."<sup>2</sup>

However great the impact of unrealistic expectations expressed in loan repayment scheduling may be on repayment performance, there is ample evidence that settlement project design contained an even more fundamental flaw in the form of farm budgets which proved unattainable by the majority of settlers within the

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1. Republic of Kenya, Report of the Mission on Land Settlement in Kenya. pp. 152-153.

2. Ibid., p. 57.

period of time envisaged by the architects of settlement. A Kenyan source suggests that settlement farmers failed to reach target incomes in the mid-1960's for several reasons:<sup>1</sup> The planners overestimated what the settlers could reasonably be expected to achieve, in the sense that target incomes after debt servicing were set too high in the early years of a settler's development of his holding. Budgets provided little margin for error and assumed that farmers would immediately adopt production techniques which would produce high yields, the greater portion of which would be marketed. In fact, farmers appeared to accord highest priority to ensuring that their own household subsistence requirements were met, and in doing so tended to diversify their production. The settlement budgets contained an emphasis on specialisation, often in enterprises new to many settlers, such as dairying based on grade cattle, rather than on diversification.

The investment in certain inputs and capital equipment at levels below those projected also retarded the development of some farms. This shortfall is attributed to cash constraints on the part of settlers, not to supply problems. By using too few inputs, by stinting on short and medium term investment, farmers' output could not achieve the budgeted levels. The nature of the alleged cash constraint does not appear to have been explored in detail, although it is obvious that incomes below budgeted levels would not be sufficient to meet loan repayments as well as maintaining the farmers' use of purchased inputs and providing for projected levels of consumption.

AFC loans to smallholders are subject to fewer of these problems. The main use of these loans has been for the purchase of in-calf grade stock, which promise to produce a return shortly after purchase, save in cases of early mortality. However, most AFC smallholder loans have annual installment schedules, and hence borrowers may find it quite difficult to accumulate the funds required for a large annual installment, especially as AFC

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1. Republic of Kenya, Ministry of Finance and Economic Planning, Statistics Division, An Economic Appraisal of the Settlement Schemes 1964/65 - 1967/68. pp. 96-97.

does not provide deposit services to its clients. By the mid-1970's borrowers were being urged to prepay in small amounts at their convenience throughout the year in anticipation of their installments, and interest at roughly the loan rate was being paid on prepaid balances. However, exhortations to prepay are probably not greatly heeded by the majority of borrowers.

Project design would also appear to contribute to the financial success of KTDA and Pyrethrum Marketing Board credit schemes and to the unconcern with whatever the CPCS arrears position may be. Loans extended under these schemes are limited in size, with the limitation being set in relation to past or present performance guidelines. As noted above,<sup>1</sup> KTDA permits growers to obtain on credit a number of bags of fertiliser on the basis of one bag per roughly 1,000 mature tea stumps cultivated. CPCS loans to members of coffee societies are limited to not more than two-thirds the average value of coffee deliveries over the past three years. These types of credit rationing devices tend to reduce greatly the possibility that the borrower will not have the productive capacity to repay his loan. Indeed, CPCS loans are frequently more than covered by amounts due the coffee grower in respect of crop deliveries already effected.

The monopoly marketing channels controlled by each of these lenders also helps to ensure a satisfactory repayment record, and loan repayments are deducted by the lender from the borrower's crop delivery proceeds. Borrowers may try to escape repayment obligations by delivering under other names or through other farmers, etc., but this possibility is minimised by the continuous nature of interaction between grower and the marketing channel with respect to these crops. Tea is frequently harvested, and picked up by KTDA lorries, on a daily cycle; pyrethrum flowers may be picked and delivered weekly during the main growing months; and coffee is delivered several times during the harvest period. In this type of situation the costs to the borrower of repayment evasion can be high in terms of inconvenience. The attractiveness

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1. See p. 213.

of evasion is reduced by the countervailing desire to ensure continued easy access to credit and to the monopsony marketing channel. In addition, the limits on these types of credit, related to the borrower's productive base, reduce the probability that the borrower will attempt to evade repayment because he is overindebted.

Commercial banks are likewise in a position to expect reasonable repayment performance because of the multiplicity of relationships they have with borrowers. Few loans are issued to individuals who do not already have some relationship with the bank in question, such as a savings account or perhaps even an instruction to their employer (if they are employed in the formal sector) to make salary payments directly to a bank account. These types of arrangements facilitate the mechanics of timely loan collection by banks, while the general insistence on the borrower's pledging his land as security provides a means of ultimate control.<sup>1</sup>

There are also examples in which project design failed to gauge accurately the requirements of production relative to the managerial performance of farmers. The level of grade cattle mortality experienced by smallholder borrowers under the IDA scheme appears to constitute one case of this type. While it was assumed in project design that an accidental mortality rate of 5% would occur with respect to mature stock financed, experience led AFC management to adopt the informal rule of thumb that 20% of the animals financed would suffer accidental mortality, largely from tick-borne diseases. Part of the gap between expectations in project design and those that developed during the later stages of implementation reflects the fact that tick-borne diseases were more endemic than suspected at the time of project appraisal, but a portion also may be attributed to farmers' inability to provide the management needed to protect grade cattle from disease.

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1. Usually -- but one bank in 1974 found itself holding some unregistered claims on non-existent plots, thanks to the private enterprise of an employee in one District Land Registry.



Pineapple loans made by AFC out of IDA funds also met a managerial constraint. Successful yields could be achieved only with strict adherence to eight husbandry requirements. Results proved to be extremely sensitive to failure with respect to any single element. Several of these requirements were beyond the control of growers, involving others in the supply-production-processing chain.

AFC did relatively little lending in the late 1960's and early 1970's for the purchase of tractors by small farmers and contractors, so the usual problems associated with achieving economic levels of tractor utilisation by borrowers of this type have not been experienced to any significant degree.

The problems which led AFC and the Ministry of Agriculture to approach the World Bank for funds for the large farm rehabilitation project also appear to have reflected faulty expectations related to the land transfer programme. The extent to which false expectations might have been a sacrifice at the altar of political expediency cannot be assessed here, but on the basis of the expectations embodied in the farm budgets of the settlement portion of the land transfer programme it appears not unreasonable to suspect that there may have been some premium on disregarding reality in order to put together a project or to effect the orderly transfer of land. Onyonka's observations with respect to the financing of the purchase of large farms suggests that the down payment requirements were too stringent from the point of view of the accumulated resources of small groups of farmers who banded together to purchase large farms.<sup>1</sup> However, the need for rehabilitation indicates that the down payment requirements may have been too low in view of the problems encountered in repaying the loans which filled the gap between down payments and purchase prices.

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1. Onyonka, Z.T., Agricultural Development Banking.

With regard to another dimension of project design, it is interesting to note that the ranking of lenders by the collection performance they achieve is similar to their ranking in terms of the opportunity they provide the borrower to establish an enduring relationship. The Agricultural Settlement Fund, which provides credit on a once-only basis, has the worst record. AFC, which issued medium and long term credit only to the bulk of its borrowers through the mid-1970's, falls in the middle of the collection performance range. Lenders providing seasonal credit, renewable annually, achieve the best collection performance.

The importance of continued access should not be exaggerated, as many other factors also influence collection performance. However, it is interesting to note the correlation between the promise of continuing access to credit and collection performance. On an intuitive basis and assuming some propensity to default, it appears plausible to ascribe at least some causal relationship to the "relationship factor".

Inflexibilities built into settlement project design which restricted settlers' access to seasonal production credit on a regular or on-going basis are alleged to have resulted in the inability of some settlers to increase their production and hence their loan repayment capacity.<sup>1</sup> Because of the unfortunate precedents established between settlers and the settlement authorities with regard to credit in general, unsecured credit to settlers appears to be out of the question. The settlement authorities, by their failure to provide short term credit themselves or to provide security to another lender to support short term credit operations, may not be entirely convinced of the seasonal credit shortage hypothesis as an explanation of their own collection problems, however.

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1. Republic of Kenya, Ministry of Finance and Economic Planning, Statistics Division, An Economic Appraisal of the Settlement Schemes 1964/65 - 1967/68. pp. 94-95.

To summarise project design aspects of collection performance, it appears that collection performance is strongest when lending is linked with marketing channels, when the borrower is not loaned too large a sum relative to his managerial capacity as a husbandman, when loan repayment schedules are harmonious in size and timing with the cash flow from the enterprise or enterprises being financed or from the sources at the command of the borrower, and when the lender and borrower have an opportunity to establish an enduring, multifaceted business relationship.

b. Debt capacity perspectives

An alternative way of looking at credit scheme design problems is provided by financial theory. The central concept of relevance is debt capacity. The specification of debt capacity involves objective and subjective inputs. The objective aspects are demonstrated in the projection of "free cash flow" from a given investment or for a given on-going production activity. Free cash flow is defined roughly as the amount of cash available at the close of each financial year or production cycle which may be used to service debt. Free cash flow should not be confused with accounting profit, and is in fact derived from cash flow statements which indicate how funds are made available as profits, from the liquidation of assets and the accumulation of liabilities, etc., and how some portion of these funds is required for the on-going operation of the enterprise. These requirements relate to the extent to which funds are absorbed by the acquisition of assets and the reduction of liabilities, excluding the servicing of the debt in question which prompted the calculation. The net sources of funds shown by cash flow statements, suitably rearranged, constitute free cash flow.

Debt capacity is a function of projected free cash flow. The subjective aspect in the determination of debt capacity of course is present in the assumptions upon which free cash flow is projected, but is most apparent in the extent to which a

lender is willing to lend against the projected free cash flow. The lender's degree of risk aversion is the most important consideration of theoretical interest which contributes to his evaluation of the debt capacity embodied in a projection of free cash flow. A highly risk averse lender will discount heavily the projection, seeking a large margin between debt servicing requirements and projected free cash flow. One method of discounting heavily is to restrict lending to short maturities, so that only the early years in the projection are considered relevant. A lower degree of risk aversion would be reflected in a lower rate of discount, including a willingness to lend at longer maturities.<sup>1</sup>

To illustrate this simple concept, assume that a project involves an initial investment of 100 and has a projected annual free cash flow of 20 projected over a 10 year life. The lender will attempt to ensure that repayment of loan installments of principal and interest would be possible within the range of situations which the investor's project is likely to encounter. To reflect the probability of adverse occurrences the projected free cash flow stream must be adjusted for analytical purposes, as the projected annual free cash flow of 20 assumes a constant, normal situation. Adverse situations may include economic downturns, an increasingly competitive market, rising raw material costs, drought or disease (in the case of agricultural production), and so on. The lender may conclude that the free cash flow in the projected adverse situation would be only 10, rather than 20. In this case the competitive lender who does not wish to be subjected to an interruption in the receipt of loan repayments may be willing to provide that portion of the initial investment of 100 which equals the present value of an annuity of 10 per year for 10 years discounted at the rate of interest prevailing in the market for such financing. This amount may be defined as the debt capacity of the investment. Assuming a 10% interest

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1. This explanation of debt capacity specification simplifies greatly. For example, it assumes that lenders are homogeneous and follow independent maximising strategies. It also simplifies the mechanics of free cash flow derivation and ignores problems associated with inflation.

rate, the debt capacity in this example is roughly 60.<sup>1</sup>

The remainder, in this case amounting to 40, of the initial investment of 100 (continuing with the simplified assumptions inherent in such a brief summary) is considered by the lender to involve an equity risk, in the form of variable and uncertain returns, which is appropriately borne by the investor's own funds. The investor may be willing to accept the 60 proffered by the lender, in spite of its being substantially less than the initial investment of 100, because the lender's contribution permits the investor to minimise his own commitment of funds to the project. Without incurring any debt, the investor must provide the entire 100 -- with debt, his commitment is reduced, in this case to 40.

Further refinement of this simple statement is not required here, although it may be worthwhile to note that lenders may apply more stringent criteria than suggested here. For example, lenders may not be willing to extend credit up to the final maturity of 10 years, equal to the project's life as projected above. The lender's liability maturity structure and its inherent liquidity requirements lead to some degree of risk aversion expressed as constraints on the lender's asset maturity structure. Also, lenders may be unwilling to lend the investor the full amount of the present value of the annuity equal to the projected adverse free cash flow, because of the desire to retain some flexibility. In the event the project is slow in starting or encounters other difficulties which require more funds, the lender who can provide additional resources without exhausting

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1. The calculus used by the financier in evaluating debt capacity is common to risk minimising strategies: "It would appear to be a reasonable -- if not axiomatic -- proposition that subsistence cultivators, dependent entirely or almost entirely on the produce of their gardens, tend to cultivate an area large enough to ensure the food supply in a season of poor yields. Otherwise the community would be exposed to frequent privation and grave risk of extermination or dispersal by famine, more especially in regions of uncertain and fluctuating rainfall. One would, therefore, expect the production of a 'normal surplus' of food in the average year." (emphasis added) See Allan, William, The African Husbandman. Edinburgh, Oliver & Boyd, 1967. p. 38.

the debt capacity of the investment is in a more favourable position than the lender who initially extended credit up to the full amount of the investment's debt capacity. The wary lender will have developed through experience additional reasons for a conservative approach to debt capacity specification.

As suggested by this simplified illustration and invoking the assumption of ceteris paribus, the lender's risks are a function of the portion which he provides of the total amount of finance used for the investment in question. As the lender's portion increases, the lender faces an increasing probability that loan repayments will not be forthcoming as envisaged in the loan contract, and the risk of non-repayment according to installment schedules is here referred to as an equity risk.

There is considerable evidence that providers of farm credit in Kenya have subjected themselves to equity risks. The case of the loans issued by the Agricultural Settlement Fund constitutes the prime example, as these funded 90-100% of land purchase prices and up to 100% of the cash costs of farm development inputs. This risk was diminished to some extent by the long maturities involved, giving the borrower the benefit of the doubt in terms of the probable rate of inflation and in terms of the regenerative nature of livestock enterprises. However, the equity risk inherent in such loans is substantial. The generally slow growth of settlement farms to maturity, relative to farm budget expectations contained in the project design, has restricted settlers' free cash flows<sup>1</sup> as reflected in some, presently unquantified, portion of the massive loan arrears on the books of the Agricultural Settlement Fund.

AFC large scale loans also appear to have exceeded the debt capacity of a substantial number of borrowers. A variation on the explanation of debt capacity given above serves to illustrate this point. Assuming away indivisibilities and returns to size, the debt capacity for any particular investment may be validly

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1. Republic of Kenya, Ministry of Finance and Economic Planning, Statistics Division, An Economic Appraisal of the Settlement Schemes 1964/65 - 1967/68. pp. 44 ff.

related for analytical purposes to the borrower's equity contribution. Under the simplified assumptions of the initial exposition given above, it could be said that for every four units of equity capital committed by the borrower-investor, the lender would be willing to commit six units of debt. If the borrower is not in a position to provide a bona fide four units of equity while the borrower contributes six units of debt, it is apparent that the proportion of debt to equity changes and debt capacity is overburdened.

This aspect of the overburdening of debt capacity may be illustrated most cogently by reference once again to the events, as outlined by Onyonka, which led eventually to the large farm rehabilitation programme.<sup>1</sup> AFC's position was compromised relative to the equity capital base of many of its large scale borrowers through the following progression: groups of Africans banded together to raise sufficient capital to make a down payment for a farm in the former Scheduled Areas. The promoters desired to obtain a greater degree of control over the purchased farm than could be supported by their own equity contributions, and additional funds were raised in the form of loans from other Africans. The promoters' equity plus these loans were subscribed as the down payment, which AFC regarded entirely as an equity commitment. To continue using the quantities from the example above, assume that AFC was willing to lend six units of debt for every four units of equity subscribed. Assume further that the promoters provided only half of the funds which AFC treated as an equity commitment, raising the other half from informal lenders. Hence, the true debt-to-equity ratio was 8:2 (4-to-1 in conventional notation) rather than the 6:4 (1.5-to-1) assumed by AFC. In other words, the projected free cash flow would have to service one-third more debt (eight units rather than six) than assumed by AFC.

The mathematics of default so inexorably cast at the outset

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1. Onyonka, Z.T., Agricultural Development Banking. pp. 104 ff.

were compounded by difficulties, apparently not formally incorporated into AFC's projections, which frequently arose because of the technical problems of large farm operation by new entrants to large farming and also because of organisational problems arising from the committee form of management and possible lack of centralised executive responsibility resulting from the ownership of the farm by a group, many of whom were resident on the land. These difficulties frequently meant that the operation of the farm required a larger quantity of funds than could be generated internally, which led to further informal borrowing by the promoters.

Faced with demands for repayment from informal lenders, the promoters had several choices. One was to use whatever free cash flow was available to repay informal loans, thus leaving no funds to meet obligations to AFC. The other was to permit informal lenders to convert their claim into equity by allowing them to join the group of promoters. The possession of an equity claim generally carried with it the right to a small plot on the farm for oneself or for a member of the equity-holder's extended family, and the proliferation of small plots as a result of these debt conversions diminished the land available for large scale operations, swelled the number of those who could dissent in matters of policy and management, and consequently reduced the ability of the farm organisation (as opposed to individual owners) to generate free cash flow for the repayment of loans outstanding from AFC. Other options involved current financial expediciencies which diminished future free cash flow. Further funds might be obtained informally to meet the demands of old creditors, compounding the problems outlined above. Or, loose assets, such as livestock and machinery, could be sold to obtain cash, thus diminishing future production.

The concept of debt capacity, through its incorporation of free cash flow projections, is closely related to the concept of the ability to service debt. The ability to service debt refers



to the capacity of the borrower to repay interest and principal installments as they mature. Another way of approaching the repayment problems encountered by settlers and large scale AFC borrowers is to say that many of these borrowers did not achieve the levels of debt servicing ability projected by lenders in the credit decision making process.

The debt capacity perspective on the relationship between debt and equity leads to consideration of the management problems faced by borrowers under the small scale loan schemes of AFC, under which about 85% of the funds disbursed have been for the acquisition of grade cattle and related investment goods by borrowers. To meet the repayment schedules specified, generally five equal annual installments, a certain level of production must be achieved. The biological aspects of these levels of production may be described in terms of the avoidance of accidental mortality and the attainment of calving intervals of no more than so many months. In addition, supplies of dry matter and water are required for milk production and for maintenance. The exact values in each case will of course depend on the host of factors which determine the borrower's free cash flow: milk prices, consumption of milk by the farm family, costs of purchased inputs for the dairy enterprise, availability of fodder and water, etc. Whatever the values of each contributing factor, however, a certain degree of managerial ability is required on the farm to achieve the production required to generate sufficient free cash flow for loan repayment. There are some grounds for suspicion that the staff of the Ministry of Agriculture, which play an important role in the AFC loan application process, and the staff of AFC frequently overestimated the managerial ability of prospective borrowers. Support for this assertion is probably most easily exhibited by stock mortality data, which led AFC's management to adopt an informal expectation that of the grade cows purchased by their smallholder borrowers, one in five would experience accidental mortality. Other causes also contributed to this incidence, but most can be viewed relative to some expectation concerning managerial ability.

c. Administrative causes of poor repayment performance

Laxity in loan administration invites poor loan repayment performance. If the lender demonstrates that loan obligations need not be met in a timely manner, there is little reason for borrowers to be punctual in their repayment.

Poor financial housekeeping is one aspect of administrative causes of poor repayment performance. AFC accounts could at one time have been accurately described as chaotic, as manifested by delays in billing and the inability of AFC to credit interest on amounts in arrears under the IDA scheme until approximately three years after the scheme's inception. The accumulation of more than Sh 197 million in GMR arrears -- equal to almost two years' advances at the 1972 level -- by the end of 1973 is also testimony to the great record keeping difficulties which AFC has had with this administratively complex scheme. Likewise, various annual reports of the Department of Settlement allude to bookkeeping problems which doubtless resulted in poor follow-up of defaulters in certain cases. If management is unable to ascertain who is in default and by how much, effective loan administration is impossible.

Reluctance to foreclose constitutes a second administrative weakness which is consistent with poor repayment performance by borrowers. Public sector lenders have been reluctant to foreclose in those cases in which title deeds are taken a loan security. Part of this reluctance in AFC's case may reflect faulty documentation and the lack of current figures on the repayment performance of individual defaulters. Part may also reflect the feeling that fully secured loans will eventually be repaid, a feeling that ignores the time value of money loaned at a low or even negative real interest rate. Another portion may no doubt be attributed to political pressures for lenient treatment of borrowers. While small scale borrowers were foreclosed at a rate of about one a month in 1971 by AFC, the rate had increased to ten a month in 1974, suggesting the attainment of a degree of institutional maturity by AFC. AFC officials indicate

that very, very few smallholdings are ever auctioned, as defaulters almost invariably find the money to repay in full when threatened with this ultimate sanction. Also, foreclosures are said to have a salutary effect on the repayment performance of other borrowers in arrears who farm in the vicinity of the foreclosed property.

The settlement authorities have likewise been very reluctant to use their powers of eviction. Prior to 1965 their reluctance was based on a lack of clarity with respect to certain legal points, but in that year an amendment to the Agriculture Act gave the Settlement Fund Trustees the power to repossess settlers' land without reference to the courts.<sup>1</sup> In the following year a Loan Defaulters Sifting Committee was established to advise the Minister of Lands and Settlement on foreclosure cases. By June 1966, 875 notices had been served, and these resulted in only two evictions. In the following year action was taken against 135 defaulters who had made nil or only token repayments, and of these, 61 paid their arrears in full while 74 were evicted. The progress of settlement evictions through 1973 was as follows:<sup>2</sup>

<u>Period</u>	<u>Evictions</u>
1965/66	2
1966/67	74
1967/68	0
1968/69	14
1969/70	0
1970 (calendar year)	0
1971	0
1972	1

It is probable that a much higher level of evictions could have been effected without causing hardship. Not all settlers were in fact among the very poor whom the programme was supposed primarily to benefit. A few owners of settlement plots are men of considerable means, while some are civil servants and others with regular incomes from off the farm. Given that as of mid-1972,

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1. Republic of Kenya, Laws of Kenya, Cap. 318, "The Agriculture Act," Section 174 (3).

2. Eviction data is from Republic of Kenya, Department of Settlement, Annual Reports for the periods cited.

30,673 of the 32,118 settlers who had been billed were in default,<sup>1</sup> it appears reasonable to assume that at least some of the defaulters were taking advantage of the leniency of the settlement authorities rather than demonstrating their inability to repay their loans.

Foreclosure is of course the lender's ultimate sanction, and good loan administration will seek to avoid deterioration of the borrower-lender relationship to this level. The emphasis accorded foreclosure in this discussion is not intended to suggest that foreclosure is a panacea, but rather to point out that in the presence of widespread default on loan repayments it represents one way of helping to restore loan discipline. Used indiscriminantly, foreclosure could have a high cost in terms of the intangible aspects of farm credit provision. However, the political economy of access to credit in Kenya, especially public sector credit, suggests that in many cases foreclosure would not impose an absolute hardship on the more prosperous defaulters, and by increasing the flow of repayments to lenders could be in the best interests of the agricultural sector by widening access to credit.

Staffing problems are an additional administrative element in poor collection performance by lenders. The importance of administrative performance in terms of loan recovery is suggested by the experiences of AFC and of cooperative credit in Kenya. AFC has moved consistently, if slowly, towards a tighter approach to administration. One aspect of this effort since the early 1970's has been the enlargement of the number of expatriate specialists engaged in training, accounting and computerisation, and also in general supervisory functions in the field. Cooperatives were in considerable difficulty by the mid-1960's due to poor management and control. With the reconstitution

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1. Republic of Kenya, Ministry of Lands and Settlement, Settlement Fund Trustees, "Statement of Repayment Position as at 30th June 1972." The number of defaulters may be inflated by the fact that certain billings were due on the statement date and the lag in recording settlers' payments on the centralised accounting system in Nairobi. For a discussion of this lag as of 1966, see Republic of Kenya, Report of the Mission on Land Settlement in Kenya. p. 156.

of the structure under legislation passed in 1966;<sup>1</sup> the establishment in that year of the Nordic Project for Cooperative Assistance to Kenya and its heavy emphasis on field assistance and on training, including the establishment of the Cooperative College of Kenya;<sup>2</sup> and with the Government's further commitment to strengthening cooperation as expressed in 1970,<sup>3</sup> the stage was set for improved financial management of cooperative affairs and loan schemes. Eligibility requirements which cooperators, primary societies and unions must meet to participate in the Cooperative Production Credit Scheme are indicative of the importance attached to management by the cooperative authorities.<sup>4</sup> Along with these initiatives, cooperative credit has evolved from the confused state in which an estimated Sh 27 million was outstanding in 1969,<sup>5</sup> often without adequate documentation and with a very poor collection rate, through the achievement in the mid-1970's of the relatively high degree of administrative performance required to run the Cooperative Savings Scheme.

Sanctions against further access to credit are a further administrative aspect of the repayment performance problem. The concept and reality of a credit rating is not widely established in Kenya. While the banks do provide to each other and to those with a legitimate basis for enquiry, brief and rather superficial information on their clients, the other agricultural lenders do not routinely seek or provide such information. This situation probably reflects the narrowness of the market, as, for example, AFC has very little competition in the provision of five year loans to smallholders. Finance companies are not an alternative

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1. Kuehn, Alfred, Evaluation of the Nordic Project for Cooperative Assistance to Kenya. Paris, Organisation for Economic Cooperation and Development, July 1969. p. 58.

2. Ibid., pp. 65-66.

3. Republic of Kenya, Ministry of Cooperatives and Social Services, Cooperative Development Policy for Kenya.

4. Republic of Kenya, The Cooperative Department, The Co-Operative Production Credit Scheme: Staff Manual -- Credit. Nairobi, August 1971. (mimeo) pp. 3-14. A summary of eligibility requirements is given in Von Pischke, J.D., "A Description of the Cooperative Production Credit Scheme." Working Paper No. 80, Institute for Development Studies, University of Nairobi, December 1972.

5. Kuehn, Alfred, 1969. p. 105.

source of funds for small borrowers from the banks. Within the commercial banking community the tradition of British banking, including the restrictive practices formalised in the Bankers' Agreement, discourages borrowers from switching their custom. All of these factors related to the narrowness of the market tend to diminish the utility to lenders of formal credit ratings for borrowers or prospective borrowers. In many cases a lender need not go beyond his own files, and might not get much useful data if he were to seek detailed information from another intermediary.

The practical aspects of establishing a credit rating system are also complicated by the wide range of accounting standards and performance among the various lenders. For example, AFC's accounting performance in the early 1970's was so poor that any borrower's propensity to pay on time could be difficult to verify from loan ledgers. As AFC's accounting performance continues to improve and its functions expand, there would appear to be a basis for the exchange of information between AFC and the commercial banks concerning the repayment records of borrowers. The provision of credit information by AFC to anyone with a legitimate basis for enquiry could be a great service to small farmers who are good payers, as it could increase their access to credit and other financial services. At the same time, the provision of such data could be a great service to the financial and business community by permitting the reduction of the inconveniences resulting from incurring bad debts. Perhaps the encouragement of the exchange of credit information would be a fruitful area for Central Bank attention.

#### d. Other causes of poor repayment performance

In addition to the problems of agricultural economics and of finance which may depress repayment performance under any given farm credit scheme by reducing borrowers' ability to repay their loans as scheduled, there are also a number of factors which

may cause borrowers to be unwilling to repay. In any society there are some people who are not financially responsible, and some of these will occasionally gain access to formal sector credit, especially where credit ratings are not an established part of the market mechanism. Others may not be punctual payers in a society like Kenya's because they have not had much exposure to modern commercial practice. Excepting a few well-defined cases relating to crop cycles and funerals, there may be little sense of urgency in traditional life styles. With monetisation and commerce, propelled by considerations related to the time value of money, traditional life styles change. In addition, the nature of traditional society may be such that the sort of relationship which binds a borrower to a lender is characterised by a high degree of negotiability. Although the broad outlines of such relationships may be well established and universally understood, the contents may permit a high degree of variation in the satisfaction of obligations, designed to ensure a certain equilibrium in a society dependent upon agricultural production with all its uncertainties. The possibility that traditional societies are more flexible than commercial societies in this respect is no more than conjecture, and the suggestion that considerations of this sort may affect the collection performance of formal lenders in Kenya is no more than speculation. Any definitive explanation of borrower behaviour would have to explain why a small proportion of borrowers repay formal sector credit in advance of due dates, as found in AFC and settlement experience.

(The writer's general impression is that lack of commercial practice is a much more useful approach to explaining borrower behaviour than is the general and vague invocation of "cultural factors" as explanatory variables. Cultural factors exhibit an almost unlimited range of variation among cultures, while commercial practice -- implying the procedures found in monetised markets -- appears to exhibit reasonably well identified common characteristics wherever modern money is employed.)

## CHAPTER V

## THE POLITICAL ECONOMY OF FARM CREDIT IN KENYA

Can the effects of financial repression be identified in Kenya's farm credit system? Do financial repression and the body of financial market theory from which the concept is derived provide a satisfactory framework for an explanation of the state of Kenya's farm credit market and an analysis of the extent of access which rural people have to the types of services provided by the financial sector?

Previous chapters have reviewed Kenya's agricultural sector and its development, various aspects of financial market theory, and the sources of funds used by farmers and by lenders. This chapter attempts to integrate these elements in an analysis of the farm credit system, and includes additional materials required to complete the theoretical edifice and to indicate its utility and shortcomings.

The analytical approach employed uses the rather broad context afforded by considerations of political economy, encompassing questions of financial behaviour within the wider framework of economics, as well as including elements of public policy and questions of political power. Accordingly, the model which is constructed recognises that farm credit systems are shaped by political factors, defined broadly to include major aspects of the working of government. This set of considerations is called the political dynamics of farm credit. Of course, farm credit is also a specialised financial function and as such is subject to the general forces which determine the behaviour of financial institutions. Many of these forces stem primarily from the way in which financial assets and liabilities are created, and this process is termed the financial dynamics of farm credit for the purposes of this exposition. These two sets of dynamics form the framework for the outline of the model of the farm credit system developed in this chapter.



### A. The Public Sector Farm Credit Complex

Reflecting the over-riding importance of the Kenyan public sector in the country's farm credit system, the most convenient starting point for analysis is found within the political dynamics of the model. (Certain aspects of circularity between the financial and political dynamics are discussed later.) Politicians, planners and administrators concerned with rural development frequently hold an interrelated set of beliefs, which are referred to here as the public sector farm credit complex. This complex constitutes the orthodoxy of farm credit, and appears to be based on four assumptions or ways of viewing the state of agriculture, the requisites of rural development, and the role of government as rural developer.

The first view is that "farmers are poor". The political basis of this observation is seen in what it is not, i.e., a useful concept for economic analysis. Poverty is customarily defined in terms of consumption levels. By way of contrast, the most useful approaches to rural development strategy and implementation are generally focussed on production constraints. Concern for rural poverty is a less powerful tool for rural development planners than is concern for variables such as rural peoples' aversion to risk, their optimising strategies, their feelings about and responses to change, their debt capacity and how it may be increased, their cash flows and how they are managed, and implicit discount factors used in their decision making.

Poverty has a certain utility as a concept for politicians, however, and provides a rationale for intervention on welfare grounds as well as suggesting areas in which government may wish to be seen as providing alleviation or relief. These concerns embody the second assumption of the public sector farm credit complex: as rural people are generally "poor", government should promote the development of rural areas. Of course, this concern is not the only rationale for intervention, which may also be

intended to increase foreign exchange earnings or to decrease foreign exchange outflows through changes in the level and composition of agricultural production, to transfer capital from agriculture to other sectors, to diminish the potential for insurgency, and to influence other areas of concern to government.

Within the Kenyan context the politics of poverty have not overwhelmed the largely pluralistic basis of the society. Kenya has produced no "Arusha Declaration" or lurched to the left behind a "Common Man's Charter". Its manifesto on African Socialism<sup>1</sup> has served more as a political symbol than as an economic blueprint. Nevertheless, the politics of poverty are present, even if muted:

The best of Kenya's African social heritage and colonial economic legacy must be reorganised and mobilised for a concerted, carefully planned attack on poverty, disease and the lack of education in order to achieve social justice, human dignity and economic welfare for all.<sup>2</sup>

Prior to independence, the enemy of Kenyan people -- colonialism and political oppression -- was easily identifiable, and the energies of the nation could be readily marshalled in the fight against it. After independence, the enemies became poverty, ignorance, and disease which were much more diffuse. Systematic planning and sustained effort was, and still is, required to overcome them.<sup>3</sup>

Outside entities, such as the ILO, at times feel even freer than the Kenyan Government to prescribe economic designs to help Kenya's poor:<sup>4</sup>

The basic strategy proposed...is to redistribute gains in the income of the rich to investments which will raise the income of the poor, until the latter's income per head has doubled. The rich and the poor are defined respectively as the top 1% and the bottom third of income recipients, each of which received about 10% of total income. The incomes of the rich are to be frozen....

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1. Republic of Kenya, African Socialism.

2. Ibid., p. 1.

3. Republic of Kenya, Development Plan 1974-1978. Part I. p. 1.

4. ILO, op.cit., p. 365.

The third pillar of the public sector farm credit complex is the "farm credit need creed", which is supported and perpetuated by politicians, many rural developers and a surprisingly large number of economists. The need creed is the belief or article of faith that farmers' lack of access to credit on "reasonable terms" constitutes a binding constraint to rural development.

Statements of the need creed are found in Kenyan five year plans and in the writings of many economists concerned with agriculture and rural development. A sample of citations from the Kenyan literature indicates the nature of the belief:

In Kenya, loan funds are needed by the farmer for such things as the purchase of fencing wire, improved livestock, cash crop planting material, water tanks, sprays, the installation of water supplies and buildings. It is needed, too, for payment of hired labour to undertake bench terracing and cash crop planting and to finance the "waiting" or zero-income period before cash crops come into bearing.<sup>1</sup> (emphasis added)

Smallholders in developing countries face the same problem: credit facilities upon which the development of their farms often depend, are very limited. In this respect Kenya is no exception.<sup>2</sup>

If farmers are to adopt improved farming methods such as the use of improved livestock, better seeds and pesticides, etc., they will require credit, especially short term credit, to help them purchase these inputs.<sup>3</sup> (emphasis added)

The development of the model to this point confirms two of the hypotheses listed in the Introduction of this study.<sup>4</sup> The first is that

2.b) *The concept of credit need is based upon political concern.*

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1. Clayton, Eric, Agrarian Development in Peasant Economies: Some Lessons from Kenya. Oxford, Pergamon Press, 1964. p. 131.

2. Vasthoff, Josef, op.cit., p. 21.

3. Republic of Kenya, Development Plan 1970-1974. p. 217.

4. See pp. 4-5.

The political concern is reflected in the predilection to view farmers as "poor", and the invocation of a concept of need is consistent with the desire to alleviate poverty. The second hypothesis supported by the development of the model to this stage reflects the approach taken in the 1970-1974 five year plan and supported by writers acquainted with Kenya's agricultural development policies:

2.a) *A concept of the "need" for farm credit permeates relevant public policy.*

The fourth element of the public sector farm credit complex is the belief that supply-leading finance can stimulate rural development. In other words, the injection of credit in advance of a proven demand for credit will engender development. The "demand" for credit is difficult to specify, as discussed above,<sup>1</sup> but suffice it here to note that Schatz's definition says credit demand exists only when the loan applicant has a potentially viable project or use for the funds.<sup>2</sup> The term "supply-leading finance" has been popularised and perhaps even coined by Hugh T. Patrick,<sup>3</sup> to distinguish this entrepreneurial aspect of lending from the more commonly observed "demand-following" behaviour or many financial institutions as summarised by Joan Robinson's observation that:<sup>4</sup>

There is a general tendency for the supply of finance to move with the demand for it. It is true, of course, that at any moment there are many excellent ideas which cannot be implemented because those who have conceived them are unable to back them up with finance. But, by and large, it seems to be the case that where enterprise leads finance follows.

These four beliefs interrelate neatly and conveniently, justifying their description as a complex. One obvious progression in reasoning is that farmers are poor, they need credit to develop their holdings, and that, among other measures, the

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1. See pp. 130 ff.

2. Schatz, Sayre P., Economics, Politics and Administration in Government Lending. p. 119.

3. "Financial Development and Economic Growth." pp. 174-189.

4. The Rate of Interest and Other Essays. London, Macmillan & Co., Ltd., 1952. p. 86.

government should promote such development by providing credit and directing credit towards small farmers. It follows logically from these concerns that farm credit should be "cheap", and that it would be wrong in principle and unfair on equity grounds to subject poor farmers to interest rates significantly higher than those levied on traders, manufacturers, and others less burdened by poverty.

The financial analogue of the cheap farm credit policy is, of course, low interest rates. Interest rates are low when credit is provided at less than its accounting costs and below the rate which would prevail in a market free of government intervention in the form of limitations on interest rates, subsidies, and restrictions on other terms of loan contracts.

The tenacity of the preference for low interest rates is seen in their prescription and use even for credit projects which are expected to yield the average borrower an internal rate of return of 30-40% on his investment, as suggested by project documents relating to the IDA smallholder scheme, or when adoption of high yielding varieties is expected to double farmer's yields per unit of land. In such cases and lacking a tax on agricultural incomes on small farms, a case for high interest rates could be made on equity grounds, especially as credit access is generally severely restricted in such a way that the loans tend to go to the better off among the small farmers (excepting most settlement schemes in Kenya), as discussed later.

The preference for low interest rates as a means of stimulating development in Kenya may be traced to colonial policy, as noted above,<sup>1</sup> even though that policy was designed to promote a very different kind of development from the type outlined in relevant publications of the Kenya Government. (Kenya's colonial monetary tradition is discussed in Appendix A.) However, it would be a mistake to assume that this tradition carries great weight

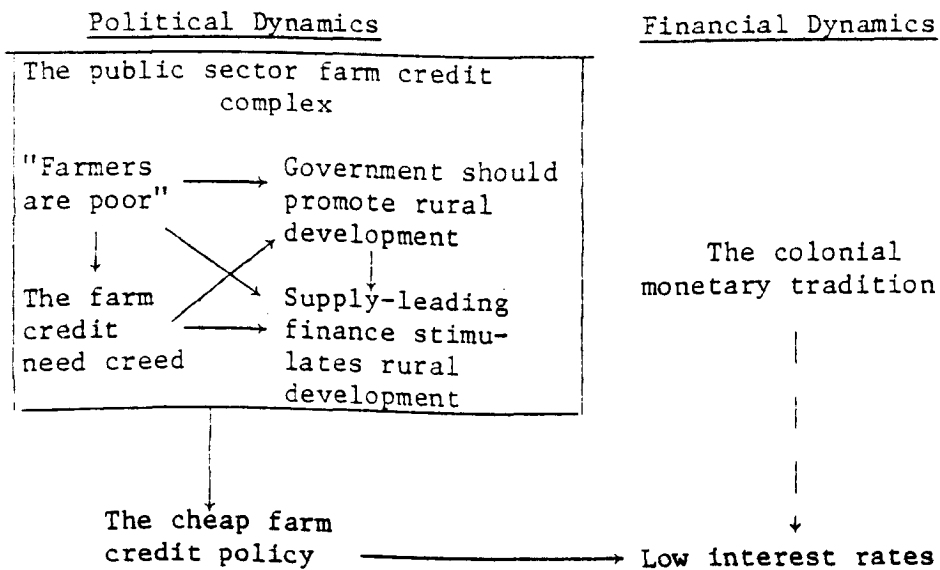
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1. See pp. 271 ff.

today -- policymakers appear more sensitive to present than past politics, and external donors have been quite willing to accommodate Kenyan policy to the extent that only marginal adjustments in real interest rates have evolved out of negotiations of farm credit projects funded multilaterally.

The model as developed thus far is shown schematically as Figure V-a. Major linkages are indicated by solid lines, and the minor linkage between the colonial monetary tradition and low interest rates is shown by a broken line.

Figure V-a. The Low Interest Rate Model



## B. Low Interest Rates

Low interest rates impede financial deepening. Their primary impact affects both sides of the balance sheets of financial intermediaries. The impact on intermediaries' lending operations is easily grasped, as low interest rates lead to low or negative real

returns on loans outstanding. Low nominal returns tend to restrict the ability of intermediaries to grow through re-investing their profits. The negative real returns which frequently accompany low nominal returns tend to shrink the ability of intermediaries to serve the community, as any given nominal level of financial resources diminishes in real terms.

Lenders' propensities to expand the level of community access to financial markets and services are also easily constrained in low interest rate regimes. This may be illustrated by a simple exposition based on the assumption of ceteris paribus and on the observation that intermediaries tend to limit the variety of transactions they undertake and the clients they serve. In other words, product differentiation is prevalent in financial markets. These limitations reflect the utility of credit rationing to an individual intermediary, as experience provides a basis for identifying those types of business in which an intermediary has a market advantage. Assuming away the influences of any statutory or regulatory limitations, an intermediary's market advantage results from the use of specialisation to diminish uncertainty and to achieve certain economies. In commercial banking, for example, "prime customers" are those whose relationships are most highly valued and as a consequence they have access to credit at the prime or lowest commercial lending rate. When interest rate levels are low, intermediaries as a whole are not encouraged to expand their markets into activities involving higher costs, which typically include the costs of greater uncertainty. Assuming workably competitive market behaviour, higher lending rates would result in higher returns or the prospects of higher returns to lenders, which would provide a greater incentive to expand access to financial markets and services to a larger variety of clients and an expanded range of transactions. Low rates keep the margin between those who are served and those who are not served closer to the area of prime relationships. Liberalised rates offer an opportunity for an expansion of that margin, which could have the effect of increasing the community's access to financial markets and services.

In certain cases low interest rate regimes involve controlled maximum lending rates, as in Kenya where the commercial banks have been subjected to a 10% maximum loan rate. In this situation it is clear that unless the banks find ways of compensating for this limitation by extracting other revenues from their customers at the margin, they would not find it in their interest to expand that margin into new business which would involve higher costs, including the cost of uncertainty or credit risk. Any propensity the banks might have to experiment in expanding the range of their clientele and services would obviously be constrained by the interest rate ceiling, which, in effect, instructs the banks to keep the margin where it was at the time the limitation was imposed.

This exposition simplifies to the extent that it assumes that the lender would in fact be willing to raise his lending rates to take on more risky business. The discussion also simplifies by assuming a certain homogeneity of transactions among all types of clients, at least to the extent that the lender is unable to circumvent the interest rate constraint with other devices which either diminish his risk or increase his operating efficiency. Also, it is assumed that lenders have access to more funds than those used to satisfy the debt capacities of prime customers and that progression towards the margin is possible -- a point discussed shortly. In spite of these qualifying assumptions, however, the model is not an unfamiliar one with respect to farm credit institutions in developing countries. Their case illustrates well the concept of the increasing costs and decreasing net returns -- well into the negative quadrant -- of dealing with clients progressively removed from the characteristics of prime borrowers, and hence progressively uncreditworthy. How institutions are able to venture into these realms, by not being subjected to the discipline of the market as a source of funds, will be discussed later.



The result of low profit margins or losses in the commercial context of financial optimisation by lenders is more stringent credit rationing than would otherwise occur. Relative to positions which would be attained in a liberalised financial market, intermediaries dependent on a repressed financial market will not move significantly outwards, in providing access to prospective borrowers, keeping their margin back at some point closer to prime relationships in an effort to ensure viability. Lenders not dependent upon the market will also be impeded by losses resulting from the inability to collect loans outstanding and other causes, thus slowing the rate at which new loans are issued. Losses may also restrict the public sector lender's ability to attain institutional maturity and some degree of operating independence. For example, weak lenders may find themselves unable to provide salaries which are competitive enough to attract staff capable of expanding operations on a significant scale and on a viable basis, which in effect rations credit available from the intermediary to a degree which is more stringent than would be achieved by an intermediary of greater financial strength.

On the other side of the intermediary's balance sheet, low interest rates may tend to diminish the utility of deposits. This means that intermediaries may be less likely to market financial services aggressively under repressed interest rates than under liberalised interest rates. If deposits are less attractive, the rational lender will do less to attract such resources than when they are more attractive in terms of the returns they offer.

This effect may be illustrated using proportions from the combined balance sheet of the commercial banks in Kenya as of the end of June 1975. The critical relationships are the portion of total liabilities upon which the banks pay interest, and the portion of total assets upon which the banks earn interest. Expressed in percentage terms, the combined balance sheet of commercial banks in Kenya on the reference date is given in Table V-1.

Table V-1. Percentage Composition of the Combined Balance Sheet of Commercial Banks in Kenya, 30 June 1975

<u>Liabilities &amp; Net Worth</u>		<u>Assets</u>	
<u>Account Heading</u>	<u>Proportion of Total</u>	<u>Account Heading</u>	<u>Proportion of Total</u>
Demand deposits	34.3%	Cash & due from banks	8.6%
Time deposits	15.3%	Treasury Bills	5.1%
Savings deposits	<u>14.3%</u>	Bills discounted, loans & advances	50.3%
Total deposits	63.9%	Investments	3.3%
Balances due to banks	3.9%	Other assets (including contra items)	32.7%
Bills payable & other borrowing	1.3%		
Other liabilities (including contra items) & net worth	<u>30.9%</u>		
Total	<u>100.0%</u>	Total	<u>100.0%</u>

Source: Central Bank of Kenya, Ninth Annual Report. pp. 33-34.

The minimum lending rate in Kenya at the reference date, 30 June 1975, was 8% while the maximum rate on new loans was 10%. Therefore, it may be assumed that the average bank lending rate was around 9%. Applying this rate to the proportion of total assets accounted for by loans yields a return of 4.5% on total assets ( $9\% \times 50.3\% = 4.5\%$ ). The rate of interest paid on time deposits ranged from 5.125% to 5.875%,<sup>1</sup> and for present purposes it is assumed that the average rate for time deposits was 5.5%. Thus, in terms of total liabilities and net worth the cost of time deposits was roughly 0.8%, or ( $5.5\% \times 15.3\% = 0.8\%$ ). The rate paid on savings deposits was 5%, yielding a cost factor of roughly 0.7%, or ( $5\% \times 14.3\% = 0.7\%$ ). Combining these two deposit rates gives a deposit cost factor of 1.5%. While in terms of total assets the gross income from loans was 4.5%. The interest paid on deposits was 1.5%, giving a difference of 3.0% which may be treated as a return to the lender from the function of intermediation between savers and borrowers.

To proceed with this example, the spread between the average lending rate of roughly 9% and the average deposit rate of roughly 5.25% (derived from the 5% savings rate and the 5.5% assumed rate on time deposits, each weighted about equally, given their approximately equal contribution to the balance sheet as seen in Table V-1), is about 3.75%. Assume that this rate spread is retained in a situation of financial liberalisation in which the lending rate rises to a nominal 30%. In this case, the arithmetic of the return to banks would be:

Interest earning loans (50% of total assets x 30% lending rate)	= 15%
Interest bearing deposit liabilities (30% of total liabilities and net worth x 26.25% average deposit rate)	= 8%
	= 7%
Difference	

Under these assumptions the difference or return to the lender in terms of total assets would rise from a pre-liberalisation

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1. Central Bank of Kenya, Ninth Annual Report. p. 47.

level of 3% to a liberalised level of 7%. In other words, assuming a constant rate spread and balance sheet proportions, every shilling of additional deposits obtained would provide greater returns from lending as liberalisation replaces repression.

However, in any real situation of this type it is unlikely that balance sheet proportions would remain constant. Data from Korea and Indonesia during periods of liberalisation indicates that time and savings deposits increase as a proportion of total deposits. In Korea in 1964 the real return on a one-year time deposit was -14.6%, and time and savings deposits constituted 23% of money supply (M2). In 1970 the real return on a one-year time deposit was 12.6%, following five years of positive rates ranging up to 22.1%, and the proportion of money supply held in the form of time and savings deposits was 66%.<sup>1</sup> Likewise, in Indonesia during a period of liberalisation between 1965 and 1970 the proportion of the money supply consisting of time and savings deposits grew from 3% to 25%,<sup>2</sup> while in Taiwan between 1952 and 1970 the proportion grew from 29% to 65%.<sup>3</sup>

If liberalisation were to result in a shift in the composition of deposits in Kenya so that while total deposits still accounted for 65% of bank liabilities and net worth, time and savings accounts accounted for 40% and demand deposits 25%, the return to the lender would still be enhanced by about 1.5%, growing from 3.0% to 4.5%, or  $(40\% \times 26.25\% = 10.5\%$ , subtracted from 15% on loans outstanding). In relative terms, an increase of 1.5% on a base of 3.0% is an expansion of 50%, which is quite substantial in terms of the margins often found in finance.

Detailed study of the behaviour of various headings on intermediaries' balance sheets during liberalisation is beyond

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1. McKinnon, Ronald I., op.cit., p. 109.

2. Ibid., p. 112.

3. Ibid., p. 115.

the scope of this discussion. Suffice it to note that in Korea's experience bank profits were squeezed by the rush into savings and time deposits by private households and others, following the rise in the nominal deposit rate and tax reforms favourable to financial deepening.<sup>1</sup> However, Korean central bank regulations were amended to provide some alleviation for the commercial banks.

The effect of low interest rates on rural people is simply that their access to financial services is restricted. Lenders' earnings are easily constrained by low rates. Low nominal rates are frequently negative real rates, which limit the ability of the financial sector to keep pace with the expansion of borrowers' debt capacities. Also, lenders may not be stimulated to solicit deposits as vigorously as they might be under liberalised conditions. Rural branching to attract rural deposits is not given much priority, and cost considerations may prompt relatively high minimum balance requirements on savings accounts and relatively high minima prescribed for various sorts of transactions. Low interest rate levels and ceilings, whether established by central bank directive or by industry practice, also encourage lenders to ration credit stringently according to commercial criteria within the confines of the limited returns available. Rural people tend in many instances to be rationed out of the formal financial market. Their exclusion reflects the fact that the bulk of rural loans are relatively small and relatively costly to administer. Rural loans are also often subject to less control by lenders in terms of use than loans to industry and commerce, given the spending levels and patterns of small borrowers. Lenders may perceive such loss of control as an augmentation of risk. Because formal intermediaries do not find such transactions attractive within the confines of repressed finance, they also take a more conservative view of rural debt capacities than they would were they more active in rural financial markets, in which case they

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1. Kanesa-Thanan, S., op.cit., pp. 9-13.

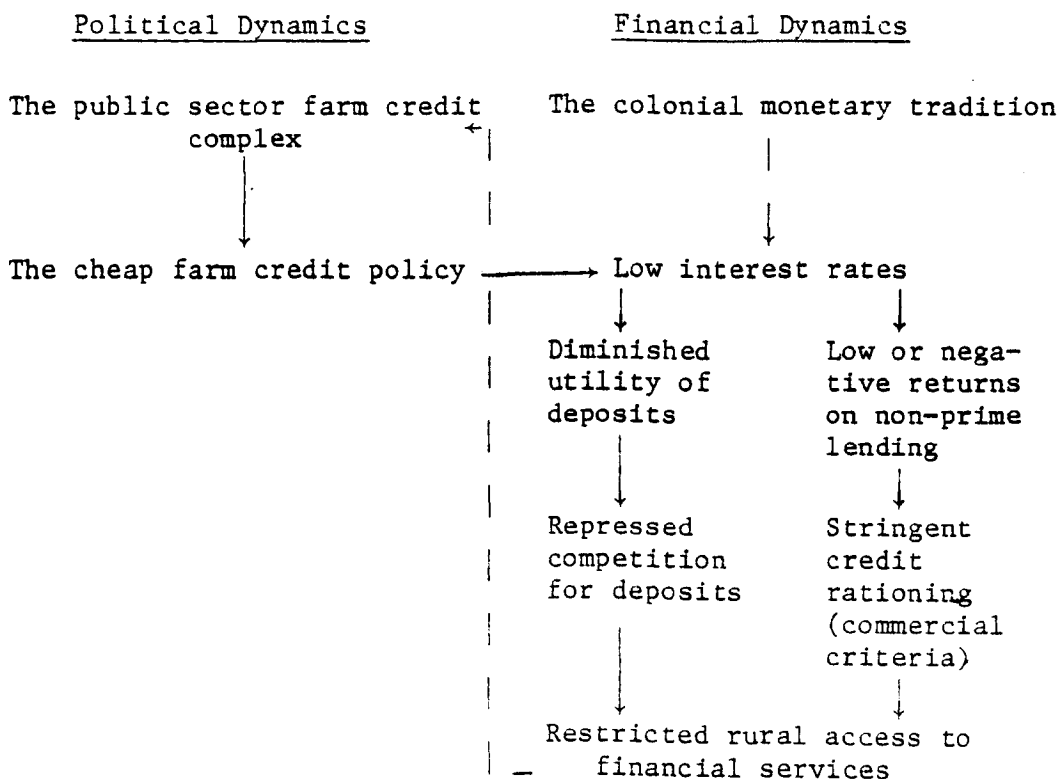
would have access to more risk-decreasing information. From the lender's viewpoint, rural loans appear to involve greater risks than those to clients in certain other sectors.

Restricted rural access to financial services in Kenya exists in spite of an impressive geographical distribution of offices of formal financial institutions: commercial bank branches in more than 100 places and Post Office Savings Bank services available at more than 150 post offices, for example. The limitations of the services provided to rural people by such intermediaries have been noted in Chapter III. Here it remains to note that the expansion of intermediaries in rural areas has been motivated largely by opportunities to employ rural funds in urban areas, in effect putting rural liquidity at the disposal of urban and public sector investors. While it is obvious that the provision of the services in question has benefitted rural areas, it may be argued that the financial technology employed has not been appropriate for penetrating rural financial markets very deeply, in that effective access remains restricted.

The schematic diagram of the farm credit market model may be extended to indicate the progression through restricted rural access to financial services, as in Figure V-b. A refinement may be added at this point by noting that restricted rural access to financial services is a fact of political interest which reinforces the public sector farm credit complex, as indicated by the broken line with an ascending portion. Without access to financial services rural people may find it difficult to save in monetary form. Their relative lack of financial assets "proves" that they are poor and may also lead observers to conclude that, since they have little savings in the form of cash, credit is obviously needed to stimulate rural development. This feedback channel adds an additional dimension to the interaction of political and financial dynamics in the model.

The development of the model through this stage confirms the hypothesis that:

Figure V-b. The Restricted Access Model



3.) *Public policy, as embodied in "low" interest rates... restricts the supply of funds available for lending to farmers.*

As non-prime customers of the formal financial sector, and more frequently as non-customers beyond the margins of direct interaction with that sector, the bulk of the farm population find their access to formal credit, i.e., the supply of credit effectively available to them, rather limited. (This hypothesis will be touched upon again as the model is developed further.) Also confirmed is the reformulation of the above hypothesis which indicates that the impact of the restricted supply of funds available bears most heavily on the small farm sector:

1.c) *Public policies relating to farm credit have worked against the interests of small farmers in the competition for scarce credit.*

The margin, in terms of effective access, is in the small farm sector, and most in this sector are beyond the margin.

### C. Policymakers' Responses to the Restricted Access of Rural People to Financial Services

The fact of restricted access reinforces the public sector farm credit complex and provides grounds for remedial intervention. Because the complex is of such a character that a cheap farm credit policy inevitably follows from it, the use of high interest rates to encourage intermediaries to operate in rural areas is dismissed at the outset in any considerations of policy. The apparently preferred policy response is to address the problem of restricted access directly. Indirect measures, operating through financial markets, which create incentives designed to secure market response in desired directions, are not trusted allies of the public sector farm credit complex. The most visible and forthright reaction of policymakers is to establish a specialised farm credit institution, which for our purposes will be referred to by the initials SFCI. In the Kenyan context, the AFC is the primary example of an SFCI, and the Cereals and Sugar Finance Corporation and Agricultural Settlement Fund are other examples.

As public sector appendages, such institutions qualify for funds on concessionary terms from a variety of non-market sources. The Treasury is one such source, and external donors are frequently willing to lend additional and sometimes massive support, as indicated by the Treasury and external dependency ratings computed earlier for major Kenyan SFCI's.<sup>1</sup> Concessionary terms imply that the farm credit institution is able, under the public sector umbrella, to raise funds at lower rates and on easier terms than would otherwise be applied to such an enterprise. It may also

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1. See pp. 280 ff.



be possible that by establishing such an institution a government may be able to attract foreign exchange, in the form of loans from external non-market sources, which would not otherwise be forthcoming. In addition to responding to the public sector farm credit complex, such institutional creation may also contribute to a country's foreign exchange reserves.

One disadvantage from the point of view of rural development to this otherwise expedient form of institutional arrangement is that SFCI's tend to operate on only one side of rural financial markets, providing credit but not deposit facilities.<sup>1</sup> The AFC follows this pattern, as does the Agricultural Settlement Fund. The C&SFC is a partial exception, in that it raises funds locally in the urban money market, but it conforms to the pattern in that its obligations have minimum denominations far above the level at which the rural economy operates on an everyday basis. One-sided intervention in rural financial markets is of course consistent with the public sector farm credit complex. Poor farmers are thought to need credit, not a place to keep their presumably scant supplies of money or the opportunity to purchase financial assets and services. In addition, the financial institutions already in place, such as commercial banks and the Post Office Savings Bank,<sup>2</sup> appear to provide such facilities, and it is not clear to policymakers that there would be any advantages in providing further services of this type at public expense. The facts of the case, as shown by the fragmented and limited nature of rural access to financial services under the existing institutional network, tend not to be seen in a very broad context. Questions as to whether rural credit and rural savings could profitably be linked through new institutional forms or through liberalisation

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1. For this reason such institutions are properly described as specialised, rather than simply as farm credit institutions.

2. Lest it be suggested that AFC and the Post Office Savings Bank complement each other by collecting small scale savings and distributing small scale farm credit within the public sector financial orbit, let it be noted that total POSB balances due depositors, urban and rural, as of 31 December 1971 amounted to Sh 118.1 million, while AFC loans outstanding to smallholders amounted to something less than Sh 19.2 million. The fact that AFC smallholder loans are largely funded by external donors has already been noted.

of the constraints on intermediaries already present in rural areas are of course more difficult to approach than the well-trodden path of establishing an SFCI.<sup>1</sup> If the question of linkages is not dealt with, however, rural credit and rural saving within the formal institutional framework tend to remain separated and fragmented.

Also, the level of administrative performance required to provide deposit facilities is more advanced than that which is in fact tolerated by the public sector in its provision of farm credit. If the records pertaining to a depositor's account are lost or shrouded in error, the repercussions may be and often are much more serious than the loss of documentation of inefficient administration of a loan account by a public sector SFCI. AFC was unable to send out billings for loans outstanding in 1971/72,<sup>2</sup> and it is unlikely that this example of inefficiency elicited even one angry letter from an irate borrower. Had a similar loss of accounting control resulted in the inability of an intermediary to honour demands for the withdrawal of funds by deposit account-holders, it is unlikely that the problem would have gone unnoticed in the Kenyan press, Parliament and in public discussion.

SFCI's tend to fragment rural financial markets, thereby diminishing the ability of these markets to allocate resources efficiently. By specialising in the provision of farm credit and by ignoring the possibilities of offering a wider range of financial services to rural people SFCI's fail to address two areas of development potential. The first is that they do not contribute to the incentives or facilities which encourage rural people to save. The access of rural people to interest-bearing financial assets is not directly enhanced by SFCI's. The physical and psychological problems encountered by rural people with

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1. External assistance is readily available from developed countries with farm credit institutions. As of 1974 AFC was using the services of expatriates provided under the foreign assistance programmes of the Netherlands, Sweden, the United Kingdom, the United States and West Germany, and could have used IDA funds to secure additional expatriate manpower had it chosen to do so.

2. World Bank, "Survey of Successful Experiences in Assisting the Smallholder Livestock Producer." Washington, DC, December 1973. p. 39n.

respect to holding liquidity in financial forms is not alleviated -- the transactions and holding costs associated with non-cash financial assets in rural areas are not diminished. Hence, financial savings tend to remain repressed.

In addition, SFCI's may help to translate the public sector farm credit complex into a popular belief among rural people that credit provides the only possible or feasible means of achieving progress, at the expense of the doctrine that self-finance and self-help among rural people as a community are effective vehicles for progress. The number of savers in the rural economy is of course greater than the number of borrowers who have access to institutional credit. Thus, one-sided intervention in rural financial markets by SFCI's limits at the outset the number of potential beneficiaries of such intervention.

One-sided intervention also limits SFCI's access to funds. It is assumed that the volume of savings which might be forthcoming from rural people is too small to be of interest, below the threshold of the financial technology of an SFCI, and in any event the public sector farm credit complex provides no basis for viewing rural people as a market for financial services and claims. Rather, they are poor people who require government intervention to stimulate their advancement. By ignoring the savings potential of rural people and their actual and potential use of financial services other than credit, SFCI's limit their own growth and development. Such institutions are in effect denied access to funds in rural financial markets. In addition they suffer from being "alien", in the sense that rural people are not really the constituency of an SFCI and may be hesitant to regard an SFCI as a rural financial institution or as something of their own. In operating terms, SFCI's are alien in the sense that they do not act as rural intermediaries, but rather as bridges between their external or central sources of funds and rural people fortunate enough to be their (generally subsidised) borrowers. SFCI's do not have access to information about rural financial flows to the extent that an intermediary

would which was active on both sides of the rural financial market. Hence, an SFCI is generally not in a position to view rural finance in a very broad or creative context.

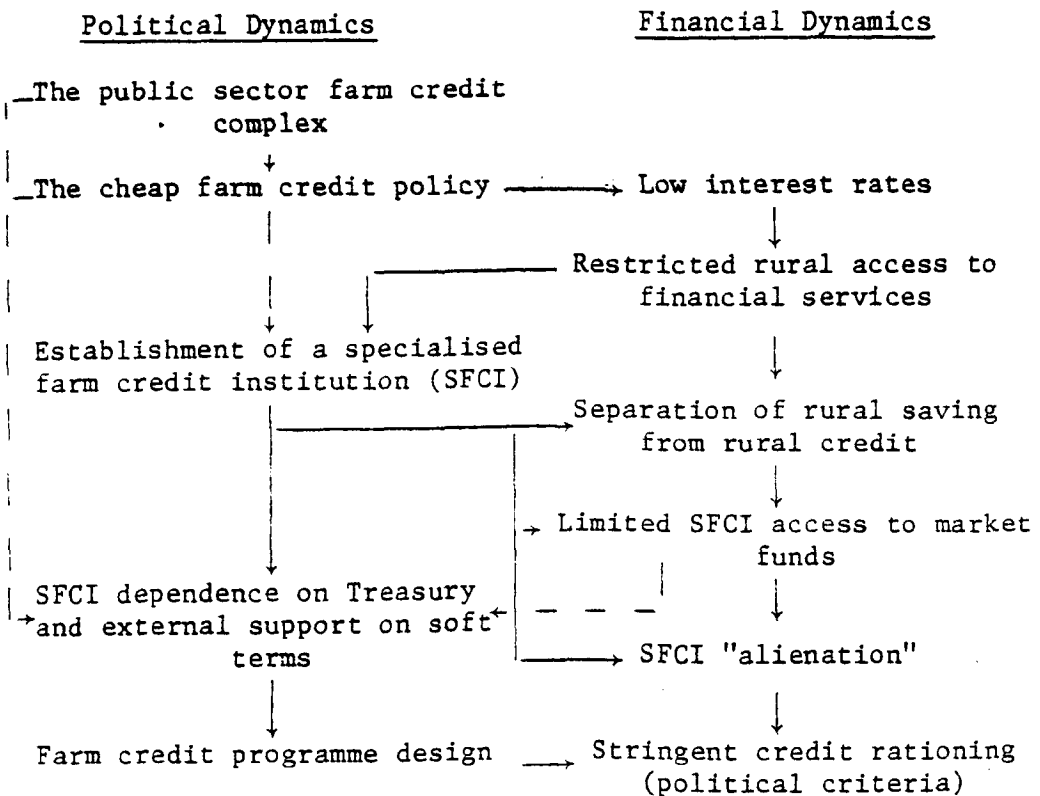
By separating rural credit from rural savings, by limiting their own access to rural financial markets and by operating as alien institutions intruding from the fat side of the dual economy, SFCI's are forced to ration credit stringently. As noted earlier, stringency as used here refers to the exercise of a higher degree of restraint than would be required under more favourable conditions. Whereas the earlier example of stringent credit rationing assumed that lenders ration stringently for commercial reasons connected with the optimisation of financial returns from intermediation, the rationing phenomenon arising at this stage in the development of the model has a more complex basis.

Stringent credit rationing by SFCI's reflects their political parentage. A government could hardly establish an SFCI without providing some capital to launch the institution. The use of Treasury loans and of external loans on softer terms than would be available locally is entirely consistent with the strategy of those establishing such an institution in the public sector. With the funds, of course, comes some sort of specification of lending programme or institutional design. Certain types of potential borrowers or investments are viewed as having higher priorities than others, which is of course a rational response to the realisation that the allocation of funds for use by an SFCI is not without bounds. The assignment of priorities of this type has its financial analogue in stringent credit rationing. Not all farmers can receive credit from an SFCI in a developing mixed economy. The mathematics of public sector budgets and population on the land ensure that SFCI loans remain a scarce development resource.

Recapitulation of this cluster of relationships may be illustrated by an extension of the schematic representation.

Certain details explored in previous sections are omitted from the figure in the interests of economy.

Figure V-c. The Stringent Credit Rationing (Political Criteria) Model



To summarise, restricted rural access to financial services implies a separation of rural saving from rural credit. Evidence is found in the fragmented coverage of rural financial markets by the institutions of the formal financial sector. Restricted rural access also provides a rationale for intervention in the form of the establishment of a specialised farm credit institution. This mode of intervention is consistent with the public sector farm credit complex (as indicated by a broken line in Figure V-c). The specialisation of such institutions does little to integrate rural savings and rural credit, and in fact contributes to market fragmentation which impedes the ability of markets to allocate

resources efficiently. Such institutions have little access to resources in rural financial markets because of the limitations imposed by their specialised operations, and in fact the designers of such institutions may assume that reliance on resources from financial markets outside public sector control is not appropriate, feasible or realistic. Treasury and external funding is preferred for reasons of policy (as indicated by a broken line in the Figure). If a specialised farm credit institution for any reason languishes or fails to make timely responses to market forces it may in fact have difficulty in obtaining funds on its own strength in local financial markets, which further strengthens the case for reliance on the Treasury and donors (as suggested by a broken line), or on central bank directive as a means of securing resources, as in the case of Kenya's Cereals and Sugar Finance Corporation in 1975. By operating on only one side of rural financial markets, specialised farm credit institutions are "alien" in the sense that they are isolated from the full flow of information in such markets. Lacking the knowledge that is available only through participation, and enjoying only limited, budgeted access to resources, the SFCI is forced to ration credit stringently. Stringent credit rationing is also inherent in farm credit programme design, which stems naturally from the major sources of funds used by SFCI's.

The development of the model through this stage supports the hypothesis that:

2.d) *Public policy orientation, as manifested by the "need creed", supports the fragmentation of financial markets.*

Specialised institutions not articulated with the rest of the financial sector are found providing a very large share of the formal sector credit used by farmers.

#### D. The Effects of Stringent Credit Rationing by SFCI's

In contrast to the political desire to provide credit to a large number of people and to the queue of applicants eager for funds on easy terms, stands the paucity of funds for lending or

the paucity of the administrative capacity to mount and control a credit programme of sufficient size and scope to constitute a meaningful response to the political considerations which were responsible for the formation of the SFCI in the first instance. The stringent credit rationing which these conditions produce takes two forms, intensive credit rationing and extensive credit rationing.

### 1. Intensive Credit Rationing

Intensive credit rationing is an example par excellence of supply leading finance. It consists of limiting severely the number of borrowers and according each borrower relatively generous access to credit. Settlement credit constitutes the primary example of intensive credit rationing in Kenya. As noted above, settlers obtained 90-100% financing under land purchase mortgages with maturities of generally 30 years and development loans of 10 years' maturity for substantial portions of the cash requirements of on-farm investment in loose assets, livestock and facilities relating to livestock enterprises.<sup>1</sup>

Intensive credit rationing can easily overwhelm the repayment capacity of the borrower, especially if repayment terms are not flexible enough to accommodate the uncertainties of agricultural production. The settlement credit example is again illustrative. Farmers were financed to undertake an innovative approach to small scale agriculture, and when the projected investments were not in fact undertaken or when the investments did not prove as fruitful as projected, because of management problems and difficulties external to individual farms, the projected free cash flow was not realised and poor repayment resulted. Credit intensively rationed can easily subject the lender to an equity risk in the borrower's farm enterprise, and it is apparent that the Agricultural Settlement Fund encountered exactly this type of risk through its use of credit to perform the function of equity capital.

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1. See pp. 197, 201 ff.

At this stage it may be useful to digress a little in order to indicate why the intensive credit rationing path may appear to be politically essential and desirable in the Kenyan context, using the Land Transfer Programme as the illustrative case.

Several of the points already included in the model came together in a manner which resulted in too much credit being given to borrowers under the Land Transfer Programme. The low interest rate policy in force throughout the course of the advance of monetisation in Kenya's economy for the last 70 years, state control of agricultural credit institutions, the dependence upon external and Treasury funds for lending to farmers and the concomitant isolation of agricultural lenders from broader financial markets has operated through the credit rationing screen to consign to credit a role properly accorded to equity or ownership capital. The high debt to equity ratio and loan default rates in the large farm sector and on settlement farms is evidence of the suspension of prudent financial practice. Many borrowers were given more credit than they have been able to handle.

Kenya's low interest rate history never made non-cash financial assets very attractive to Africans. Such assets, in themselves, have never been innovations which stimulated saving by large segments of the population. This is not to say that Africans eschew the accumulation of financial assets. Forrester's data indicate that urban households which can "afford" to save devote substantial portions of their savings to investment in financial assets and also that urban workers on very modest incomes put considerable amounts aside during the year to take back to their families in rural areas each annual holiday.<sup>1</sup> The question is rather more complex -- what influences an individual to invest rather than consume, and what influences the rate at which capital is made available to increase the productivity and remuneration of labour? Returns on non-financial assets appear to have been more attractive than those available on convenient financial assets, especially

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1. Forrester, Marion Wallace, op.cit., pp. 127-130.



in view of the traditional basic preference for land. Cheap capital from London was available for those in a position to use it on the fat side of the dual economy, and reliance on external finance for capital projects was very great.<sup>1</sup>

Various efforts to stimulate local savings were not made until the prospect and later the fact of independence resulted in a precipitous withdrawal of funds from banks. Even in that situation the effort to obtain increased access to liquidity in the hands of small savers was largely of a non-price nature.

Repressive interest rate policies did not encourage Africans to accumulate financial assets, impeding monetisation of the economy and denying them certain opportunities which might have been available had a rate more suited to local conditions been allowed to evolve in the market. The local financial structure remained shallow as a result. Had methods been developed which would have lessened the skewness of the distribution of the fruits of the development which occurred during the colonial period, and encouraged greater African participation in and access to the modern sector, it is probable that the country would have a deeper financial structure than that which exists today. In other words, the ratio of financial to non-financial assets would be higher. More citizens would have accumulated financial capital and the financial sector would directly serve more people and in a larger number of ways.

If incentives and the ability to save were not developed among Africans to a great extent during the colonial period, their access to formal credit was likewise restricted under ordinances in effect from 1903 to 1960. Although probably based on paternalistic considerations, the effect of these restrictions was to exclude many Africans from the formal credit market and thus diminish their opportunities to gain experience in the use of modern credit. In summary, the system contained elements which constrained the participation of Africans in the larger economy as savers and as borrowers.

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1. Ibid., p. 28.

Africans accumulated political power and control at a more rapid rate than they built up financial asset holdings, and when independence dawned Africans were not themselves able to finance the changes which they were able to effect through political means. Land transfer was one of the most important immediate changes which was implemented, in fact beginning two years prior to independence.

Land transfer occurred in almost all cases at prices which reflected the productivity of European farms as European enterprises. The capital intensity of these farms was equalled in few African agricultural enterprises, which was to have two effects on performance after transfer. The first was the need to provide large proportions of loans to finance the transfer, as African capital was scarce. The high debt to equity ratio which resulted meant that loan servicing requirements were large in relation to earning capacities of borrowers, with the effect that little "cushion" existed for the bad year, the replacement of livestock which succumbed to disease, the indisposition of the farmers, and all of the other uncertainties which characterise agricultural production. Misfortune or mismanagement lead quickly to loan default.

Massive reliance on credit to farmers seems to have been an inappropriate response to the requirement that the land be transferred. In view of the level and trend in land purchase prices since the bulk of the transfer of European farms was completed, it appears that the prices paid to European sellers were not inflated by any elements peculiar to the Land Transfer Programme. If the prices paid were reasonable, the high incidence of loan default on settlement schemes and the poor repayment records of many of the African-owned large farms suggests that too much debt was used to finance the transfer. Political considerations of course contribute to the repayment situation, but official studies suggest that lack of ability to repay is a major factor in the financial performance of the land transfer loan portfolio.<sup>1</sup>

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1. Republic of Kenya, Ministry of Finance and Economic Planning,

The political imperative of transfer would no doubt have overwhelmed the price system in any case, given the repressed level of capital accumulated by Africans at the time of independence. However, the political problems created by poor loan repayment, evidently within the ability of the Government to tolerate but outside the Government's ability to alleviate, might have been avoided if the role of credit had not been confused with the role of equity capital. The solutions which will eventually have to be found, such as debt cancellation, inflation of agricultural prices relative to farm operating costs, or conversion of settlers' interest to leasehold tenure, will have as their basis the equation of settlers' obligations with their ability to meet these obligations. In the large farm sector it may be possible in some cases to achieve this equation by replacing present management with skilled management capable of increasing the cash flow of ailing debtor enterprises.

The prevalence of intensive credit rationing as suggested by the overwhelming importance, in shilling terms, of credit to settlers and to large scale agriculture, is an interesting contrast with an important implication of the public sector farm credit complex. That implication is that credit should be widely distributed -- what other justification is there for invoking the poor farmer argument in a country in which 80% of the population are poor farmers? However, credit does not go to poor farmers, but rather to special groups of farmers, some of whom may be poor. Settlement credit, for example, has benefitted 35,000 farmers directly, most of whom probably fit the poor farmer image. What of the remaining one million? A handful has received loans from AFC, and a few are resident on deeply indebted large farms owned by groups of Africans.

The only conclusion which can be drawn from the present distribution of agricultural credit loan portfolios is that small

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(continued) Central Bureau of Statistics, An Economic Appraisal of the Settlement Schemes, 1964/65 - 1967/68; An Economic Survey of African Owned Large Farms in Trans Nzoia, 1967/68 - 1970/71. Farm Economic Survey Report No. 28. Nairobi, 1972.

scale agriculture, especially those small scale farmers without off-farm employment or similar links with the larger economy, does not have effective access to a very important share of the resources of public sector farm credit institutions. Yet, according to the public sector farm credit complex, such institutions are established as vehicles of intervention to ensure a wide distribution of benefits.

It is tempting to speculate that the confusion of the roles of debt and equity inherent in intensive credit rationing may be at the root of the poor farmer image or at least one of its major reinforcements. Large debt servicing requirements in proportion to income may indeed impoverish the debtor, and the poor repayment records may mistakenly be interpreted as evidence of absolute poverty rather than as evidence of relatively high ratios of debt to equity which overload borrowers' capacities to repay. The overburdening appears most marked in the large scale sector and in the settlement schemes. It may be argued that the settlement schemes are a special case, given their once-and-for-all use of debt on special terms which would not be replicated in programmes designed to reach a larger portion of the farm population. However, large farms constitute an on-going situation in view of their commercial nature and the probability that they will change hands from time to time. The inability of a significant portion of large farm borrowers to repay their loans on schedule may be mistakenly interpreted as evidence that interest rates are too high or that returns in agriculture are too low, rather than as evidence that debt capacity is easily overestimated and overwhelmed. Erroneous conclusions based on the experience of these large farms may be generalised to the entire agriculture sector, penalising the small farmers who do not use formal sector credit, who are denied access to credit by the policies ostensibly designed to assist them, and who comprise the bulk of the rural population.

While the Land Transfer Programme accounts for the largest elements of farm credit in Kenya, AFC's small scale lending also appears to be essentially intensive. Little conclusive data is

available to support this observation. However, the willingness of AFC to provide credit to the extent of 80% of the market price of an in-calf heifer and related equipment for dairying suggests that intensive rationing may be in effect, but the figure by itself means little unless some indication of free cash flow is available for the projection of debt capacity. Some support for the contention that loans advanced under the IDA and KFW schemes follow the intensive credit rationing pattern is provided by the writer's field studies in Murang'a, where only two of the 13 sample borrowers appeared to be generating sufficient gross cash surplus from loan supported dairy enterprises in 1972, a normal year, to meet loan servicing obligations.<sup>1</sup> In certain of the cases in which surpluses were insufficient it could be argued that the loans were justified in view of the conservation of cash resulting from producing milk on the farm rather than purchasing it for home consumption, in effect providing cheaper milk on certain farms which may have had an overall gross cash surplus sufficient to meet debt servicing obligations. This type of lending of course raises other questions about rates of return available in agriculture which are beyond the scope of this paper.

Further evidence to support the assertion that credit is rationed intensively is found in the level of collection performance achieved, although the extent to which the failure to achieve a commercially viable portfolio reflects AFC's administrative shortcomings rather than low returns to farmers cannot be specified precisely on the basis of present data.

## 2. Extensive Credit Rationing

Extensive credit rationing consists of limiting severely the amount of credit each borrower receives while attempting to provide access to credit to a rather broad segment of potential borrowers. Extensive credit rationing is frequently manifested by credit limits specified in terms of a certain quantity of money per acre or hectare of land devoted to a particular enter-

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1. Credit Use and Development. pp. 83 ff.

prise. The most obvious example of extensive credit rationing among major schemes in Kenya is the GMR. GMR limits per acre are specified for various inputs and operations in hybrid maize and wheat production. As might be expected, these limits sum to something less than half of the cash costs of production of these crops on mechanised large scale farms, as noted previously.<sup>1</sup> The shortfall and its magnitude are the usual result of the extensive approach. From the point of view of debt capacity it could hardly be said that large scale growers of hybrid maize and wheat in Kenya have no more than a 50% chance of recovering their costs of production through the sale of their produce or that lenders' risks relating to large scale production of these crops could not be contained well within this limit, but yet the amount of credit available has been of an order amounting to roughly 50% of the cash costs of production in many years between the mid-1960's and mid-1970's.

### 3. Poor Loan Discipline

Under conditions of stringent credit rationing, the probability is enhanced that schemes will be mounted which are close to the opposite extremes of intensive and extensive credit rationing, rather than falling near a financially optimum midpoint determined by considerations of debt capacity in a situation of less stringent rationing. Relative to their debt capacities, borrowers will get too little or too much debt.

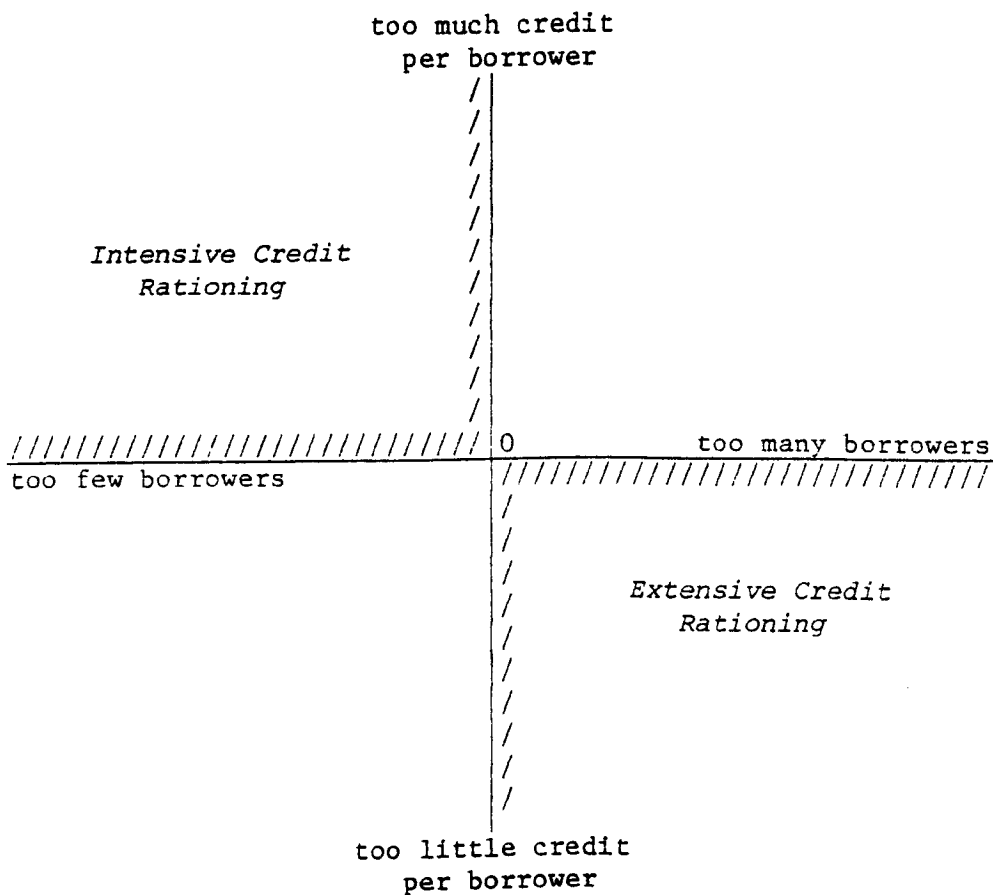
The credit rationing dilemma under conditions of stringency may be shown graphically, as in Figure V-d. The quantity of borrowers is shown on the horizontal axis and the amount of credit issued to individual borrowers, relative to their debt capacities, is shown on the vertical axis. The figure portrays a short run situation in which the stock of funds available for lending is fixed and assumes that the exposition is limited to one lender or credit scheme. The intersection of the horizontal and vertical axes at point 0 represents the optimum number of borrowers and the amount of credit issued, relative to the debt capacity of

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1. See p. 194.

Figure V-d. Credit Rationing and Borrower Debt Capacity  
under Assumptions of a Fixed Stock of  
Funds for Lending

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each borrower. At point 0 the financial optimum is achieved, in terms of this static example, and each borrower under the particular credit scheme portrayed has access to an amount of credit optimally suited to his debt capacity.

The use of this form of presentation raises questions which are not relevant to the context of this study, but which should be briefly explored to show the utility of this type of graph. One question concerns the labelling of the horizontal axis, and it should be noted that this dimension could also be used to show the number of hectares or of crop enterprises benefitting from credit. Another question concerns the two remaining quadrants in the graph:  $-,+$  and  $+,-$ . Too much credit for too many borrowers is inconsistent with the assumption of a limited supply of credit in the short run, given the usual SFCI context. However, this situation may well apply to private rural credit when viewed from a rural development perspective, as found in societies where rural indebtedness is considered a social problem. Too much credit for too many borrowers suggests perpetual rural indebtedness. Too little credit for too few borrowers, viewed from a financial perspective, suggests opportunities for increasing intermediation. Relaxing the short term assumption of the presentation, financial development occurs through activities which shift point 0 so that the actual situation falls within the  $-,-$  quadrant, providing intermediaries with opportunities to increase the number of those having access to credit and increase the amount of credit to which each borrower has access, within the limits of an expanding debt capacity. Within the context of the model presented here, however, too little credit to too few borrowers is inconsistent with the political dynamics of the types of intervention in farm credit markets which are the primary concern of this study.

To return to the development of the model, the farm credit programme designer or lender tends to depart from the financial optimum under conditions of stringent credit rationing. The political milieu of SFCI's provides an impetus for such a departure. If the limited funds available are for political reasons or for reasons of agricultural policy or development



strategy, to be issued to a small number of high priority borrowers, the departure from the optimum is in the direction of intensive rationing. Too few borrowers, relative to the financial optimum, tend to be given relatively too much credit. Debt is used to perform the functions of equity, and inability to repay as scheduled, i.e., delinquency, is the result. Because the issue of relatively large amounts of credit is within some type of framework, provided by the loan scheme or programme, there is a very real possibility that investment priorities as seen by the programme designer and loan officers may not accord with those of the borrower. The economic implications of this disagreement include the possibility of departure from an economically optimum allocation of resources as well as the possibility of divergence between private and social optima. In the event of a difference of views between borrower and lender regarding credit use priorities, the possibility of loan diversion is increased. Borrowers use their funds for purposes other than those for which the loan was issued. (With respect to AFC loans to small farms studied by the writer in Murang'a, something over 10% of the total amount of the loans issued to sample farmers appeared to have been diverted by borrowers.<sup>1</sup>)

If credit scheme design is not selective in the sense of identifying a group of prospective borrowers who are to be accorded a high priority in credit rationing, the basis for rationing may be generalised to include as many borrowers as possible, which is consistent with the political dynamics of the public sector farm credit complex. The resulting loans, extensively rationed, tend to be too small relative to the financial optimum. Farmers may find the loans too small to be worth applying to agricultural production or too small to be taken seriously in terms of a means of improving husbandry, in which case loan diversion is rampant. Farmers who do apply the loans to agricultural production may find the funds insufficient to meet the financial requirements of improved techniques, and hence improved technology may be adopted not at all or only on an incomplete scale. "Economies" of this nature are reflected in

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1. Credit Use and Development. p. 69.

repressed levels of output on borrowers' farms, and yields may be such that the free cash flow necessary to meet loan repayment obligations is not realised. In this situation, inability to repay on schedule also occurs.

Extensive credit rationing may also increase the possibilities of improprieties by borrowers in their efforts to obtain more funds. With respect to Kenya's GMR scheme, for example, relatively large numbers of borrowers were alleged to have planted fewer acres than those for which credit was provided, while others resorted to subterfuges such as using different names each year so that defaults in repayment from past years would not result in their being barred from further access to GMR funds.

The difficulties which result from stringent credit rationing which is either too intensive or too extensive may be categorised under the general heading of poor loan discipline. Loan delinquency and loan diversion are evidence of poor loan discipline, as are improprieties committed by borrowers in attempts to improve their access to stringently rationed funds by deceiving the rationing authorities.

#### 4. Recapitulation of Stringent Credit Rationing by Political Criteria

Stringent credit rationing by SFCI's involves the application of political criteria, inter alia, to financial decision making. While it may be argued that political criteria effect a broad range of decision making in developing economies, the use of this perspective on the activities of SFCI's is warranted in view of the political basis of their establishment. At best they are contrived as devices to implement a broad range of development strategies, at worst they are a device for the dispensation of political favours. Hence, credit rationing at this stage of the development of the model is defined as being according to political criteria, as opposed to the commercial criteria applied by the financial sector as a whole which resulted in restricted rural access to financial services.<sup>1</sup>

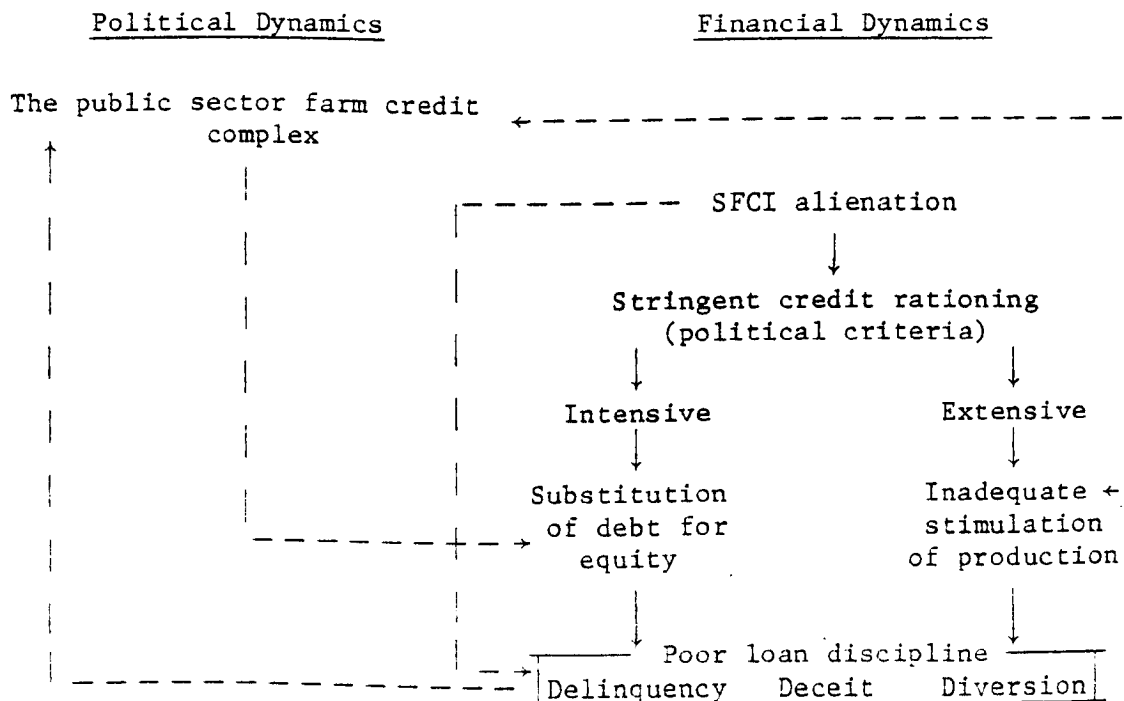
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1. See pp. 343 ff.

Stringent credit rationing according to political criteria tends to be reflected in intensive and extensive issue of credit, departing from the financially optimal distribution. Intensive credit rationing tends to attempt to use debt as a substitute for equity, which is rationalised on policy grounds by the public sector farm credit complex. SFCI credit intensively rationed is seen as an entrepreneurial element in rural development. The substitution of debt for equity is reflected in poor loan repayment performance and to some extent in borrowers' use of their access to windfall amounts of credit to purchase things of importance to their own life styles rather than following strictly the priorities envisaged by credit scheme designers. Poor repayment performance of course reinforces the public sector farm credit complex: not only are farmers poor, but they are too poor to repay their debts.

Extensive credit rationing diminishes the production impact of credit and hence presumably its economic return by according borrowers amounts which are insufficient to meet the investment programmes envisaged. Faced with inadequate access and perhaps perceiving higher returns or lower risks attached to alternative uses of resources, borrowers may use the funds for other purposes altogether, concluding that half a loaf is no better than none as far as indivisibilities and production linkages between, say, early ploughing, selected seeds, fertilisers in prescribed proportions, etc., are concerned. Other borrowers may use extensively rationed credit for production purposes with respect to the specified enterprise but suffer low returns as a result of indivisibilities and production process linkages beyond their willingness to invest, e.g., using HYV seeds but not applying fertiliser. In either instance credit extensively rationed stimulates borrowers' agricultural production less effectively than credit distributed at the financial optimum. Poor repayment performance is one result, as are activities aimed at "beating" the rationing system and securing greater access to credit through deceit. As the rationing system is basically alien to the rural economy,

Figure V-e. The Poor Loan Discipline Model



being designed and manipulated from the fat side of the dual economy, attempts at deception from the lean side are hardly surprising, especially if loan administration is lax. The results of deception -- hostility, suspicion, tougher regulation, greater supervision -- increase the costs of rural development administration and divert borrowers' and lenders' energies. Certain of these unfortunate aspects of extensive credit rationing may also be cited by adherents of the public sector farm credit complex in support of their belief and policies: more credit is obviously needed to stimulate agricultural production, while poor repayment performance again shows that farmers are poor. Delinquency, deceit and diversion of loans are aspects of poor loan discipline, which has its own consequences as outlined in the following section of this paper.

Stringent credit rationing according to political criteria by

SFCI's reflects the peculiar nature of their access to resources in segmented financial markets. The development of the model to this stage, as shown in Figure V-e, permits a full statement of the hypothesis that<sup>1</sup>

3.) *Public policy, as embodied in "low" interest rates and the resulting impediments to financial market integration, restricts the supply of funds available for lending to farmers.*

In addition, evidence suggests that

4.a) *The restricted supply of private domestic resources for agricultural lending reinforces the requirement that lenders ration credit,*

and that

4.b) *Farm credit in Kenya is rationed according to commercial and political criteria.*

The conditions of stringency overwhelm any effect current or historic interest rates may have on credit distribution, although it would not be surprising if negative real rates encourage the popular thirst for access to farm credit. Thus,

4.e) *The interest rate plays virtually no role in allocating farm credit among borrowers or loan applicants.*

However, the alternatives by which credit may be stringently rationed do have an impact on the quality of farm credit portfolios, and available data supports the contention that

5.a) *The nature of public sector involvement in the farm credit market in Kenya is conducive to poor repayment performance.*

The hypothesis that

5.f) *Poor payers include practically all borrowers who obtained funds under politically based credit rationing criteria*

may overstate the case. However, it has been shown that virtually all settlement farmers are in default, and that political criteria influence the design and operation of this scheme more than any of the others. It has also been shown that credit schemes based largely on commercial criteria, such as those of commercial banks, KTDA, the Pyrethrum Marketing Board and CPCS, are among the strongest in terms of repayment performance. These comparisons support the spirit of the hypothesis, in that repayment performance appears to vary inversely with the extent to which political criteria are involved in the design and administration of rural credit schemes.

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1. See p. 345 for a partial statement of this hypothesis.

Repayment performance is a casualty of the inability of the public sector farm credit complex to embrace debt capacity as a basis for credit allocation. The distortions in borrower performance which result suggest that in social terms the efficacy and economic efficiency of credit as a tool in rural development intervention is open to question, however politically expedient the public sector's approach to credit provision may appear:

*2.c) The concept of credit need diverges sufficiently from the financial concept of debt capacity that it results in a financially unsound and economically questionable use of credit in an attempt to stimulate rural development.*

The concern for credit need embodied in the public sector farm credit complex implies that a rigorous justification for the use of credit in rural development strategy is not required. It implies that the tools of economics, which are not oriented directly to the evaluation of needs, are not essential in specifying whether credit offers an efficient means of realising rural development goals. In addition, the need creed suggests that criteria for making funds available, such as social return, equity or opportunity cost, need not be specified or precisely considered. The need creed does not provide a tool for determining how much credit should be made available for alternative on-farm investments or farm types, or to any particular farm. Belief in the need creed is a convenient substitute for analytical approaches to such questions.

*4.c) Credit rationing by the public sector is not based on careful considerations of optimal resource use.*

Concern for optimality raises the question whether certain aspects of farm credit policy may be not only inefficient but also harmful in an absolute sense. Restating the concern of several of the foregoing hypotheses, but in a somewhat broader context:

*1.a) Public policy designed ostensibly to stimulate rural development through the provision of credit to farmers on "reasonable" terms has in fact led to distortions in credit allocation by the formal sector which are dysfunctional to rural development.*

One major aspect of distortion of credit allocation from the point of view of broadly based rural development is the difficulty

that bona fide small farmers who devote full time to their land have in securing access to formal sector credit. In this respect public sector agricultural lenders other than the ASF added relatively little, between 1960 and 1975, to the accomplishments of private financial institutions rationing credit primarily on a commercial basis. These observations support the hypothesis that

4.d) *Farm credit rationing works to the disadvantage of the small scale farm sector in the competition for loans.*

Disadvantage is used here in the sense that the small scale sector does not have the combined political and economic importance which enables the large scale sector to obtain easy access to farm credit, nor does it have the political priority attached to settlement credit allocation. Other dysfunctional elements of public policy include the effect of discouraging mainstream financial institutions from penetrating rural financial markets more thoroughly and the difficulties imposed upon the healthy growth of SFCI's by the milieu in which they are conceived and operate, to which the discussion now turns.

#### E. Consequences of Poor Loan Discipline

Poor loan discipline is a factor of political interest. If an SFCI pursues collections vigorously it may encounter political opposition. Settlement credit in Kenya is a case in point. It would be impossible politically (and also unwarranted for moral and practical reasons since the planners have largely themselves to blame for putting a significant portion of settlers in a financially impossible situation) to evict all defaulters from their plots. However, it may be argued that some of the massive delinquency on repayment obligations by settlers could be cleared up without creating hardship because a significant portion of the defaulters are people

not wholly dependent upon their plots for their livelihoods. These same people, however, presumably tend to be more articulate politically than those settlers without outside resources and incomes, and hence movement against them in the form of a more vigorous collection policy is not undertaken.

Poor loan collection performance is of course the other side of the coin of poor loan discipline. Poor collection performance deprives an SFCI of funds for relending, reinforcing the need to ration credit stringently and to rely on the Treasury and external sources of funds for new lending. However, heavy dependence upon such sources of funds may also limit an SFCI's capacity for self-reform. Repayments from borrowers are not vital to new lending, as the Treasury and external donors fill this function. The expansion of SFCI programmes and the grace periods commonly allowed on the repayment of many SFCI obligations to the Treasury may delay the impact of the reality of a low quality portfolio. Not having to worry about raising funds locally, the SFCI need not be concerned about its reputation in the money market and is shielded from market pressure to improve. External donors may express dismay in diplomatic terms, but as the potential for smallholder development in many developing countries is considered substantial, and as product differentiating SFCI's often enjoy something of a monopoly position in their market segments, more funds are always forthcoming. Attempts at self-reform might encounter political opposition if there are widespread arrears on SFCI loans to farmers.

An infrequently mentioned consequence of poor collection performance is its shattering effect on the morale of the staff of a credit institution. Low rates of recovery communicate to accountants and financial types that the situation is out of control. Perennial massive default problems sap the will to succeed. Pessimism prevails. Fraud occurs more often. Management is preoccupied with day to day problems, leaving little energy for creative approaches to the future. If an SFCI is not staffed



by accountants and financial types, but with persons of other professions whose tolerance of ambiguity is much wider than those associated with the market-dependent financial sector, it is doubtful that the unconcern which results will provide the atmosphere conducive to good financial performance.

Borrowers know that SFCI's are government organisations. (Several AFC clients interviewed by the writer simply referred to the source of their loans as "Agriculture," referring to the Ministry.) A government that supports a low interest rate policy to benefit poor farmers can hardly be expected vigorously to follow a stern collection and foreclosure policy when borrowers, believed to be poor, default. The role of civil servants and parliamentarians (or colonels, depending on the regime) on the SFCI's board of directors ensures that the government's point of view is communicated to management.

If the loan discipline required by public sector lenders is weak, it is unlikely that private sector lenders will be willing to risk vigorous enforcement measures in market segments in which public sector lenders are also present. Private sector lenders such as commercial banks which find themselves in this position will be especially cautious when they are relatively large and few, visible and foreign. The risk of lending is increased when security cannot easily be realised or prosecution of defaulters is costly and difficult. The increased risk cannot be offset by increases in lending rates, and the rational lender simply shuns some of the more challenging opportunities. The size and number of loans granted by private sector lenders are constricted.

Poor collection records over the long term also indicate that a lender is out of touch with his constituency. Centralised financial institutions operating in the modern economy may certainly be out of touch with the rural economy of small farms and related activities. Financial intermediaries with a stake in the smallholder sector and with a long run approach to their functions would be unwilling to conduct business on a break-even

or loss basis, except of course in periods of temporary agricultural adversity or on pilot schemes, or if losses could be offset through cross-subsidisation. Poor collection performance is also consistent with the alien nature of SFCI's established for the reasons outlined above, for such institutions lack the knowledge of their borrowers required to obtain high rates of loan recovery within their borrowers' abilities to pay. Poor collection performance impairs SFCI development by sapping the financial vitality of the institution. This condition brings the argument full circle. A languishing SFCI demonstrates that farmers are indeed poor, refuelling the public sector farm credit complex. Such performance also perpetuates restricted rural access to financial services, does not help to integrate the institutional arrangements related to rural savings and to rural credit, and makes SFCI's unattractive competitors on their own strength for funds in the market.

Little further detail is required to support the hypothesis that

*5.b) Poor repayment performance hinders the development of agricultural credit institutions in Kenya.*

An additional hypothesis, which could have been inserted in the development of the model at numerous points, but which is especially appropriate at this point, where public sector initiative is seen in yet a final unfortunate light, is that

*1.b) Public policy has contributed to imperfections and deficiencies in the organisation of formal financial markets.*

Lack of institutional viability and severely constrained opportunities for generating growth internally certainly manifest flaws in market organisation viewed from the standpoint of the requirements for workable competition in sectors which are of great importance to the growth of the national economy.

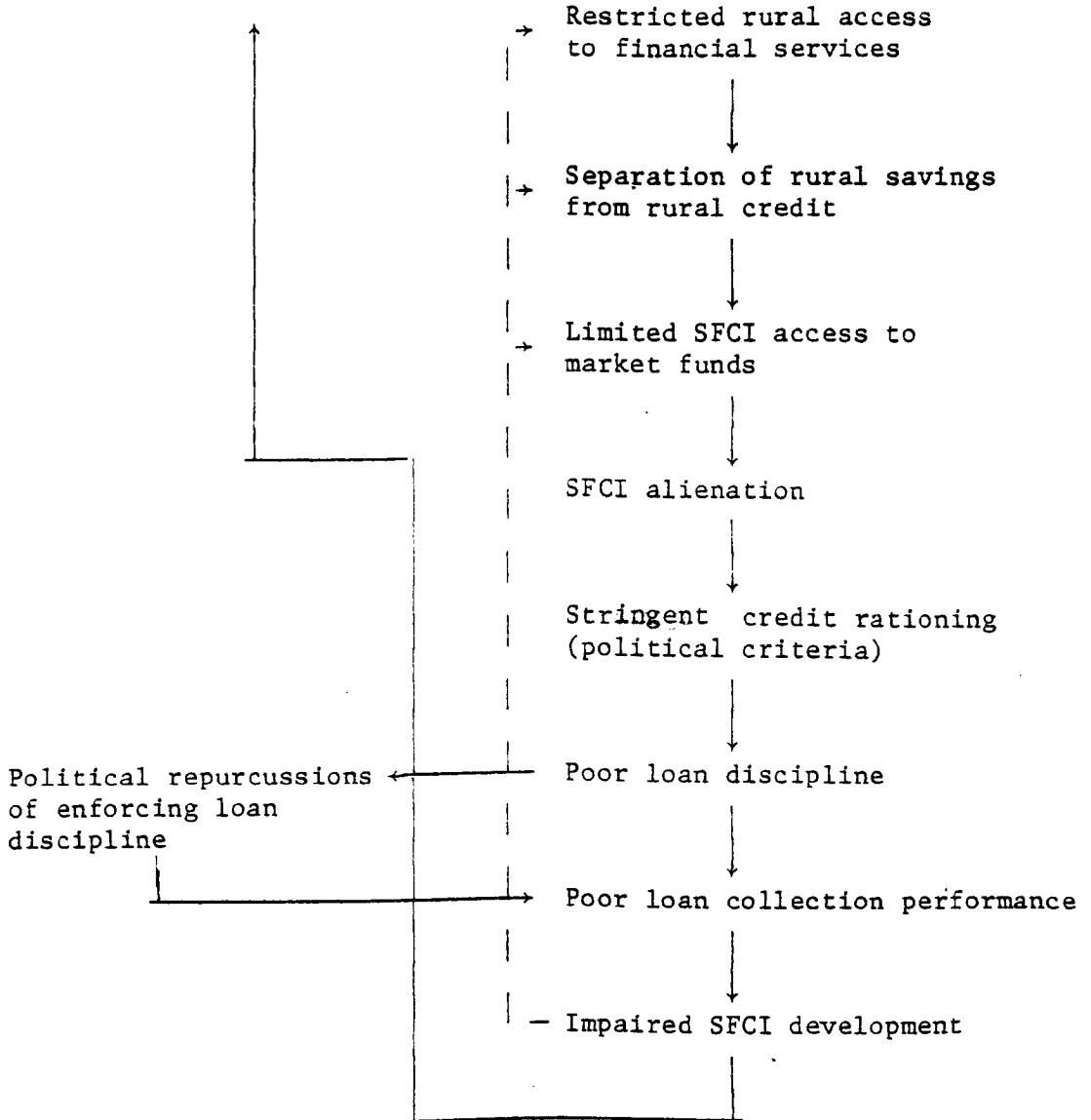
These aspects are summarised in the final addition to the schematic diagram in Figure V-f.

But, does loan recovery really matter? Surely the money lost by lenders helps farmers in any case? Surely the record can be justified in terms of social considerations, as the lenders have massive resources and the farmers who default are very poor?

Figure V-f. The Impaired SFCI Model

Political DynamicsFinancial Dynamics

The public sector farm credit  
complex



Surely the loans which are not recovered may be treated as an investment in the future of the nation's agriculture?

There is little doubt that the poor collection performance of some of the major lenders permits borrowers to increase their rates of return. If a borrower pays only Sh 700 on a loan of Sh 900 for the purchase of a cow, the basic investment from his pocket is smaller by Sh 200, and the yield on the investment is correspondingly increased. Delinquency in repayment also has the same effect, given the time value of money, especially in low interest rate regimes. Defaulting may even assist borrowers to increase the productivity of their farms if the money which should have been returned to the lender is used instead for on-farm investment which has a higher yield than the interest which accumulates on the arrears in their accounts, assuming that the day of reckoning cannot be postponed indefinitely. Delinquent amounts which are never recovered constitute a gift given by the lender to the borrower.

At times it may even be in the lender's best interest to lose money. Experimental credit schemes designed to test new markets or new concepts which fail to achieve viability may be entirely justified by their demonstration that apparently promising or attractive concepts are in fact not realistic or viable. Small amounts lost on a pilot scheme give the lender information and experience which he could not otherwise obtain and which should contribute to the design of alternative programmes which can be operated successfully.

The lender is not the only one who suffers when his portfolio contains loans in arrears. The borrower in arrears may be forced to sell some of his assets to meet his obligations, but the sale may impair his ability to operate at a profit, especially if the sale is not selective. Losses may force the borrower to sell more assets, and eventually the borrower may be forced to sell his farm. Alternatively, if the borrower does not take the initiative the lender may seize the farm and auction it in order to liquidate the bad debt on his books. As suggested earlier, indiscriminate credit policies benefit neither borrower nor lender.

A lender's bad debt losses also work to the disadvantage of parties other than the lender and the defaulting borrowers. Delinquencies diminish the amount of funds the lender has at his disposal for making new loans, for example, with the result that some creditworthy applicants may not be served at all while others may be subjected to delays in obtaining loans. Denial of credit for the unserved legions is especially apparent when major segments of a nation's agricultural credit schemes are in financial difficulty. Lenders and prospective lenders are kept out of the market for new loans because of the likelihood of losing money.

If farm credit programmes are closely identified with government, it may be argued that poor collection performance undermines the power of government in rural areas and diminishes the effectiveness of the government as rural developer by demonstrating that government is unwilling or unable to enforce contracts and laws. The situation is grave when most defaulters are able but unwilling to repay. In the opposite case, where defaulters are unable to pay (over the long run -- not due to poor weather or other temporary factors) the blame must lie on the lender and programme designer, who have obviously made poor decisions.

Government credibility is jeopardised by rural credit schemes which involve widespread default or which involve the accumulation of large arrears by certain sections of the community. Government credibility is at stake to the extent that rural people are able to judge and respond to the quality of development administration. Good administration increases the area of consensus and builds confidence and cooperation. Poor administration leads to division, a lack of confidence and little incentive to cooperate, making it difficult to reach target groups. Poor administration also imposes a cost on the rural community in terms of the inflexibility of administrative responses and in terms of barriers to access to public services constructed by enterprising individuals within the public service who resort to corruption, a tax on the community, to increase their own incomes.

Low collection rates in public sector credit schemes are one means of demonstrating administrative incompetence to rural people, who carefully note the results: avoidance of repayment involves little cost and little risk to the defaulter. Accumulated defaults simply invite more defaults,<sup>1</sup> raising once again the costs to the community. Other government initiatives in rural development may be dulled if rural people discover that the government does not have the administrative means or will to play its part effectively in the process, or that the government may not be able to ensure that the fruits of its intervention are not captured by groups other than those which intervention was supposed primarily to benefit.

Loan default also increases the cost of credit. This cost is generally reflected in constraints on the expansion of the rural community's access to credit from the source which is incurring default. Assuming that lenders make an attempt to recover arrears -- and this assumption is justified by the fact that credit, not grants, is the focus of this discussion -- such attempts obviously add to the lender's administrative costs. These costs include staff time, transport for visits to defaulters' farms or places of business, the hiring of collection agents, correspondence, legal expenses, etc. It is frequently impossible under the usual type of loan contract and normal legal custom to pass along to the defaulter all the lender's costs of collection of arrears, which makes it difficult to control collection costs efficiently. The lender can only very imperfectly specify at what point the costs of recovery exceed the benefits of recovery.

In addition to out of pocket costs of collection of arrears, there is a social cost of arrears collection which consists of the tendency for collection activities to occupy the lender's staff and clog his decision making machinery. A portfolio in arrears can easily absorb management time, diminishing the effort available to devote to long range planning, the design of more

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1. Rice, E.B., "Summary of the Spring Review of Small Farmer Credit," Small Farmer Credit Summary Papers. XX. AID Spring Review of Small Farmer Credit. Washington, DC, Agency for International Development, June 1973. p. 22.

efficient accounting and information channels, and contemplation of or experimentation with other activities aimed at tapping the rural market for financial services. Thus, the cost imposed on the lender by defaulters is ultimately borne by all others using the lender's services, or by taxpayers or consumers of the products of nationalised industries, etc., if losses are financed by public funds, and also by those who might otherwise have gained access to credit, at least to the extent the costs of default retard the development of the lender's ability to serve a wider segment of the rural community.

Collection of loan arrears often creates ill-will between debtor and creditor, and public sympathy often favours the debtor. At least two countries -- Ghana and the Philippines -- have used their armies as collection agents. The lender's public standing may suffer if he gains the reputation of being "hard" on poor farmers. Public sector lenders, even if autonomous authorities, are not beyond criticism in parliament in countries having that institution and may be subjected to other pressures through the public service appointments structure, public sector planning and budgeting procedures, and similar rationing mechanisms. Lenders may feel compelled to devote considerable resources to maintaining a favourable image and counteracting any unpopularity caused by their efforts to meet standards of financial performance. To the extent such efforts are educational and succeed in promoting financial discipline they may constitute a socially beneficial activity. However, these resources are a scarce rural development input. Absorbing them in bureaucratic in-fighting may make them even scarcer from the point of view of rural development.

It seems reasonable to assume that the existence of ill-will between rural people and central government complicates rural development administration. Government agencies and officials engaging in collection of arrears may be viewed with considerable scepticism by the public. Agencies associated with farm credit institutions, such as ministries of agriculture and rural development authorities, may have to absorb some of the animosity and

suspicion generated by a credit institution's collection activities. These types of problems increase the costs of rural development administration. Of all public sector resources devoted to rural development, it may be argued that administration is among the scarcest. The effectiveness of this very scarce input may be vulnerable to the collection problems of public sector lenders, at a great cost to rural society in terms of development opportunities foregone.

The ultimate sanction of secured lenders is the realisation of their security. In the Kenyan context, land is a major form of security taken by SFCI's. Lenders in the public sector often have the power to realise security by administrative, as opposed to legal, recourse. In other words, major lenders may realise security without reference to the courts in circumstances in which private lenders and commercial banks would have to refer to the courts. This shortcut saves time and money from the point of view of the privileged lender and of government administration, but it may also involve disadvantages. The most obvious concerns the borrower's right of appeal, which often is more difficult to exercise than the right of appeal within the legal system. As no institution is perfect, SFCI's will occasionally abuse their administrative power, in which case the civil rights of borrowers are compromised. Specifically, the right to a fair hearing and the right to receive justice in due course and without undue expense may be jeopardised.

Where lender's recourse is limited to legal means, lenders' demands upon courts for the collection of debts can have widespread repercussions. At the least they require court time. Legal actions initiated by lenders swell the queue of litigants, causing others to wait longer to obtain effective access to the legal machinery. In the context of rural development, lenders' actions may cause delays in the application of the law to routine claims such as cattle theft, boundary disputes and the division of inheritance. Another cost to society is illustrated by Lele's accounts of how SFCI's in Ethiopia and Malawi which pressed their



claims against large numbers of rural people compromised the capacity of the courts to dispense justice and to be seen as dispensing justice, thereby diminishing the credibility and effectiveness of the legal system in rural areas.<sup>1</sup> Can court actions effectively be taken against a large portion of the community without weakening the role of the courts? To the extent the legal mechanism is unable to uphold loan contracts because of social considerations the basis of finance is weakened.<sup>2</sup> To the extent the legal mechanism upholds loan contracts in the face of great social opposition it may weaken its own status and that of the state as lawgiver. If the central government is also the lender, and hence the plaintiff, rulings in its favour may tend to alienate various groups of rural people. On the other hand, rulings against the state as lender may diminish the authority of the state's rural development arm and the ability of the authorities to administer rural development effectively.

Deterioration of the legal system and its capacity to enforce contracts also entails social costs, in terms of development foregone, by raising the costs and hence retarding the growth of commerce. Commerce contributes to rural development by facilitating the flow of inputs to agriculture, the flow of produce from rural areas to urban and export markets, and the volume of transactions within the rural economy itself.

These unfortunate aspects of farm credit schemes and institutions which do not perform very well financially have implications which are intangible and within the general realm of social costs. These desultory secondary effects reinforce two of the hypotheses which were generally supported at previous points in the development of the model:<sup>3</sup>

*1.a) Public policy designed ostensibly to stimulate rural development through the provision of credit on "reasonable" terms has in fact led to distortions in credit allocation by the formal sector which are dysfunctional to rural development*

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1. Lele, Uma, The Design of Rural Development. pp. 93-95.

2. Assuming finance is not based on unconscionable bargains.

3. See pp. 345, 367, 369.

in the sense that they increase the costs of rural development administration, possibly affect the ability of the legal system to dispense justice and to be seen as dispensing justice (to the extent legal recourse is involved in the recovery of arrears), and also, through financially unsound rationing procedures, put some farmers too deeply in debt while giving others too little and keeping most waiting in the queue of potential applicants. Again,

*1.c) Public policies relating to farm credit have worked against the interest of small farmers in the competition for loans*

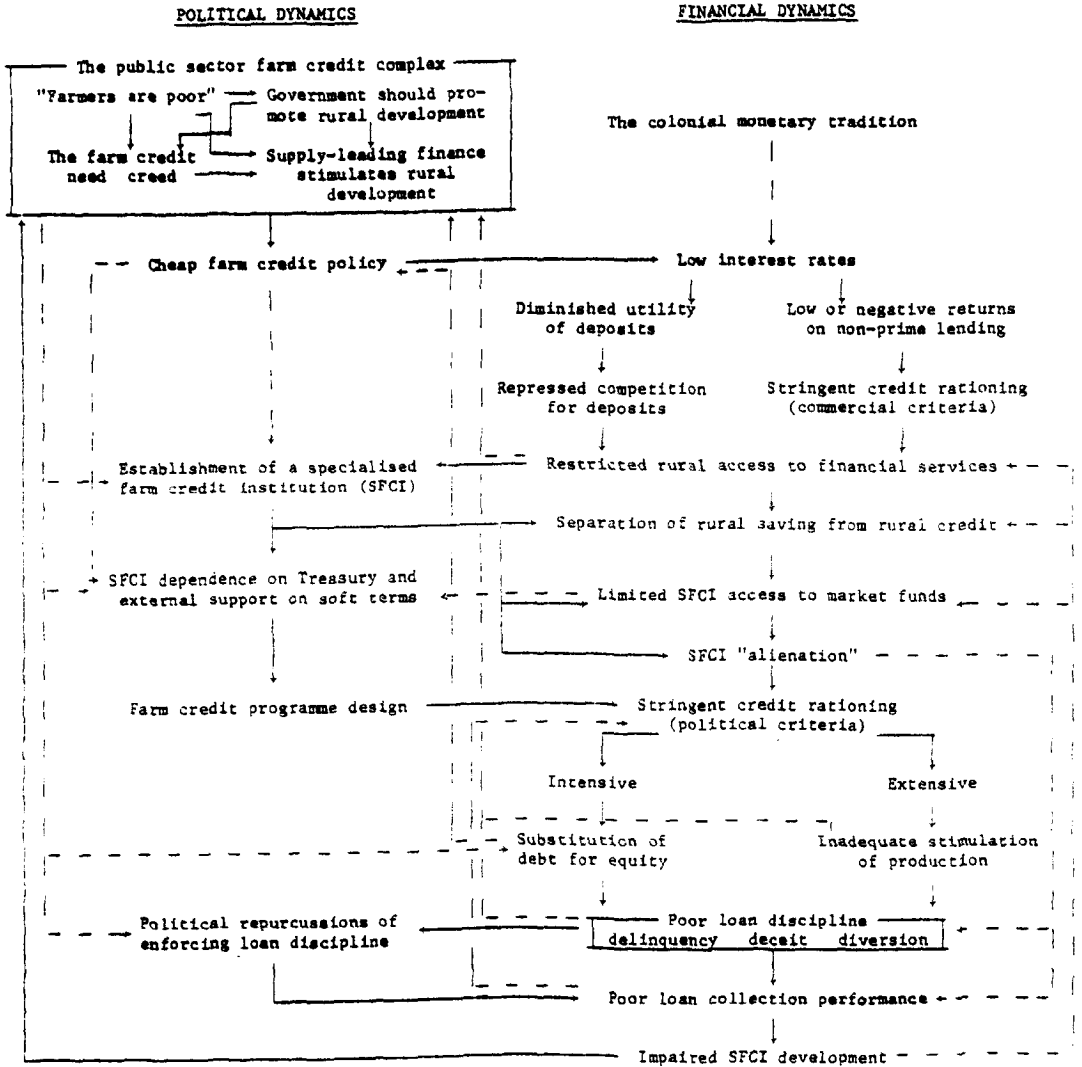
in effect impeding the ability of the public sector to administer rural development efficiently while attending to the traditional, limited functions of government.

#### F. Summary

The performance of the formal farm credit system in Kenya as measured by institutional behaviour and the degree to which rural people have access to financial services is consistent with the logic of finance and of financial markets under politically imposed financial repression. In fact, it appears that political and financial factors are sufficient to explain these aspects of the performance of the system. The relevant considerations and relationships are summarised schematically in Figure V-g, and may be reiterated as follows:

The fundamental political assumptions relating to the role of farm credit in rural development constitute the public sector farm credit complex, which comprises the belief that farmers are poor, that they need credit to innovate and expand, that the government should promote rural development and that supply-leading finance constitutes a suitable vehicle of intervention to stimulate rural development. Because poverty is seen as an important characteristic of the rural condition, it appears consistent that credit must be provided cheaply, at a low rate

Figure V-g. A Model of Formal Farm Credit in a Developing Mixed Economy



Key: Major linkages are indicated by solid lines. Minor linkages are shown by broken lines going down the page. Feedback relationships are shown by broken lines going up the page.

of interest, in spite of the great increases in productivity that credit is held to engender. The tradition of low interest rates in the formal financial sector may be traced to colonial monetary arrangements in Kenya's case. This tradition is not a major factor in decision making today, however, as present policy considerations are of far greater importance.

Low interest rates yield low or even negative returns on non-prime lending by formal intermediaries, as the high costs of administering small relative to large loans and high risk as opposed to low risk loans tend to exceed intermediaries' rate spreads rather quickly as lenders attempt to develop new markets. Hence, lenders ration credit stringently, i.e., they are less likely to expand their clientele to include the less creditworthy than they would in a more liberalised financial regime characterised by high interest rates. In addition, low interest rates may tend to diminish the utility of deposits from the point of view of intermediaries, although the exact impact of interest rates on deposit taking depends upon changes in intermediaries' balance sheet relationships as interest rate structures and levels change.

Stringent credit rationing and the possibility of the diminished utility of deposits under conditions of financial repression result in restricted rural access to financial services. Intermediaries prefer to remain on the fat side of the dual economy. To overcome this reluctance on the part of financial institutions, government acts upon the assumptions which comprise the public sector farm credit complex by intervening in the financial market and establishing a specialised farm credit institution (SFCI). Because of its specialisation in credit provision rather than in a more generalised approach to the rural financial market, such institutions perpetuate the fragmentation of the rural financial market which is inherent in restricted rural access to financial services. By looking at the market for loans to farmers (and even often failing to view that market as a market) rather than at rural savings capacity and at the potential market for other financial services, SFCI's deny themselves the oppor-

tunity of obtaining funds from the rural financial market. However, government funds are available to SFCI's, as would be expected given their public sector ownership. External donors are also prepared to support such intermediaries, and external funds, channelled through the government, are generally available on relatively soft terms. Recourse to such funds and intervention on only one side of rural financial markets ensures that SFCI's are alien to the rural economy -- as intrusions from the fat side of the dual economy -- and that this legacy of portliness may be manifested in flabby administration and ponderous approaches to operations.

Because of the constraints imposed by their limited sources and volume of funds and because of the types of credit programme design imposed by planners in ministries of finance and agriculture and in the service of external donors, SFCI's ration credit stringently. The distribution of credit does not achieve the financial optimum which could occur in liberalised financial markets. Credit may be rationed stringently on either intensive or extensive patterns.

Intensive rationing is manifested in large loans, relative to borrowers' debt capacities. Because the loans are in this sense large, the number of borrowers is restricted and is small relative to the number who would have access to credit at the financial optimum. Loans which are large relative to borrowers' debt capacities place borrowers in the position of frequently not being able to meet repayment obligations as originally intended in the scheduling of maturities. Borrowers will tend to be unable to meet the demands made upon them by their loan contracts. Put in another way, intensive credit rationing substitutes debt for equity capital, and by sharing the equity risk in borrowers' enterprises the SFCI subjects itself to less stable and less certain returns than would be the case at the financial optimum.

Extensive credit rationing involves the provision of credit to a larger number of borrowers than would have had access to SFCI credit at the financial optimum (and assuming a given amount

of funds available for lending). Hence, each individual ration of credit is smaller than at the financially optimum level. Extensive credit rationing tends to fail to stimulate agricultural production to the degree envisaged in programme design because it does not enable borrowers to overcome indivisibilities in agricultural investment or in the linkages in the production process, such as the use of fertiliser on improved varieties of seed. Faced with this situation, borrowers may only partially adopt an enterprise package or husbandry practice and realise disproportionately small returns relative to those projected, they may decide to divert loan funds for purposes not related to agricultural production which may yield no means of repayment, or they may engage in efforts to deceive the SFCI's rationing mechanism in the hope of obtaining more credit than they would receive by following the rules.

Poor loan discipline, seen in borrowers' delinquency, deceit and diversion of loans results to the extent that credit is rationed intensively or extensively. This type of behaviour is really not surprising in view of the alien nature of SFCI's, either. Poor loan discipline is of course reflected in poor collection performance by SFCI's, and improvements in collection performance and other attempts at self-reform by SFCI's may be frustrated because of the political ramifications of attempts to enforce loan discipline. Any actions of this type against defaulters appears to conflict with the rationale for the establishment of an SFCI in the first instance, which was basically to improve rural welfare and enhance the image of government as an agent of development. Poor collection performance of course reinforces the public sector farm credit complex, while paradoxically retarding SFCI development by tying up funds in loan arrears, impairing SFCI cash flow. Funds which otherwise would have been available for the issue of new loans to rural people are absorbed by arrears, or not released by a slow portfolio turnover. In addition, poor collection performance may demoralise SFCI staff and retard institutional development by continuing heavy dependence on donors' beneficence and dispensations from the national Treasury.

Poor collection performance, especially over the long run, also has other reinforcement effects. For example, it tends to reinforce SFCI isolation from the rural economy by retarding SFCI growth. Efforts to improve collections may engender ill-will on the part of defaulters, which may complicate government attempts to enlist the cooperation of rural people. Use of the legal system to recover widespread defaults may compromise the utility of the legal system in rural areas by delaying the processing of claims of other litigants or by offending significant portions of the rural population. Poor collection performance by an SFCI constitutes a demonstration of incompetence in government administration, a demonstration which is probably readily grasped by rural people.

The administrative and bad debt costs of a substantial arrears position in SFCI's portfolios renders such institutions less attractive as competitors for funds in financial markets, to the extent they are able to compete at all on their own strength. The retardation of their growth on a financially sound basis pushes even further over the horizon the time when an SFCI can shed its narrow specialisation and enter into broader segments of rural financial markets, possibly diminishing the fragmentation of such markets by uniting savings and credit operations. In the meantime, rural access to financial services remains restricted.

The relationships outlined here are proposed as a model of formal farm credit provision in a developing mixed economy. While it is apparent that each developing mixed economy has its own configuration and pattern of development, that institutional arrangements to some extent differ, and that in the long run languishing SFCI's may develop into effective intermediaries which are less specialised in the sense that they provide a wide range of rural financial services, it may be asserted that the model provides a high degree of explanatory applicability to the phenomena it addresses for a wide range of developing mixed

economies. It is of course beyond the scope of this exercise, which is limited to the Kenyan case, to test the model over a number of different cases.

It is also asserted that the model is adequate for identifying the constraints which must be broken if a languishing SFCI is to develop into a self-sufficient intermediary, responsive to the forces and potential contained in rural financial markets. In fact, the main contribution of the model should consist of its demonstrating the interaction of key relationships in farm credit systems, thus providing a framework for changes in policy and operations in order to circumvent the unfortunate train of events it portrays. An example of progress in the desired direction is found in the cooperative banking system in Kenya, to which the discussion now turns.

#### G. Epilogue

The unrelieved scene of rural deprivation, political frustration and financial repression which constitutes the model developed here is happily broken by the promising performance of two relatively recent entrants into rural financial markets in Kenya: the Cooperative Savings Scheme (CSS) and the Cooperative Production Credit Scheme (CPCS), both of which are important components of the cooperative banking system. These interrelated programmes are referred to loosely here as the cooperative schemes. These schemes cannot yet be considered mature, as they have not yet (through the end of 1976) had to surmount any crises which would test their underlying strengths, weaknesses and resiliency under stress from forces outside the cooperative structure. Conclusions regarding the lessons to be drawn from their operation must be to some degree qualified and tentative.

The growth of savings and credit operations in the rural portion of the cooperative structure has been documented and discussed in earlier sections.<sup>1</sup> At this point it remains only

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1. See pp. 212-213, 288 ff.



to ask to what extent the development of the cooperative schemes does not fit the basic pattern of the model and whether their departures from the model help to substantiate the validity of the model. Before going on with this exploration, however, it may be helpful to outline the dimensions of the cooperative schemes and their rapid development: CSS began in 1970, and at the close of that year included 7,000 accounts containing Sh 1.1 million. By the close of 1973 there were about 112,500 accounts containing a total of Sh 36.9 million. CPCS was initiated prior to CSS, on a union-by-union basis upon the fulfillment of certain minimum conditions relating to credit administration and with the consent of the membership of each participating society. By 1973 CPCS loans outstanding exceeded Sh 14.7 million, and the number of borrowers approximated 27,000.<sup>1</sup>

The first difference between the cooperative schemes and the model is that the cooperative schemes appear to have been formulated on considerations which are more comprehensive and sophisticated than those which comprise the public sector farm credit complex. While the Lindquist Report (the document upon which the schemes were designed) is not entirely free of the complex, it does conclude after a survey of the farm credit situation in Kenya as of the mid-1960's that even given the improvements which might be expected to flow from land registration and the expansion of existing credit programmes, "the main difficulty...will still be there, viz to reach the multitude of farmers with credits. To solve this problem it seems to be necessary to make an entirely new approach."<sup>2</sup> Lindquist also challenged the cheap credit policy by posing the rhetorical question of what constitutes a reasonable lending rate when in fact the costs of mounting a small farm medium term credit scheme then under discussion were projected at about 15% per annum of amounts outstanding.<sup>3</sup>

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1. See also Von Pischke, J.D., "A Penny Saved....: Kenya's Cooperative Savings Scheme and Some Related Aspects of Rural Finance." Working Paper No. 204, Institute for Development Studies, University of Nairobi, January 1975. pp. 38-39.

2. Lindquist, Sven, op.cit., p. 38.

3. Ibid.

This irreverent approach is reflected in the maximum CPCS lending rate of 12% and in fact is complemented by the attention to business detail on the part of Nordic advisors and successive Commissioners for Cooperative Development. The agreement between Kenya and the Nordic countries which put the Nordic advisors in the field states:<sup>1</sup>

An appropriate number of Cooperative Field Advisors will be stationed in the various Districts of Kenya for the purpose of supporting the personnel of the Department for Cooperative Development in its efforts towards improved management and operation of the cooperative organisations and better information for their members.

District surveys by various Advisors, on file in the Ministry of Cooperative Development, indicate that they have tended to take a commercial approach to their functions and the problems they face. Although by the nature of their duties Kenyan cooperative officials have not produced such a volume of written material of this type, there is little reason to suspect that they take a substantially different view of their functions. Oral presentations by the Commissioner for Cooperative Development at the Institute for Development Studies in Nairobi in March 1973 and January 1975 suggested a very functional and commercial approach to improving the business performance of cooperation in Kenya.

The Government's cooperative policy is to an important degree based on the concept of performance:<sup>1</sup>

The Government will therefore give every encouragement to the movement, as its efficiency increases, to enable it to play an extensive role in the agricultural sector... improve its performance and to compete unhindered on an equal basis with other state and private business organisations in those spheres of the economy in which it is allowed to participate. The movement will expect to retain (certain preferences, including monopsony with respect to certain smallholder cash crops) providing this does not endanger the efficiency of the industry concerned and providing it recognises that failure to fulfil the conditions set by Government will result in such rights being revoked. (emphasis and parenthetical insertions added)

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1. Quoted in Kuehn, Alfred, 1969. p. 66.

2. Republic of Kenya, Cooperative Development Policy for Kenya. p. 2.

This approach has forced those responsible for the promotion of cooperation to adopt a marketing or promotional outlook. Rural people have not been viewed as financial basket cases, but rather as a potential market. Ministry files bulge with recommendations from and to the field on matters such as raising share capital and economising working capital, improving coffee factory performance, increasing the turnover of cooperative stores, strengthening member loyalty by providing better service including faster and larger payouts for deliveries, etc. The Cooperative College and the Cooperative Bank have been established to assist this drive for greater commercial strength and higher standards of performance and accountability.

Both CPCS and CSS were initially launched on a pilot basis, as a means of testing the market and determining the operational limits of feasibility. CPCS was initially funded by the Cooperative Bank, but has since been supplied by funds saved by rural people themselves in response to the provision of new financial services by the cooperative structure.<sup>1</sup>

The cooperative schemes taken together do not constitute a specialised farm credit institution. They provide a range of financial services, although not a very wide range. In offering both savings and credit facilities they integrate rural savings and rural credit, and the result has been the accumulation of a much larger volume of deposits than the planners had equipped the system to accommodate. In terms of the size of the investment programme of the cooperative structure, the volume of funds at its disposal in rural financial markets between 1972 and 1975 in response to its innovating financially could hardly be described

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1. Was the introduction of CPCS before CSS an example of the public sector farm credit complex at work, or was it simply shrewd promotional strategy? Were cooperators believed to "need" credit more than they "needed" savings facilities? The evidence, in the form of projected loan balances and savings balances indicates that the complex was in operation -- savings of Sh 20 million were projected against a loan demand of Sh 35 million, when in fact by the end of 1974 the opposite relationship prevailed. However, in view of the strength of the complex the phasing which was adopted may have been good promotional strategy. See Republic of Kenya, Ministry of Cooperatives and Social Services, Department of Cooperative Development, Development Plan 1971-1974. Nairobi, 1971. p. 39; Von Pischke, J.D., "A Penny Saved," p. 11.

as limited. In fact, the schemes were overwhelmed by savings deposits.

The cooperative schemes are also not alien to the rural environment. While the degree of member control of the structure is easily overstated in view of the extent of Government supervision, the people who are involved, from cooperative leaders with political aspirations to union and society clerical staff paid in accordance with the limitations of the lean side of the dual economy, have firm rural roots. Clients of union banking sections visited by the writer were not infrequently barefoot or shod in rubber shoes sold locally for Sh 12 a pair.

Loans disbursed are modest, limited by the size of borrowers' deliveries to their societies. This degree of perspective in project design suggests that the rationing criteria employed produce an allocation not greatly different from the financial optimum for relatively short term funds. Borrowers' debt capacities are not overwhelmed. Credit rationing cannot be described as stringent.

Loan discipline has not been an issue of major proportions, although diversion was common in cases in which CPCS loans were issued entirely in cash. Since debt capacities are not strained, however, diversion is not of great importance from the point of view of financial performance, although it may be detrimental from the point of view of stimulating agricultural production if borrowers feel they do not have sufficient remunerative investment opportunities in agriculture. Control of marketing channels diminishes collection problems and reflects a propensity by cooperative planners to view the rural economy in a broader context than that which might produce an SFCI or a credit programme in isolation.

Political dynamics are of course at work and are very much bound up with the role of cooperation in rural development. With respect to the cooperative schemes, however, they appeared between 1973 and 1975 to operate in a direction opposite to that

which ordinarily flows from the public sector farm credit complex. What are the political implications of having organised small farmers in the cash economy who are financially self-sufficient to the extent of having average savings deposit balances in excess of average loan balances, and whose primary societies are net lenders to the rest of the cooperative structure and ultimately to the rest of the economy?

Thus, the cooperative schemes seem to be of an entirely different order from the Agricultural Settlement Fund and from the Agricultural Finance Corporation, and depart in many ways from the conventions of commercial banking. They constitute one example of the effects of slight financial liberalisation, in the form of marginally higher interest rates and spreads between deposit rates and lending rates, and also in the form of an institutional adaptation to market potential through financial innovation. However, it cannot be maintained that these schemes have really overturned financial repression in rural financial markets in Kenya, as interest rates have not been permitted to play an allocative role and the element of subsidy remains substantial in the form of Government supervision and Nordic assistance. However, these schemes represent an alternative financial technology, and one that got off to a very promising start in rural Kenya.

Farmers' response to the cooperative schemes strengthens the argument that higher interest rates are not against the best interests of rural people, but the lesson is not the obvious one which might be drawn from financial theory. CSS growth cannot be said to reflect the results of providing an attractive return on savings -- at a nominal 5% the real return has in fact been negative over most of the life of the scheme and has not been greatly different from the rates paid by the commercial banks and the Post Office Savings Bank. Rather, CSS has attracted funds because of the convenience it provides, lowering depositors' costs of liquidity. Some of the growth in deposits no doubt also reflects straightforward member loyalty,

as cooperative education and promotional activities have stressed the link between the credit and savings schemes, which means that expansion in deposit balances within the system provides a basis for growth in credit outstanding.

The level of loan interest rates, fixed between 8% and 12%, but generally 10% or above and specified within these limits at the discretion of individual unions, indicates that rural people are willing to borrow at rates above those found in the commercial banking sector, and that such rates are not a source of rural hardship. At what rate level the rural demand for credit becomes elastic remains an unknown in Kenya, but it would appear from cooperative experience that the point lies somewhere above a nominal 12%.

An important lesson from the schemes is that the spread between the deposit rate and the lending rate, which is large by the standards of the formal financial sector, helps to enable intermediation to occur where it did not take place before, thereby expanding rural access to financial services including savings and credit facilities. This fact suggests that even higher rates on the lending side could enable the mounting of even more adventurous attempts at rural financial intermediation among the segment of farmers who do not yet have convenient access to deposit facilities and who would be willing to keep some funds on deposit with appropriate intermediaries at low negative real rates of interest simply for the convenience afforded by the deposit facilities. Arguments concerning the elasticity of deposit balances to changes in the interest rate do not apply at this level, except to the extent they hypothesise inelasticity over the range of rates in question. At this level deposits appear to be more "institution elastic" than price elastic.

A final hypothesis summarises major points of theoretical interest which are confirmed by cooperative experience in Kenya:

6. *A partial departure from the mainstream public sector farm credit policy, embodied in cooperative savings and credit experience involving smallholder growers or cash crops,*

*has yielded relatively satisfactory operating results consistent with the theory of financial liberalisation and has increased access to financial services in rural areas.*

By presenting a picture which is largely the opposite of that sketched in the development of the model, the cooperative schemes support the applicability of the model. When the negative propositions of the model are not applicable, neither are the dismal results they predict. In fact, success appears to occur for and to involve reasons just the opposite of those cited in the presentation of the model, suggesting that experimentation with financial liberalisation and a more comprehensive view of the rural economy could improve rural access to financial services and contribute to institutional vitality and viability in the rural operations of the formal financial sector.

If the cooperative schemes continue to go from strength to strength and if they are able to weather adversity without having to be taken over or rescued by government intervention which alters their form and function, the order of presentation taken in this chapter would no longer be valid or reasonable. In that fortunate circumstance the most fruitful form of exploration would consist of explaining the relatively unimpressive performance of settlement and AFC credit in terms of the lessons of financial intermediation by cooperatives, rather than, as in this study, explaining the recent success of the cooperative schemes in terms of the failures of the older institutional attempts to provide formal sector credit to large numbers of farmers.

## APPENDIX A

## KENYA'S COLONIAL MONETARY ARRANGEMENTS

As of the mid-1950's the structure of Kenya's financial sector was characterised by Browning as involving:<sup>1</sup>

- 1) domination by foreign banks,
- 2) a currency system without a central bank, and
- 3) no money market.

This structure reflected the operations of the Sterling exchange standard and its implementing institutions, primarily the East African Currency Board and members or predecessors of the three large British overseas banking groups: Barclays, National and Grindlays, and Standard.<sup>2</sup>

#### A. Financial Tactics in Colonial Development Strategy

In 1919 the East African Currency Board was established, which put Kenya on the Sterling exchange standard. Board currency was backed by Sterling assets, and was freely convertible at par (less a small commission, usually only a fractional percentage) with Sterling.<sup>3</sup> This system was conducive to the development of Kenya with British capital, as it protected investors from exchange rate risks (between the East African shilling and Sterling) which could affect the value of

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1. Browning, P.R., "Banking and Money in East Africa," The East African Economic Review. 1,1, July 1954. p. 24

2. Standard works on the Sterling exchange standard which contain chapters specific to East Africa include Sayers, R.S., ed., Banking in the British Commonwealth. Oxford, Clarendon Press, 1952. 486 pp; and the later work edited by W.F. Crick, Commonwealth Banking Systems. Oxford, Clarendon Press, 1965. 536 pp.

3. Shannon, H.A., "Evolution of the Colonial Sterling Exchange Standard," IMF Staff Papers. I, 1950-51. p. 342. The Board achieved solvency (100% cover for its note issue) only in 1946, having lost £1.5 million by 1926 through its retirement of predecessor rupee currencies at a value in excess of their value in the world market. See Shannon, pp. 342-348, and Clauson, G.M.L., "The British Colonial Currency System," The Economic Journal. LIV, 1, April 1944. pp. 11-13.



their investments, while at the same time freely permitting repatriation of capital and profits.<sup>1</sup> Such protection was important because of the profit-oriented uses and private sources of capital which were seen by British authorities as appropriate tools for colonial development.<sup>2</sup>

The Sterling exchange standard gave Kenya access to the London financial market because the local legal tender was virtually identical to Sterling from the point of view of lenders and borrowers.<sup>3</sup> The advantages of this system to Britain and to investors in Kenya included, in addition to convertibility, the establishment of a banking system with resources beyond Kenya and the establishment of a "sound" banking tradition which still prevails in Kenya. Sound banking refers to the historical ability of banks to meet their financial obligations.<sup>4</sup> The most severe recent test of soundness occurred in 1960 when the prospect of independence resulted in substantial capital outflows. Loan to deposit ratios increased from 66% to 96% during 1960 and the banks relied on their London head offices to ensure the necessary liquidity.<sup>5</sup> Indeed, the flexibility contained in the colonial monetary arrangements promoted the growth of the banking system, as noted in the Blumenthal Report in the early 1960's:<sup>6</sup>

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1. Nevin, Edward, Capital Funds in Underdeveloped Countries. London, Macmillan & Co. Ltd., 1961. pp. 8-9.

2. Ibid.

3. Crick, W.F., "The Framework of Inter-Relations," Commonwealth Banking Systems. p. 4.

4. The only bank failure in East Africa reported in the standard literature appears to be the 1949 demise of a small bank, the Exchange Bank of India and Africa, Ltd., which was incorporated in Bombay in 1942. See Newlyn, W.T., in Sayers, R.S., ed., Banking in the British Commonwealth. p. 449.

5. Colony and Protectorate of Kenya, Economic Survey 1961. p. 6.

6. Blumenthal, Erwin, The Present Monetary System and its Future: Report to the Government of Tanganyika. Dar-es-Salaam, Government Printer, 1963. pp. 8 ff; also quoted by Ridley, R.S., "Eastern Africa," Ch. 10 in Crick, W.F., ed., Commonwealth Banking Systems. p. 404.

Hundreds of years of experience in banking and the possibility of recourse to head offices, coupled with the fact that the position in East Africa represents only an item in their world-wide activities, have permitted (the commercial banks') business, especially the relations between deposits and lendings, to develop in the interest of East Africa in a way which would hardly have been within the powers of a local bank operating with limited resources and connections and acting under the necessary security regulations.

Evidence in support of this assertion is found in the case of the transitional years from 1960 to 1965. As the East African Currency Board's 1961/62 annual report noted:<sup>1</sup>

(the commercial banks') lending remained at a far higher level in relation to deposits than they could have prudently undertaken had they been based on, and been operating solely in, the currency area. Their ability to maintain this level was of course due primarily to their overseas connections....

However, the system developed along some lines more than others, reflecting the nature of the colonial economy. Import-export transactions were emphasised, domestic savings and investment flows being of less interest.<sup>2</sup> In this connection, it may be asked whether, in effect, the system hindered the development of a local financial market. Key factors, from this perspective, in the operations of colonial monetary arrangements included the determination of interest rates and the banks' reliance on their London head offices.

#### 1. Low Interest Rates and their Determination

Regarding colonial bank interest rates, Nevin observed:<sup>3</sup>

...the policy adopted by the expatriate banks in colonial territories has been determined by their head offices primarily with regard to monetary conditions prevailing in the country in which the head office was situated. That is to say, if interest rates were raised in, say the United Kingdom as a result of a rise in Bank rate and usual accompanying measures, interest rates would be raised more or less equally by all the branches of that bank

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1. p. 12.

2. Engberg, Holger L., "Commercial Banking in East Africa, 1950-1963." Journal of Modern African Studies. 3, 2, 1965. p. 199.

3. Capital Funds. p. 46.

operating throughout the world, without any special reference to the needs or circumstances of the individual overseas territories involved. (emphasis added)

Ridley provides details of how the banks in East Africa set their rates, noting that the primary reference base was the London rate, but that local conditions were reflected in changes in the spread between local and London rates.<sup>1</sup>

Until recently there was no local money market, and with East African currency tied to Sterling by only a small commission charge, the major factor governing East African interest rates for many years was naturally the Bank of England rate. The minimum overdraft interest rate was therefore reviewed as and when any change occurred in the Bank of England rate. There were two factors that had to be borne in mind. When the local ratio of advances to deposits tended to fall and the banks' liquidity was higher than usual, the margin between the Bank of England rate and the local minimum interest rate could be narrowed, but it was never less than 1%. In the reverse of these circumstances, the margin was widened and has been as much as 3½%. Due to higher recurrent costs in East Africa, as compared with the United Kingdom, it was impossible to allow the local minimum interest rate on advances to follow the Bank of England rate down beyond a certain point. The minimum rate in East Africa has never fallen below 5% per annum.

This description by a commercial banker invalidates Nevin's view that the process of setting interest rates was based entirely on external factors. Thus, local interest rates to some extent reflected the liquidity position of the local banks as well as local operating costs. Unfortunately, Ridley does not provide any detail of why the cost of banking in East Africa was higher than in Britain. A relative absence of economies of size may have contributed, as well as higher loan losses and expatriate staff costs. It is also probable that the financial structure of East African operations would have differed from that which applied to domestic banks in Britain, as, for example, the necessity of maintaining higher cash ratios, and that the cost of funds to branches in East Africa may have been higher than those typical of domestic banks in Britain.

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1. Op.cit., p. 491.

However, the flexibility and responsiveness of local lending rates appears somewhat limited, as rates stayed within the 5% to 9% range, never greatly different from those prevailing in London.

It should be noted that the levels of Sterling balances held by the colonies were by no means insignificant, standing at more than £600 million in the years immediately after World War II.<sup>1</sup> During the same period the level of total deposits at London clearing banks ranged from £5.0 to £6.0 thousand million.<sup>2</sup> This comparison suggests that the colonies' Sterling balances and their management would have influenced the level and structure of interest rates prevailing in the London market, but that their influence would not have been large.<sup>3</sup>

The evidence indicates that the rates at which funds were supplied to and available in Kenya were not a function of the domestic supply and demand for funds. Except in cases of coincidence the London rate level and structure would not have been identical to that which would have prevailed in Kenya under the absence of a monetary standard which in effect made transfers to and from London analogous to domestic transfers. There is little reason to suppose that supply and demand factors and institutional arrangements in Kenya under such a hypothetical alternative arrangement would have produced the same result as the market forces and institutional arrangements determining interest rates in London. Logic suggests that Kenya rates would have been higher than London rates, reflecting four factors:

1) the higher risks in a predominantly agricultural economy,

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1. Greaves, I.C., "The Sterling Balances of Colonial Territories," The Economic Journal. LXI, 2, June 1951. p. 434.

2. Annual Abstract of Statistics. 89, 1952. London, HMSO, 1952. p. 279.

3. Whether the 110% cover requirement for Currency Board note issues had a repressive effect on the development of Kenya's financial system is not treated here, as the present focus is on interest rates directly. For discussions of this aspect of the Sterling exchange standard see Nevin, Edward, op.cit., especially pp. 13-21 on the repatriation of currency reserves, and Hazelwood, Arthur, "The Economics of Colonial Monetary Arrangements," Social and Economic Studies. 3, 4, 1954. pp. 290-314.

- 2) the inefficiencies of a thin financial market,
- 3) the problems inherent in a poor economic infrastructure, and
- 4) presumably, the relatively greater demand for a smaller supply of capital in a young enclave economy compared to a mature metropolitan economy.

The low rates of interest provided by London appear not to have given much stimulation to domestic savings. The enclave had no special incentive to maintain more than working balances in Kenya, although of course the free convertibility provided by the system offered no disincentive, either. The Africans who entered the monetary sector, however, would probably not have found the deposit rates very exciting, and economic logic suggests that the low rate levels would not have provided a stimulus to the accumulation of non-cash financial assets by Africans. Of course, these effects were to some extent -- some would argue to a large extent -- offset by the virtually absolute security for depositors' funds provided by the large expatriate banks.<sup>1</sup> Local banks established under the hypothetical alternative situation mentioned above would not have been able to provide such a degree of security, although it is by no means certain that they would have failed to inspire depositor confidence, or that deposit insurance schemes could not or would not have evolved. Regardless of the stimulation which might have been furnished by the size and solvency of the banks, access to banking services was geographically severely limited over most of the colonial era. In 1949 only 12 places were served by banking offices, although by 1960 coverage had extended to 65 centres.<sup>2</sup>

To summarise these observations on the effect of the mechanism by which interest rates were determined in colonial Kenya: The Sterling exchange standard was not designed to mobilise domestic savings and by the imposition of interest rate levels and structures prevailing in Britain was in fact not conducive to such mobilisation, thus repressing the potential development of a local financial market.

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1. McWilliam, M.D., op.cit., p. 16.

2. Ibid., p. 24.

## 2. Financial Links between Local Offices and London

The major banks' reliance on their London head offices for money market type transactions and as lenders of last resort was a natural part of the Sterling exchange standard. The links between the branches in the territories and the London head offices constituted a major part of the system. Head offices benefitted from the lack of simultaneity in the financial flows of the different colonial economies, being able to pool surpluses and deficits which arose from the seasonality of the many primarily agricultural exporting colonial economies. Local branches benefitted by having a ready source of and use for funds, enabling them to finance larger volumes of trade than might have been possible were they independent banks with no special sources of external finance.

Economic logic suggests that the fact of ready access to London did not encourage Kenyan branches to compete for depositors' funds. The utility of local deposits may be assumed to be a function of the degree of reliance placed on them and the necessity attached to such reliance. Access to London diminished this reliance. It may also be that any banking system which might have evolved under the hypothetical alternative outlined above would also not have been competitive in this respect, but comparison of the two cases involves an asymmetry in that the Sterling exchange standard banking system was no doubt discouraged from being very competitive locally, while the alternative system might not have been so discouraged.

In certain colonies the settlements for local clearings were effected by Sterling drafts on London, representing probably the most extreme practice antithetical to the development of a local money market.<sup>1</sup> The general practice of using transactions with London in much the same way as branches in, say, Bristol, did not provide a basis for local money market development. However, the exchange commission charged by the Currency Board -- ¼% each way over most of the period -- was sufficient to promote local clearing on a routine basis in Nairobi. In fact, the banks frequently

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1. Nevin, Edward, Capital Funds. pp. 68-69.

maintained higher cash levels than otherwise required simply to avoid the Currency Board commission, a practice which was rational in view of the level of the commission, the level of rates in London, and the clearing interval.<sup>1</sup> The Currency Board issued special Sh 10,000 notes which were not circulated publicly but retained by the banks for local clearing purposes.

### B. Roots of Monetary Independence

With the approach of the late 1950's the East African Currency Board took certain steps which were a departure from the classical currency board system<sup>2</sup> and which provided a basis for a local money market.<sup>3</sup> In 1955 a fiduciary issue limit was established and the Board broke the tradition of not purchasing securities issued by constituent territories.<sup>4</sup> In 1960 additional impetus to local money market development was given by the Board's reconstitution with East African membership, the removal of its head office from London to Nairobi and the institution of a crop finance facility.<sup>5</sup> This facility put the Board in the position of promoting exports and, by moving it away from acting solely as a moneychanger, opened the way towards its becoming a lender of last resort. In 1962 the Board began to establish itself as a local clearing house by requiring that banks using its services open clearing accounts,<sup>6</sup> and while the banks continued to clear

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1. Ridley, R.S., op.cit., p. 392.

2. The Board's insolvency for roughly 20 years before it achieved 100% cover for its note issue was also a departure from the classical pattern, of course.

3. Kratz, Joachim, "The East African Currency Board," IMF Staff Papers. XIII, 1966. pp. 229-255 contains a summary of these developments.

4. East African Currency Board, Report of the East African Currency Board for the year ending 30th June 1955. London, 1955.

5. East African Currency Board, Report of the East African Currency Board for the year ending 30th June 1960. Nairobi, 1960.

6. East African Currency Board, Report of the East African Currency Board for the year ending 30th June 1962.

bilaterally,<sup>1</sup> by 1964 all the banks in the main centres in East Africa were reported to have opened clearing accounts with the Board.<sup>2</sup>

In addition to these movements towards the establishment of central banking functions, the Board in 1962 reduced its rediscount rate from 7% to 5½% and changed its transfer commission structure to make it less attractive to send funds to London.<sup>3</sup> The effectiveness of these departures is seen in the scope they provided for the development of a local money market. A grey market in short term funds is reported to have developed in Nairobi among firms seeking to minimise transfer charges between Nairobi and London.<sup>4</sup> In addition to this type of loan transaction, the local market also dealt in spot "exchange compensations" whereby Sterling was bought and sold privately at commissions undercutting those levied by the Board.<sup>5</sup>

In summary, the Sterling exchange standard, while attracting formal intermediaries to Kenya, did so on terms which did not particularly encourage the development of an active formal domestic financial market. Developments late in the colonial period and in the first years of independence, before the creation of a central bank, provide an indication of the steps involved in the creation of a more vital financial system.

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1. East African Currency Board, Report of the East African Currency Board for the year ending 30th June 1963. pp. 7-8.

2. East African Currency Board, Report of the East African Currency Board for the year ending 30th June 1964. p. 24.

3. East African Currency Board, Report of the East African Currency Board for the year ending 30th June 1962. pp. 7-8. Alterations of transfer commissions to discourage redemption of East African shillings for Sterling was used as early as 1931 when it appeared that redemptions might exceed the Board's ability to honour its pledge of convertibility. See Newlyn, W.T., "The Colonial Empire," in Sayers, R.S., ed., Banking in the British Commonwealth. p. 433.

4. McWilliam, M.D., op.cit., p. 37.

5. East African Currency Board, Report of the East African Currency Board for the year ending 30th June 1972. p. 7.



## APPENDIX B

## THE REPAYMENT INDEX

A. Integrating Financial Analysis with Other Social Sciences

Analysis of the role of credit in rural development is generally conducted on two planes. The first concerns the impact of credit on the operations of the borrowers, and numerous field studies have been conducted around the world to relate credit access and use with crop yields, patterns of innovation adoption, rates of return on on-farm investment, and other aspects of farm performance and borrower attributes of relevance to those concerned with the provision of credit to farmers.<sup>1</sup> Concern for the

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1. Four classes of examples of this approach to evaluation of farm credit suffice to demonstrate its widespread use:

- a) The massive All-India Rural Credit Survey and subsequent follow-up activities of the Reserve Bank of India constitute a major example of field studies having very broad research aims, including enquiry concerning many aspects of the financial, agricultural and social status of borrowers. See, for example, Reserve Bank of India, All-India Rural Credit Survey: Vol. I, The Survey Report, Part I (Rural Families). Bombay, 1956. 1067 pp; Report of the All-India Rural Credit Review Committee. Bombay, 1969. 1073 pp; and comment and criticism in Thorner, Daniel and Alice, Land and Labour in India. New York, Asia Publishing House, 1962. Chapters XIV and XV.
- b) The United States Farmers Home Administration, and many of the supervised credit programmes in developing countries engendered with FHA assistance use before-loan and after-loan comparisons of borrowers' net worth and various measures of income to monitor borrower and programme performance. See, for example, the Operating Loan Progress Report Form contained in Hartman, Jack, et al., "Agricultural Supervised Credit, The Farmers Home Administration Way," Small Farmer Credit Additional Papers. XVI. AID Spring Review of Small Farmer Credit. Washington, DC, Agency for International Development, June 1973. p. 26.
- c) Much of the fieldwork undertaken in Latin America by researchers from the Ohio State University has been devoted towards ascertaining this aspect of credit impact. See, for example, reports of the Department of Agricultural Economics and Rural Sociology issued as AFC Research Reports and as Studies in Agricultural Capital and Technology, by authors including Dale W. Adams, Norman Rask and others. A partial list is given in the

impact of credit on the operations of the borrower is of course warranted, especially in those cases in which credit is viewed as an innovative device or a means to some innovative end. Loans of this variety issued under supply-leading strategies frequently depend upon the productivity of the loan-supported innovation to generate the means of loan repayment.

The second type of analysis is fundamentally and at times narrowly financial in nature, being oriented towards loan portfolio and institutional performance by suppliers of agricultural credit. Enquiries of this sort frequently centre on the financial health and capacity of credit institutions to serve and expand their clientele. Common measures of portfolio performance used as key indicators in this sort of study include the collection ratio (defined broadly as repayments received as a proportion of amounts due), the percentage of amounts outstanding which are in arrears, and the proportion of loan accounts having balances in arrears, as well as various measures of portfolio and institutional growth. Ageings of amounts in arrears constitute another useful measure of this sort, but are frequently not found in such studies because farm credit institutions in many developing countries lack the accounting capability required for a periodic ageing of accounts in arrears.

While certain aspects of this type of approach, generally confined to measures of portfolio performance, are also commonly found in the literature, including the examples footnoted on the previous page and below, detailed analyses of this type are not so frequently seen. Technical analyses of financial and institutional performance are generally confined to doctoral dissertations, project documents involving external donors and to exercises

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(continued) footnote on p. 15 of this dissertation.

d) Various country studies in the AID Spring Review of Small Farmer Credit were concerned with borrowers' performance as farmers, and other examples appear under relevant headings in Dissertation Abstracts (periodical) and in Agricultural Credit and Rural Savings, AID Bibliography Series, Agriculture No. 7. Washington, DC, 1972. Guidelines for field investigations of this sort are found in Rao, T.S., Guide to Methods and Procedures of Rural Credit Surveys. FAO Agricultural Development Paper No. 73. Rome, Food and Agriculture Organisation of the United Nations, 1962. 107 pp.

in corporate planning. Studies of this sort tend to be highly specialised,<sup>1</sup> and to have a limited readership. Their lack of broader appeal may also be associated with the view, discussed in Chapter II, that the financial sector really does not matter very much in the development process. The viability of an intermediary providing credit may be of less interest than the fact that it is able or not able to meet disbursement targets, for example.<sup>2</sup> However, technical enquiries of this type are certainly warranted. It is difficult to conceive of agricultural programmes successful on a broad front without viable administrative frameworks and relatively efficient decision making units on the lending as well as on the borrowing side. Hence, the health of institutions providing agricultural credit would appear to be a necessary condition for successful programmes.

The two approaches identified above may be equated with the demand side and the supply side of agricultural credit. Farmers and their production techniques constitute the demand side, while lenders and their performance constitute the supply side. Given a concern for market conditions and performance, economic theory indicates that consideration of either demand or supply in isolation is of very limited usefulness. Agricultural credit supply and demand appear to be no exception to this situation. However, there is something of an analytical void between the two approaches to farm credit outlined above. Few studies or analyses encompass farm credit programmes in their entirety, looking at the impact on farmer borrowers and also on the lender, and integrating these

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1. See, for example, Brinegar, George K., and Lyle P. Fettig, Some Measures of the Quality of Agricultural Credit. Technical Paper 19. New York, National Bureau of Economic Research, 1968. 52 pp.

2. An echo of this view was stated by E.B. Rice, who, however, generally stresses the importance of the financial viability of agricultural lenders: "Rising farmer incomes on a few occasions could co-exist with high delinquency rates and institutional insolvency, and the failure of the (credit) institution does not necessarily imply the failure and end of the (farm credit) program." See "Summary of the Spring Review of Small Farmer Credit," p. 6.

relationships rigorously.<sup>1</sup> An example of integrated analysis might include an evaluation of borrowers' farm performance and its impact on the lender's rate of return or the effect of poor performance by the lender, e.g., the late issue of seasonal credit, on borrowers' rates of return.

One manifestation of this void in the literature is the lack of application of portfolio or financial performance indicators both to borrowers and to the lender. The repayment performance of the borrower is also the collection performance of the lender, and any simple measure which could rigorously quantify the relationship between expected and actual repayment performance on individual loans, as well as for a portfolio as a whole, would permit greater analytical integration of the performance of borrowers as debtors and the performance of the lender as a portfolio manager. One step in this direction would consist of the incorporation of the time value of money in any kit of analytical tools to be applied. Only through this concept can the economic aspects of repayment performance be fully dealt with. However, the common measures of portfolio performance -- collection ratios, percentage of the portfolio in arrears, proportion of borrowers in arrears -- lack this dimension.

As a starting point for this type of approach, a Repayment Index is outlined below which allows rigorous quantification of repayment performance. (In Appendices C and D the Repayment Index is applied to empirical data from the files of the Agricultural Finance Corporation in Kenya.) The major utility of the Repayment Index in the empirical context used here is the basis it provides for the quantitative comparison of the repayment performance of different borrowers, permitting the correlation of repayment performance with other variables of interest to social scientists, lenders, agriculturalists and others concerned with financial and technical aspects of rural development and credit decision-making. Repayment Index rankings indicate the extent to which borrowers honour their loan repayment commitments:

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1. One useful first step in this direction is the use of actual rather than scheduled loan repayments in the cash flow data used for the ex-post calculation of borrowers' internal rates of return.

0.00 indicates not at all, 1.00 indicates to the letter or overall performance consistent with full and timely repayment over a series of installments, with cases in between ranked by their Index numbers according to their relative standing.

The assumptions behind the Repayment Index are three:

- 1) The borrower's opportunity to deviate from loan repayment commitments as specified in the loan contract is a function of the timing or scheduling of installments.
- 2) The borrower's opportunity to deviate from loan repayment commitments as specified in the loan contract is a function of the magnitude of installments falling due.
- 3) The extent of deviation from loan repayment commitments as specified in the loan contract is capable of quantitative expression in relative terms defined with reference to the maximum possible default.

This statement of assumptions is phrased so that it is applicable to deviations either above or below the expectations contained in the repayment schedule or the loan contract, i.e., to prepayment as well as to delinquency constituting default.<sup>1</sup> As default is a problem of infinitely greater magnitude than prepayment in the realms of farm credit in developing countries, however, the following exposition assumes for convenience that deviations from loan contract installment schedules are in fact defaults as indicated by balances in arrears. Cases of prepayment may be considered as negative arrears. Hence, the first two assumptions behind the Repayment Index establish the dimensions of a stock, i.e., arrears, from which a flow, i.e., interest on arrears, is generated for purposes of comparison.

#### B. Algebraic Statement of the Repayment Index Formula

The general notation for the Repayment Index formula is

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1. Default is defined here in the legal sense as any breach of the loan contract. The most common manifestation of default in farm credit is probably late repayment.

$$R_t = 1 - \frac{\sum_{t=1}^n I_a}{\sum_{t=1}^n I_{a_{\max}}} \quad (1)$$

where  $R$  is the Repayment Index number,  $I_a$  is the interest compounded on amounts in arrears (net of any interest credited on prepaid balances) over the life of the loan, i.e., extending from period 1 to period  $n$ , and  $I_{a_{\max}}$  is the amount of interest which would be compounded on amounts in arrears if no loan repayments were made, as in the case of total default on the amount due.

Examination of the meaning of each element in the formula shows more precisely how the Index is constructed. Interest on arrears  $\sum I_a$  is computed by applying the relevant interest rate  $i$  per period to the amount in arrears  $A$  for any given period  $t$ , and accumulating the total for all periods through  $n$ .

$$\sum_{t=1}^n I_a = iA_t + iA_{t+1} + \dots + iA_n \quad (2)$$

The essential characteristics of a period as defined here is that an installment falls due on the opening date and that interest on arrears is calculated and debited to the loan account at or immediately following the close of the period. This definition will be modified later, but for purposes of illustration, assume that repayments are received only on the first day of any given period, and that no repayment is received on a given loan for the first period beginning on the date the first installment falls due. The calculation of the numerator of the general formula (1) is then simply

$$I_{a_1} = iD_1 \quad (3)$$

where  $D_1$  is the amount due at the start of period 1. Since no repayment was received, this notation also yields the denominator in formula (1), and the Repayment Index number would be 0.00,

indicating total default:

$$R_1 = 1 - \frac{I_{a_1}}{I_{a_{\max_1}}} = 1 - \frac{iD_1}{iD_1} = 0 \quad (4)$$

Alteration of these assumptions to reflect the case of partial payment is required in the interests of general applicability. In this case  $M$  will be used to signify payments received, still retaining the assumption that payments are received only on the opening day of a period. The numerator for the situation at the close of the first period then becomes

$$I_{a_1} = i(D_1 - M_1) \quad (5)$$

while the denominator remains as in formula (3) because the denominator reflects the maximum adverse possibility of no repayment whatsoever. Thus,

$$R_1 = 1 - \frac{i(D_1 - M_1)}{iD_1} \quad (6)$$

Given the case of serial maturity loans (i.e., loans repayable in several installments), the exposition may be expanded to include the calculation of  $I_a$  for the second or any subsequent periods. While the amount due at the opening of the first period was simply the amount of one installment, at the opening (signified by the additional subscript  $_0$ ) of the second period, assuming no repayment, the amount due is equal to two installments plus interest on the arrears constituted by the first installment which was due but remained unpaid throughout the entire first period. Thus,

$$A_{2_0} = i(D_1 - M_1) + (D_1 - M_1) + (D_2 - M_2) \quad (7)$$

with  $M_1$  and  $M_2$  both equal to zero. The calculation of interest on arrears,  $i(D_1 - M_1)$ , is assumed to occur at the close of each period. This amount is compounded, i.e., also treated as

an amount in arrears, in all subsequent periods until adequate repayment is received. Formula (7) simplifies into

$$A_{2_0} = (D_1 - M_1)(1 + i) + (D_2 - M_2) \quad (8)$$

and use of the quantity  $(1 + i)$ , a centrepiece of discounting and compounding formulae, simplifies presentation as the formula is generalised. At the close of the second period the Repayment Index may be derived as

$$R_2 = 1 - \frac{\sum_{t=1}^2 I_a}{\sum_{t=1}^2 I_{a_{\max}}} \quad (9)$$

$$= 1 - \frac{\{(D_1 - M_1)(1+i)^2 - (D_1 - M_1)\} + \{(D_2 - M_2)(1+i) - (D_2 - M_2)\}}{\{D_1(1+i)^2 - D_1\} + \{D_2(1+i)^2 - D_2\}}$$

which permits further simplification by factoring out the subtraction of arrears for each period:

$$R_2 = 1 - \frac{\sum_{t=1}^2 I_a}{\sum_{t=1}^2 I_{a_{\max}}}$$

$$= 1 - \frac{i\{(D_1 - M_1)(1+i) + (D_2 - M_2)\}}{i\{D_1(1+i) + D_2\}} \quad (10)$$

The notation may be extended to cover a multiplicity of periods, through  $j$ , in which installments fall due:

$$R_j = 1 - \frac{\sum_{t=1}^j I_a}{\sum_{t=1}^j I_{a_{\max}}} \quad (11)$$

$$= 1 - \frac{i\{(D_1 - M_1)(1+i)^{j-1} + (D_2 - M_2)(1+i)^{j-2} + \dots + (D_j - M_j)\}}{i\{D_1(1+i)^{j-1} + D_2(1+i)^{j-2} + \dots + D_j\}}$$



In the event that the analysis is extended beyond the final maturity date of the loan, i.e., the date upon which the final installment falls due, the only accommodation required is setting  $D$  equal to zero for all periods beyond  $j$  through final period  $n$ .

While this form of notation is perhaps useful from a mathematical standpoint and for the computation of the Repayment Index from historical records, the type of presentation found in formula (2) is the most useful statement for the generation of Repayment Index data on a current basis, as for example might be done periodically for administrative, control and other managerial purposes. The essential aspect of this approach is simply that the arrears at the close of any given period  $t$  is the sum of the arrears at the opening of the period and amounts falling due during the period less payments received during the period.

$$A_t = A_{t_0} + D_t - M_t \quad (12)$$

This notation assumes that interest on amounts in arrears during the preceding period,  $t-1$ , are included in  $A_{t_0}$ , so that  $A_t$ , the amount in arrears at the close of period  $t$  is one element in the computation of  $I_{at}$ .

$$I_{at} = iA_t \quad (13)$$

The assumption that payments are received only on the opening day of any given period must be dispensed with in practice, as payments may be received at any time. At the same time, the assumption that the periodicity of installments falling due is identical to the periodicity of the calculation and debiting of interest on arrears may be dropped. Interest on arrears could be computed and debited to borrowers' accounts monthly, for example, while installments are scheduled on an annual or quarterly basis. It would be highly unlikely for reasons of accounting convention and the financial logic of compounding that the period between scheduled installments would

be shorter than the period between the calculation and debiting of interest on amounts in arrears, and this fact simplifies the basis for calculating interest on arrears in practice.

The relevant operational period is that used for the calculation of interest on arrears, and this -- the compounding period -- will be considered the basic time unit for calculations. If a payment is received within such a period, the interest on arrears for the entire period is found by applying the interest rate per period on a pro-rata basis to the various levels of arrears during the period. Assuming that only one payment is received during a period,

$$I_{at} = \frac{i}{t-p} A_{t-p} + \frac{i}{p} A_p \quad (14)$$

with  $p$  signifying that portion of period  $t$  not yet elapsed at the time the payment was received, i.e.,  $t > p > 0$ . Where more than one payment is received during a period, the period must be broken into a number of parts equal to the number of payments received plus 1, with separate  $iA$ 's calculated for each and summed in the format provided in formula (14).

If the rate of interest charged on a loan or on amounts in arrears changes, the formula must be modified, because a change in  $i$  in expression  $iA$  introduces an inconsistency between  $I_a$ 's computed for periods before and after the change. The rate of flow,  $I_a$ , is changed for any given stock of arrears,  $A$ . Elimination of this inconsistency is achieved by applying an inflator or deflator to the calculation of  $I_a$ 's to place all periods on a consistent basis.<sup>1</sup>

$$\Sigma I_a = \Sigma I_{ar} + \Sigma I_{ar'}(r/r')$$

where  $r$  is the unadjusted rate applied to a portion of the life of the loan and  $r'$  is the other rate which applied to another portion of the life of the loan. Consistency requires that  $\Sigma I_{a_{max}}$  be calculated using  $r$ .

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1. Any rate may be used for purposes of calculation. However, calculations are minimized when a rate is used which was in force over at least a portion of the life of the loan.

### C. A Mathematical Restatement of the Repayment Index Formula

Mathematical and graphic explanations of the Repayment Index help to clarify its derivation. For purposes of illustration, assume a five year loan due in five equal annual installments of 100, each installment consisting of a principal repayment and an interest payment, as computed on a mortgage basis.<sup>1</sup> Assume also a certain repayment performance by the borrower, say, of 50 at the start of each period. This situation is shown in Table B-1, and is also illustrated in Figure B-a, where the amount due is represented by line  $A_{\max}$  and the amounts received by line P.

As indicated above, amounts due and amounts received are treated as stocks in the computation of the Repayment Index. The Index formula simply compares the flows derived from a) the installment schedule, and b) the difference between that schedule and repayments actually made, by applying a uniform rate of interest to each stock. In the following example a 10% rate of interest per period is used.

The calculation of  $I_{a_{\max}}$  provides the most useful starting point for elaboration. As noted above,  $I_{a_{\max}}$  is computed on the assumption that no repayments are made, and is simply the result of compounding interest on the installment schedule. Table B-2 illustrates the mathematics of the calculation of  $I_{a_{\max}}$ .

The derivation of  $I_a$  follows the same format but includes the deduction of repayments received from the installment schedule of amounts due, as indicated in Table B-3. For convenience of illustration it is assumed that repayments are received on the opening date of each period.

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1. Installments of principal and interest due on a mortgage basis (i.e., equal total payments each period) are derived by applying to the original principal amount the capital recovery factor for the relevant rate of interest and number of periods. The capital recovery factor is the reciprocal of the annuity factor, and is expressed algebraically as:

$$\frac{1}{a_n} = \frac{i}{1 - \frac{1}{(1+i)^n}}$$

Table B-1. Illustrative Loan Repayment Assumptions

<u>Start of Period</u>	<u>Amount Due as per Installment Schedule</u>	<u>Amount Received</u>
1	100	50
2	100	50
3	100	50
4	100	50
5	100	50

Table B-2. Calculation of  $I_{a_{max}}$ 

<u>Period</u>	<u>Arrears Brought Forward</u>	<u>Falling Due at Start of Period as per Installment Schedule</u>	<u>Arrears for the Period (Carried Forward)</u>	<u><math>I_a</math> @ 10% (Carried Forward)</u>
1	-0-	100	100.00	10.00
2	110.00	100	210.00	21.00
3	231.00	100	331.00	33.10
4	364.10	100	464.10	46.41
5	510.51	100	610.51	<u>61.05</u>
				$\Sigma I_{a_{max}} = \underline{171.56}$

Table B-3. Calculation of  $I_a$ 

<u>Period</u>	<u>Arrears Brought Forward</u>	<u>Falling Due at Start of Period as per Installment Schedule</u>	<u>Payment Received</u>	<u>Arrears for the Period (Carried Forward)</u>	<u><math>I_a</math> @ 10% (Carried Forward)</u>
1	-0-	100	50	50.00	5.00
2	55.00	100	50	105.00	10.50
3	115.50	100	50	165.50	16.55
4	182.05	100	50	232.05	23.21
5	255.26	100	50	305.26	<u>30.53</u>
					$\Sigma I_a = \underline{85.79}$

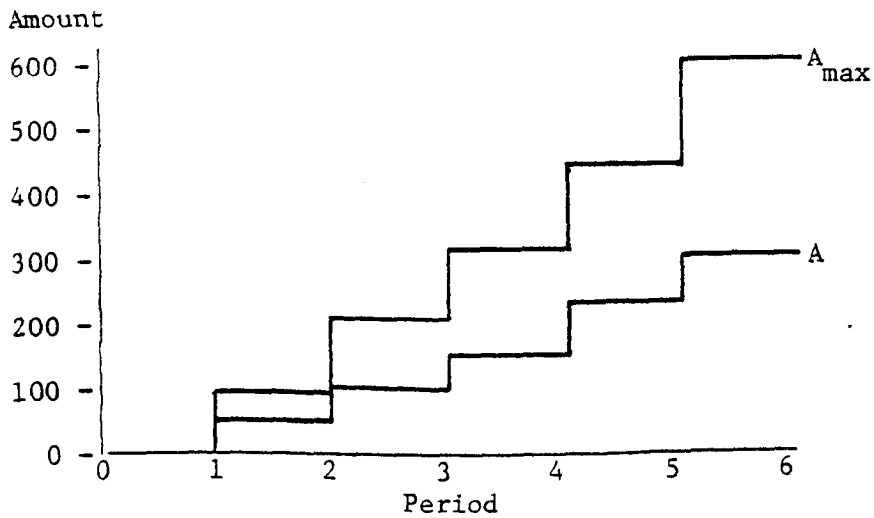
The values given for  $I_a$  and  $I_{a_{\max}}$  in Tables B-2 and B-3 are plotted in Figure B-b. (Note the difference in the left hand scales between Figures B-a and B-b.) It is obvious that  $I_a/I_{a_{\max}}$  represents the area under the lower curve as a proportion of the area under the higher curve. In other words, interest on actual arrears as a proportion of interest on arrears in the worst possible case, that of nil repayment. From Tables B-1 and B-2 it is apparent that, under the assumption that repayments are received at the start of each period and equal half the amount falling due at the same time, the area under  $I_a$  for any given period and also on a cumulative basis is half the area under  $I_{a_{\max}}$ . Hence, the value  $\Sigma I_a / \Sigma I_{a_{\max}} = 0.50$ , (the rounding error is significant only at the fourth value to the right of the decimal point) and in this and only this case  $R = 0.50$  also, given that  $R = 1 - (\Sigma I_a / \Sigma I_{a_{\max}})$ . Subtracting the factor from 1 is a useful device which equates timely repayment in full with a Repayment Index number of 1.00, nil repayment with 0.00.

#### D. Limitations

In the empirical application of the Repayment Index in the following appendices, the Index is used only over the period up to the due date of the final installment under the original maturity schedule or up to the close of the period studied, whichever is earlier. The utility of cutting off the calculation at or prior to the final maturity date rests on the observation that after this date, assuming no further repayments, the Index number will change from one period to the next to the extent that the marginal addition of area under each curve alters the average relationship expressed by the cumulative Index number.

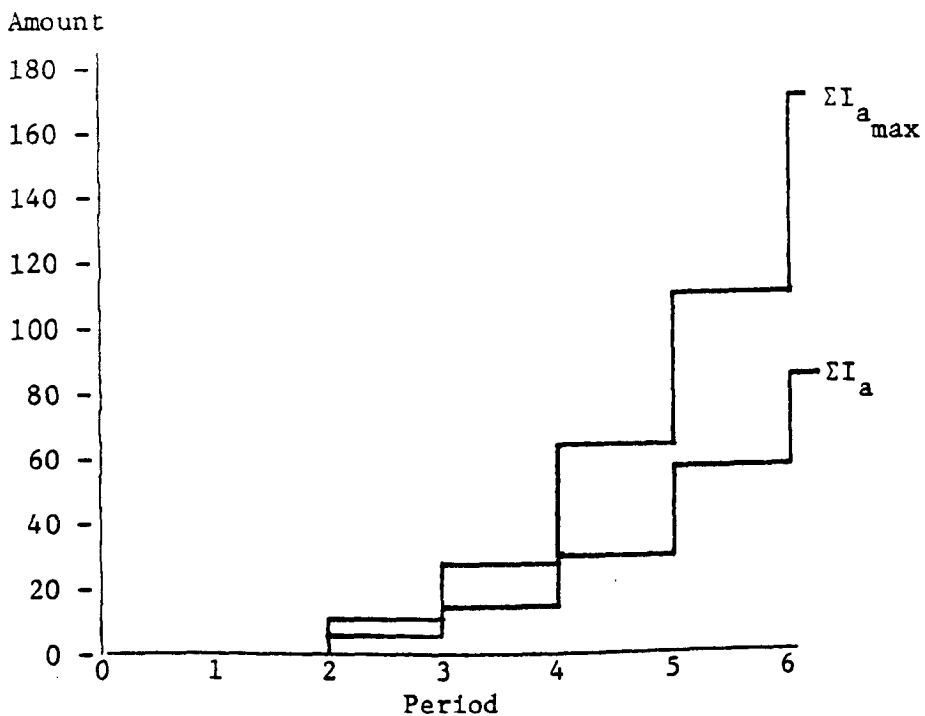
The fact that the Index number applies to a given time horizon involves an element of simplification, as indicated by the significance of a Repayment Index number of 1.00. The lender's costs

Figure B-a. Illustrative Comparison of Amounts in Arrears



Source: Tables B-2 and B-3. p. 414. This Figure is based on the Arrears for the Period column in the Tables.

Figure B-b. Illustrative Comparison of Interest Accumulated on Amounts in Arrears



Source: Tables B-2 and B-3. p. 414.

of administering a loan, including collection expenses and portfolio and liquidity planning would tend to rise, other things remaining equal, with increasingly erratic repayment performance by the borrower. Thus, a lender would presumably not be indifferent between a cumulative Repayment Index number of 1.00 reflecting an unbroken series of R's of 1.00 for individual periods and a cumulative Repayment Index number of 1.00 resulting from an erratic series of R's reflecting arrears during certain periods and prepayment during other periods. If experience indicated that wide variations in repayment performance from year to year or period to period on individual loans substantially offset the indication of repayment performance given by the Repayment Index, the complementary use of some measure of variation, such as the range of individual observations for each period, might be introduced.

#### E. Applications of the Repayment Index

Two major applications of the Repayment Index are proposed here. The first is as a management tool. Calculation of  $I_a$  for each compounding period is routinely undertaken by accounting systems which generate interest charges on amounts in arrears, and computing  $I_{a_{\max}}$  and the cumulative totals of both over the life of an installment schedule would impose only a small added burden on such accounting systems. Computerised systems could provide Repayment Index data quite easily. Thus, routine computation of the Index would involve only small increments to bookkeeping costs.

Applied to individual cases, the Index could be used as a decision making tool for determining the extent to which a borrower may enjoy continued access to credit in view of his past repayment performance. For example, all borrowers with historic repayment performance yielding an Index value of 0.95 or above could automatically be accorded credit equal to 125% of the principal

amount of their previous loan. Those with Index numbers below 0.70 could automatically be excluded, and those in between could be interviewed prior to being issued loans up to 80% of the principal amount of their last loan, etc.

In addition, Index numbers indicating poor levels of repayment provide a basis for various types of follow-up or borrower supervision by management. These initiatives could be oriented narrowly towards collection of amounts in arrears, or more broadly towards ensuring that the borrower's productivity in agriculture can be increased to a point at which adequate cash flow would be available to provide for loan repayment, etc.

The Index is also useful as a measure of portfolio performance. Index numbers may be computed for different classes of loans within a portfolio; for portfolios under different managers; for groups of loans to borrowers in different regions, at different levels of agricultural sophistication, with various types of farm enterprise mixes, with differing levels of extension support or with differential degrees of access to inputs and to produce marketing channels, and so on, in an effort to identify weak spots in the portfolio and in credit decision making and loan administration. Attention could be directed towards removing constraints associated with any particular category of poor payers. In addition, outstanding performance by borrowers and by lending officers could be rewarded.

The main use of the Repayment Index for the purposes of this paper, however, lies in its application as a social science research tool. By quantifying repayment performance on a comparative basis, the Index permits comparison of this aspect of borrowers' behaviour with quantifiable aspects of their economic, social, technical and personal characteristics or situations. Farm size in terms of land area, tenure status, farm income, family size and composition, educational levels achieved by borrowers, herd size and composition, off farm income and employment types, use of hired labour and a host of other variables of interest to rural developers and researchers may be compared with loan repayment performance in a statistically rigorous manner through the use of the Repayment Index.



## APPENDIX C

A STATISTICAL STUDY OF REPAYMENT PERFORMANCE AND  
LOAN, FARM AND BORROWER CHARACTERISTICS UNDER  
THE IDA 105 AND KFW SMALL SCALE LOAN PROGRAMMESA. Summary

A statistical study of loan repayment performance under two small scale loan schemes run by the Agricultural Finance Corporation (AFC) was undertaken using a sample of approximately 400 randomly selected borrowers stratified geographically into four subsamples of roughly equal size. The loans studied were issued between 1967 and 1972 in selected parts of Central and Western Provinces for borrowers in two of the subsamples under the IDA 105-KE scheme, supported by the International Development Association, an affiliate of the World Bank. Loans issued between 1969 and 1972 to borrowers in Kericho and Kisii under the KFW small scale scheme, supported by West Germany's Kreditanstalt für Wiederaufbau, were included in the remaining two subsamples.<sup>1</sup> Repayment performance was studied through June 1974, and quantified using the Repayment Index.<sup>2</sup>

Loan sizes under the IDA and KFW schemes ranged from Sh 1,000 to Sh 10,000. However, the sample includes no loans of more than Sh 9,000 but contained several of less than Sh 1,000 because some borrowers failed to draw the full amount to which they were entitled. However, borrowers who failed to spend 50% or more of their loan were excluded. The sample included only loans issued for a five year term, repayable in five equal annual installments. Loans which were prepaid greatly in advance were excluded from the sample because the primary interest of the study was in the normal situation ranging from modest prepayment through the

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Thanks are due to my wife, Gretel, who spent many hours collecting the data used in this study.

1. See pp. 207 ff for descriptions of these credit programmes.
2. See Appendix B for a description of the Repayment Index.

accumulation of large amounts in arrears. Loan purposes were not precisely identified, but almost all loans approved had more than half of their proceeds designated for the purchase of grade cattle and equipment to support a dairy enterprise based on grade cattle.

The primary purpose of the exercise was to associate Repayment Index values, the dependent variable, with selected loan, farm and borrower characteristics to identify those characteristics and values which might be used as a basis for screening loan applications so that potentially poor payers would be denied access to credit, a scarce rural development resource. Can smallholder repayment performance be predicted from information given on loan application and farm planning forms used by AFC during the period under review? To be more precise, can methods be devised which would allow the formulation of additional guidelines to exclude from loan schemes those who would otherwise gain access to credit but who would not achieve good repayment records? The exercise was not successful from this perspective, as no strong and significant correlations which might serve the desired purpose were found between the Repayment Index and independent variables, using relatively simple statistical methods.

The results which were derived tended to support the assumptions of conventional credit rationing, but not very strongly. The study failed to provide any clear justification of innovative lending criteria applied to small farmers.

A secondary purpose was to identify the type of farmer and farm which have access to smallholder credit. Here, the study yielded considerable descriptive data. Borrowers tended to have cash crops, and half were bona fide smallholders in the sense of having no off-farm income according to the data provided.

## B. The Data Source

The data source for the independent variables, i.e., loan, farm and borrower characteristics, was AFC's LON 201 forms. These

forms underwent several revisions following the introduction of the IDA scheme in 1967 and were phased out in 1975 in favour of a greatly simplified application which omitted farm planning information. During the period under review, however, the eight or more pages of information they contained on farm and borrower status and on the proposed loan-financed investment constituted the basis for credit decision making by AFC management. LON 201 forms also served as a focus for the promotion of credit-supported innovations by Ministry of Agriculture extension staff who have been deeply involved in the small farmer loan access mechanism. The farm planning and budget material required on the form was thought to provide the best basis for small farm development and for the best use of credit.

Repayment performance data was obtained from AFC ledger cards for each loan and from computer print outs for the latter part of the period studied, following the computerisation of small scale loan accounts by AFC.

### C. Sampling Procedures

The study uses four randomly selected geographically stratified samples of approximately 100 observations each. Geographical stratification was used in an effort to isolate different types of agriculture or other differences which occur over space. In addition, this type of stratification provided an opportunity to compare repayment performance under the KFW-supported loan schemes in Kericho and Kisii with the IDA-supported schemes in other parts of the country. Both schemes are limited to areas in which smallholders have title deeds to their land. The relative importance of various Districts, in terms of loans approved under these schemes is indicated by statistics as of 31 December 1973 as shown in Table C-1.

The sample included areas in four of the five Provinces having registered land in smallholder areas, as outlined below. The Districts included were selected primarily on the basis

Table C-1. Cumulative Distribution of Lending by District  
under the IDA 105 and KFW Small Scale Schemes  
at 31 December 1973

<u>Province and District</u>		<u>Loans Approved</u>	<u>Amount Approved</u> (Sh million)
Central	Kiambu	1,269	5.6
	Kirinyaga	875	2.2
	Murang <sup>a/</sup>	909	3.6
	Nyeria <sup>a/</sup>	<u>1,591</u>	<u>5.0</u>
		<u>4,644</u>	<u>16.4</u>
Eastern	Embu	1,614	4.1
	Meru	1,409	4.1
	Others (2)	<u>355</u>	<u>1.0</u>
		<u>3,378</u>	<u>9.2</u>
Nyanza	Kisii <sup>a/b/</sup>	1,036	2.7
	Others (3)	<u>210</u>	<u>.6</u>
		<u>1,246</u>	<u>3.3</u>
Rift Valley	Kericho <sup>a/b/</sup>	523	2.1
	Nandi	507	2.9
	Others (3)	<u>768</u>	<u>3.1</u>
		<u>1,798</u>	<u>8.1</u>
Western	Bungoma <sup>a/</sup>	226	.8
	Busia <sup>a/</sup>	125	.3
	Kakamega <sup>a/</sup>	<u>504</u>	<u>1.7</u>
		<u>855</u>	<u>2.8</u>
Total IDA 105 and KFW Small Scale Loan Schemes		<u>11,921</u>	<u>39.8</u>

a/ Sampled Districts included in this study.

b/ Districts in which the KFW Small Scale scheme operates. The IDA scheme does not operate in these Districts, but does cover all of the other Districts for which figures are given above.

of their importance as areas of loan concentration and data suitability. Smaller Districts in terms of loan concentration were excluded at the outset, and the remaining areas were selected as follows.

One major area of smallholder lending is Central Province and the contiguous upland Eastern Province Districts of Meru and Embu. However, not all of this area was included in the sample. Kiambu District was excluded on the basis of its closeness to Nairobi, which is reflected in its agriculture by many absentee land owners, many farmers with outside income, relatively high levels of on-farm investment and a sophisticated market-oriented production strategy on the part of many operators. These factors, however interesting from the point of view of rural development, were considered to be too strong in Kiambu to regard the District as at all representative of smallholder agriculture in Kenya. Meru, Embu and Kirinyaga Districts are excluded because of the relatively high degree of fragmentation of agricultural holdings typical of these Districts. In most cases AFC borrowers in these areas do not pledge their entire holdings as security for their loans, and the loans are generally issued as if for the development of a single plot. Therefore, the LON 201 form does not usually contain farm data which applies to the borrower's entire operation when the operation is spread over several parcels. As one purpose of the study was to compare farm characteristics with repayment performance, Meru, Embu and Kirinyaga borrowers were excluded on the grounds that LON 201 data would not be representative of their entire farms. One subsample was drawn from the portions of the Central Province-Mt Kenya area which remained, served by AFC branches in Nyeri, Murang'a and Karatina.

Another area where loans are made under the IDA programme is Western Province, which is served by AFC branches in Busia, Bungoma, Kimilili and Kakamega. (Kimilili is a sub-branch of Bungoma, and both are referred to as Bungoma in this study.) Western Province was used for the selection of a subsample more for its type of agriculture than for its importance as an area of loan concentration, however.

The KFW-supported small scale loan scheme is similar in virtually all respects to the IDA scheme, although the level of extension input in the two Districts covered, Kericho and Kisii, as measured by the intensity of farm planning and level of staff qualification, is higher than in the Districts included in the IDA scheme. The two KFW Districts receive German Technical assistance for extension activities. A separate subsample was drawn from each of these Districts.

The sampled areas, then, included the hinterland of the Central Province branches of Nyeri, Murang'a and Karatina in one subsample, and the Western Province branches of Busia, Bungoma and Kakamega as another. Both of these areas are covered by the IDA smallholder credit scheme. The other subsamples, drawn from Kericho and Kisii Districts, are served by the KFW smallholder credit scheme, which is essentially identical, from the borrowers' point of view, to the IDA scheme. Sampled areas accounted for 41% of the total amount of loans approved under the two schemes as of the end of 1973.

The subsamples were drawn as follows: The reference period for the study ran from the beginning of the schemes in question (1967 for IDA borrowers, 1969 for the KFW scheme) and terminated at the end of June 1974. It was for this period that repayment performance was studied. Loans under these schemes are usually repayable in five equal annual installments including principal and interest. Therefore, borrowers who received their loans in 1973 and 1974 were excluded from the study because there would have been little or no relevant repayment performance data available. A farmer receiving a loan in January 1973, for example, might be billed for his first installment in March 1974, which is quite close to June 1974, the close of the reference period. The number of loans approved in each of the four sampled areas between 1967 and the end of 1972 are given in Table C-2.

For each of the four geographical areas a separate subsample was drawn. Loans were listed in chronological order by file number, which in those areas served by more than one branch meant

Table C-2. Numbers of IDA 105 and KFW Small Scale Loans  
Approved Annually in Sampled Areas, 1967-1972

Sampled Area and Branches	Number of Loans Approved						Total
	1967	1968	1969	1970	1971	1972	
Central Province							
Nyeri & Karatina	-	-	-	598	560	315	1,473
Murang'a	68	344	229	123	106	75	<u>945</u>
							<u>2,418</u>
Kericho	-	-	25	43	209	181	<u>458</u>
Kisii	-	-	69	149	246	287	<u>751</u>
Western Province							
Bungoma & Kimilili	-	26	81	47	46	18	218
Busia	-	12	55	14	24	5	110
Kakamega	-	42	97	133	72	67	<u>411</u>
							<u>739</u>
							<u>4,366</u>
					Total		<u>4,366</u>

that all loans issued by one branch were listed in chronological order, then the loans from another branch, and so on. A random number table was used to draw each subsample. Subsample sizes were fixed arbitrarily at approximately 100 in an attempt to ensure that the results would be statistically valid, and more than 100 were drawn for each geographical area on the expectation that some observations might involve data problems which would render them unsuitable.

Even in spite of this allowance, additional observations had to be chosen in each case as the exercise proceeded. With regard to Kisii, for example, a batch of LON 201 forms could not be located, and the random number table was used to select a large number of alternative observations. This problem of lost records

resulted in the Kisii subsample's covering only the period from 1969 through the first nine months of 1971. In other cases missing files or loans with data problems were replaced by the next loan approved. In cases in which the next loan approved also had data problems the following loan was chosen, and so on. If a replacement was not found before the occurrence of the next loan contained in the original sample, the loans preceeding the deleted observation were examined in the same manner but moving in the opposite direction.

The second step in the data gathering routine was a search of account records to ascertain the amount of the loan spent and the interest charged on amounts in arrears or credited on pre-payments. At this stage, the tenor of the loan was recorded, and loans repayable in two or three annual installments were deleted on the grounds that these loans were relatively few in number and that they may have involved substantially different farm and borrower characteristics from those issued for the normal five year maturity.

As the focus of the exercise was to study repayment performance of randomly selected borrowers whose loans ran a more or less normal course, certain further deletions were made in arriving at the subsamples used for analysis. Some loans were prepaid on a greatly accelerated basis, probably because the borrowers desired to have their title deeds released to pledge for another loan or to sell their plot or for some other purpose. Therefore, loans not foreclosed which did not run for at least 30 months out of the 60 or slightly more than 60 months originally scheduled were excluded. Some borrowers failed to spend most of their loans, and those who spent less than Sh 500 or who spent only a small portion -- 50% or less -- of their loans were also dropped. (Loans approved under the two schemes ranged from Sh 1,000 to Sh 10,000.) Several other loans were rejected because the LON 201 forms contained wildly inconsistent data which could not be reconciled, while some others were dropped because of accounting problems encountered with respect to repayment performance. The disposition of the original sample and derivation of the final sample is given in Table C-3.



Table C-3. Subsample Size and Derivation

	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>
Original observations randomly selected	<u>119</u>	<u>114</u>	<u>123</u>	<u>115</u>
Less:				
Loans cancelled, withdrawn, or for other reasons not shown in AFC loan led- gers or print outs	8	3	23	8
Loans with original maturities of 2 or 3 years	1		5	
Loans prepaid before 30 mos.			1	1
Loans largely unspent	1		4	
Loans involving accounting errors, confused install- ment calculations, or posting problems	3	1	2	3
LON 201 forms not located	<u>7</u>	<u>58</u>	<u>8</u>	<u>4</u>
Subtotal	<u>20</u>	<u>62</u>	<u>43</u>	<u>16</u>
Original observations valid for sampling purposes	<u>99</u>	<u>52</u>	<u>80</u>	<u>99</u>
Alternative observations selected by				
Random number procedure		61		
Choosing the following observation	3		24	4
Less:				
Deletions from alternative observations		8	7	
Further deletions reflecting data problems	—	<u>2</u>	<u>1</u>	—
Subsamples used for computation	<u>102</u>	<u>103</u>	<u>96</u>	<u>103</u>

### C. The Independent Variables -- Loan Decision Making Data

Three sets of independent variables were extracted from LON 201 forms for sample cases: loan characteristics, farm characteristics and borrower characteristics:

#### 1. Loan Characteristics

##### a. Loan amount disbursed.

b. Value of loan security. Title deeds were taken as security for each of the loans studied. The security value always included the estimated market value of the land pledged, at times also included the value of grade cows to be financed or other chattels, and occasionally one year's salary received by the borrower from off-farm employment, etc. The concept of "security" for purposes of loan decision making did not appear to be consistent, except for the inclusion of the value of the land. Perhaps an explanation for the variation was the guideline that security value should equal at least 1.5 times the amount of the loan.

#### 2. Farm Characteristics

a. Farm size in acres. These figures are based on land area as specified in title deeds and therefore may be considered highly accurate. However, the specification of land use by acres as outlined below is not nearly so accurate, being estimated by Ministry of Agriculture technical field staff who assisted applicants in filling in the data required on the LON 201 form. The farm size data may also at times not include the borrower's entire agricultural holding if such consisted of more than one plot. The tendency for many borrowers to be among the more progressive and wealthy echelons of smallholders increases the probability that a minority of borrowers included in the sample in fact operate or have interests in plots in addition to that mentioned on their LON 201 forms.

b. Land use in acres. Uncultivable acreage, acreage devoted to the homestead, cash crop acreage by type of crop and area devoted to livestock enterprises and other crops were included in this breakdown.

c. Cash crop data in physical terms, such as numbers of coffee trees and tea stumps, grade cattle herd size, number of steers, etc., was recorded. Data for coffee and tea plantings presented several problems, as outlined later in this Appendix. While identification of a steer should pose little difficulty, certain non-descript animals without much trace of the Zebu hump may be included in the grade cattle classification as found on LON 201 forms.

d. Size of the family living on the farm on a permanent basis at the time the loan application was lodged.

e. Amount of money spent per annum, before the loan was issued, for cultivation and wages. These categories included machinery hire charges, casual wages paid and the full time labour wage bill.

f. Net farm income as estimated on a before loan basis and as projected on an after loan basis at the maturity of the loan-supported enterprise.

### 3. Borrower Characteristics

a. Approximate age of the applicant at the time of application for a loan.

b. Amount of school fees paid by the farm family annually at the time of application for the loan.

c. Whether the applicant lived on or off the farm.

d. Whether the applicant was a full time or a part time farmer.

e. Amount and source of non-farm income, if any.

f. The borrower's estimated net worth. This figure always included the value of the land pledged as loan security, which was usually the largest single item. Other parts of net worth often included the value of farm assets, and widely varying values were assigned to such assets as coffee trees and tea stumps. Efforts were made for the purposes of this analysis to adjust such figures downward when they appeared to be inflated. Net worth and non-farm income figures as reported on LON 201 forms cannot be considered as having a high degree of accuracy.

### 4. Data Quality and Realism

LON 201 forms were not always filled in with a premium on accuracy by Ministry staff, but there is no evidence that field staff ever attempted intentionally to misrepresent reality. The tendency of applicants would probably be towards conservative estimates or outright underestimates of income, assets and evidence of wealth. Little effort was made by AFC to verify data on non-farm income or assets not seen on the farm. Indeed, AFC's costs of administration could rise significantly if more details were required, and the experience accumulated through 1975 prompted AFC management to move towards simplification of the loan application form.

In any event, brief explorations of data realism and quality provide perspective for this analysis. Planting densities for

coffee and tea and certain farm income expectations embodied in farm plan projections offer pregnant examples.

a. Coffee and tea planting densities

Two indicators of the accuracy of farm planning data on loan application forms are the reported density of coffee trees and tea stumps on borrowers' farms. The planting of both of these crops is and has been controlled and quite closely supervised,<sup>1</sup> suggesting that the standard, recommended density should prevail at the time of planting.<sup>2</sup> That these densities would usually continued to prevail during the maturity of the crop is indicated by the practice of having tea nurseries on most farms for the expansion and maintenance of existing stands, and because of the desire of coffee farmers to maintain their stands in the face of limitations on new planting, but not on replacement planting, imposed by Kenya's subscription to the International Coffee Agreement. However, it is possible that some downward drift in coffee density could occur in marginal zones through the failure to replace trees which die, are destroyed or for some other reason removed. In these zones coffee stands may not receive much attention in years when coffee prices are low. Interplanting does not affect the densities of these crops, as tea is virtually never, and coffee only occasionally interplanted with other crops (excluding forage grasses on contours between coffee rows, a not uncommon practice). The standard planting density for coffee is 540 trees per acre, and for tea, 3,500 stumps per acre.

Densities were calculated for the 90 coffee farms and 67 tea farms for which both acreage planted and plant populations were given. The distribution of planting densities found by dividing the number of plants by the areas devoted to each crop,

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1. Controls related to licencing requirements for coffee growers have been described as "amounting almost to directed cultivation." See Allan, William, The African Husbandman. pp. 398-399.

2. Technical data in this section is substantiated by Acland, J.D., East African Crops. pp. 58-59 for coffee, pp. 208-222 for tea.

Table C-4. Reported Coffee and Tea Planting Densities  
for the Entire Sample

<u>Measure</u>	Planting Density per Acre	
	<u>Tea</u>	<u>Coffee</u>
Recommended standard density	3,500	540
Mean density reported	3,240	518
As % of recommended standard	93%	96%
Standard deviation of reported densities	735	160
As % of mean	23%	31%
Minimum reported density	1,538	111
As % of mean	47%	21%
Maximum reported density	5,556	1,600
As % of mean	171%	309%
Number of valid observations	67	90

both as reported on loan application forms, is given in Table C-4. The diversity of results suggests that extension officers who drew up farm plans frequently failed to check their work for consistency, and consequently a rather wide margin of misreporting developed. The figures indicate that the dispersion of reported coffee densities is greater than that for tea, suggesting a somewhat greater degree of consistency in the reporting of tea enterprise size in physical terms.

Table C-5 shows the same data disaggregated to the subsample level. The subsamples show a wide variation in reported planting densities, especially with respect to coffee. Coffee planting densities for Nyeri-Murang'a-Karatina show the least dispersion and also a reported mean quite close to the recommended density. While about 60% of the Nyeri-Murang'a-Karatina subsample cases were coffee growers, 15% or fewer of the other subsample cases were. On these grounds alone it could be hypothesised that

extension staff in the other sample areas would be less familiar with the crop and hence more prone to erroneous reporting of planting density. Busia-Bungoma-Kakamega also show a mean quite close to the recommended planting density, but with somewhat more dispersion. The mean for Kisii is far below and that for Kericho far above the recommended density, and the figures for Kericho also indicate a very wide dispersion, suggesting perhaps the least reliability in spite of the farm planning and loan application scrutiny activities of the German Agricultural Team in these areas.

The pattern for reported tea planting densities is similar to that for coffee, although the Busia-Bungoma-Kakamega subsample contains no observations for tea. The Nyeri-Murang'a-Karatina data appear to be the most consistent with recommended density, followed by those for Kisii and Kericho. Assuming that the recommended density for tea is adhered to in Kericho, the wide dispersion in reported densities there is interesting in view of the relatively large proportion of the sample growing tea. While the coffee density was more consistent in the area with the greatest sampled incidence of coffee, the opposite appears to be true for tea.

b. Income expectations

The expectations embodied in farm plans also provide perspective on the realism of the farm planning exercise. The pre-loan and projected net farm incomes of borrowers when their credit-financed enterprises are mature show most clearly the magnitude of benefits credit and whatever supervision accompanies it were expected to bring to borrowers. Enterprise maturity means that the credit-supported enterprise or investment is fully on-stream, in full production. Maturity is usually attained sometime between the end of the second year and the start of the fifth year following receipt of the loan. Net farm income as defined here is simply the total farm revenue (including amounts imputed for the value of on-farm consumption of produce from the

Table C-5. Reported Coffee and Tea Planting Densities by Subsample

<u>Measure</u>	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>
<i>Coffee Planting Density in trees per acre</i>				
Recommended density	540	540	540	540
Mean reported density	743	392	527	527
As % of recommended	138%	73%	98%	98%
Standard deviation of reported densities	488	171	127	70
As % of mean	66%	44%	24%	13%
Minimum reported density	389	111	300	400
As % of mean	52%	28%	57%	76%
Maximum reported density	1,600	667	821	800
As % of mean	215%	170%	156%	152%
Number of valid observations	5	14	12	59
<i>Tea Planting Density in stumps per acre</i>				
Recommended density	3,500	3,500	3,500	3,500
Mean reported density	3,178	3,936		3,284
As % of recommended	91%	112%		94%
Standard deviation of reported densities	791	1,128		436
As % of mean	25%	29%		13%
Minimum reported density	1,538	3,092		2,632
As % of mean	48%	79%		80%
Maximum reported density	5,556	5,217		4,167
As % of mean	175%	133%		127%
Number of valid observations	46	3	0	18

Table C-6. Measures of Net Farm Income Projections by Subsample

Projected Net Farm Income ÷ Pre-Loan Net Farm Income	<u>Kericho</u>	<u>Kisii</u>	Busia Bungoma <u>Kakamega</u>	Nyeri Murang'a <u>Karatina</u>	Entire Sample
Mean	6.22	2.18	6.17	3.23	4.38
Standard deviation	20.41	1.89	12.10	2.94	12.16

farm) less cash expenditures including debt servicing expenses and household expenditures not directly related to the production of crops of maintenance of fences and structures, etc.

The average or mean expectation for the entire sample, excluding 24 missing observations, was that the projected net farm income would be 4.38 times the size of the estimated pre-loan net farm income. Because of the small and occasionally negative value of pre-loan net farm income in many cases, the range extends from -41.82 to 190.26 times, and the standard deviation is 12.16 times the pre-loan net farm income.

The optimism found in projections of net farm income appears in each of the subsamples, as indicated by Table C-6. Expectations for Kisii are the most modest, in relative terms, while the greatest expectations were applied to borrowers from branches in Busia, Bungoma and Kakamega. The relatively low standard deviation for Kisii suggests a degree of uniformity of expectations not equalled elsewhere.

#### c. Calculation of interest on arrears

An additional limitation on the analysis attempted here is imposed by a factor which reduces the validity of the Repayment Index values. During the period under review, AFC did not charge interest on balances in arrears of less than Sh 150 and did not pay interest on prepaid balances of less than Sh 150. The justification for this accounting shortcut rests simply on economy, as



it eliminates interest entries of less than Sh 1.00, given the 7½% - 8% rates which prevailed. When AFC was dependent on mechanical bookkeeping systems the cost of an entry may well have been Sh 1.00, making it uneconomical to undertake the calculation and posting of smaller amounts on a monthly basis.

The extent to which this practice distorts the validity of interest on arrears as an indicator of balances in arrears depends upon two factors: the size of the loan and the age of the loan. The larger the loan, the less the impact of the Sh 150 threshold. The longer the period elapsed since the first installment of the loan fell due, the larger the cumulative amount which has fallen due for repayment, diminishing the relative importance of the Sh 150 limit.

In terms of Repayment Index values, the impact of the threshold would be  $\pm .21$  in the case of the minimum loan of Sh 1,000 as of the due date of the second annual installment. In other words, the Repayment Index could stand at 1.00 using the data employed in this study, when in fact the real arrears situation is consistent with a Repayment Index value of .79; or if a prepaid balance of Sh 150 were on hand for that period, 1.21. This is the maximum degree of distortion. At the opposite extreme, a Sh 10,000 loan outstanding for six years would suffer a distortion of only  $\pm .01$  in terms of the Repayment Index. The mean loan of approximately Sh 3,100 suffers a distortion of  $\pm .05$  at the end of the fifth period after the first installment fell due. At plus one standard deviation from the mean loan size, the distortion is  $\pm .03$ ; at minus one standard deviation,  $\pm .09$  at the end of the fifth period since the first installment fell due.

The extent to which this factor compromises the validity of the data is diminished by the extent to which any given balance prepaid or in arrears is less than Sh 150, the extent to which any balance within the  $\pm$  Sh 150 range is on the books for less than an entire annual period, and the extent to which prepaid balances and arrears within the range offset each other over the life of a loan or during the period chosen for study. In addition, few borrowers

are probably aware of this accounting procedure, and hence would not be in a position intentionally to take advantage of the relief it affords to those in arrears by no more than Sh 150.

The justification for permitting the data to be distorted by this factor also rests on research or analytical economy, as the recalculation of interest on arrears for the loans and the period studied would have increased data recording time greatly. In addition, the cost of obtaining great precision in this respect is not warranted by the generally "loose" nature of the great majority of the values accorded to other variables with which repayment performance is compared.

#### E. Loan Characteristics

##### 1. Size of Loan Disbursed

The average loan disbursed on behalf of sample borrowers -- AFC pays against suppliers' invoices -- approximated Sh 3,100. Over the subsamples, however, there was considerable variation in mean loan disbursement, from roughly Sh 2,300 in Kisii to Sh 4,000 in Kericho, as shown in Table C-7. In cumulative percentage terms roughly 95% of borrowers sampled in Kisii had loans of less than Sh 4,000, while 95% of the Kericho subsample had loans of less than Sh 7,000, with the other two subsamples falling between these two observations.

##### 2. Disbursements in Relation to Loan Amounts Approved

An interesting aspect which emerged during the data gathering in 1975 was the proportion of the shilling volume of loans which were not fully spent and the proportion of borrowers who failed to spend their loans completely. AFC expects that its borrowers will require about three months to spend their loans, as the first annual installment falls due about 15 months following the notification to the borrower that the loan is available for drawing as specified in the loan agreement. Amounts not fully spent are

Table C-7. Size Distribution of Loans Disbursed, by Subsample

<u>Loan Principal Disbursed</u>	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
	( - - - - cumulative percentages - - - - )				
Sh 1000 or less	-	2	9	-	3
Sh 1001 - 2000	9	44	37	20	27
Sh 2001 - 3000	32	83	68	43	56
Sh 3001 - 4000	55	98	87	75	79
Sh 4001 - 5000	78	99	97	86	90
Sh 5001 - 6000	86	99	99	95	95
Sh 6001 - 7000	96	100	99	98	98
Sh 7001 - 8000	99		100	100	99
Sh 8001 - 9000	100				100
Mean Loan Disbursed	Sh 4,012	2,291	2,663	3,440	3,107
Standard Deviation	Sh 1,556	847	1,297	1,394	1,459
n	102	103	96	103	404

generally cancelled at or before the posting of the first installment. While some of these shortfalls are quite small and of no analytical interest, in certain branches the portion appears to have been significant. The frequency and magnitude of underspending suggests that

- a) borrowers may not really "need" loans to the extent commonly assumed,
- b) the problems of organising on-farm investments supported by loans are beyond the management capabilities of some borrowers,

Table C-8. Comparison of Sample Loan Approvals and Disbursements as of 31 December 1975

<u>Subsample</u>	Year Loan Approved					<u>Total</u> ( - -)
	<u>1968</u> ( -	<u>1969</u> Loan	<u>1970</u> Amounts	<u>1971</u> in Sh	<u>1972</u> 000	
<i>Kericho Subsample</i>						
a) amount approved		24.0	39.6	226.3	201.9	498.1
b) amount disbursed		23.2	39.6	219.6	186.5	468.9
c) b as % of a		97%	100%	97%	92%	95%
d) number of loans sampled		7	9	42	47	105
e) proportion at least 90% disbursed		71%	100%	93%	77%	85%
f) proportion at least 50% disbursed		100%	100%	98%	89%	94%
<i>Kisii Subsample</i>						
a) amount approved		28.5	93.6	155.8		277.9
b) amount disbursed		27.0	83.6	144.9		255.5
c) b as % of a		95%	89%	93%		92%
d) number of loans sampled		14	40	56		110
e) proportion at least 90% disbursed		71%	80%	55%		66%
f) proportion at least 50% disbursed		100%	95%	96%		96%
<i>Busia Branch Subsample</i>						
a) amount approved	10.0	13.0	3.6	4.9		31.5
b) amount disbursed	9.5	8.5	1.0	.2		19.2
c) b as % of a	95%	65%	28%	4%		61%
d) number of loans sampled	5	7	2	2		16
e) proportion at least 90% disbursed	80%	43%	0%	0%		44%
f) proportion at least 50% disbursed	100%	71%	50%	0%		69%
<i>Bungoma Branch Subsample</i>						
a) amount approved	2.8	35.8	28.0	41.6	15.1	123.3
b) amount disbursed	.9	22.1	25.3	17.8	7.0	73.1
c) b as % of a	32%	62%	90%	43%	46%	59%
d) number of loans sampled	1	12	6	10	3	32
e) proportion at least 90% disbursed	0%	33%	50%	30%	33%	34%
f) proportion at least 50% disbursed	0%	58%	83%	30%	33%	50%

(continued)

Table C-8. (continued)

<u>Subsample</u>	Year Loan Approved						<u>Total</u>
	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	
	( - - - Loan Amounts in Sh 000 - - - )						
<i>Kakamega Branch Subsample</i>							
a) amount approved		34.1	46.2	66.3	49.9	5.5	202.0
b) amount disbursed		31.2	44.0	57.8	42.7	1.9	177.6
c) b as % of a		91%	95%	87%	86%	35%	88%
d) number of loans sampled		11	16	20	14	2	63
e) proportion at least 90% disbursed		82%	88%	75%	71%	0%	76%
f) proportion at least 50% disbursed		91%	94%	85%	86%	0%	86%
<i>Nyeri and Karatina Branches Subsamples</i>							
a) amount approved				103.9	59.7	15.9	179.5
b) amount disbursed				102.7	59.6	15.9	178.2
c) b as % of a				99%	100%	100%	99%
d) number of loans sampled				35	16	5	56
e) proportion at least 90% disbursed				97%	100%	100%	98%
f) proportion at least 50% disbursed				100%	100%	100%	100%
<i>Murang'a Branch Subsample</i>							
a) amount approved	4.5	69.9	43.2	23.7	20.8	33.2	195.3
b) amount disbursed	4.5	66.4	38.6	22.5	20.6	33.2	185.8
c) b as % of a	100%	95%	89%	95%	99%	100%	95%
d) number of loans sampled	1	18	13	6	5	7	50
e) proportion at least 90% disbursed	100%	89%	69%	83%	100%	100%	86%
f) proportion at least 50% disbursed	100%	94%	92%	100%	100%	100%	96%

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Note: All data given refer only to statistics pertaining only to the subsample loans.

- c) the farm planning exercise at times resulted in the over-statement of the amount of investment desired by or within the capability of the farmer,
- d) the "shortage" of grade cattle at times hindered the realisation of on-farm investment plans, especially in Western Province,
- e) many borrowers do not inflate their claims in order to use loan proceeds for purposes not envisaged in their loan contracts, and
- f) the amount of underspending which reflects insufficient or inadequate documentation is probably small. The level of underspending would have been the subject of public debate had it resulted from misunderstandings about paperwork.

Details of underspending among sampled borrowers are shown in Table C-8 by branch, by year, by amounts of money involved and by the proportion of loans involved. The Table refers to larger subsamples than used elsewhere in this study because gross underspending was one criterion for deleting observations to arrive at the final subsample composition, as explained above on page 425. Underspending was greatest Busia and Bungoma, where the amounts disbursed approximated 60% of amounts approved. Rates were highest in Kericho, Murang'a and Nyeri and Karatina, which all disbursed an average of at least 95% of loan amounts approved.

### 3. Loan Security

The value of security taken by AFC is large in relation to the original principal amount of loans disbursed. The mean security value was 4.06 times loan size, far above the 1.5 times decision guideline presumably used by management, with a standard deviation of 2.86, a maximum of 24.84 and a minimum of 1.02 times loan size. As repayments are made by borrowers and the principal amount outstanding decreases, the relationship which prevails at the time of loan approval increases, providing AFC with an even stronger position. An exception to the tendency of security coverage to increase over time is the case in which the borrower makes payments which are smaller than the interest which accumulates on the loan, but these cases are relatively infrequent. The inflation of land values over the life of a loan also has the effect of increasing security coverage. Disregarding the selective

inclusion of values other than land, the explanation of AFC's large security margin rests mainly with the indivisibility of plots. It would hardly be worthwhile for a borrower or prospective borrower to subdivide a plot so that only a portion would have to be pledged to satisfy AFC's security requirements. On paper, there is little doubt that AFC is well secured.

#### 4. Loan Amount per Acre

The mean loan amount disbursed per acre of land reported by the borrower was approximately Sh 325. The mean amount by subsample ranged from Sh 234 to Sh 486, indicating a considerable spread. The size of the mean, as shown in Table C-9, appears to have little relation to the mean farm size in acres (see Table C-10), but rather follows a pattern suggestive of the general levels of development in the areas concerned. The Western Province subsample contains probably the least developed holdings in the entire sample, while the Central Province subsample contained probably the most highly developed. Kericho and Kisii fall in between, with Kericho at a higher general level than Kisii. This pattern suggests that more highly developed smallholdings can support greater incremental investment in an enterprise such as dairying, which typically does not involve a serious labour constraint at the level of a small herd, than can less highly developed small farms. In addition, the access of small farmers to infrastructure in the more highly developed smallholder Districts is correspondingly greater, supporting greater on-farm investment. Relevant infrastructure would include roads, dairy cooperatives, extension and animal health services and facilities.

### F. Farm Characteristics

#### 1. Farm Size in Acres

Interpretation of farm size distributions must be qualified by the possibility that some borrowers own plots of land in addition to those specified in loan application forms and taken as security by AFC. Multiple holdings have been minimised

in sample areas by land consolidation under the process culminating in smallholder land registration. However, once the process is complete, and in spite of the operation of Land Control Boards, multiple holdings arise through market transactions. Multiple holdings reflect the attractiveness of land as an investment by those having liquidity to devote to such acquisitions. Part of the attractiveness of land may reflect familial and social considerations, as in the provision of separate farms for separate wives where polygamy is practiced and in the outlet it provides for dependents to become self-sufficient. In other cases several plots may be operated as one farm, but only one is reported on the AFC loan application so that the others are not encumbered by AFC's mortgage requirements. AFC does not routinely undertake searches of Land Registries to ascertain whether applicants have divulged all their holdings. An informed estimate is that perhaps 15% - 25% of AFC's smallholder borrowers included in the sample own plots in addition to those taken by AFC as loan security.

Of the entire sample of 404 valid observations, the mean farm size was 12.09 acres. The smallest farm included in the sample consisted of 2.0 acres, although it may be questioned whether this and other small plots were in fact not fragments of larger operations. The largest farm included in the sample consisted of 73.0 acres.

By subsamples, the largest mean farm sizes are found in Busia-Bungoma-Kakamega (15.64 acres) and in Kericho (14.86 acres), although the standard deviation around these means is rather large, as shown in Table C-10. Mean farm sizes were considerably smaller in Kisii (9.94 acres) and Nyeri-Murang'a-Karatina (8.18 acres).

Variations in the distributions of farm size by subsample are striking, with Kisii and Nyeri-Murang'a-Karatina showing much heavier concentrations in the lower end of the scale than the other two areas. For example, half of the Nyeri-Murang'a-Karatina subsample consisted of plots of less than 7.5 acres,



Table C-9. Loan Amount Disbursed per Acre

	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
Loan amount disbursed per acre of borrowers' reported holdings					
Mean	Sh 317	267	233	486	325
Standard deviation	Sh 149	133	149	196	

Table C-10. Reported Farm Size Distribution by Subsample

<u>Reported Farm Size in Acres</u>	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
	( - -	cumulative percentages			- - )
Less than 2.50	1%	-	-	3%	1%
2.50 - 4.99	2%	7%	3%	24%	9%
5.00 - 7.49	18%	35%	21%	52%	31%
7.50 - 9.99	29%	64%	39%	71%	51%
10.00 - 12.49	47%	78%	50%	86%	66%
12.50 - 14.99	59%	85%	62%	92%	75%
15.00 - 19.99	77%	94%	75%	98%	86%
20.00 - 29.99	95%	99%	89%	99%	96%
30.00 or more	100%	100%	100%	100%	100%
Mean reported farm size in acres	14.86	9.94	15.64	8.18	12.09
Standard deviation	8.12	5.15	11.76	4.58	8.44
n	102	103	96	103	404

but only about 20% of the Kericho and Busia-Bungoma-Kakamega subsamples were below this size. While one quarter of Nyeri-Murang'a-Karatina plots sampled consisted of less than 5.0 acres, farms of this size constituted only minute portions of the other subsamples. Although roughly a quarter of the sampled farms in Kericho and in Busia-Bungoma-Kakamega consisted of 20.0 acres or more, only 2% of the Nyeri-Murang'a-Karatina group were in this range. In spite of these differences, however, there is little doubt that sample borrowers tend to be smallholders in the general sense of the term.

## 2. Land Use Patterns

Of the mean farm size of 12.1 acres, an average of 10.6 acres is devoted to agricultural enterprises. The balance consists of the homestead plot and of rocky, boggy or other land not suitable for agriculture. Grass leys accounted for only one-quarter acre on the average farm, while permanent grassland occupied 5.8 acres. Thus, slightly over half of the mathematically average farm consisted of improved and unimproved pasture, with unimproved pasture predominating.

## 3. Cash Cropping

The summary of the incidence of cash crops among borrowers at the time they lodged their loan applications is given in Table C-11. Grade cattle are considered a cash enterprise for the purpose of this discussion only if the farmer reported three or more female head, on the assumption that two animals, one of which would no doubt frequently be immature, would in most cases be insufficient to provide more than the consumption requirements of the farm family. The greatest variety of cash enterprises is found in Kisii, where coffee, tea and pyrethrum were each grown by roughly half or more of the subsample. The highest incidence of any cash crop was coffee, grown by almost 70% of borrowers in Nyeri-Murang'a-Karatina. Over 60% of sample borrowers in Kisii grow coffee, too, while tea was grown by 60% of the Kericho subsample.

Table C-11. Percentages of Borrowers Having Cash Crops at Time of Loan Application, by Subsample

<u>Cash Enterprise</u>	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
Coffee	6.9%	<u>61.2%</u>	31.3%	<u>69.9%</u>	42.6%
Tea	<u>60.8</u>	47.6	1.0	16.2	34.4
Pyrethrum	2.0	58.3	-	1.9	15.8
Grade cattle <sup>a/</sup>	21.6	4.9	4.0	7.8	9.7
Steers	49.0	15.5	19.8	12.6	24.3
Others:					
Pineapples	1.0	1.9	2.1	-	1.2
Vegetables	2.9	1.9	-	1.9	1.7
Forest products	-	1.9	1.0	18.4	5.4
Oil seeds	-	-	3.1	-	5.4
Others or combinations of other enterprises	31.4	30.1	<u>56.3</u>	26.2	35.6

Note: The most important cash enterprise in terms of numbers of growers in each subsample is underlined.

a/ Grade cattle have been considered a cash enterprise for the purposes of this Table only when the female grade herd consisted of three or more head. While it is possible that a smaller herd could produce a marketable surplus, lowering the threshold to two head would have included many herds of one mature and one immature animal, which would probably not provide much more than on-farm consumption requirements.

\* \* \* \* \*

Table C-12. Number of Major Cash Crops Operated by Borrowers at Time of Loan Application, in Percent by Subsample

<u>Number of Cash Enterprises</u>	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
None	8.8%	1.9%	17.7%	3.9%	7.9%
One	26.5	16.5	47.9	39.8	32.4
Two	35.3	30.1	31.3	29.1	31.4
Three	22.5	33.0	2.1	22.3	20.3
Four	5.9	15.5	1.0	4.9	6.9
Five	<u>1.0</u>	<u>3.0</u>	-	-	<u>1.1</u>
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

Note: Major cash enterprises are defined here as including the main categories listed in Table C-11 above, but with "others" treated as a single enterprise. Columns may not sum to totals because of rounding errors.

In three of the subsamples more than half of the borrowers reported growing a cash crop which is not consumed on the farm, i.e., coffee and tea. In the remaining subsample, Busia-Bungoma-Kakamega, more than half of the borrowers reported growing other crops, mainly food crops, which could be considered cash enterprises in the sense that they would probably produce a marketable surplus in average years. These statistics suggest that borrowers tended to operate on a commercial basis in the sense of being specialised to some extent in a commercial crop, or in the sense of having acreage to devote to cultivation other than that required for meeting on-farm consumption requirements.

Table C-12 indicates the number of cash crops grown by borrowers in each subsample. Fewer than 8% of sampled borrowers had no cash crop at the time they applied for their loans, while more than a quarter operated three or more cash enterprises. For the purpose of ascertaining the role of AFC loans in enterprise adoption, grade cattle are considered a cash crop regardless of herd size, and "others" are grouped together as if a single cash enterprise since most are temporary crops. On this basis, loans were most innovative in Busia-Bungoma-Kakamega in the sense of providing grade cattle to those who previously had no cash enterprise or only one such enterprise, defined to include combinations of minor crops. Almost two-thirds of this subsample fell within these categories, and 97% had no more than two cash enterprises. Loans tended to be least innovative in this sense in Kisii, where half the borrowers had three or more cash enterprises at the time they lodged their loan applications and fewer than 2% of the subsample reported having no cash enterprise.

Ecology and farm layout have an influence on the high incidence of cash enterprises on Kisii farms, for many of these farms cover a wider range of altitude than those in less hilly areas. A single plot in Kisii could contain coffee, tea and pyrethrum -- a combination unheard of in Busia-Bungoma-Kakamega and rare in Nyeri-Murang'a-Karatina. The importance of having more than one cash enterprise is at least two-fold: the addition of another enterprise may permit intensification of production from

given stocks of land and labour supply, and by diversifying the farm's production the addition of another cash enterprise also diversifies the farmer's risk of adverse market and production conditions.

The amount of land devoted to coffee and tea among those sampled borrowers having either of these enterprises gives some indication of the tendency of smallholders to diversify their production rather than specialise. In contrast to the mean farm size of 12.1 acres, the mean coffee stand amounted to less than one acre, while the mean tea stand occupied 1.33 acres, as indicated in Table C-13. While the standard deviation in each case is relatively large in relation to the mean -- .74 acres for coffee, .80 acres for tea -- the fact remains that few sampled farmers use their land primarily for the production of these crops. The largest coffee stand in the sample did not exceed five acres, and half of the 172 sample coffee growers had stands of less than .75 acres. With respect to tea stands, the largest sampled did not exceed four acres, and half of the 139 growers had one acre or less. Labour constraints at seasonal peaks in labour demand are known very often to provide the impetus for diversification of production, while disease and price factors also tend to discourage smallholder specialisation in coffee. The same types of constraints are reflected in small pyrethrum plots. Half of the 64 growers had stands of less than .75 acres.

Approximately 25% of sampled borrowers reported owning steers at the time they lodged their loan applications. Steers, held for fattening purposes and eventual slaughter for beef, are a livestock enterprise which does not require the inputs or management demanded for successful dairying based on grade cattle. Steers do not require such intensive supervision as demanded by the daily milking routine, presentation for artificial insemination, and the disease proneness of grade cows, and thus tend to be less vulnerable to stress in an economic sense than are grade cows.

The distribution of steer enterprises is given in Table C-14.

The distribution falls into two patterns. In Kericho about half of the subsample reported having steers, while in the other three subsamples the proportion having the enterprise ranged from 12% to 20%. The explanation for the deviation in Kericho is probably related to the larger average farm size there, the use of animal draught power, and the pastoral tradition of the inhabitants, who adopted sedentary agriculture relatively recently. The comparatively low incidence of steer enterprises in the other subsamples may reflect small farm sizes in some areas and a preference for native stock and inferior crosses as a basis for subsistence livestock enterprises.

#### 4. Loans and Grade Cattle Enterprise Adoption

To what extent did the provision of credit in sample areas enable farmers to adopt dairying based on grade cattle? For the entire sample, 73% of borrowers had no grade cattle on their farms at the time loan applications were filed, as shown in Table C-15. This proportion suggests a substantial degree of innovative financing under the KFW and IDA schemes in the areas concerned. Of those having grade cattle at the time their application formalities were underway, about one-third had only one female grade animal, while approximately another one-third had two such animals. Thus, credit did flow primarily to those without grade animals and secondarily to small operators established in dairying, but not on a scale sufficient to produce a very sizeable marketable surplus. Only 3% of the sampled borrowers were reported to have five or more female grade head on their farms at the time they applied for loans. This interpretation understates the number of larger, established operators, however, as a portion of borrowers may have had other farms, not reported on their loan applications, stocked with grade animals.

The pattern of innovative financing is especially apparent in the least developed area, Busia-Bungoma-Kakamega, where 93.8%

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1. As noted on page 419 and elsewhere in this paper, the IDA and KFW smallholder schemes have financed primarily grade cattle. Between 1967 and 1972, for example, 85% of disbursements under the IDA project were earmarked for grade cattle and related on-farm investments.

Table C-13. Reported Sizes of Coffee and Tea Stands,  
by Subsample

	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
Coffee acreage reported by sample farmers					
Mean	.99	.71	.62	1.23	.92
Standard deviation	.54	.60	.50	.83	.74
n	7	63	30	72	172
Tea acreage reported by sample farmers					
Mean	1.54	1.14	1.25	1.21	1.33
Standard deviation	.84	.77	-	.67	.80
n	62	49	1	27	139

Table C-14. Sizes of Steer Enterprises Reported by Borrowers,  
by Subsample

<u>Reported Number of Steers</u>	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
None	51.0%	84.5%	80.2%	87.4%	75.7%
One	5.9	6.8	6.3	8.7	6.9
Two	16.7	6.8	6.3	2.9	8.2
Three	5.9	-	-	-	1.5
Four	9.8	1.0	5.2	-	4.0
Five	3.9	1.0	-	1.0	1.5
Six or more	<u>7.0</u>	<u>-</u>	<u>2.0</u>	<u>-</u>	<u>2.1</u>
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

Note: Columns may not sum to totals because of rounding errors.

Table C-15. Number of Female Grade Head on Borrowers' Farms as Reported on Loan Applications, in Percentages by Subsample

Number of Female Grade Stock on Sampled Borrowers' Farms as Reported on Loan Applications			Busia	Nyeri	Entire Sample
	Kericho	Kisii	Bungoma Kakamega	Murang'a Karatina	
None	60.8%	66.0%	93.8%	72.8%	73.0%
One	9.8	12.6	2.1	12.6	9.4
Two	7.8	16.5	-	6.8	7.9
Three	8.8	1.9	1.0	1.9	3.5
Four	5.9	1.0	1.0	1.9	2.5
Five or more	<u>6.9</u>	<u>2.0</u>	<u>2.1</u>	<u>4.0</u>	<u>3.7</u>
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

of borrowers reported having no grade animals. In the other areas the proportion ranged from 60% to 73%, and the latter proportion in the highly developed Nyeri-Murang'a-Karatina area suggests that the incidence of innovative financing was also high, presumably spreading this enterprise among strata of innovators beyond the group which were the most early adopters. However, the incidence of multiple holdings unreported on loan applications would tend to offset to some extent the high percentages indicated, as those having acquired more than their original plot, which resulted from land consolidation, would probably by reason of their comparative wealth also be among the earliest adopters of dairying based on grade cattle. It is also possible that in certain cases grade cattle had been disposed of by operators prior to their application for an AFC loan, so that the loan could be used to acquire better animals, which must be in calf at the time of purchase, as specified by AFC.



## G. Borrower Characteristics

### 1. The Average Borrower

The average borrower in the sample is in his 40's. He is the owner of a farm of 12.1 acres, as noted above, and his net worth at the time of loan application, consisting largely of his land, was Sh 16,450. The value of the security he is able to provide to back his loan is Sh 11,650, although this figure as computed by AFC includes not only land and certain loose assets, but sometimes a portion of annual non-farm income where such exists. Borrowers' mean pre-loan net farm income was Sh 2,145, supplemented by non-farm employment income of Sh 2,760. Approximately seven persons reside on the average borrower's farm. Children outnumber adults and the average annual expenditure on school fees was Sh 375.

### 2. Off-farm Employment

Approximately half of the borrowers sampled were bona fide smallholders in the sense of not having off-farm employment, as indicated in Table C-16. Employment in the public sector provided the source of non-farm income for almost half of those borrowers reporting off-farm employment, and these employees -- teachers, civil servants and the staff of parastatal organizations -- comprised 24% of the entire sample. The balance of the employed were largely self-employed, no doubt including many owners of the numerous small shops, eating houses and pubs found in rural centres, small businessmen owning taxis and lorries, and tradesmen.

One of the most interesting features of the occupational distribution by subsamples is the consistency of the proportion of those having off-farm employment. This proportion constitutes between 42% and 51% of each subsample, as indicated in the Table. There would appear to be no obvious explanation of this degree of similarity. The proportion of public sector employees among each subsample appears to vary inversely with the level of development in each of the subsample areas. The lesser developed areas,

Table C-16. Off-Farm Employment Reported by Sample Borrowers,  
in Percent by Subsample

Type of Employment	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
None other than farming	<u>57.8%</u>	<u>49.5%</u>	<u>51.0%</u>	<u>52.4%</u>	<u>52.7%</u>
Public sector employment					
Teachers	14.7	10.7	16.7	3.9	11.4
Other civil service	5.9	14.6	14.6	7.8	10.6
Parastatal staff	<u>2.0</u>	<u>1.9</u>	<u>2.1</u>	<u>1.9</u>	<u>2.0</u>
Subtotal	22.6	27.2	33.4	13.6	24.0
Self-employed	12.7	20.4	11.5	29.1	18.6
Other off-farm employment	<u>6.9</u>	<u>2.9</u>	<u>4.2</u>	<u>4.9</u>	<u>4.7</u>
Total reporting off-farm employment	<u>42.2</u>	<u>50.5</u>	<u>49.0</u>	<u>47.6</u>	<u>47.3</u>
Total	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>

Kisii and Busia-Bungoma-Kakamega, have higher proportions in the public service than the more highly developed areas. This relationship is probably due to the relative importance of the public sector in providing employment in any given area. The more highly developed the area, the wider the variety of employment and, in all probability, the less numerically important the public sector as employer in relative terms. The opportunities for self-employment also appear to bear a less distinct relationship with area development, as the positions of Kericho and Kisii appear to be the opposite of what might be expected on the basis of agricultural development and potential alone.

### 3. Residence

The proportion of farmers who reported that they resided on their farms was quite high, reaching 99.0% in Kericho, 79.6% in Kisii, 90.6% in Busia-Bungoma-Kakamega, 91.3% in Nyeri-Murang'a-Karatina, and 89.4% for the sample as a whole. These proportions show again that most of the farmers sampled were bona fide smallholders in the sense that they are on hand to take an active part in the operation and management of their farms. However, these percentages may be somewhat overstated, as a significant portion of landowners leave their plots to take employment in the cities, or if in the civil service may be assigned to positions outside their home areas and return home only on weekends and holidays. As no definition of residence is given on the AFC loan application form, it may be that many farmers who in fact are on their plots for less than half of each year would in fact indicate that they were resident on their farms, in accordance with the convention of maintaining very strong and close ties with one's own area and land even though most working days are devoted to employment in some distant location. In any event, the figures are of an order to suggest that relatively few true absentee landlords are included among borrowers under the programmes and in the areas sampled.

### 4. Encumbrance

Borrowers were required to pledge a large proportion of their reported assets to secure their loans. The mean relationship between the value of security taken by AFC and the borrower's total reported assets was .76, with a standard deviation of .26, suggesting a skewed distribution. (These computations included 21 missing observations, largely from among the early borrowers sampled.) The relatively large amount of reported net worth pledged as security reflects AFC's practice of taking a mortgage on the borrower's land as security, and the large proportion of most borrowers' reported net worths accounted for by their land. Land values are estimated by AFC loan officers in the field on the basis of current market values. There is reason to suspect that

reported net worths are frequently conservative because borrowers may own more than one plot of land. Thus, the mean value tends to overstate the actual level of encumbrance, although many borrowers not having more than one plot would be greatly encumbered by AFC's mortgage requirement.

## H. Sample Repayment Performance

### 1. Repayment Performance Distribution

The Repayment Index mean and measures of dispersion for the entire sample and the four subsamples are given in Table C-17. The best average performance is found in Kericho, the worst in the loans made in Western Province by AFC branches in Busia, Bungoma and Kakamega. Each subsample contained a least one case of total default indicated by a Repayment Index number of nought, and also contained net prepayers with Repayment Index values larger than 1.00. (Sample selection procedures included the deletion of borrowers repaying in full in 30 months or less, as noted previously.)

Graph C-1 shows the shape of the distribution of Repayment Index numbers for the entire sample and for each subsample. Perfect performance would be represented by a single point on the graph (rather than a line), at the intersection of the horizontal line representing 100% of the sample (beyond the vertical range of Graph C-1) and the vertical line representing a Repayment Index number of 1.00. Records approaching this level of achievement would be indicated by steep curves intersecting the equal to or greater than 1.00 Repayment Index coordinate from the horizontal axis. As Graph C-1 shows, the curves for the sample and subsamples peak before reaching the equal to or greater than 1.00 value, with the Busia-Bungoma-Kakamega subsample curve peaking at a very low level (Repayment Index numbers of .20 - .40), and a secondary mode closer to the equal to or greater than 1.00 value. Branch managers interested in improving their collection performance would seek to make the tails of their curves flatter over low Repayment Index values, and the more rapidly ascending portion steeper.

Table C-17. Repayment Index Means and Measures of Dispersion, by Subsample

<u>Repayment Index Measure</u>	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
Mean	.86	.70	.62	.80	.75
Standard deviation	.37	.33	.31	.28	.33
Maximum	2.48	1.39	1.31	1.41	2.48
Minimum	.00	.00	.00	.00	.00

Table C-18. Repayment Index Performance, by Subsample in Cumulative Percentages

<u>Repayment Index Ranges</u>	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
0.00	1.0%	1.9%	3.1%	1.0%	1.7%
.01 - .20	2.0	9.7	7.3	2.9	5.4
.21 - .40	9.8	17.5	31.3	8.7	16.6
.41 - .60	16.7	33.0	49.0	22.3	30.0
.61 - .80	38.2	59.2	65.6	43.7	51.5
.81 - .90	54.9	67.0	81.3	54.4	64.1
.91 - .99	74.5	84.5	87.5	82.5	82.2
1.00	79.4	85.4	89.6	86.4	85.1
1.01 - 1.10	89.2	91.3	95.8	91.3	91.8
1.11 - 1.20	90.2	95.1	96.9	96.1	94.6
1.21 - 1.40	94.1	100.0%	100.0%	99.0	98.3
1.41 or more	100.0%			100.0%	100.0%

The cumulative percentage distribution of Repayment Index numbers by subsample is shown in Table C-18. The upper part of the Table reflects the performance illustrated in Graph C-1, with the subsamples with inferior performance registering accordingly higher cumulative percentages at any given category up through 1.00. For example, approximately half of the Busia-Bungoma-Kakamega subsample had Repayment Index numbers of .60 or less, while roughly half of the Kericho and Nyeri-Murang'a-Karatina subsamples had Repayment Index numbers of .90 or less. One of the most interesting aspects of the distributions is that approximately 15% - 20% of each subsample paid promptly, on balance, or were prepayers. Repayment performance typically spans a wide range. The upper 15% of the entire sample prepay or pay on time, while the lowest 15% have Index numbers below .40.

Prepayment at this order of magnitude suggests that many borrowers tend, on balance, to honour their repayment obligations scrupulously, even to the extent of paying ahead of time. Reasons for prepayment may include the desire to hedge against the possibility of lean times in the future or to secure the return of their title deeds more quickly than anticipated in loan maturity schedules. On the other hand, a significant portion of borrowers are unable to repay over anything close to the time span envisaged in their loan contracts, or else take substantial liberties in stretching out repayment schedules. Those who had made no repayments constituted fewer than 2.0% of the entire sample, however.

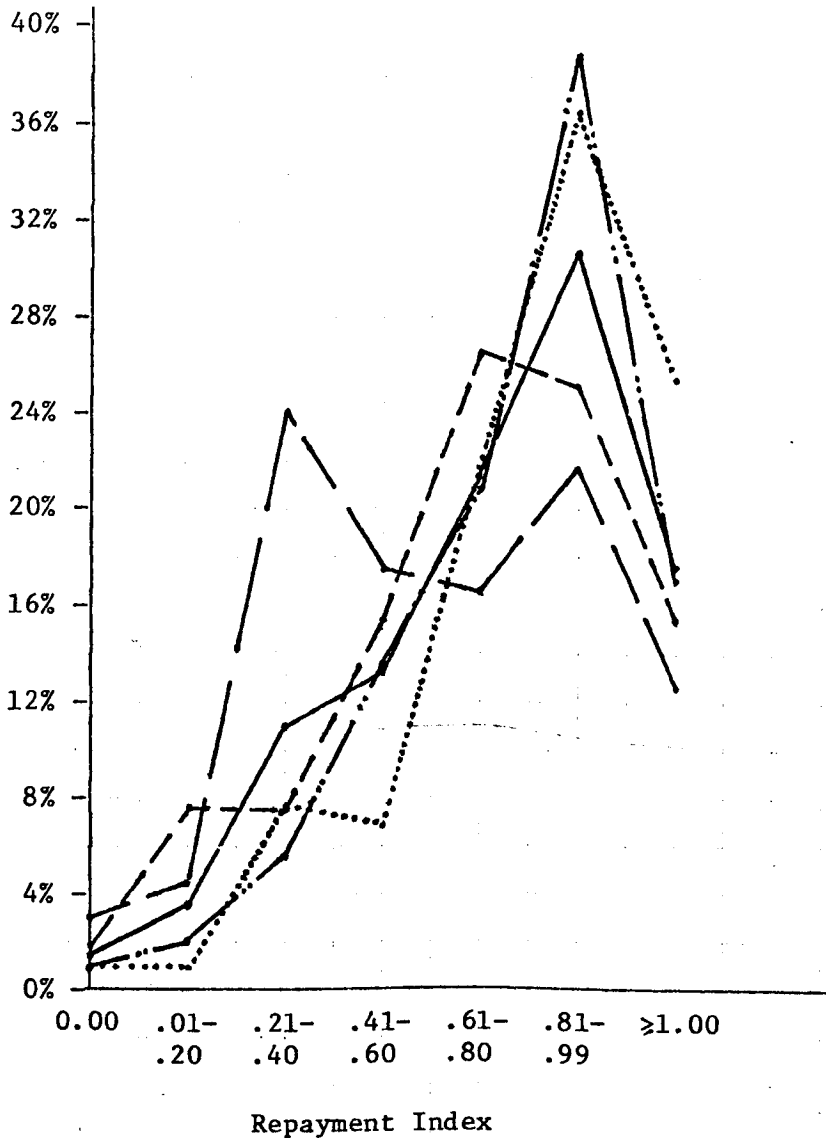
The range of performance is so broad that it raises the question of whether some means of discriminating between those likely to be poor payers and those likely to be good payers could be devised and incorporated in credit rationing procedures.

## 2. Repayment Performance Correlations

The research design and rationale were based on the hypothesis that the Repayment Index would generate a series of repayment performance values which would correlate with various borrower, farm and loan characteristics. Through correlation analysis it

Graph C-1. Repayment Index Patterns by Subsample and for the Entire Sample

Percent of sample  
or sub-  
sample



Key:

- Entire sample
- ..... Kericho subsample
- - - - - Kisii subsample
- - - - - Busia-Bungoma-Kakamega subsample
- . - . - Nyeri-Murang'a-Karatina subsample

Table C-19. Correlation Analysis of Repayment Performance  
and Borrower, Farm and Loan Characteristics

<u>Repayment Index with Characteristics Reported on Loan Applications</u>	<u>Pearson Coefficient</u>	<u>Confidence Level</u>
<b>Borrower characteristics</b>		
Net worth	.105	.02
Age	.046	.18
Off-farm employment income	.001	.43
School fees paid annually	-.038	.22
<b>Farm characteristics</b>		
Female grade herd size	.206	.00
Total labour cash cost <sup>a/</sup>	.096	.12
Total cash crop acreage	.067	.09
Projected net farm income	.059	.12
Total cultivated acreage	.049	.16
Pre-loan net farm income	.042	.21
Farm size in acres	.029	.28
Size of farm family	-.045	.18
<b>Loan characteristics</b>		
Loan amount disbursed	.086	.04
Security value	.077	.06

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a/ Total labour cash cost includes outlays for contract cultivation.



was expected that closely associated variables would provide a basis for predicting loan repayment performance from the data given in loan application forms. However, these expectations proved to be misplaced, as the sample as a whole and each of the subsamples individually failed to yield sufficient correlations of statistical interest. The pattern for the sample as a whole is given in Table C-19. The values of Pearson correlation coefficients for selected characteristics and the Repayment Index were largely between .00 and .10, with significance generally inferior to the 10% level. On the basis of this analysis, no relationships of statistical interest between repayment performance and principal borrower, loan and farm characteristics were identified which would provide a useful guide for loan decision making.

In order to ascertain whether non-linear relationships might exist upon which repayment performance could be predicted, scattergrams were constructed for each of the subsamples for each of the variables having continuous values. The scattergrams indicated a tremendous dispersion of observations and suggested no promising alternative approaches to regression analysis.

Loan repayment performance appears to be determined by factors other than individual variables included in the correlation analysis. It is probable that some factors, such as the quality of branch management, are beyond the range of considerations upon which credit decisions are made by AFC.

Step-wise multiple regression analysis was used to ascertain whether groups of selected variables might have a cumulative impact on repayment performance. One group of variables used for analysis included personal attributes and income and wealth, while a second was limited to cash crops. An  $R^2$  of .33 was obtained between Repayment Index values and off-farm income, pre-loan net farm income, net worth, borrower's age and size of family, but with an insufficient confidence level (worse than 10%) to permit meaningful interpretation. The cash crop group has much greater association with repayment behaviour, yielding an  $R^2$  of

.66 when combining the influences of pyrethrum acreage, tea acreage, and size of pre-loan female grade herd. The addition of steers and other cash crop acreage to the equation increased the  $R^2$  only to .68. These results also lacked sufficient confidence levels to support positive conclusions concerning the relationships explored.

An additional attempt to use regression analysis consisted of selecting those variables which provided the best confidence levels in the Pearson correlation analysis and combining them on a step-wise basis in an effort to find a series of variables for each subsample with attractive explanatory power in terms of repayment performance. The cutoff confidence level was again 10%.

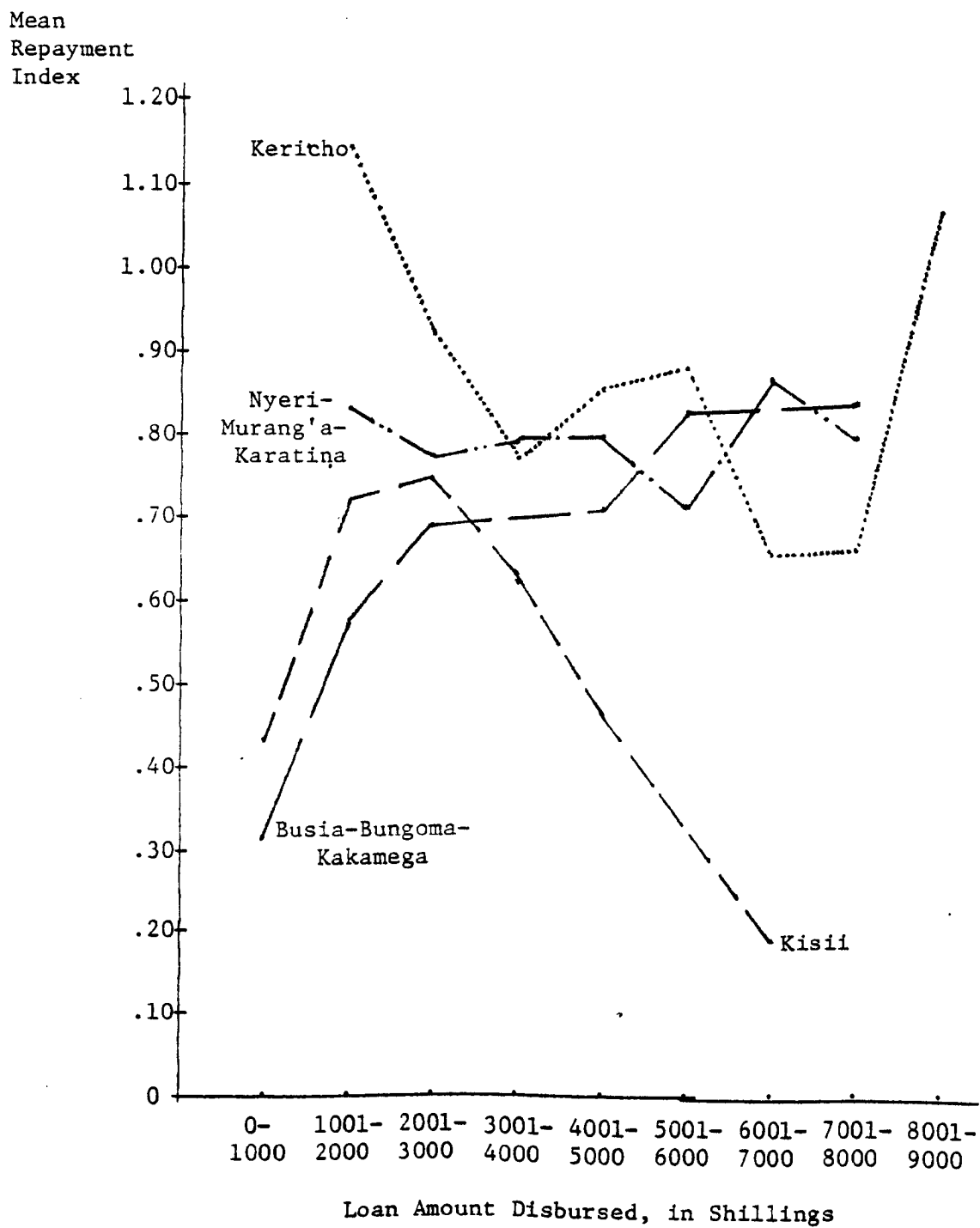
Multiple regression analysis using the six variables showing confidence levels of 10% or better for the sample as a whole produced an  $R^2$  of .15, with F-test significance at the .025 level. Thus, amount disbursed, security value, cash crop acreage, the cash costs of hired labour and contract cultivation, number of female grade head on the farm at the time of loan application and borrower net worth explain about 15% of the variation in Repayment Index values for the sample as a whole, with confidence at the 2.5% level. While these may be promising variables, their level of explanatory power does not appear high enough to provide operational guidelines for loan decision making.

The same type of analysis applied to the Kericho subsample produced an  $R^2$  of .28 but failed to yield the desired F-test significance. The variables included were loan amount disbursed, loan amount disbursed per acre, security value, school fees paid annually at the time of loan application and the number of female grade head on the farm at the time of loan application.

For the Kisii subsample, loan amount per acre, the borrower's age at the time of loan application, projected net farm income and off-farm income produced an  $R^2$  of .09 lacking the desired confidence level.

The variables tested for the Busia-Bungoma-Kakamega subsample were loan amount disbursed, loan amount per acre, net worth, school

Graph C-2. Repayment Performance and Loan Amount Disbursed,  
by Subsample



fees paid annually at the time of loan application, cash costs of hired labour and contract cultivation and off-farm income. These yielded an  $R^2$  of .19 lacking a sufficient confidence level.

The number of persons resident on the farm and the borrower's age at the time of loan application were the only two variables tested for the Nyeri-Murang'a-Karatina subsample, yielding an  $R^2$  of .06, significant at the 10% level. Again, the results do not appear to be of interest from the loan decision making perspective.

### 3. Repayment Performance and Loan Size

A simple test was conducted to see if loan repayment performance varied with loan size, as it is sometimes held that the larger the borrower the worse the repayment record with respect to many farm credit programmes in the Third World. The Pearson correlation analysis yielded a coefficient of only .086, but significant at the 4% level, between loan amount disbursed and repayment performance. To obtain further details of possible relationships, separate Repayment Index means were computed for groups of loans ranged in Sh 1,000 intervals for each subsample. Results are shown in Graph C-2.

The Graph indicates a variety of performance patterns. The hypothesis that repayment performance tends to worsen with increases in loan size is generally confirmed by the trend in Kericho over most of the curve. The final upswing in the Kericho curve is caused by only one observation. In Kisii the hypothesis is less strongly confirmed, although the highest two ranges contain only one observation each and the lowest range contains only two observations. However, the trend exhibited by the Central Province subsample exhibits the opposite traits, as mean repayment performance and loan size are positively associated over almost the entire range of loan sizes. The Western Province subsample yields a rather flat trend, indicating no general relationship between loan size and mean repayment performance.

The causes of the differences between the patterns of the various subsamples are not clear. There are so many possible

influences -- quality of branch management, stage of agricultural development, strength of commercial practice, availability of remunerative investment opportunities, power structures and political factors, etc. -- that the conflicting behaviour is not easily analysed with the data at hand.

One point of interest, though, is that those borrowers who drew Sh 1,000 or less were relatively poor payers on the average. Few such borrowers were included in the sample because those who spent less than 50% of their loan were deleted in the selection procedure, so those which were included would have been issued relatively small loans in the first instance. In this situation borrowers may suffer from the incomplete adoption of an enterprise, such as the purchase of a cow but with insufficient investment in watering facilities to permit economic levels of exploitation. It is possible that some borrowers who fail to spend only a small amount of their loan divert loan proceeds to uses other than those specified in the loan contract. In this case there is an obvious lack of commitment to the investment envisaged on the loan application form, and there may also be no base for cash generation from the expenditure of the loan proceeds. In still other cases, failure to spend but a fraction of the loan amount may be caused by the death of the borrower. In all of these cases poor repayment performance is hardly surprising, and AFC management could usefully devote special attention to this problem category of borrowers.

The results of the comparison of repayment performance and loan amount disbursed indicate that reality is more complex than suggested by the hypothesis that

*5.d) Repayment performance on agricultural loans in Kenya varies inversely with loan size within any given credit scheme.*

#### 4. Repayment Performance and Farm Size

Another comparison was made to ascertain whether repayment performance tended to change with changes in farm size. The results, shown in Graph C-3, show that no uniform trend is apparent. Borrowers whose loans are secured by very small or

very large plots tended to have the best repayment performance. Excluding the loans secured by plots of less than 2.50 acres, repayment performance tended to increase with plot size, but somewhat erratically for plots of between 2.50 and 9.99 acres, while borrowers whose loans were secured by plots of between 10.00 and 19.99 acres tended to achieve the same average level of repayment performance.

##### 5. Repayment Performance and Commitment to Farming

Are farmers who are deeply committed to farming better payers than farmers who have a variety of interests? Two proxies for commitment taken from survey data include whether or not the farmer lives on the farm, and whether or not the farmer has off-farm employment. The borrower living on his farm is in a better position to make decisions and to direct farming activities by his family and labourers than is the absentee farmer. The farmer dependent upon his farm for his cash income is perhaps also more likely to take a keener interest in his farming and land use than the person who owns a farm but who looks to off-farm employment to enjoy the good things of life, other than land ownership for its own sake, which can be purchased only for cash.

Table C-20 indicates the relative repayment performance by residence status. Fewer than 11% of the sampled loan applications were submitted by borrowers who indicated that they did not reside on their farm, as noted on page 452 above, and because of this relatively low level the percentages by subsample are included in the Table as well as the mean Repayment Index values for each group. The Table indicates that on an overall basis the farmers who reported living on their farms are better payers than those residing elsewhere, but not greatly better payers. The comparative performance by subsample is mixed and shows greater differences than that for the sample as a whole. In Kericho and Kisii borrowers residing on their farms are much better payers on the average than those residing elsewhere, while in the other two subsamples the opposite relationship prevails.

Graph C-3. Repayment Performance and Farm Size in Acres

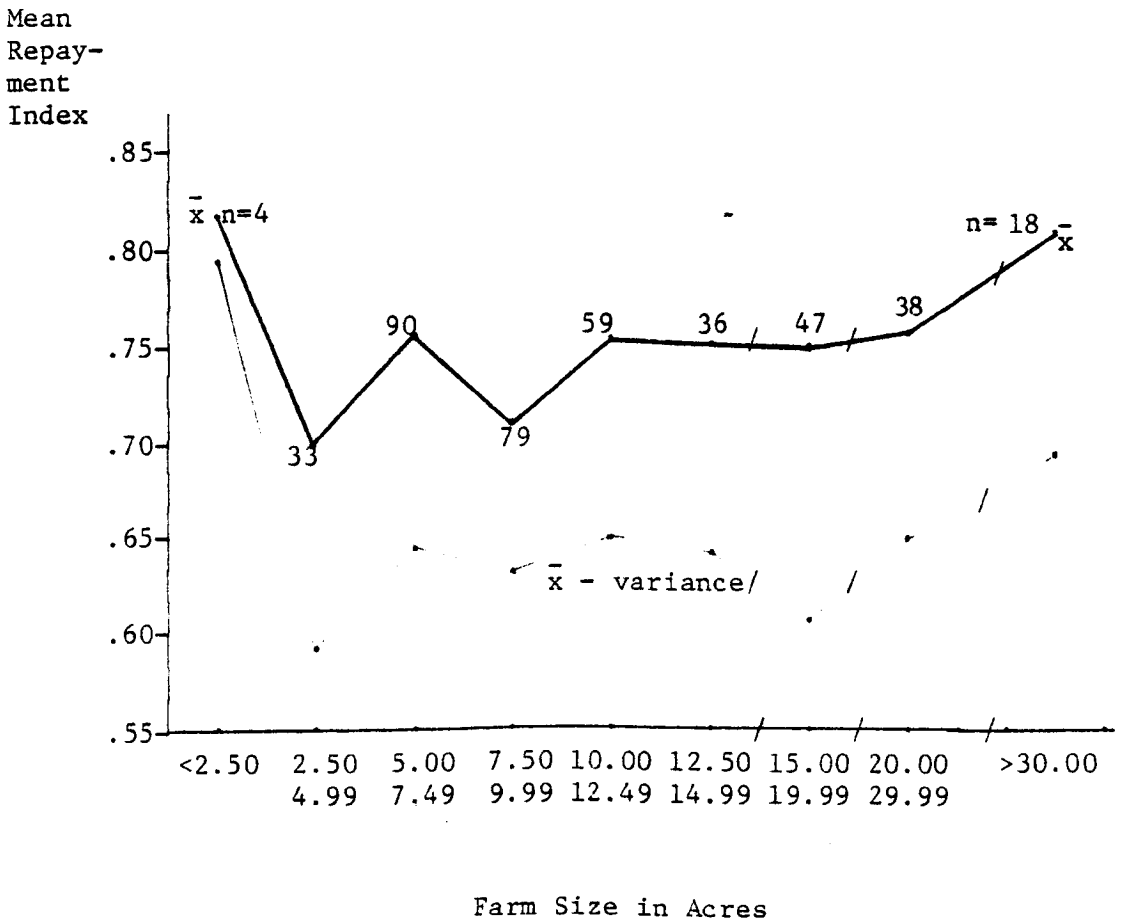


Table C-20. Repayment Performance and Borrower Residence Status

<u>Borrower Residence Status</u>	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
Residing on farm:					
Mean Repayment					
Index value	.88	.72	.61	.79	.75
% of (sub)sample	99%	80%	91%	91%	89%
Not residing on farm:					
Mean Repayment					
Index value	.48	.62	.74	.99	.70
% of (sub)sample	1%	20%	9%	9%	11%

Table C-21. Repayment Performance and Employment Status

<u>Occupation Status</u>	Mean Repayment Index Values				
	<u>Kericho</u>	<u>Kisii</u>	<u>Busia Bungoma Kakamega</u>	<u>Nyeri Murang'a Karatina</u>	<u>Entire Sample</u>
None other than farming reported	.88	.78	.55	.82	.76
Off-farm employment reported	.82	.62	.69	.76	.74

Employment status does not appear to exercise much influence on repayment performance, as suggested by Table C-21. Borrowers reporting no occupation other than farming (53% of the sample) achieved a mean Repayment Index number of .76, while those reporting off-farm jobs had a mean Repayment Index number of .74. By subsample, the range of performance between the two categories was greater, and only in Western Province did those reporting off-farm employment have an average repayment performance superior to those



reporting no such employment.

A good deal of variation in average repayment performance was registered for borrowers ranked according to levels of off-farm income. While at the upper range, in excess of Sh 10,000 per year, relatively high repayment performance was recorded, the trend appears to decline over the Sh 1,500 - Sh 9,999 range, as shown in Graph C-4.

On an overall basis, then, there is some evidence from AFC's small loan experience, although not very strong evidence, to support the hypothesis that

*5.c) Repayment performance on agricultural loans in Kenya varies directly with the borrower's commitment to farming.*

However, these proxies for commitment fail to support the hypothesis in Western Province, where the opposite situation occurs among sampled cases, and produce ambiguous results in the Nyeri-Murang'a-Karatina subsample analysis. The differences found at the subsample level may reflect variations in types of employment and levels of off-farm income, as well as in the types of on-farm innovations and returns available. While some men may leave their farms with no wish to improve their farms, preferring to seek their fortunes elsewhere, others may leave the land to earn money to invest on their farms, where they intend eventually to return.

#### 6. Repayment Performance with and without Major Cash Crops

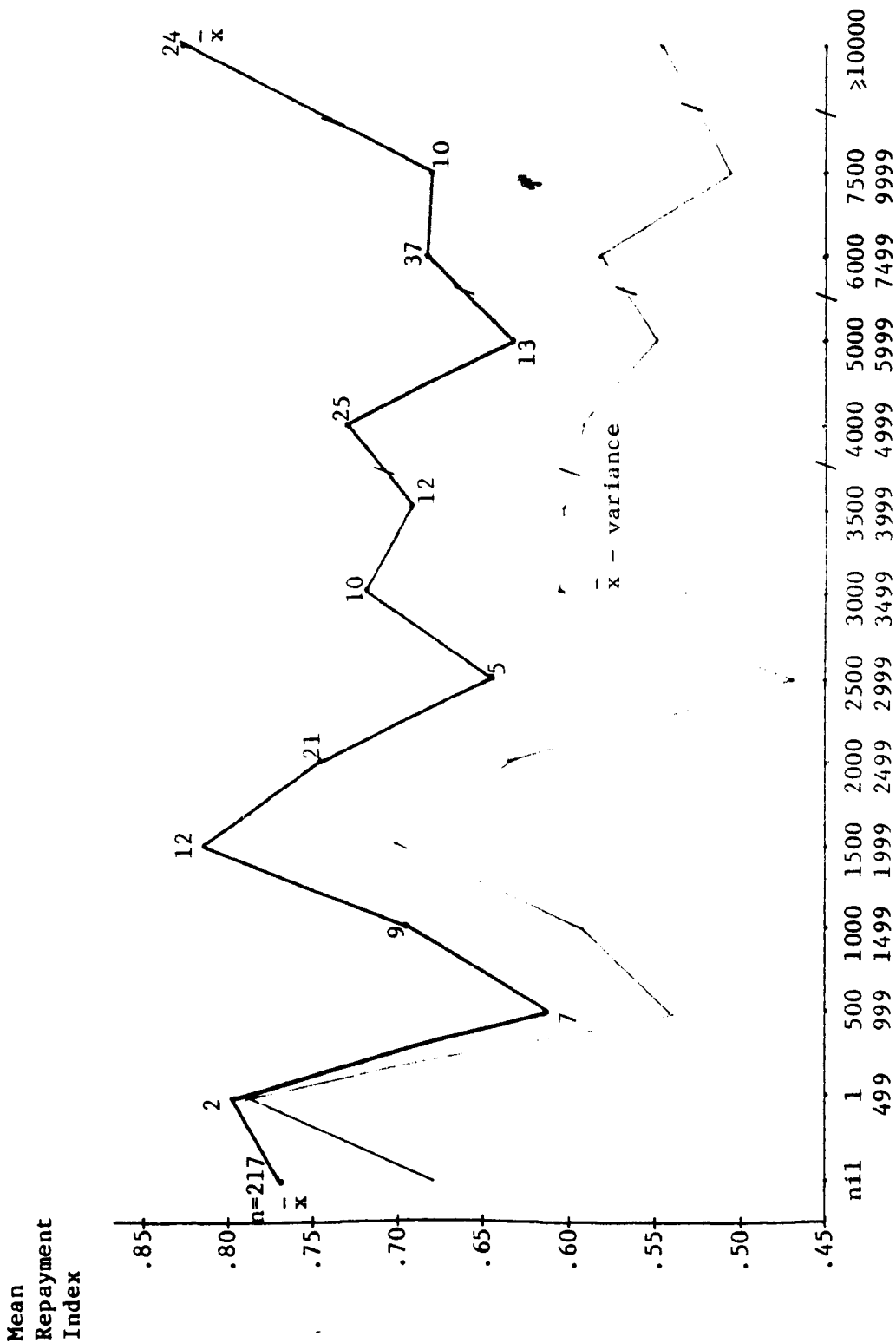
Analysis was undertaken to ascertain whether those borrowers with certain major cash crops were better payers than those without such crops. Table C-22 shows the results of comparisons on this basis by subsample, listing only those cases in which mean Repayment Index values differed by more than .075. Six situations were identified using this criterion with respect to coffee, tea, pyrethrum, steers and whether or not the farmer reported having grade cattle on his farm at the time of his loan application. In five of these six cases the borrowers in the segment having the enterprise in question had better average repayment performance than those without, the exception being tea in Kericho. In three

Table C-22. Comparisons of Repayment Index Values for Borrowers with and without Major Cash Crops

<u>Subsample</u>	<u>Enterprise &amp; Sub-sample Segment</u>	<u>Repayment Index</u>		
		<u>Mean</u>	<u>Standard Deviation</u>	<u>n</u>
Kericho	Coffee: with	1.05	.29	7
		.85	.37	95
	Tea: with	.83	.32	62
		.92	.43	40
	Female grade stock: with	.97	.47	40
		.79	.27	62
Kisii	Steers: with	.82	.26	16
	without	.68	.33	87
Busia Bungoma Kakamega	Tea: with	1.07	.00	1
	without	.62	.30	95
Nyeri Murang'a Karatina	Pyrethrum: with	.91	.00	2
	without	.79	.28	101

Note: The comparisons in this Table relate only to those cases in which the Repayment Index means for any two segments differed by .075 or more

Graph C-4. Repayment Performance and Off-farm Employment Income



Off-farm Employment Income in Shillings

of these five cases the segment having the enterprise was small, containing less than 10% of the subsample, limiting greatly the applicability of the with/without dichotomy as a credit decision making tool. In a fourth case (steers in Kisii), the segment having the enterprise consisted of about 15% of the subsample. In this and in the two remaining cases where subsample segments were more nearly balanced (tea and female grade stock in Kericho), the standard deviations around the means amounted to between one-quarter and one-half of the values of the means, also reducing the utility of the analysis for decision making purposes.

The conclusion arising from this exercise is that individual major cash enterprises in general do not provide a basis for segregating relatively good payers from relatively poor payers. In certain areas the distinction between those having such an enterprise and those without may provide a means of identifying better and poorer payers, but not a very precise means having general applicability.

#### 7. Repayment Performance and Selected Characteristic Values

A further stage in the analysis of repayment performance consisted of separating the entire sample into two groups with respect to values of selected characteristics. Groups were determined by selecting a roughly average value for each variable. For each of the segments on either side of this average value the mean Repayment Index was computed, along with the standard deviation of Repayment Index values, as shown in Table C-23.

The results were not dramatic, as might be expected from the failure of the Pearson correlation analysis to locate relationships of significance.

One of the largest spreads in terms of the Repayment Index between groups classified in this manner was .10, for reported net worth, significant at the 2% level. The average Repayment Index value was .71 for borrowers with net worths of less than Sh 15,000 and .81 for borrowers with net worths in excess of Sh 15,000.

The analysis indicates that there is a small but significant positive relationship between reported net worth and repayment performance. The wealthier the farmer, the better his repayment record. This finding is the opposite of what would be expected if the hypothesis were true that

5.e) *Repayment performance on agricultural loans in Kenya varies inversely with the borrower's net worth.*

Hence, this hypothesis is not accepted with respect to the loan schemes upon which this study is based.

Another relatively large spread occurred between farmers having female grade animals on their farms at the time their loan applications were filed and those who reported none, with Repayment Index values of .83 and .72 respectively. In this case, however, the group with the better average repayment performance had a much wider dispersion about the mean, as signified by a standard deviation of .41 compared to .29 for the other group, introducing ambiguity into the interpretation of these figures.

By compounding characteristics it was possible to identify smaller subgroups differing in terms of repayment performance. For example, borrowers over 40 years old with more than 10 acres appear to be slightly better payers than those under 40 with fewer than 10 acres. Farm families of more than seven persons which pay more than Sh 400 in school fees annually are slightly worse payers than those below these divides, although the standard deviation for the superior group in terms of repayment performance is greater than that for the inferior group.

By continuing the compounding approach it was possible to design sets of characteristics which indeed separated good payers from poor payers. At the extreme, for example, compounded mutually exclusive criteria were identified which produced Repayment Index means of .62 and 1.05 with standard deviation of .39 and .37, respectively. However, these sets of criteria do not appear to be widely useful for decision making purposes because they are too restrictive for general application. One of the groups identified contained only three observations, while the other contained four.

Table C-23. Loan Repayment Performance by Selected Values of Borrower, Farm and Loan Characteristics for the Entire Sample

<u>Characteristic</u>	<u>Selected Value</u>	<u>Repayment Index</u>		
		<u>Mean</u>	<u>Standard Deviation</u>	<u>n</u>
<b>Borrower characteristics:</b>				
Net worth	< Sh 15,000	.71	.33	235
	> Sh 15,000	.81	.33	169
Age	< 40	.72	.35	209
	> 40	.76	.33	166
Employed off the farm	No	.77	.31	191
	Yes	.72	.36	213
<b>Off-farm income</b>				
	< Sh 3,000, employment listed	.74	.31	160
	> Sh 3,000	.72	.38	124
<b>School fees paid annually</b>				
	< Sh 400	.77	.34	294
	> Sh 400	.69	.30	101
<b>Farm characteristics</b>				
Farm size	< 10 acres	.74	.33	206
	> 10 acres	.76	.34	189
Farm family size	< 7 persons	.75	.36	191
	> 7 persons	.74	.29	162
Female grade herd size	none	.72	.29	295
	1 or more	.83	.41	109
<b>Pre-loan net farm income</b>				
	< Sh 2,200	.75	.34	240
	> Sh 2,200	.75	.32	164
<b>Loan characteristics</b>				
<b>Principal amount disbursed</b>				
	< Sh 3,000	.74	.36	206
	> Sh 3,000	.76	.27	177
<b>VALUES FOR THE ENTIRE SAMPLE</b>		<b>.75</b>	<b>.33</b>	<b>404</b>

(continued)

Table C-23. (continued)

<u>Characteristic</u>	<u>Selected Value</u>	<u>Repayment Index</u>		
		<u>Mean</u>	<u>Standard Deviation</u>	<u>n</u>
Compound characteristics				
Age < 40, farm size < 10 acres		.68	.34	98
Age > 40, farm size > 10 acres		.75	.33	112
Farm family < 7 persons, school fees < Sh 400		.75	.37	165
Farm family > 7 persons, school fees > Sh 400		.69	.30	69
Age < 40, farm size < 10 acres, no female grade herd, off-farm job income > Sh 3,000, farm family > 7 persons, school fees > Sh 400, pre-loan net farm income < Sh 2,200, net worth < Sh 15,000, principal amount disbursed < Sh 3,000		.62	.39	4
Alternate characteristics to above (for < read >, and <u>vice versa</u> )		n.a.	n.a.	-0-
Age > 40, farm size > 10 acres, female grade herd of 1 or more, off-farm income < Sh 3,000, farm family < 7 persons, school fees < Sh 400, pre-loan net farm income > Sh 2,200, net worth > Sh 15,000, loan amount disbursed > Sh 3,000		1.05	.37	3

The paradoxical predicament of making the compounding approach more sophisticated is that the number of qualifying observations decreases with each level of compounding, causing statistical problems: the standard deviation tends to increase, while degrees of freedom decrease. In other words, deriving discriminating Repayment Index means tends to involve a sacrifice of their potential applicability. Results might be more promising with other data, but with respect to this particular study the results obtained by compounding, as shown in Table C-23, are quite limited in applicability. Whether the costs of this approach to decision making would be justified by the weeding out of two or three percent or less of applications which might otherwise have been approved is questionable.

In a final attempt to find relationships between repayment performance and farm, loan and borrower characteristics, the Repayment Index was used to rank all borrowers in each subsample and then to group them into thirds. The bottom third, containing the worst payers, was then contrasted to the top third, containing the best payers, to ascertain whether mean characteristic values were significantly different for the top and bottom thirds. Using a two-tailed t-test significance level of 10%, several significantly different mean values were identified, as shown in Table C-24.

The patterns shown in the Table indicate that there are certain significant differences between good payers and poor payers. However, the differences identified, in loan, farm and borrower characteristics, appear fragmentary and not systematic. It would be difficult to specify credible lending guidelines on the basis of the results of the analysis. In general, the results confirm the validity of conventional standards of creditworthiness. Large farmers, identified in terms of farm size, loan security taken, net worth and wages and contract hire charges paid tend to be in the top third of borrowers ranked in terms of repayment performance. These farmers tend to take larger loans<sup>1</sup> and to

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1. The average loan year was the same for three subsamples and not significantly different in the fourth, diminishing any inflationary distortion in the comparability of loan sizes over time.



Table C-24. Variables Having Significantly Different Mean Values for Subsamples Sectoried into Thirds According to Repayment Performance

<u>Subsample</u>	<u>Characteristic</u>	<u>Ranking of Third</u>	<u>Mean Value of Characteristic</u>	<u>Significance Level <sup>a/</sup></u>	<u>Occurrence in Other Subsamples <sup>b/</sup></u>
Kericho	Farm size in acres	Top	16.9	.08	all
		Bottom	13.0		
	Steers on farm	Top	2.3	.04	Kisii, Western <sup>c/</sup>
		Bottom	1.0		
Kisii	Part time wages plus contract service charges paid	Top	Sh 172	.05	none
		Bottom	243		
Busia-Bungoma-Kakamega	School fees paid annually at time of loan application	Top	Sh 863	.05	none
		Bottom	455		
	Net worth	Top	Sh 16,580	.06	all <sup>d/</sup>
		Bottom	10,745		
	Loan amount disbursed	Top	Sh 3,204	.002	none
		Bottom	2,148		
	Wages paid to permanent farm labourers	Top	Sh 418	.10	all
		Bottom	193		
	Total wages and contract service charges paid	Top	Sh 665	.08	Kericho, Central <sup>e/</sup>
		Bottom	372		
Nyeri-Murang'a-Karatina	Net worth	Top	Sh 14,759	.06	all <sup>d/</sup>
		Bottom	12,000		
	Security value	Top	Sh 13,267	.08	Kisii, Western <sup>c/</sup>
		Bottom	10,032		
	Approximate age at time of loan application	Top	46.3	.06	Kericho, Kisii
		Bottom	42.1		

a/ Two-tailed probability

b/ Occurrence in Other Subsamples indicates those cases in which other Top and Bottom Thirds have the same rather than an inverse relationship in terms of differences in mean values of the characteristic in question.

c/ Western Province subsample = Busia-Bungoma-Kakamega

d/ Net worth produced significantly different means in both the Busia-Bungoma-Kakamega and Nyeri-Murang'a-Karatina subsamples.

e/ Central Province subsample = Nyeri-Murang'a-Karatina

repay them in a more timely manner than the smaller, poorer farmers who make up the bottom third or poorest payers.

The final column in the Table shows the other subsamples which have similar differences for the characteristics given, but differences which were not statistically significant. In other words, taking the first example in the Table, the top third of payers had larger mean farm sizes than the respective bottom thirds of all subsamples, although Kericho was the only subsample where the difference met the significance criterion. With respect to the statistically significant difference identified in Kisii, however, where poorer payers tended to have larger part time wage and contract hire bills, the three other subsamples exhibited exactly the opposite situation -- higher outlays of this type were associated with better repayment performance.

In conclusion, the distinctions which were identified do not appear to offer much scope for the formulation of lending guidelines much different from those used by AFC during the period under review.

## APPENDIX D

LOAN REPAYMENT AND COMPARATIVE ANIMAL HUSBANDRY PERFORMANCE  
OF SELECTED AFC BORROWERS IN KIAMBU DISTRICTA. Summary

A survey of a non-random sample of farmers in Kiambu District using artificial insemination (AI) service provided by the Kenya National Insemination Service (KNIS) was scrutinised for two purposes. The first was to attempt to discover whether the female herd sizes and husbandry standards of sample members who were borrowers from the Agricultural Finance Corporation (AFC) differed from those of sample members who were not users of AFC credit. The second purpose was to search for relationships between loan repayment performance and herd size and performance of sample members who were borrowers from AFC.

Husbandry standards were examined through proxies which consisted of reproduction rates, mean age at first calving, mean calving intervals and accidental mortality rates. In addition to the progressive farmer bias introduced by the non-random method of sample selection, factors which render performance interpretation tentative include a changing sample size and composition from year to year; the fact that the performance of the husbandry standard proxies is related to the genetic composition of stock, which is not a constant and which cannot be determined for each subsample or for the sample as a whole from the data employed; and the assumptions of undifferentiated inseminator skill and uniformity over time of the net benefits of calving.

From the standpoint of statistically valid research procedures, these shortcomings of this exercise are serious and fundamental flaws. However, for the type of analysis attempted here a case can be made on the basis of the absence of any superior data base, either for a single period or for a relatively longer period such as that covered by the survey data employed; economies inherent in the use of available data as opposed to the generation

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Thanks are due to KNIS and Dr Rüne Israelsson for access to field research data, and to my wife, Gretel, who spent many hours recording data from KNIS files.

of original data; and the utility of hypotheses in fields of knowledge where information gathered and processed in a statistically rigorous manner is not yet available.

Summaries of the herd variables monitored are presented in Graphs D-1 and D-2. These summaries as a whole suggest that the performance of the female herds of those sample members identified as borrowers from AFC is generally slightly superior to the performance of the female herds of sample members who were not identified as borrowers from AFC. This tendency suggests that borrowers may be better husbandmen, and that their female herds, slightly larger than those of non-borrowers, are also of slightly better quality.

These summaries as a whole indicate greater variability in the performance of borrowers' herds relative to those of non-borrowers. Variability may reflect the smaller size of the subsample consisting of borrowers, and it may also reflect discontinuities in borrowers' herd performance related to the disposal of inferior stock and the acquisition of AFC-financed in-calf animals, and the demands which such a shift to a higher production function makes on the managerial ability or husbandry performance of borrowers.

The variables studied do not include any indicators of milk yields, which would probably show the greatest response to the upgrading of herds by both subsamples, and by the replacement of inferior stock by grade heifers and cows through access to credit. Of all the proxies studied, the reproduction rate of non-borrowers is probably most indicative of the results of increased effective access to AI in Kiambu. This measure relates to entire herds, and is of greater overall importance than the mean age at first calving, which has tended to increase, contrary to a priori expectations, and the mean calving interval, which was slightly shorter in 1971-1973 than in 1968-1970. Trends in herd size suggest that by 1971 sample farmers had expanded their herds to a point where they had achieved some sort of equilibrium in terms of numbers of animals, implying that future progress would occur primarily through increasing herd quality and productivity rather than by expansion in

herd size. The data also suggest that by 1971 sample members had achieved increased control over the accidental mortality of cows.

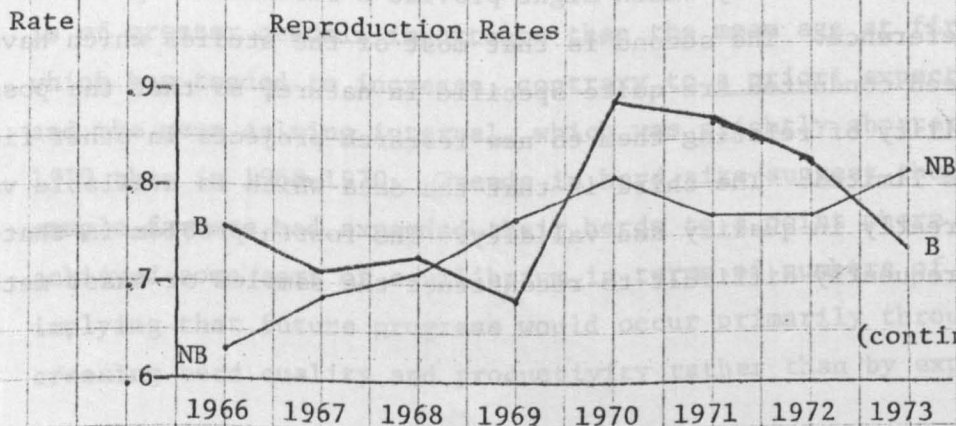
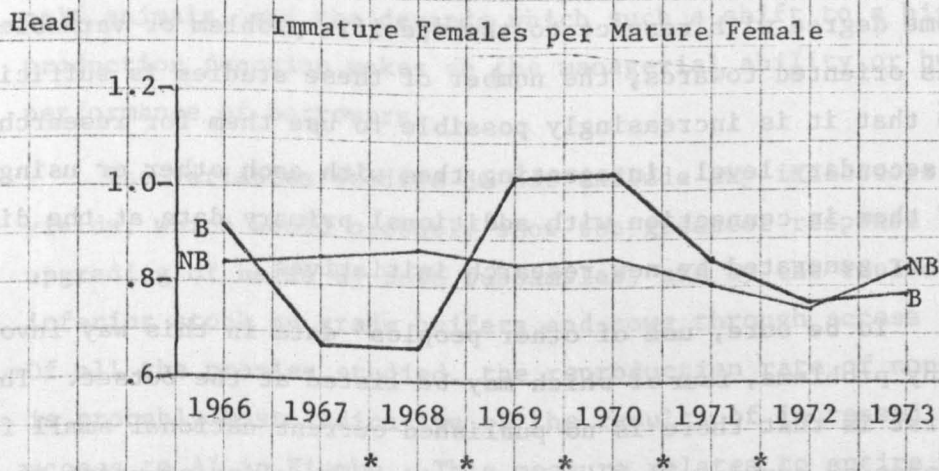
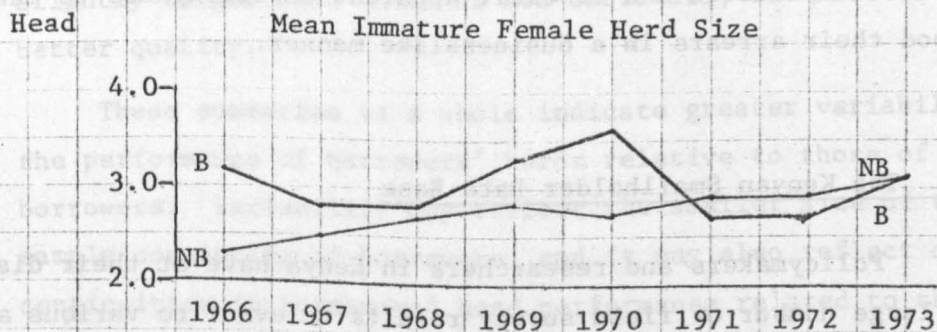
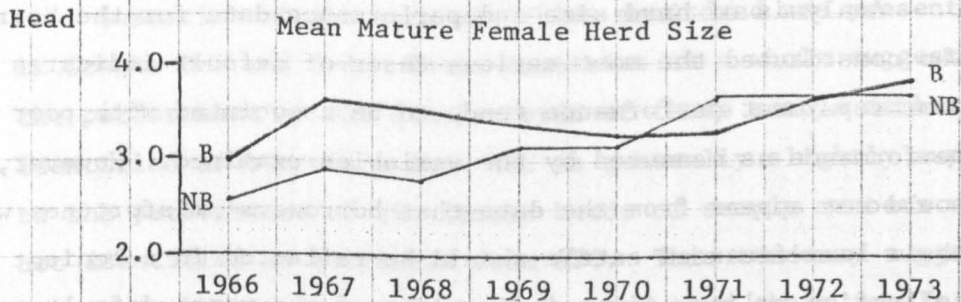
Analysis of herd size and performance data for the borrowers who constituted the most serious cases of default indicates that poor repayment performance tends to be associated with poor herd performance as measured by the variables examined. However, it would not appear from the data that borrowers' misfortunes with their loan-financed cattle should be reflected in a lenient loan collection policy, given indications of the worst defaulters' resource position and of their apparent unwillingness to make good their arrears in a businesslike manner.

#### B. The Kenyan Smallholder Data Base

Policymakers and researchers in Kenya have at their disposal a large number of field survey results relevant to various aspects of rural development. While each survey is generally useful to some degree with respect to the specific problem or variable it was oriented towards, the number of these studies is sufficient so that it is increasingly possible to use them for research at a secondary level, integrating them with each other or using portions of them in connection with additional primary data at the disposal of or generated by new research initiatives.

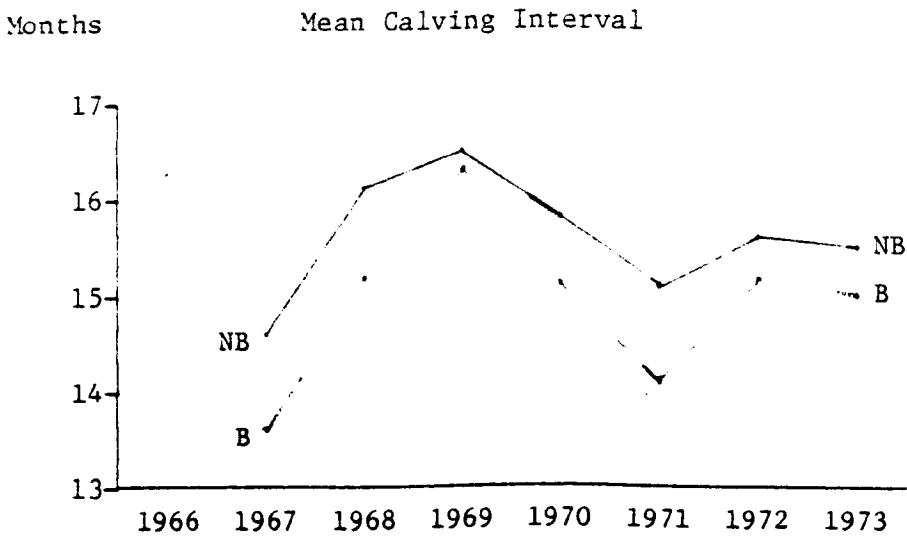
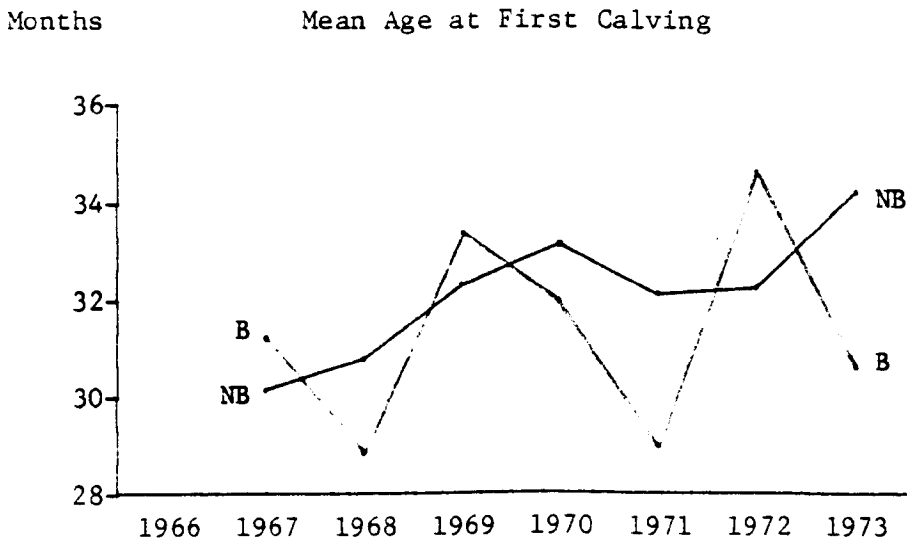
To be sure, use of other peoples' data in this way involves many problems, four of which may be listed at the outset. The first is that there is no published current national small farm census or survey which might provide a baseline or point of reference. The second is that most of the studies which have been conducted are quite specific in nature, so that the possibility of relating them to new research projects in other fields is limited. The third is that the data which is available varies greatly in quality and validity. The fourth problem is that it is frequently difficult to reconstruct the samples or exact methodology

Graph D-1. Selected Measures of Herd Size and Performance for Borrowers and Non-Borrowers, 1966-1973

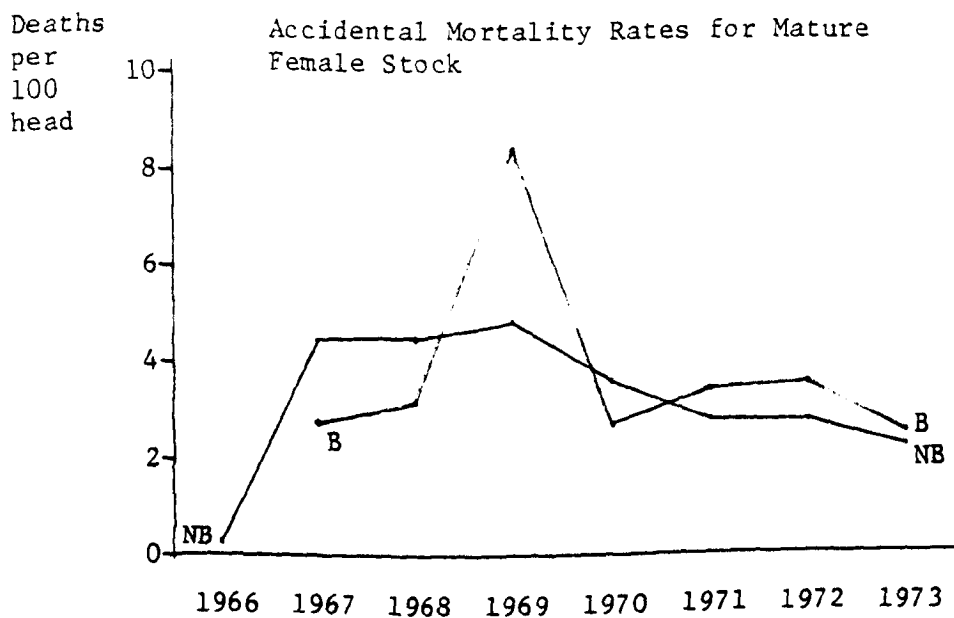
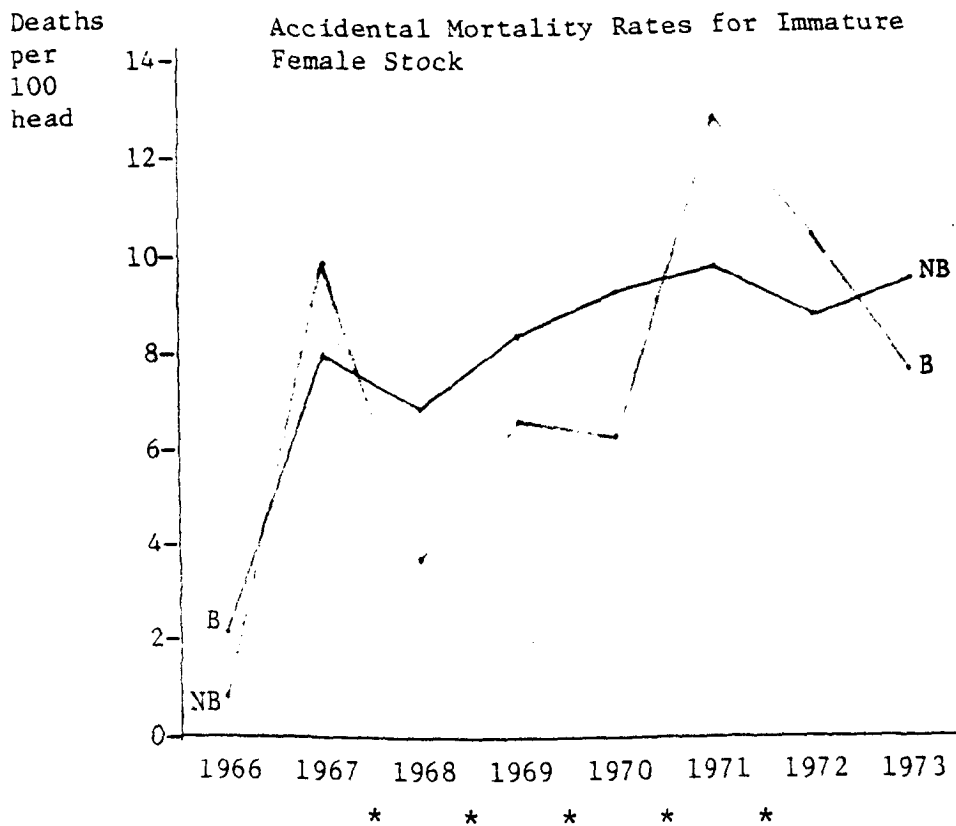


(continued)

Graph D-1. (Continued)



Key: B = sample members identified as borrowers from AFC  
 NB = other sample members, designated as non-borrowers

Graph D-2. Accidental Mortality Rates for Female Stock

Key: B = sample members identified as borrowers from AFC  
 NB = other sample members, designated as non-borrowers



used by researchers from the data they have left in Kenya or published in journals. Dissertations generally provide more detail with respect to methodology, but the reader would require more information than is usually given in order to identify the farms which provided the student's data. However, the Institute for Development Studies in Nairobi serves as a repository for academic field research notes, unprocessed and processed data, and ensuing publications; and various Government agencies and individual researchers are frequently willing to share with others the field research data they have gathered.

### C. The KNIS Kiambu Sample Survey

The small farm farm-level data series spanning the longest period is probably found in the sample surveys conducted by the Kenya National Insemination Service. Data collection was begun in 1966 by a Swedish veterinarian attached to KNIS under the auspices of Swedish assistance to that branch of Kenya's Ministry of Agriculture. The survey exercise was conceived to provide details useful for technical and managerial purposes by KNIS.

Farmers using artificial insemination services are issued a record card on which inseminators and other AI officials record insemination dates, semen source, diagnostic results and treatments rendered, identification of the inseminator, disposal of animals, calving dates and animal identification information. The existence of this rather comprehensive technical record provided an opportunity for the compilation of useful data for KNIS management and planning purposes. Management was also interested in obtaining some measure of KNIS performance separate from the daily reports of inseminators, which contained in a different format the data also entered on users' record cards. Accordingly, special enumerators were trained to collect data from users' cards, and their activities have been closely checked in the field by the veterinarian responsible for generating this

feedback. In 1974 the enumeration staff consisted of one newly qualified veterinarian and two livestock officers, under the direction of the Swedish technician who had started the survey in 1966. This expert's tenure has lent continuity to the survey.

Several field samples from various Districts have been included in the exercise, and results have appeared for many years in the annual reports of KNIS. However, the monitoring exercise most highly regarded by KNIS management is the Kiambu Sample Survey, which covers Kenya's most advanced smallholder District, contiguous with Nairobi. The technical orientation of this survey is reflected in the selection technique employed to generate the original sample of more than 400 farms. Farmers who approached insemination officers -- usually to report non-conception -- were asked if they would be willing to participate in providing data to the research staff. Participation for most has meant providing AI records for inspection once or twice a year when visited by a research officer. Some of the larger farms and herds have been monitored more frequently, while in certain cases even annual data collection has proved difficult because of farmers' absences from their farms on days selected for visits by researchers, transport problems, lost or confused records, problems of identification and the host of other sources of non-sampling errors which challenge the researcher in the collection of primary, farm-level data.

An alternative sampling approach was attempted in certain areas of Kiambu where KNIS researchers visited all farms using AI services in a particular Sublocation. In contrast to the generally good cooperation accorded by farmers who were included in the sample because they took the initiative in approaching AI officials about a specific problem, the complete coverage approach fell on relatively unreceptive ground and was abandoned. Unco-operative users were dropped from the sample. During this attempt to vary the sample it was found that those included in the original group were generally better farmers than the majority of their neighbours in their Sublocations. Fifteen percent of the sample were included in a model farmers programme organised by KNIS in Kiambu.

However useful the data so collected appeared to be to the technical concerns of KNIS management, the sample selection procedure was obviously not rigorous by the conventions of social science research, and hence its utility as a general indicator of performance was severely compromised. The shortcomings of a biased sample were pointed out in an evaluation of KNIS undertaken by two economists, at the Institute for Development Studies, in 1970-1971 at the request of the Ministry of Agriculture and the Swedish International Development Authority,<sup>1</sup> and the cross-fertilisation of disciplines resulted in the selection of a new 3% sample on a random basis. Data collection from the original sample continued through 1973, when the random sample survey, begun in 1971, had been underway for a sufficient length of time, relative to calving cycles, to yield useful results.

#### 1. The Utility of KNIS Data to Farm Credit Analysis

Measures of cattle enterprise performance are of special interest from the credit perspective because almost all AFC loans to smallholders in Kiambu have been primarily for the acquisition of grade cattle and for on-farm investment related to the dairy enterprise. Unfortunately, the data from the random sample appeared from the perspective of the present study to be of such limited value as of 1974, in terms of number of observations, that it was not used for the purposes of this dissertation.<sup>2</sup> The utility of the non-random data from the original sample, from the point of view of this exercise, is simply that it provides an indicator, however imperfect, of female herd size and certain performance characteristics. Had the sample been chosen in a statistically random manner the data could have been used to test hypotheses relating to herd size and indicators of performance of

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1. Smith, L.D., and R. von Kaufmann, "An Evaluation of the Kenya Artificial Insemination Service." pp. 41-42.

2. Problems included the short length of time covered, relative to the reproductive cycle, and missing observations indicative of the usual data collection problems and also the existence of some AI numbers -- the means of identifying users and defining the sample population -- which had not been traced to actual farms.

AFC borrowers included in the sample compared to those sample members not using AFC credit. As the sampling bias does not permit the specification of confidence levels, however, the approach taken here is simply to compare the values of key variables for borrowers and for others, and to suggest certain subjects for analysis in a statistically rigorous manner when the 1971 random sample has matured to the point of offering a rich vein of field data.

## 2. Problems of Analysis

Before going into the design of this exercise, its limitations exogenously imposed should be noted. To repeat the caveat based on sample selection, no statistically valid inferences about the population of AI users or AFC clients in Kiambu District may be drawn from the results of this exercise. The justification for examining KNIS data in this exercise rests on economy and the basis the analysis provides for specifying areas for further study by rural development researchers and planners.<sup>1</sup>

The most important simplifying technical assumption used in the analysis is that the quality of inseminators is constant. In highly developed dairy culture the skill of the inseminator is a key determinant of the effectiveness of the service and hence of calving intervals. In the Kiambu environment the skill of the inseminator may be relatively less important, as there may be a greater diversity of management ability among farmers in terms of animal husbandry expertise than found in commercialised dairy farming in the British Isles, for example. In addition, the physical and genetic status of the Kiambu herd doubtless exhibits greater diversity than, for example, that of the Dutch herd, suggesting a greater and largely inferior range of reproductive performance even if inseminators' skills were in fact constant. The quality of the Kiambu herd is of course one of the primary rationale for grading up with the assistance of AI using the

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1. Access to the field survey records for individual farms cost the researcher nothing but his own and his wife's time.

semen of proven bulls. In the mid-1960's when the survey began the quality of the herd was no doubt very mixed.

The most important simplifying economic assumption in the exercise is that "good husbandry" is manifested in the same manner on all farms. Orthodox micro theory indicates that profit is maximised within any given time frame when marginal cost is equated with marginal revenue, and that the maximising entrepreneur will exploit his resources to this margin under the usual simplifying assumptions. Is marginal revenue or marginal cost the same on all farms for any given level of performance, as measured, for example, by the average calving interval or the age at first calving? The answer must be "No," and is in fact "No" in any dairy industry. While one farmer may maximise with a 12-month calving interval, another farmer with different risks, levels of access to produce and input markets, farming system, etc., may maximise at some other point in terms of calving frequencies or other key variable. By relying on the simplifying assumption that a uniform scale of dairy husbandry performance exists, this exercise treats risk and farm resource bases as a constant. (It should be noted, however, that the costs to the farmer of accidental mature female stock mortality are substantial and probably overwhelm the differences in fine tuning at the margin which cloud the interpretation of comparisons of calving intervals, for example. Given the fairly small herds of most Kiambu farmers, the accidental death of a mature female represents a quantum change, not merely an adjustment at the margin.)

Two specific examples of maximising strategies which would lead to different calving intervals and age at first calving may be noted to illustrate a few aspects of the types of considerations which are relevant to the assessment of performance. First, the age at first calving may vary according to the breed of cattle.

The East African zebu cattle are slow to mature although there are reports to show that with improved management and feeding, the age at first service could be reduced from the recorded three or four years. European stock, on the other hand, can often be served at eighteen months

of age because they are very well developed at this age.<sup>1</sup>

The farmer's choice of breed or genetic mix depends upon many factors. While the crossbred animal produces several times as much milk as the native animal, it also requires a lot more food and water, is more susceptible to disease and accidental mortality, and requires a different level of managerial expertise by the farmer. Given that the genetic composition of the Kiambu herd has included richer European strains as access to AI has increased, it would be expected that the average age at first calving should decrease over the period under review.

Second, the optimum calving interval is not always a constant, although biological factors permit a basic specification of the general case:<sup>2</sup>

It is generally agreed that a cow should milk for about 305 days and be allowed to rest a period of 60 days before she calves again. In this way she is able to produce one calf per annum, since her calving interval (the period between two consecutive calvings) is 365 days. This, of course, depends on her having been served on time during the previous lactation. Taking an average gestation period of 280 days, therefore, the cow should be served not later than three months after calving (or her third month of lactation).

However, the attempt to ensure a twelve-month calving interval may be tempered by the observation that "calves born during the dry season when milk cost is high are expensive to rear."<sup>3</sup> Thus, if a cow which has calved for several years on a twelve-month cycle during the flush season for some reason does not continue the annual cycle, the farmer may wish to consider delaying service rather than use AI to yield a calf during the dry season.

This consideration has been diminished in importance in Kiambu by the development of dairying generally. The milk price offered by cooperative marketing societies does not vary according to season. As most families in many parts of Kiambu have a dairy

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1. Musangi, R.S., Dairy Husbandry in East Africa. p. 15.

2. Ibid., p. 26.

3. Ibid., p. 57.

cow, there is generally little or no local or neighbourhood market for milk at prices differing from that offered by cooperative societies. Where such markets remain, societies may attempt to enforce member loyalty by suspending members who also sell locally, and hence farmers having more than two or three reasonable dairy specimens are often reluctant to run the risk of being barred from delivering to their society during the flush season by selling locally in the dry season. While it may be possible to circumvent this sanction, circumvention is not costless to achieve. As most farms produce milk for family consumption, the opportunity cost of milk during the dry season may of course rise above the cooperative price if home production does not provide the desired level of home consumption. Likewise, the opportunity cost of water during the dry season may rise in certain areas where there are not plentiful supplies throughout the year. However, most Kiambu farms are reasonably well served by small streams which have some flow even during the dry season. The typical plot produced by the land consolidation, adjudication and registration programme runs from a road along the crest of a hill to a small stream at the foot of the slope.

In addition, the out of pocket cost of milk production may rise in the dry season, as suggested by Musangi, if the farmer is dependent on purchasing fodder from local sources.

#### D. Data Used for Analysis

This exercise is based on the original, non-random Kiambu sample for the period 1966 through 1973. The variables extracted from the KNIS field survey records for individual farms are:

- 1) female herd size at the time of data collection from each farm, classified as mature (i.e., having calved) and immature;
- 2) calvings, by sex of calf;
- 3) calving intervals measured in terms of months between the birth of live or stillborn calves, excluding abortions (miscarriages);
- 4) age at first calving, as for calving intervals above;

5) accidental mortality experience for female stock; and  
6) age of immature females at death, expressed in months.  
The month used as the basic unit of time measurement is a whole month, computed in a manner which has the effect of rounding partial months into the nearest whole months, on the average. For example, if a heifer were born in January and died in June, the age at death would be reported as five months (i.e.,  $6 - 1 = 5$ ). While the exact date of death and calving is frequently given in the field survey data, in other cases it is not, and hence this simplifying convention which assumes that events always occur on the same day of a month.

#### 1. Identification of AFC Borrowers

As the primary purpose of this use of KNIS data is to provide insights into the comparative behaviour of borrowers from AFC, it was first of all necessary to identify borrowers included in the KNIS sample. This was not an easy task, and inevitably involved some degree of error. While for certain purposes both KNIS and AFC records are organised on a geographical basis for classifying clients, by Location and Sublocation, within these categories the means of identification vary. AI numbers and farmers' names are used by KNIS to identify members of its sample, while AFC borrowers are classified by name, account number and plot number.

Comparison by Sublocation of the lists of KNIS sample farmers and AFC borrowers yielded some cases where the names were identical, and in these instances it was assumed that both referred to the same individual. In other cases there were variations of numerous sorts between names which exhibited similarities or some elements in common. These variations ranged simply from different orthographic renditions -- such as Cege and Chege -- of a single name, to uses of different combinations of the abundant choice of names open to most residents of the area in accordance with traditional practice. For example, is Joseph N. Mwaura the same person as Nganga Mwaura? The attempt to eliminate this ambiguity of identification consisted of noting



for each Sublocation the name and AI number of an individual as given in the KNIS survey data and the name and plot number of individuals with similar names found in AFC's loan committee minutes. The resulting list of names, broken down on separate sheets by Sublocation, were given to the District Agricultural Officer, who generously distributed them to his field level personnel in the Sublocations in question. On the basis of their local knowledge and without visiting farmers, these officers indicated whether similar names referred to a single person, to different people, or could not be conclusively identified. All lists were returned with appropriate notation. These judgements were accepted as final for the purposes of this exercise. Sixty-six AFC borrowers were identified out of a total of 402 useful observations from the somewhat larger KNIS sample.

## 2. Herd Size as a Basis for Loan Administration Decisions

In addition to permitting the comparison of AFC borrowers in the KNIS sample with others in the sample, the KNIS data permits some insights into the behaviour of borrowers themselves. As noted elsewhere, loan collection problems have plagued AFC. Hesitancy to foreclose characterised AFC through about 1973 when the pace of foreclosure increased dramatically. An understandable basis for reluctance is the possibility that the accumulation of arrears reflects adverse circumstances rather than malicious intent on the part of borrowers. Given AFC's administrative problems until the mid-1970's, it was also in many cases not practicable to foreclose -- with postings up to six months in arrears on the centralised accounting system, management information was of such poor quality that inadequate data existed for timely foreclosure decisions in all but the most blatant cases. Foreclosing without adequate information entails a political and public relations risk which AFC management chose to avoid.

Would foreclosure or the enforcement of better loan discipline by means short of foreclosure impose a hardship on poor

payers, or merely an inconvenience, or simply eliminate flagrant violations of loan contracts by those of adequate means taking a free ride at AFC expense? One way of ascertaining the incidence of hardship which might be caused by vigorous attempts to enforce loan discipline consists of comparing herd value with loan amounts overdue and with total amounts outstanding on individual accounts which are in arrears. If arrears could be cleared through the sale of one calf out of a herd which includes three or four heifers, for example, it would appear that the enforcement of loan discipline would involve no more than inconvenience. If the entire loan balance outstanding represented only a minor fraction of total female herd value, foreclosure would appear to impose no absolute hardship.

Judgements of this sort are inevitably subjective, for a small farm supporting a large family may require a relatively larger herd for some minimally acceptable standard of living by local criteria than a relatively large farm owned and operated by a small family, other things remaining equal. However, there can be little doubt that small farmer borrowers, especially in Kiambu District where many farmers have employment in Nairobi, are not without alternatives when faced with foreclosure. Only rarely have small farms been auctioned by AFC -- most defaulters served foreclosure notices repay their loans in full before or on the auction date. Liquidation or partial liquidation of a dairy herd is one means of obtaining cash. Easy access to AI facilities permits the reestablishment, over time, of a herd partially liquidated.

#### E. Analysis of the Data

Of the 66 AFC borrowers identified in the total usable sample of 402, 51 had loans of up to Sh 10,000 issued between 1968 and 1973 under the IDA 105 small scale loan scheme. The other borrowers had received development loans, some of which amounted to more than Sh 10,000, largely before 1968. It is warranted to assume that others in the KNIS sample had received

other public sector loans amounting to more than Sh 1,000 prior to 1967, but due to data difficulties it was decided not to attempt to identify any such borrowers. Their number would probably have been small relative to the number of borrowers under the IDA scheme identified in the sample, as prior to the implementation of the IDA scheme the number of loans issued tended to be limited in number and in size. For similar reasons it was decided to make no attempt to identify those members of the sample who had received loans from commercial banks.

The analysis which follows compares various aspects of the characteristics and the performance of the 66 AFC borrowers with those of the 336 others who are called non-borrowers for the purposes of this analysis. In most cases, however, missing values reduce the effective size of each subsample used for purposes of comparison in any given year. The analysis also includes a comparison of repayment performance and herd size and performance data for borrowers.

#### 1. Sex Ratio of Calves

As a test of data quality, the number of reported female calf births was compared with the number of total calvings. 1,509 calvings were reported by non-borrowers, while 364 were recorded for borrowers over the period as a whole from 1966 to 1973. Data for borrowers indicated 50.4 female calf births per 100 calvings, while that for non-borrowers yielded 51.3 female calf births per 100 calvings. These figures approximate normal biological expectations, suggesting a high degree of reporting accuracy with respect to calvings.

#### 2. Distribution of Loans by Year of Issue

The data suggests that the group identified as borrowers experienced different behaviour with respect to the variables measured than did the group identified as non-borrowers from AFC. The observations reported for borrowers tend to be more variable than those reported for non-borrowers. One reason

for this difference may be the impact of loans on herds and herd performance. The loan impact hypothesis may be tested to some extent by examination of the pattern of loan issues by year. Table D-1 gives the distribution, and it is apparent that activity bulked in two periods, 1968-1970 and 1972-1973, with a number of loans not traced to any specific year and therefore pre-1967, given AFC's loan classification conventions. The pattern of loan issues is reflected or at least paralleled by the behaviour of certain other variables as discussed below.

### 3. Mature Female Herd Size

Comparison of borrowers' and non-borrowers' mature female herd size is accomplished by use of mean herd size as an indicator, excluding missing values. These data are given in Table D-2. Borrowers' means were superior to non-borrowers' in all years except 1971. The mean female herd size recorded for borrowers ranges from 3.0 to 3.8 animals, with a "U" shaped trend from 1967 to 1973. The mean for non-borrowers, however, has ranged from 2.6 to 3.6 mature female animals, with an increasing trend from 1966 to 1971, when a plateau was reached at about the same level reported by borrowers.

The non-random nature of the sample and the influence of possible bias from missing values renders rigorous interpretation impossible. However, the data do provide a basis for hypothesising that those farmers who have access to AFC credit tend to have larger mature female herds than those not using AFC credit. Perhaps this indicates that borrowers tend to have larger farms than non-borrowers, with a correspondingly greater carrying capacity. It may also be hypothesised that AFC tends to deal with farmers in Kiambu who have stable dairy herds in the sense of having reached some sort of limit on the expansion of the number of animals. Progress would therefore mainly occur on these farms through intensification -- upgrading stock and implementing superior management practices. Alternatively, it

Table D-1. Distribution of Sample Loans by Year of Issue

<u>Year</u>	<u>Number of Sample Loans Issued under the IDA Scheme</u> <sup>a/</sup>
1966	-0-
1967	-0-
1968	10
1969	9
1970	8
1971	1
1972	8
1973	13
1974	2

a/ 15 non-IDA scheme borrowers were also included in the sample, and virtually all of them would have received loans before 1967.

Table D-2. Mean Mature Female Herd Sizes Reported by Borrowers and Non-Borrowers, 1966-1973

<u>Year</u>	<u>Mean Mature Female Herd Size Borrowers</u>	<u>Non-Borrowers</u>
1966	3.0	2.6
1967	3.6	2.9
1968	3.5	2.8
1969	3.4	3.1
1970	3.3	3.2
1971	3.3	3.6
1972	3.6	3.6
1973	3.8	3.6
<b>Range of number of valid observations</b>		
<b>Minimum</b>	39	152
<b>Maximum</b>	55	251

could be hypothesised that non-borrowers had not reached a constraint on herd expansion until 1971, and that until that time an important element of their progress consisted of extensive dairy enterprise growth in terms of increasing herd sizes, as well as through genetic improvement through AI which is, however, not reflected in the data analysed here.

The herd size pattern indicated for borrowers is perhaps explained by the pattern of loan issues by year. The decline in herd size between 1967 and 1971 may reflect the fact that AFC requires borrowers to clear their land of unimproved stock prior to purchasing loan-financed animals in calf. Therefore, those borrowers receiving loans in 1968-1970 may have reduced their herds in a sacrifice of quantity for quality, pulling down average herd size. By 1972 the calves born on the farms of this tranche of borrowers would have been reaching maturity, accounting for the increase in mature herd sizes. It may further be hypothesised that this group of early borrowers tended to have larger herds than those who received credit in 1972-1973, assuming that the more prosperous farmers with larger pre-loan herds were the first to avail themselves of loans or the first to be accorded effective access to loans through the credit rationing mechanism.

### 3. Immature Female Herd Size

The mean size of borrowers' immature female herds has followed a "W" shaped trend which has ranged from 2.7 to 3.6 animals, as shown in Table D-3. In contrast, the trend with respect to non-borrowers' immatures has been generally increasing, from 2.3 head in 1966 to 3.1 head in 1973. As with mean mature female herd sizes, the magnitudes reported for both subsamples were roughly equal between 1971 and 1973, suggesting that, inter alia, any advantages of access to credit, in terms of numbers of head, have perhaps been swamped by widespread access to AI in Kiambu.

The peak in borrowers' immature female herd sizes in 1969-

Table D-3. Mean Immature Female Herd Sizes Reported  
by Borrowers and Non-Borrowers, 1966-1973

<u>Year</u>	Mean Immature Female Herd Size	
	<u>Borrowers</u>	<u>Non-Borrowers</u>
1966	3.2	2.3
1967	2.8	2.5
1968	2.8	2.7
1969	3.3	2.8
1970	3.6	2.7
1971	2.7	2.9
1972	2.7	2.9
1973	3.1	3.1
Range of number of valid observations		
Minimum	34	137
Maximum	48	218

Table D-4. Female Herd Composition, Classified as Mature and Immature, on the Farms of Borrowers and Non-Borrowers, 1966-1973

<u>Year</u>	Immature Female Hear per Mature Female Head	
	<u>Borrowers</u>	<u>Non-Borrowers</u>
1966	.92	.84
1967	.68	.86
1968	.67	.88
1969	1.03	.85
1970	1.04	.86
1971	.86	.80
1972	.77	.76
1973	.79	.84
Range of number of valid observations		
Minimum	39	152
Maximum	55	251

1970 is no doubt a reflection of the pattern of loan issues. The borrowers receiving their loans in 1968-1970 would have purchased in-calf animals with their loan proceeds which probably would have calved in 1969 and 1970. The absence of calvings in 1968 may be explained by the shortage of grade cattle which borrowers faced, especially in the early period of the IDA scheme, delaying their acquisition of in-calf animals. The decline in immature female herd size on borrowers' farms after 1970 is somewhat more difficult to explain from the distribution of loan issues by year, but the implication is that borrowers failed to maintain annual calving cycles or else perhaps disposed of calves. One motivation for disposal of calves may have been to supplement their incomes for the purpose of meeting loan repayment obligations. In a subsequent section it will be shown that calving intervals were apparently maintained at a fairly high level in 1971 and 1972 on borrowers' farms.

##### 5. Female Herd Composition

The composition of the female herds of non-borrowers remained relatively stable with averages of between .76 and .88 immature females per mature female throughout the period under review, as indicated in Table D-4. The low point occurred in 1972, when the long rains were a month late. This suggests that farmers tend to dispose of immature stock relative to mature stock during a bad season when the opportunity cost of milk and vegetable matter required to raise calves is comparatively high.

The proportion of immature females to cows on borrowers' farms varied between averages of .67 and 1.03 during the years under review. Some of this variation no doubt reflects the fact that loan-financed animals are required to be in calf at the time of their purchase by borrowers, while some of the variation also no doubt reflects the fact that the sample of borrowers is smaller than that of non-borrowers and hence more prone to variation, assuming other things equal. It is interesting to note that the



relatively low ratios recorded for borrowers in 1967 and 1968, .68 and .67, respectively, are lower than those reported for non-borrowers at any time. Reference to the data on mean herd size indicates that borrowers' mature herds were relatively large in 1967 and 1968, at 3.6 and 3.5 cows, respectively (compared to 2.9 and 2.8 for non-borrowers) while borrowers' immature herds were relatively small, at a mean of 2.8 head each year (compared to 2.5 and 2.7 for non-borrowers). During these years borrowers had relatively highly productive female herds, under assumptions of equal productivity per cow, compared to non-borrowers, as suggested by the lower proportion of followers on borrowers' farms. This pattern may also reflect a relative stability in borrowers' herds during 1967 and 1968, and a relatively greater attempt by non-borrowers to improve herd quality through up-grading, which would involve keeping immatures until they come into production.

#### 6. Reproduction Rates

Reproduction rates are defined here simply as the number of calvings during the year divided by the number of mature females on hand as of the end of the year. The results of this calculation for borrowers and for non-borrowers are given in Table D-5. The data indicate that in six of the eight years studied borrowers' herds had a higher reproduction rate than non-borrowers'. This observation is consistent with the fact that borrowers purchase in-calf animals with the proceeds of their AFC loans, although this influence on reproduction would occur only during the period immediately after the time the loan is drawn down and would therefore not provide much explanatory power for the group of borrowers as a whole, over the period as a whole. Discounting the possible influence of the purchase of in-calf animals with loan proceeds, borrowers appear to have achieved better husbandry performance in terms of reproduction than non-borrowers.

As with certain other variables monitored here, the reproduction rate achieved by non-borrowers increased from 1966 through 1969-1970, after which it levelled off; while the performance

reported for borrowers does not exhibit any smooth trend. The reasons for the difference in the course of the series for each group is not readily apparent.

#### 7. Age at First Calving

The increasing trend in non-borrowers' mean immature female herd sizes between 1966 and 1973 does not appear to be closely related to the average age of heifers at first calving, which has been reasonably stable and apparently increasing slightly. The method of sample selection relegates this observation to the realms of speculation, and the missing values problem results in a sample of changing composition from year to year. However, the mean average age (i.e., the mean of the means for subsample members, excluding missing values) at first calving has ranged from 30.1 to 34.2 months for non-borrowers, while the pattern for borrowers has been more erratic and ranged from 28.9 to 34.7 months, as given in Table D-6. Between 1969 and 1973 the range for non-borrowers was between 32.1 and 34.2 months; that for borrowers, 29.0 to 34.7 months. The cumulative average for the period is probably a more useful measure, given the small number of valid observations for borrowers in certain years. For the period as a whole, borrowers reported an average calving interval of 32.02 months, while non-borrowers reported a mean of 32.47 months. Thus, borrowers appear to have achieved a slightly superior level of performance in this respect than non-borrowers, having an average age at first calving approximately 14 days lower for their herds than that achieved by the herds of non-borrowers. This difference is, however, quite small, and may be to some extent a result of random variations in the rounding convention employed in computing the age at first calving in whole months.

It is perhaps surprising that the reported age at first calving did not diminish over time, given the upgrading of the Kiambu herd through AI and the early maturity of European as opposed to unimproved breeds in Kenya. Several factors other than sampling error may account for the lack of any noticeable

Table D-5. Reproduction Rates Achieved by the Herds of Borrowers and Non-Borrowers, 1966-1973

<u>Year</u>	Reproduction Rates <sup>a/</sup>	
	<u>Borrowers</u>	<u>Non-Borrowers</u>
1966	.76	.63
1967	.71	.68
1968	.73	.71
1969	.68	.77
1970	.89	.81
1971	.87	.77
1972	.83	.77
1973	.74	.82
Range of number of valid observations		
Minimum	39	152
Maximum	54	251

a/ The Reproduction Rate is defined as the number of calvings during the year divided by the size of the mature female herd at year-end.

Table D-6. Mean Age at First Calving of Cows on the Farms of Borrowers and Non-Borrowers, 1967-1973

<u>Year</u>	Mean Age in Months at First Calving	
	<u>Borrowers</u>	<u>Non-Borrowers</u>
1967	31.2	30.1
1968	28.9	30.9
1969	33.4	32.4
1970	32.0	33.1
1971	29.0	32.1
1972	34.7	32.2
1973	30.7	34.2
Cumulative Agerage 1967-1973	32.02	32.47
Range of number of valid observations		
Minimum	4	12
Maximum	20	73

downward trend -- if anything, the trend for non-borrowers seems to be rising. One is that the Kiambu herd may already have been greatly infused with exotic genes at the outset of the period, due to the presence of European farms in and around the area. However, the alternative hypothesis that the pre-AI herd was largely unimproved is also supported by the limited information at hand. If the herd were largely unimproved, it may be argued that the upgrading process is too slow to be reflected in a time series of seven years commencing shortly after the introduction of AI. AI progeny would come into production and replace unimproved stock or inferior crosses only slowly, especially as not all farmers adopt AI as soon as the service is made available. Also, the availability of the service has expanded over time as additional vehicles and inseminators have been provided, and hence the farmers' access to AI would have been quite limited on a District-wide basis prior to 1970. The hypothesis that the pre-AI herd was largely unimproved is supported by Bullock's observation about the economic role of animal produce from cattle in Kiambu in the 1960's.<sup>1</sup>

Although high grade animals have recently been introduced, the majority of cattle are still of too poor quality to be considered as dairy animals and their major contribution to the local economy is through the sale of hides and skins.

While Bullock apparently neglected to consider the role of cattle as a store of value and source of beef, his comments do suggest a largely unimproved herd.

#### 8. Calving Intervals

Borrowers' herds tend to have consistently shorter calving intervals than non-borrowers' herds over the study period. The measure used to obtain the calving interval statistics given in Table D-7 are derived by taking the mean for each farm for each year and then computing the mean of these means. The mean re-reported calving intervals realised by borrowers' female herds

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1. Bullock, R.A., "Subsistence to Cash: Economic Change in Rural Kiambu." p. 701.

Table D-7. Mean Calving Intervals for Herds of  
Borrowers and Non-Borrowers, 1967-1973

<u>Year</u>	<u>Mean Calving Intervals in Months</u>	
	<u>Borrowers</u>	<u>Non-Borrowers</u>
1967	13.6	14.6
1968	15.2	16.1
1969	16.3	16.5
1970	15.1	15.8
1971	14.1	15.1
1972	15.2	15.6
1973	15.0	15.5
Weighted Average 1967-1971	14.99	15.66
Range of number of valid observations		
Minimum	15	79
Maximum	47	171

Table D-8. Cumulative Distribution of Average Calving  
Intervals Reported by Borrowers and Non-  
Borrowers, 1967-1973

<u>Average Calving Interval</u>	<u>Cumulative Frequency in %</u>	
	<u>Borrowers</u>	<u>Non-Borrowers</u>
11 months	1.7	1.6
12 months	6.8	8.9
13 months	27.1	21.9
14 months	55.9	38.9
15 months	69.5	58.7
16 months	79.7	72.1
17 months	84.7	78.9
18 months	89.8	84.2
19 - 21 months	96.6	94.7
22 - 24 months	100.0	98.4
more than 24 months		100.0
Number of intervals observed	246	963

ranged from 13.6 to 16.3 months, and those for non-borrowers', 14.6 to 16.5 months. The average of the reported calving intervals for all borrowers' herds over the entire period from 1967 to 1973, weighted to reflect the number of farms reporting each year, was 14.99 months, while that for non-borrowers' herds was 15.66 months, or about 20 days longer. Missing values were excluded from all calculations. The lower interval reported by borrowers may reflect better husbandry as well as possession of superior genetic stock, assuming equal access to AI services of uniform quality.

As with certain other measures discussed here, there is a slight downward but somewhat erratic trend in average calving intervals in non-borrowers' herds over time, as suggested by the unweighted mean of 16.1 months for 1968-1970 compared with 15.4 months for 1971-1973; while any downward trend in the data for borrowers is less apparent. The reduction of calving intervals by material amounts between 1969 and 1971 for both groups cannot be readily explained by the data used in this exercise, but may reflect better husbandry, increased inseminator skill and possibly increased access to AI.

The technically superior performance of borrowers' herds in terms of calving intervals is also apparent in the cumulative distribution of calving intervals for the entire period under review, as shown in Table D-8. While more than one-fourth of borrowers' reported calving intervals were 13 months or less, slightly more than one-fifth of the intervals reported by non-borrowers were of this duration of less. While more than half of borrowers' reported intervals were of 14 months or less, only about three-eighths of those reported by non-borrowers fell within this category.

Borrowers' superior technical performance suggests the possibility that they tend to have herds of superior genetic stock, which is consistent with the specification that loan-financed animals must be in calf when purchased, not have calved

more than once previously, and undergo a veterinary examination at the time of purchase.

#### 9. Accidental Mature Female Mortality

The average accidental mortality rate for mature female stock was 3.25% annually for non-borrowers and 3.47% for borrowers for the study period as a whole, from 1966 to 1973, as indicated in Table D-9. For the period 1967 to 1973, the respective average annual rates were 3.63% and 3.79%. These percentages are derived by adding up the total number of female head reported each year, the total number of reported accidental mature female deaths each year, and dividing the total number of deaths by the total number of mature female head plus the total number of accidental mature female deaths. The trend for borrowers was flat but erratic over the period. That for non-borrowers declined between 1968 and 1973, and declined consistently between 1970 and 1974, suggesting an improvement in non-borrowers' risk position with respect to this variable.

The difference between the weighted average accidental mature female mortality experience for both groups over the entire study period is small, and the level of accidental mortality does not seem excessive. The experience of the borrowers is not greatly different from the 20% expectation adopted by AFC management in the early years of the IDA project. This figure related to the total number of animals financed. Given a five year loan term, a 3.47% annual rate would yield roughly 17% on a cumulative basis, while 3.79% yields about 19%. However, it is probable that farmers would suffer greatest accidental stock loss in the early years of enterprise adoption, when their management skills would have the least benefit from experience.

The accidental mature mortality experience of borrowers in 1969 is anomalous, with a rate more than twice that reported in any other year. In fact, both groups in the sample suffered their highest reported rates of accidental mature female stock mortality in that year. One possible explanation of the very

high rate reported by borrowers is that they may have had an incentive to report sales as accidental deaths if they suspected that KNIS survey results might be scrutinised by AFC.

Another possible explanation of the 1969 peak in borrowers' mature mortality is that early borrowers were also early adopters who suffered greater risks of adoption than non-borrowers in terms of their ability to manage their grade cattle enterprise. This hypothesis suggests that management problems facing early borrowers inflated mature stock losses. Analysis of mortality reports does not support this hypothesis, however. Sixteen percent of borrowers' reported mature stock mortality occurred in the year in which their loans were issued or in the year following loan issue, while the incidence for immature stock mortality was only 7%. By comparison, 48% of reported mature stock mortality occurred before receipt of a loan for those loans for which the year of issue was identified, and for immature mortality the corresponding amount was 55%.

The missing values problem renders precise interpretation of these figures impossible, although it does suggest that those borrowers for whom the loan year was identified appeared not to have suffered any great concentration of female stock mortality immediately following their acquisition of loan-financed grade stock. In fact, 56% of the accidental mature stock mortality reported in 1969 occurred on the farms of the 15 non-IDA borrowers who constituted 23% of the subsample of borrowers, whose herds accounted for 35% of the total number of mature female stock reported, and who received their loans prior to 1968.

#### 10. Accidental Immature Female Mortality

The slightly higher incidence of accidental mortality among borrowers' mature female herds than among those of non-borrowers is the opposite of the situation reported with respect to immature female herds. For borrowers' immature female herds as a whole over the period 1966 to 1973 the average incidence of accidental immature female mortality was 7.39%, while the corres-



Table D-9. Accidental Mortality Rates for Mature Female Stock on the Farms of Borrowers and Non-Borrowers, 1966-1973

<u>Year</u>	<u>Accidental Mortality Rate in %</u>	
	<u>Borrowers</u>	<u>Non-Borrowers</u>
1966	-	.17
1967	2.75	4.39
1968	3.06	4.37
1969	8.33	4.78
1970	2.66	3.64
1971	3.41	2.85
1972	3.43	2.80
1973	2.55	2.12
Weighted Average 1966-1973	3.47	3.25
Weighted Average 1967-1973	3.79	3.63
Number of farms reporting accidental mature female mortalities		
Minimum (excl. 1966)	3	10
Maximum	7	24
Range of number of valid observations		
Minimum	39	152
Maximum	55	251

ponding level for non-borrowers was 7.92%, as shown in Table D-10. Levels of 8.08% apply for the period 1967-1973 if the anomalous data for 1966 is removed.

The explanation for this small difference in accidental immature mortality between the subsamples is not clear, nor is the reason why experience with immatures by subsample is the reverse of that reported for matures. Sampling error is of course the main possibility.

Mortality rates were computed in the same manner as for matures, as explained above. The rates computed for borrowers appear to be more erratic from year to year, perhaps reflecting the smaller size of that subsample, perhaps reflecting also a greater sensitivity to adversity. The level of mortality reported by non-borrowers appears to have trended upwards, as suggested by an unweighted mean of 7.70% in 1967-1969 and of 9.32% in 1971-1973. Borrowers' rates also registered highs in 1971 and 1972, and also trended erratically upward over the period. The unweighted average rate for 1967-1969 was 6.74% for borrowers, while that for 1971-1973 was 10.26%. These trends for both subsamples may indicate that the increasing demands made upon husbandry performance by upgrading have not been fully met by farmers with access to AI or to improved progeny from in-calf heifers or cows obtained with the proceeds of AFC loans. This judgement refers to husbandry only in the technical sense -- in the economic sense it would be reasonable to assume that higher risks would accompany the higher returns available with the shift from unimproved stock or inferior crosses to grade cattle.

#### 11. Age of Immature Females at Death

Comparison of the age of immature females at the time of their death for the herds of borrowers and of non-borrowers is rendered not very meaningful by the small number of borrowers reporting to have suffered this type of loss, which never exceeded eight in any of the years studied and is limited to only

Table D-10. Accidental Mortality Rates for Immature Female Stock on the Farms of Borrowers and Non-Borrowers, 1966-1973

<u>Year</u>	<u>Accidental Mortality Rates in %</u>	
	<u>Borrowers</u>	<u>Non-Borrowers</u>
1966	.91	2.04
1967	9.92	7.93
1968	3.70	6.91
1969	6.59	8.27
1970	6.15	9.18
1971	12.90	9.77
1972	10.29	8.70
1973	7.58	9.49
Weighted Average 1966-1973	7.39	7.92
Weighted Average 1967-1973	8.08	8.58
Range of number of farms reporting accidental immature female mortalities		
Minimum (excl. 1966)	5	33
Maximum	10	44
Range of number of valid observations		
Minimum	34	137
Maximum	50	218

46 valid observations. Between 1967 and 1973 the average age at mortality reported by non-borrowers ranged between 4.75 and 9.83 months, with a very erratic pattern, but with rather greater ages at death reported during the middle portion of the period than at either end. The reasons for this type of pattern are not clear from the data at hand. The average level reported by borrowers ranged from 3.00 to 7.75 months, and was in most cases below that reported by non-borrowers. The differences between these levels suggests that borrowers may tend to lose animals earlier than non-borrowers, which may reflect managerial difficulties related to the skills required to maintain in good health in-calf cows or heifers acquired with credit and their offspring. However, the nature of the data and the small number of cases involved relegate this sort of hypothesis to mere speculation.

## 12. Borrowers' Repayment Performance

Of the 66 borrowers identified in the KNIS sample, Repayment Index numbers were computed for 36. The 30 for whom no Index numbers were computed consisted of 15 borrowers who had received development loans before the advent of the IDA programme and whose AFC ledgers were assumed to present considerable data problems; 14 borrowers who had received their loans within approximately 15 months of the reference date, 30 June 1974, and who hence had no or virtually no repayment performance to evaluate because no installments had fallen due by the reference date; and one for whom repayment data could not be located.

The repayment performance of the 36 borrowers varied widely, as indicated in Table D-11. One-third registered Repayment Index numbers of 1.00 or above, consistent with timely repayment or prepayment. The second third in terms of descending Repayment Index number ranking had Repayment Index numbers of between .88 and .99, suggesting performance reasonably consistent with that expected in terms of loan installment schedules. The lowest third's Repayment Index numbers ranged from .45 to .83, suggesting some cases of hard core default.

Table D-11. Loan Repayment Performance of KNIS Sample Borrowers

<u>Repayment Index Number</u>	<u>Frequency</u>		<u>Cumulative Frequency (%)</u>
	<u>Number</u>	<u>%</u>	
.40 or less	-	-	-
.41 - .60	4	11.1	11.1
.61 - .80	5	13.9	25.0
.81 - .90	7	19.4	44.4
.91 - .99	8	22.2	66.6
1.00	1	2.8	69.4
1.01 - 1.10	9	25.0	94.4
1.11 - 1.20	1	2.8	97.2
1.21 - 1.40	-	-	97.2
1.41 or more	1	2.8	100.0
	<hr/> n = 36 <hr/>		

Mean = .89  
 Minimum = .45  
 Maximum = 1.44

Of the nine borrowers with the worst repayment performance, the situations of two cannot be analysed for lack of KNIS data pertaining to the time periods over which repayments were in default. For the remainder, a varied picture emerges. For each of the seven cases in this group, the amounts overdue and the amounts not yet due under original installment schedules as of 31 December for each year following the establishment of their loan account was compared with estimated herd value. Herd value was estimated on a conservative basis and on a liberal basis. Each basis assumed that all immature females were one year old and could command the average market price given for each particular year as listed in an AFC report.<sup>1</sup> With respect to mature females, the conservative valuation uses slaughter values for old cows, while the liberal valuation uses the values of heifers in calf, both as estimated by AFC.<sup>2</sup> The conservative basis is applied in the following discussion unless noted otherwise.

Case A registered a Repayment Index number of .45 on a loan of Sh 3,000 issued in 1969. As of 31 December each year since loan issue through 1973 this borrower's account stood as follows:

<u>Year</u>	<u>Balance in Arrears</u>	<u>Balance Not Yet Due</u> <sup>3</sup>	<u>Total Amount Outstanding</u>
1969	-	Sh 3,000	Sh 3,000
1970	Sh 645	2,484	3,129
1971	640	2,025	2,665
1972	1,355	1,533	2,888
1973	2,129	1,003	3,132

1. "The IDA 105-KE Smallholder Agricultural Credit Project." Annex 3.

2. Ibid.

3. Balance Not Yet Due is technically a misnomer, as the form of loan agreement used by AFC contains the conventional banking clause that any infringement of the agreement by the borrower renders the entire amount outstanding due upon demand. As the accumulation of arrears reflects an infraction of the installment schedule in the loan agreement, any "balance not yet due" on a

Thus, payments received failed to keep pace with the interest falling due through the end of 1973, as shown by a total amount outstanding exceeding the original principal amount of the loan.

This borrower's loan repayment record is mirrored in his herd history. The herd of two grade animals on hand following the receipt of the loan in 1969 were both reported to have succumbed accidentally by the time of the KNIS data gathering visit to the farm in 1970. A further two mature animals were obtained by 1972, but KNIS data indicate that in 1973 the herd consisted only of one heifer. Between 1972 and 1973 two mature and one immature animal had been disposed of, and it appears from the loan account that any proceeds realised were not applied to the reduction of arrears.

On the basis of this information it appears that AFC took an accommodating position after the total loss of the loan-financed herd. However, AFC's patience in riding through the crisis with the farmer appears to have been based on assumptions which were too optimistic. In 1973 the value of the herd amounted to less than one-quarter of the amount due. Whether or not foreclosure would cause absolute hardship in this case is not apparent from the facts at hand. Where did the farmer obtain the resources to reestablish his herd in 1972? Might these have been better applied to a reduction of loan arrears? What did the farmer do with any funds received from the disposal of his animals in 1972 and 1973? Might these also have been applied to the reduction of the loan balance outstanding?

Case B registered a Repayment Index number of .49 on a loan of Sh 2,000 issued in 1969. As of 31 December in each following year through 1973, the loan account stood as follows:

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(continued) loan with any amount in arrears is technically currently due. This convention is of course not justified to the extent that AFC's accounting system is unable to credit payments received to the proper loan accounts promptly. This possibility, as noted previously, may also distort the Repayment Index number.

<u>Year</u>	<u>Balance in Arrears</u>	<u>Balance Not Yet Due</u>	<u>Total Amount Outstanding</u>
1970	Sh 15	Sh 1,656	Sh 1,671
1971	478	1,295	1,773
1972	1,009	907	1,916
1973	1,584	491	2,075

In this instance also, repayments failed to keep pace with the accumulation of interest, and by the end of 1973 the total amount outstanding exceeded the original principal.

The herd history indicates that female calves were born in 1971 and 1972 by the one cow constituting the mature herd. These calves were disposed of in 1972, and in 1973 the herd again consisted of only one cow. It does not appear that the farmer made any material loan repayments after 1970, and the amount outstanding at the end of 1973 exceeded the in-calf value of the herd by one-third, and the salvage value by an order of five. There is little to suggest from this record that AFC will be able to expect loan recovery unless it is willing to institute foreclosure proceedings. The possibility of absolute hardship must be weighed against the borrower's apparent failure to apply proceeds from the disposal of the two calves to the reduction of his arrears.

Case C consists of a loan of Sh 7,400 issued in 1972, which by mid-1974 had achieved a Repayment Index number of only .57. By the end of 1973 Sh 1,869 was in arrears, reflecting unpaid amounts of installments due in April 1973 and 1974, and the total amount outstanding was Sh 7,995.

This borrower's herd of two mature females reported in 1969 had died by 1972 when the loan was issued, and two heifer calves were also lost during this period. On the basis of husbandry levels achieved, the decision to issue the loan appears to have been based on extremely optimistic assumptions.

At the time of the KNIS enumerator's visit to the farm in 1972 the herd consisted of two in-calf heifers, presumably those



purchased with the loan. Given the size of the loan, it is possible that AFC expected the borrower to purchase more than two animals. Only one of these animals was on the farm at the time of the 1973 KNIS visit, and it appears that the other and perhaps also its calf may have been sold and the proceeds not fully applied to the reduction of the loan. Foreclosure could cause absolute hardship in that the total balance outstanding far exceeds the value of the herd, but the size of the loan implies that the borrower may be of greater than average wealth.

Case D involves a loan of Sh 5,250 issued in 1972, on which arrears of Sh 1,424 had accumulated by the end of 1973, giving a total amount outstanding of Sh 5,770 and a Repayment Index number of .65. The farmer reported the accidental death of his herd of two loan-financed mature female animals in 1973. While this borrower had not experienced any accidental loss of mature stock between 1967 and 1972, two of four heifer calves born on his farm between 1967 and 1970 die within one month of birth and another born in 1972 died at six months. At the time of the KNIS data-gathering in 1973, the herd consisted of only one heifer. Assuming that the animals reported to have died did in fact die on the farm, the data do not suggest any attempt by the farmer to dispose of stock and not apply the proceeds to loan repayment, but do suggest that his husbandry standards may have been overestimated by AFC.

Case E concerns a loan of Sh 3,400 issued in 1972, of which only Sh 2,930 was drawn by the borrower. A Repayment Index number of .68 was computed as of mid-1974. At the end of 1973 arrears amounted to Sh 741, giving a total amount outstanding of Sh 3,167, somewhat larger than the principal amount drawn. KNIS records as of 1973 indicated a herd of two cows and two heifers, one heifer having been disposed of since the previous annual visit to the farm. The herd value on an in-calf basis equalled about 1.4 times the total amount outstanding as of the end of 1972 and 1973, and about .7 of the amount outstanding on a salvage value basis. The amount in arrears as of the end of 1973 could have been liquidated with the sale of two calves, or more than met by

the sale of either of the mature head in calf, suggesting that absolute hardship would not have been caused by a more aggressive collection stance by AFC.

Case F consists of a loan of Sh 4,980 drawn by the end of 1971, for which a Repayment Index number of .68 was calculated as of mid-1974. Installments due each November were not cleared by the year-end, so the arrears position as of 31 December may overstate the average position. It appears that no or negligible repayments were made between November 1972 and the end of December 1973, however.

<u>Year</u>	<u>Balance in Arrears</u>	<u>Balance Not Yet Due</u>	<u>Total Amount Outstanding</u>
1971	Sh 927	Sh 4,122	Sh 5,049
1972	984	3,201	4,185
1973	2,301	2,210	4,511

The farmer's herd consisted of five cows and two heifers as of 1971, and by 1974 two cows had been disposed of. In addition, two heifer calves were also removed from the farm, suggesting some income for the borrower from the sale of live-stock. The value of the herd on an in-calf basis has approximated 1.5 times the total loan amount outstanding since 1971, and about .7 of the loan size on a salvage value basis. The amount in arrears at the end of 1973 could have been practically liquidated by the sale of one yearling heifer and one in-calf heifer, and thus it appears that closer follow-up of this defaulter by AFC would not have inflicted absolute hardship.

Case G involves a loan of Sh 4,600 issued in 1970, which had registered a Repayment Index number of .79 by mid-1974. The data used in this study suggest that the borrower slipped greatly into arrears only in 1972,<sup>1</sup> when the installment due in August of that year was not cleared by the end of December, and repeated that performance in 1973.

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1. The Sh 20 reported overdue at the close of 1970 on this account is simply a legal fee which AFC routinely adds to all accounts at the time of drawing to reflect formalities of loan issue and registration of security.

<u>Year</u>	<u>Balance in Arrears</u>	<u>Balance Not Yet Due</u>	<u>Total Amount Outstanding</u>
1970	Sh 20	Sh 4,600	Sh 4,260
1971	6	3,808	3,814
1972	1,171	2,957	4,128
1973	1,191	2,042	3,233

Since 1970 this borrower's herd has grown from two to four cows through natural increase. In addition, the immature herd has grown from two to four head through the births of eight, less the maturing of two, the death of one at three months, and the disposal of three. The level of arrears reported at the close of 1973 could have been more than repaid with the sale of one in-calf heifer or two yearling heifers, suggesting that AFC would not have inflicted absolute hardship on this borrower by demanding stricter adherence to the installment schedule.

The summarise the situation of these borrowers in default, it appears that the worst payers (Cases A through D) tended to have suffered or reported suffering high levels of accidental stock mortality. Whether such losses should on compassionate grounds be reflected in lenient collection policies by AFC cannot be fully ascertained from the data at hand, but the evidence suggests that some of the worst defaulters may be borrowers of greater than average substance while others have disposed of stock, presumably for monetary consideration, and have failed to apply the sale proceeds to the reduction of their outstanding loans. Therefore, assuming that AFC might be justified in thinking in compassionate terms in the first instance, there would appears to be little reason for a compassionate approach in practice, barring exceptional circumstances. Borrowers only moderately in arrears appear frequently to be in a position to be better payers simply by making minor adjustments in their asset portfolios, suggesting that a more rigorous collection policy by AFC would yield useful financial results without significantly compromising the welfare of defaulters.

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Agricultural Credit and Rural Savings. A Selected List of References for AID Technicians. AID Bibliography Series: Agriculture No. 7. Washington, DC, Agency for International Development, December 1, 1972. 60 pp.

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Both of these annotated works were compiled by the Department of Agricultural Economics and Rural Sociology, Ohio State University, in cooperation with the AID Reference Center.

## INDEX OF HYPOTHESES

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