

Structure and Performance of Rural
Financial Markets in the
Philippines

by

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Introduction

The development of the formal financial sector in rural areas is a major policy goal in the Philippines. Financial constraints are widely regarded as an important reason for small farmers' low income and apparent problem of achieving potential yields from the new rice technology. The informal financial market consisting of private moneylenders, landlords, friends, and relatives is considered ill-equipped to meet the requirements of modernizing agriculture. The relatively high interest rates in this market may limit adoption of socially profitable technical innovations. The volume and term structure of lending operations are confined to small, short-term loans. Finally, informal lenders rarely extend any supervision, technical assistance, nor savings deposit services.

This paper analyzes the performance and problems associated with current agricultural credit policies in the Philippines. The first three sections briefly describe the institutional and policy setting, the historical growth of the rural financial market, and the performance of supervised credit programs in terms of credit delivery, repayment rates, farm level impact, and income redistribution. Most of the materials reviewed have been based on the institutional level information previously compiled and reported by the Technical Board on Agricultural Credit (TBAC) and several farm level studies conducted by graduate students and other researchers.^{1/} In the last section,

^{1/} TBAC supports the Presidential Committee on Agricultural Credit (PCAC). The Agricultural Credit Plan, 1977-82 by PCAC contains many of the tables cited in this paper.

the policy implications of the empirical analysis are discussed.

Institutional and Policy Setting

Agricultural credit policy in the Philippines generally aims at expanding the amount and geographic coverage of formal institutional credit. On the supply side, establishment of rural banks, commercial banks, and cooperatives to serve the rural sector have been promoted. A great variety of incentives and administrative fiat have been used to shift bank portfolios towards agricultural lending. Concessionary interest rates are a principal policy tool on the demand side. Supervised credit programs (SCPs) have also been initiated to serve the small farmers dominating Philippine agriculture.

Formal institutions

Currently several institutions provide credit to the agricultural sector (Table 1). Until recently, private commercial banks furnished the bulk of agricultural loans granted. Rural banks have increasingly gained importance and now operate in about 60 percent of municipalities. The Rural Bank Law (R.A. No. 72) passed in 1952 represents the first attempt to induce private sector participation in rural financial activities. Incentives granted include a 50 percent government equity contribution, access to preferential rediscount rates, tax exemptions, and technical assistance. Rural banks are currently the major vehicle for implementing government sponsored SCPs.

Table 1. Formal Institutions in the Rural Financial Market in the Philippines, 1978.

Type	Number	Total Outlets
<u>Private institutions</u>		
Commercial Banks	30	931 ^{1/}
Rural Banks	850	887
Savings and Loan Associations	117	200
Private Development Banks	33	146
<u>Public institutions</u>		
Philippine National Bank	1	177
Development Bank of the Philippines	1	13
Agricultural Credit Administration	1	26
Land Bank of the Philippines	1	7
<u>Total</u>	1,034	2,387

1/ Not all include agriculture in loan portfolio

2/ Source: [22]

The Philippine National Bank (PNB) is the largest government financial institution and commercial bank in the country. Financing of export crops, particularly sugar, however, dominates their loan portfolio. The Development Bank of the Philippines (DBP) focuses on medium and long-term credit needs of rice milling, coconut, livestock and other agri-based processing industries. The Land Bank of the Philippines finances land ownership transfers under the Land Reform Program and administers the loan guarantee program extended to participating institutions in the SCPs.

The Agricultural Credit Administration (ACA), formerly the Agricultural Credit and Cooperative Farmers' Association (ACCFA) was created in 1952 to develop small farmer cooperatives and supply them with short-term production and marketing credit. Because of serious default problems, ACCFA's functions were trimmed in 1963 to administering unsecured production loans to Land Reform Program beneficiaries on a very limited basis and it was renamed ACA [20].

Policies and programs

The Monetary Board regulates interest rates and charges within the 16 percent ceiling on interest rates set by the Usury Law. At present, secured and unsecured loans are allowed maximum interest rates of 12 percent and 14 percent, respectively, other charges of 2 percent and advanced interest payments. Longer term loans of more than 730 days may charge up to 16 percent interest and 3 percent for other charges. Supervised credit

bears a lower interest rate of 10 percent with additional charges not exceeding 3 percent. With respect to deposits, maximum savings interest rates are currently 7.5 to 8.5 percent for 90 day deposits, and 12.5 percent for time deposits of 730 days.

Rapid inflation rates during the 1970's in the order of 20 percent have meant negative real interest rates for borrowing and savings. This price structure in formal financial markets would naturally result in excess demand for credit because borrowers are rewarded and savers penalized. Given the higher cost of agricultural lending, it is not surprising that both public and private financial institutions generally allocate very little of the total loanable funds and the implied subsidy to the agricultural sector, especially small farmers. Thus, on several occasions, special credit programs have been introduced to reach small farmers without any loan collateral.

Table 2 lists the various specialized agricultural credit programs since the 1950's. Except for the CB-IBRD Loan Program, all other programs extended unsecured short-term credit coupled with technical assistance and regulations about the use of loan proceeds.

Masagana 99 (M99) is the most complex and ambitious of these programs. Programs after M99 attempted to disseminate supervised credit to non-rice producing small farmers. M99 was motivated by a series of crop losses due to the tungro outbreak, and extensive flood and drought damage in the early 1970's. The need to provide an alternative source of credit for tenants affected by land reform was another reason. In addition to

Table 2: Special Agricultural Credit Programs
in the Philippines, 1953 - 1978

Name	Period	Agencies	Type of Enterprise Financed
1) Agricultural Credit and Cooperative Farmers Association (ACCFA)	1953-1961	ACCFA	Rice
2) Agricultural Credit Administration (ACA)	1963-present	ACA	Rice
3) Agricultural Guarantee Loan Fund (AGLF)	1972-1973	Rural Banks	Rice
4) Agricultural Guarantee Fund (AGF)	1972-1973	Rural Banks	Rice
5) Central Bank--International Bank and Reconstruction Development Loan Mechanization Program (CB-IBRD)	1965-1974	Rural Banks (90 percent) Savings & Loan Assocs. (10 percent)	Not specific, mostly sugar
6) Masagana 99	June 1973 to present	Rural Banks PNB, ACA	Rice
7) Masaganang Maisan	July 1974 to present	Rural Banks, PNB	Corn and other feed grains
8) Gulayan sa Kalusugan	Dry 1975-76 to present	Rural Banks	Vegetables
9) Tobacco Financing Program	Oct. 1975 to present	Rural Banks	Tobacco
10) Integrated Agricultural Financing--Coconut		Rural Banks	Coconut
11) Cotton Financing Program	1974-present	Rural Banks	Cotton
12) Integrated Agricultural Financing		Rural Banks	Multiple Crop

Source: [22]

concessionary priced loans, supervision, group lending, and substantial fertilizer subsidy in the early phases of the program were also important features.

The CB-IBRD Loan Program provided medium and long-term loans for the purchase of tractors, irrigation pumps, and other farm equipment. This program was funded by the World Bank primarily to promote mechanization. The majority of the loans was distributed to the sugar industry for acquiring large four-wheel tractors.

Funds for SCPs, especially since the late 1960's, originated mainly from Central Bank operations and were channeled through established banking institutions. The rural banks participated in almost all programs. Since 1973, however, the PNB has become a major participant, supplying nearly 50 percent of the M99 loans and 70 percent of the supervised loans for the corn sector. Foreign loans and grants formed 22 percent of total value of agricultural loans granted from 1965 to 1975, but were much more significant in the total medium and long-term agricultural portfolio [22]. Direct government budget financed the operation of ACA which made less than 5 percent of the M99 loans.

Several incentives are used to induce formal lenders to join supervised credit programs. The Central Bank provides initial loanable funds to participating banks by making a deposit, called Special Time Deposits, for a 3 percent interest rate. Loanable funds for agriculture are further expanded through the rediscount window. At present, supervised loans are fully re-discountable at a 1 percent rediscount rate in contrast to other

loans with rediscount value of 80 percent at a rate of 5 to 8 percent. Rediscount limits are also much higher for supervised loans: 500 percent of lender's net worth plus 100 percent of savings and time deposits compared to 100 percent of net worth plus 50 percent of deposits for other types of loans. To reduce risks of default, a loan guarantee fund administered by the Land Bank of the Philippines protects participating lenders on up to 85 percent of their loan losses due to natural calamities.

The government has also attempted to increase agricultural credit by requiring all banks to allocate 25 percent of their loanable funds to agriculture, and at least 10 percent of this to agrarian reform beneficiaries. Because of the higher cost of agricultural lending, financial institutions have strongly resisted following this regulation and have simply purchased Certificates of Indebtedness issued by the Central Bank to comply with the regulation instead of directly lending to agriculture.

Historical Trends in Agricultural Credit Delivery

Formal credit market

Table 3 shows the growth in agricultural loans made and their relative share in the total loan portfolio of each financial institution for 1960 - 1975. Nominal value of agricultural loans grew rapidly at 18 percent per annum during this period but in real terms expanded only at a rate of 7 percent. Most of this growth took place in the 1960's. The real and relative levels of agricultural loans declined in the 1970's despite active government intervention with sectoral portfolio

Table 3: Selected Indicators of Growth in Agricultural Loans Granted from Formal Institutions in the Philippines, 1960-1975

	Value of Agr. Loans		Agr. Loan NVA in Agr. 2/	Agricultural loans/total loans granted					
	Nominal (P million)	Real 1/		All Banks	Commercial Banks	Rural Development Banks	Savings Banks	Non-Bank Institutions	
1960	536.2	1215.9	.14	.20	.15	.82	.17	.06	.01
1961	776.1	1679.9	.19	.22	.16	.74	.20	.03	.01
1962	949.9	1954.5	.21	.20	.16	.77	.24	.02	.03
1963	1267.2	2377.5	.24	.20	.16	.80	.24	.01	.03
1964	1402.1	2512.7	.25	.19	.15	.82	.32	.08	.01
1965	1436.2	2519.6	.23	.19	.15	.95	.52	.10	.02
1966	1622.2	2726.4	.24	.19	.15	.84	.30	.04	.02
1967	2067.5	3389.3	.27	.20	.16	.86	.38	.01	.03
1968	2223.4	3551.7	.25	.16	.11	.87	.36	.02	.03
1969	2336.1	3678.9	.22	.16	.11	.88	.19	.02	.03
1970	2807.9	3576.9	.22	.15	.10	.89	.40	.01	.04
1971	3251.1	3580.5	.21	.13	.09	.90	.53	.002	.04
1972	3424.1	3424.1	.20	.12	.08	.90	.55	.01	.05
1973	4015.9	3225.0	.19	.10	.06	.91	.49	.003	.02
1974	6386.6	3319.4	.22	.12	.06	.91	.30	.01	.02
1975	6733.5	3402.5	.21	.09	.06	.92	.03	.02	.02

1/ At 1972 prices. 2/ Net Value Added

SOURCE: [13, 22]

allocation. In 1975, real value of agricultural loans granted was still below 1969 levels. The proportion of agricultural loans to the net value added in agriculture and to total loans made dropped from a high 0.27 and 0.20 in the 1960s to a low 0.21 and 0.09 in the 1970s, respectively. In contrast, the ratio of non-agricultural loans to net domestic product in non-agriculture (0.76) is much higher.

In Fig. 1, the trends in the relative share of the different institutions to agricultural loans are depicted. The private financial institutions remain the major source of agricultural financing but their share has dropped from over 80 percent in the early 1960s and 1970s to about one-half by the mid-seventies. The expansion of the public sector lending was due primarily to PNBs rapid growth reflecting in part its increasing role in small farm credit programs.

Rural banks' share in total agricultural loans grew from one-tenth in 1960 to about one-fourth by 1975. Rural banks allocate about 90 percent of their loans to agriculture but up until 1973 about 85 percent of these were secured loans or loans to relatively large landowners. The proportion of secured loans declined to 50 percent during the peak of M99 in 1974 and has risen again to about 75 percent at present.

Agricultural loans constitute a relatively small and declining proportion of the total loan portfolio of commercial banks, decreasing from 16 percent to 6 percent over the past one and a half decades. Moreover, the bulk of their operations, including the PNB's, is devoted to the commercial crop sector, particularly the sugar industry.

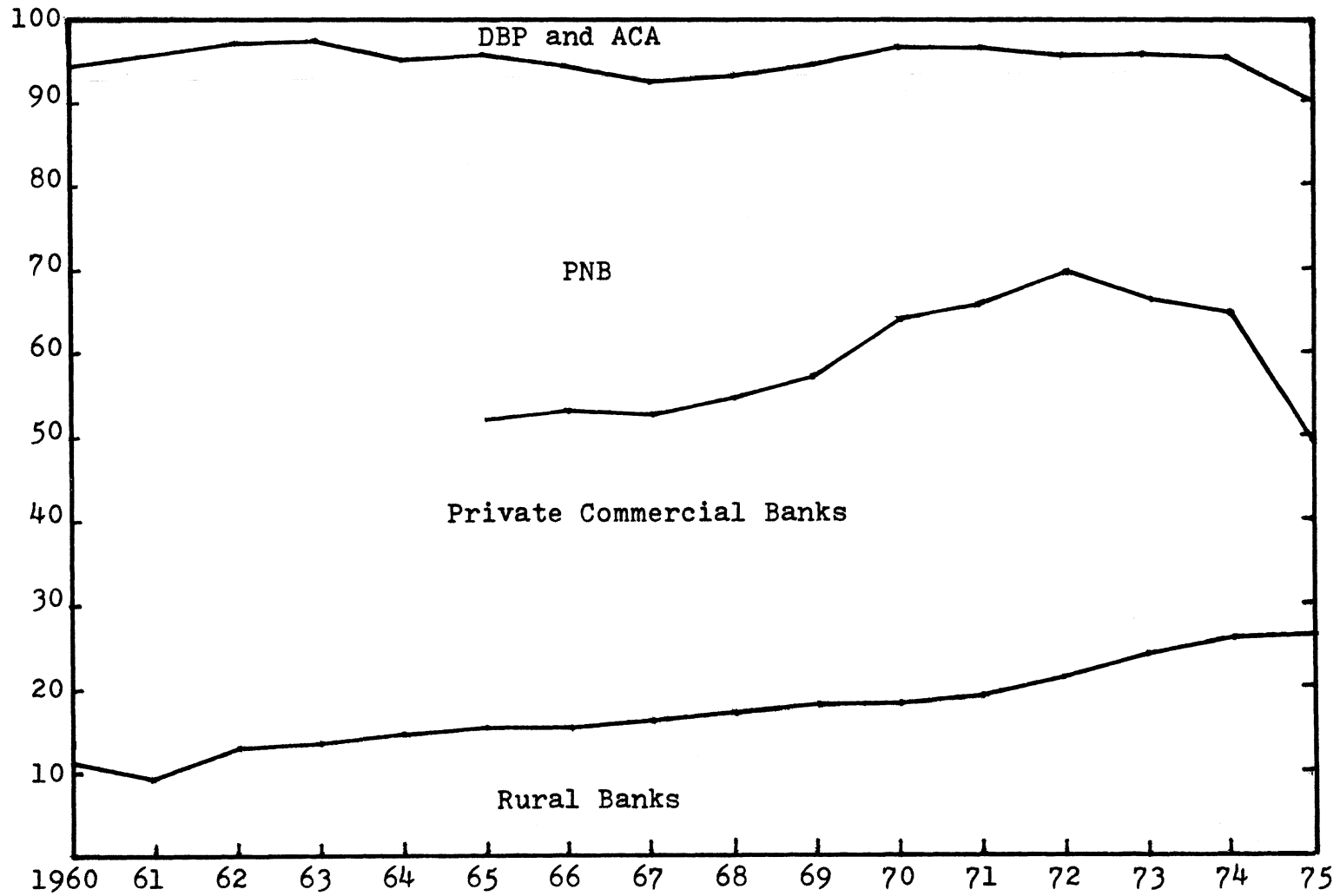


Fig. 1. Distribution of Agricultural Loans Granted by Institutional Sources, 1960-75.

Fig. 2 illustrates the predominant share of sugar and other commercial agriculture in the distribution of agricultural loans. From 60 to 80 percent of loans granted to agriculture were allocated to the commercial sector throughout this period. The recent series of supervised credit programs have not raised the proportion of loans to the rice and food sector to the 1976 high levels.

Informal credit market

It would be interesting to relate growth in the formal with changes in the informal financial market, but there is much less information about the characteristics and changes of the latter. Based on various farm surveys reporting sources of loans, the relative value of formal to informal loans appears to have increased from about 40 percent in the 1960s to about 65 percent in the mid seventies (Table 4). Note, however, that these levels and trends of formal share of total value of loans likely indicate upper limits because these surveys covered relatively progressive areas and farmers tend to underreport informal loans.

Despite the relative growth in the formal sector, rural financial markets remain highly fragmented as evidenced by the wide interest rate variation among the different sources of credit found even in areas most affected by government credit programs (Table 5). Friends, relatives, and landlords do not typically charge an explicit interest rate but the weighted average annual

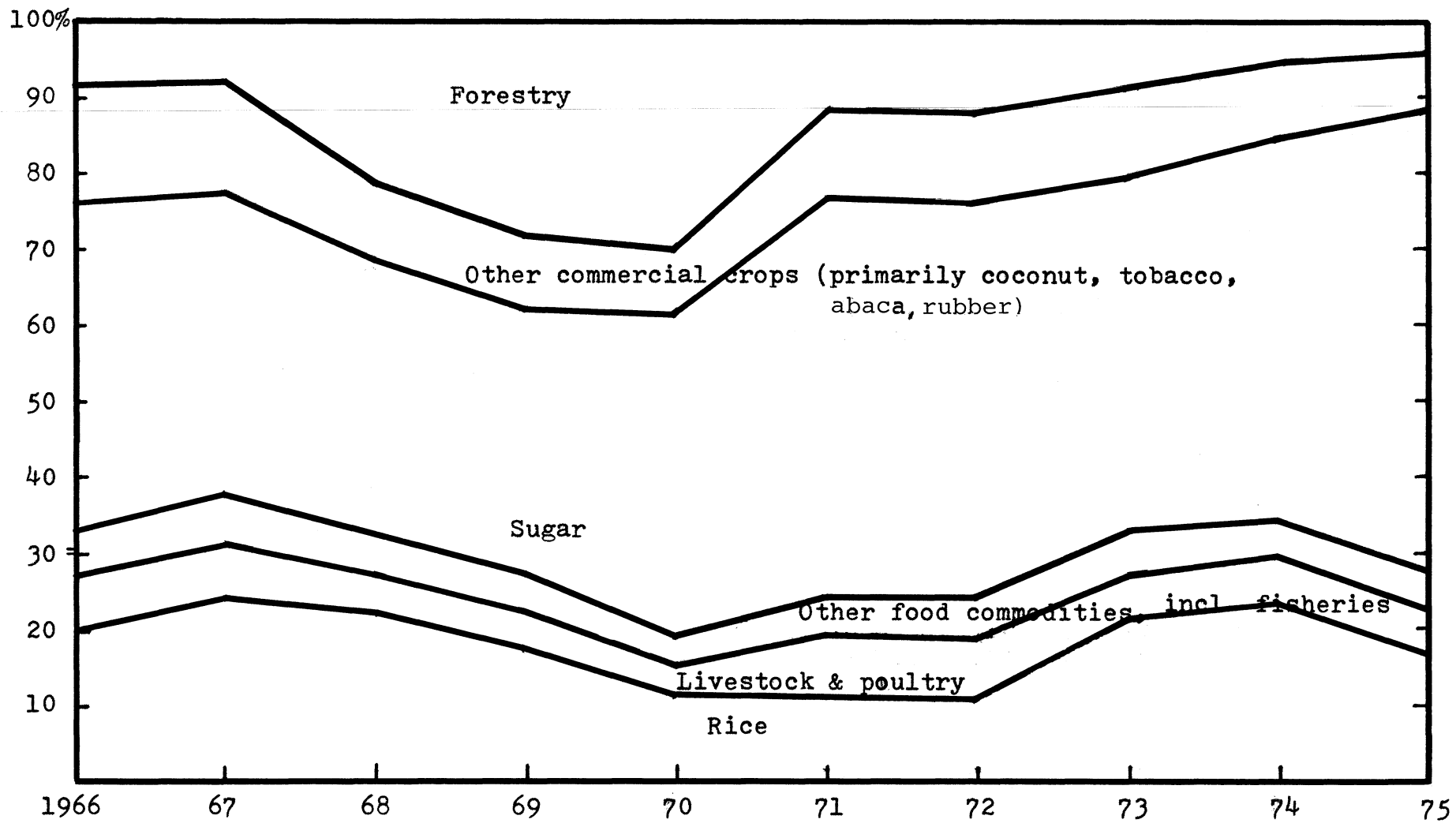


Fig. 2. Distribution of Agricultural Loans Granted by Crops, 1966-74.

Table 4: Sources of Agricultural Credit Based on Various Farm Surveys in the Philippines (in percent of total value of loans).

Surveys	Formal	Informal
1960/61: Philippines ^{1/} (all farm types)	38	62
1965/66: Central Luzon ^{2/} (rice cooperative members)	57	43
1967/68: Philippines ^{3/} (rice farms)	37	63
1968/69: Philippines ^{3/} (rice farms)	42	54
1970/71: Philippines ^{3/} (rice farms)	53	47
1971/72: Philippines ^{3/} (rice farms)	46	54
1973: Central Luzon ^{4/} (rice farms)	64	36
1976: Laguna ^{5/} (rice farms)	67	33

SOURCES: 1/ [5]
2/ [18]
3/ [4]
4/ [16]
5/ [14]

TABLE 5: Distribution of Yearly Interest rates on Loans by Source of Credit in Laguna, 1976 Wet Season^{a/}

Interest Rate	Total	Institutional	Friends and		
			Private	Relatives	Relatives
(no. of farmers)					
No Interest	43	--	3 ^{b/}	26	14 ^{c/}
1-12%	97	97	--	--	--
13-20%	1	--	1	--	--
21-40%	4	--	--	3	1
41-60%	4	--	--	2	2
61-80%	5	--	1	2	2
81-100%	39	--	11	27	1
101-150%	13	--	2	11	--
151-200%	38	--	8	29	1
201-320%	7	--	2	5	--
No Reply	25	--	11	12	--

^{a/} Imputed repayment in kind (palay) by 1 cavan of palay = P45.

^{b/} Purchase of groceries on credit from village retail stores.

^{c/} 11 cases in the form of unpaid rent.

SOURCE: [14]

interest rate still amounted to around 60 percent.^{2/} Studies in other countries, however, suggest that the apparent high interest rate in the informal market can be explained by the cost of capital, administration, and risk, and not by monopoly profits as commonly believed [3]. A recent analysis also indicates that the effective cost of borrowing from formal sources is not too different from informal credit when other charges and borrowers' transaction costs are considered [2]. For M99 loans, the effective cost of borrowing is at least 30 percent per annum without accounting for the opportunity cost of the borrower's time in loan processing.^{3/}

Performance of Supervised Credit Programs

In this section, trends in credit delivery and repayment rates of the recent supervised credit programs are discussed. This is followed by a review of evidence on the impact of these programs on farm productivity and income distribution.

Credit delivery and repayments

In Table 6, the historical coverage and repayment rates of the two most important supervised credit programs are reported.

^{2/}This is a conservative estimate for two reasons: the proportion of formal loans is probably higher than average and in the calculation of per annum interest rate from the usual crop season term loan, it is assumed that informal lenders do not charge additional interest for late repayment due to poor harvest.

^{3/}Assuming two crop loans per year, other costs are 4 percent for the service charge, 6 percent for Barrio Savings Fund, 2 percent for rodent control, 1 percent for advanced payment of interest and other charges, and borrower's transport cost assumed at 5 percent.

TABLE 6: Coverage and Repayment Rates of the Masagana 99 and the Masaganang Maisan Supervised Credit Programs in the Philippines.

		No. of Borrowers (thousand)	Area Financed (thousand ha)	Loans Granted (P million)	Repayment Rate <u>1</u> / (%)
<u>Masagana 99 (Rice)</u>					
Phase I	(Wet season, 1973/74)	401.4	621.0	369.5	93.9
II	(Dry season, 1973/74)	236.1	355.4	230.7	92.9
III	(Wet season, 1974/75)	529.1	863.6	716.2	83.3
IV	(Dry season, 1974/75)	354.9	593.6	572.3	80.0
V	(Wet season, 1975/76)	302.8	558.6	572.9	73.1
VI	(Dry season, 1975/76)	151.3	255.6	255.7	74.1
VII	(Wet season, 1976/77)	156.3	235.2	264.0	64.9
VIII	(Dry season, 1976/77)	81.2	134.8	156.0	54.7
IX	(Wet season, 1977/78)	72.6	125.9	135.0	--
<u>Masaganang Maisan (Corn)</u>					
Phase I	(Wet season, 1974)	182.9	289.9	183.2	83.1
II	(Dry season, 1975)	102.7	145.2	108.1	74.0
III	(Wet season, 1975)	38.6	59.4	42.1	69.6
IV	(Dry season, 1976)	26.6	52.2	37.1	53.1
V	(Wet season, 1976)	17.9	40.1	19.5	49.2
VI	(Dry season, 1977)	5.2	13.0	5.2	10.3

1/As of June 1977 for PNB; Aug. 1977 for ACA; and Dec. 1977 for Rural Banks.

SOURCE: [21]

The same information for other short-term credit programs is presented in Appendix Table 1. M99 delivered about 89 percent of the total loans granted to 83 percent of the total farmers served by supervised credit programs in recent years. At the peak of its operation in Phase III, about one-half of the rice farmers were covered by the M99 Program. The Masaganang Maisan is second in importance making 10 percent of total loans granted to 16 percent of the total farmers served.

The declining trends in the coverage and repayment rates are remarkably similar across programs.^{4/} The latest phase of the M99 program, for example, is only 15 percent as large as Phase III. The contraction of Masaganang Maisan is even more rapid. Repayment rates for both programs averaged 74 percent. Note that these repayment rates are evaluated at the end of 1977 and would be much lower if computed as of due date. Using this latter definition, repayment rates of M99 since Phase III have only ranged from 30 to 50 percent.

Loan supervision and group lending in M99 were expected to improve repayment rates. These services, however, increased administrative cost without any measurable impact on repayment behavior. Supervision is supposed to raise farmer's ability to repay by technical assistance and by control of loan use for production inputs. In practice, extension agents are assigned 200-300 farmers each and essentially only process loans.

^{4/}Earlier programs by the ACCFA and ACA in the 1950s and 1960s experienced the same fate [20].

Uniform levels of fertilizer and agricultural chemicals are typically recommended without due consideration of an individual farm's resource conditions.

Loan use regulations are nearly impossible to implement because of the fungible nature of credit. Even if credit directly purchased inputs, it may have only substituted for the borrower's savings and the additional liquidity diverted to non-farm expenditures. Credit in kind has not prevented diversion as widespread cash conversion of fertilizer was observed during Phases III and IV of M99 when prices of fertilizer sold for food crops were double that used for export crops.

Group lending was designed to reduce lenders' and borrowers' transaction cost and provide social pressure for loan repayment. Farmers were required to form "seldas": groups of 5-15 jointly liable borrowers. A study in Camarines Sur showed no significant difference in borrowers' transaction cost and repayment rates due to group lending and the greater organization and collection efforts with the "selda" actually raised lending costs [18]. In a study of causes of non-repayment in Central Luzon, the negative effect of "seldas" in farmers' repayment decision was documented [23]. Inability of one member to repay discourages repayment by all the other members since they will have to cover defaulting members' share or also be disqualified from borrowing in the next season.

Although defaults may be viewed as an income transfer, capital erosion and growing numbers of disqualified borrowers due to high default rates directly threaten the viability of

any credit program. Despite willingness to subsidize agricultural credit programs, the gradual contraction of eligible borrowers cannot be prevented unless contracts are seriously enforced or loans restructured. Enforcement of contracts does not seem to be politically acceptable but unjudicious loan restructuring simply transforms supervised credit into a costly subsidy program.

Impact of credit at the farm level

The common approach in evaluating the impact of loans has been to compare levels of input use, production, and income before and after the program or between borrowers and non-borrowers using farm survey data [6,7,8,9,16,17]. Table 7 illustrates the types of variables and general results typically found in these studies based on a series of surveys conducted by the International Rice Research Institute as part of their research project entitled "Constraints to High Rice Yields on Asian Rice Farms." Inter-crop seasonal differences in the figures reflect in part the effect of changes in the sample of farmers interviewed.

Masagana 99 borrowers consistently had larger farms than non-borrowers while borrowers from informal sources appear to have on the average the same farm size as non-borrowers. Cash inputs and net income per hectare were about 15 percent higher for M99 borrowers but note the greater net income difference during the seasons when cash inputs were relatively less. The lower cash inputs of borrowers from informal sources, which may

TABLE 7: Comparison of Resource Use and Net Farm Income Per Hectare by Source of Credit in Laguna, Nueva Ecija, and Camarines Sur (Wet Season, 1975 to Wet Season, 1977).

Variables	Season/Year				
	Wet 1975	Dry 1976	Wet 1976	Dry 1977	Wet 1977
No. of farmers					
M99	56	57	65	66	94
Other loan	48	57	50	48	55
No loan	46	50	36	60	47
Farm size (ha)					
M99	2.24	2.17	2.02	2.11	2.27
Other loan	1.84	1.81	2.01	1.66	2.25
No loan	1.93	1.72	1.83	1.78	2.11
<u>M99</u>					
No loan	1.16	1.26	1.10	1.19	1.08
<u>Other loan</u>					
No loan	.95	1.05	1.10	.93	1.07
Cash inputs (P/ha)					
M99	408	500	438	577	523
Other loan	224	357	327	632	374
No loan	262	368	516	592	518
<u>M99</u>					
No loan	1.56	1.36	.85	.97	1.01
<u>Other loan</u>					
No loan	.85	.97	.63	1.07	.72
Net income (P/ha)					
M99	2040	1818	2018	3112	2344
Other loan	1783	1970	1378	3074	1867
No loan	1797	1824	1721	2990	1714
<u>M99</u>					
No loan	1.14	1.00	1.17	1.04	1.37
<u>Other loan</u>					
No loan	.99	1.08	.80	1.03	1.09

SOURCE: [9]

indicate lower optimal input levels or greater financial constraint, was not accompanied by any difference in net income per hectare with respect to non-borrowers.

Differences found in the partial comparisons of variables between borrowers and non-borrowers should not be readily attributed to credit. Additional analysis is required to separate the effect of credit from other possible factors such as differences in technology, technical and managerial knowledge, irrigation, yield and price uncertainties, relative input-output prices, initial level of financial constraints and so forth. Yield variability caused by weather conditions, for example, explains part of the annual net income variation and the greater net income difference between M99 borrowers and non-borrowers when cash inputs are relatively lower. Moreover, non-price rationing of cheap formal credit tends to favor farmers with superior factor endowments as evidenced by the larger farm size of M99 borrowers.

The attribution problem was minimized by Mandac and Herdt using econometric techniques [15]. Supplementing the Nueva Ecija farm survey with data from experiments conducted on the same farmer's fields, farmer's ability to allocate resources efficiently were explained in terms of financial constraint and availability of credit, managerial ability, measures of uncertainty, and environmental variables. Table 8 reports the regression results which show that most of the significant explanatory variables relate to financial constraints. Farm size reduces supply of liquid capital per hectare while family

Table 8: Regression Analysis of Factors Affecting Variation in Allocative Efficiency Gap among a Sample of 56 Rice Farmers in the Philippines (Wet Season, 1974 to Dry Season, 1977).

Variables	Coefficient	t-value
Intercept	1.7490	
Intercept dummy variables		
Credit (1 = non-borrowers)	-0.4369*	-2.1260
Labor scarcity (1 = scarce labor)	0.0249	0.0913
Tenancy (1 = share tenant)	-0.2836	-0.8203
Irrigation (1 = unirrigated)	-0.0075*	-3.2051
Risk index (1 = higher risk)	-0.1302	-0.6500
Gross family income	0.00003*	3.0000
Total area	-3.0731*	-9.5497
Information index	0.1713*	1.8013
Age of farmer operator	-0.0091	-1.0225
Years of education	-0.2418	-1.2002
Number of days off farm	0.0026*	2.0813
Technical knowledge score	0.0397	0.4091
R ² = .77		
n = 336		

*Statistically significant at 10 percent level.

SOURCE: [15]

income and credit increases its availability. The highly significant coefficient for irrigation indicates the importance of risk in farmers' decisions. Knowledge variables seem to be less critical in this sample of farms although the information index and number of days working off farm were significant.

The above studies cited simply tested whether credit has had a statistically significant impact on allocative efficiency. To measure cost-effectiveness of agricultural credit, an estimate of benefits of credit use is needed which can be compared to the cost of the credit policy.

Rosegrant simulated the impact of supervised loans on input use, yield and net farm income [19]. His model specified farmers' decision processes over several seasons, taking account of risks due to weather and insects, and consumption propensities in a typical rice farm in Nueva Ecija using econometrically estimated coefficients. His results indicate a much smaller input and productivity response to changes in nominal interest rates compared to changes in loan limits (Table 9). Potential effects of a supervised credit program with a low interest rate of 8 percent per season and high loan limit of ₱1200/ha instead of the informal sector with an interest rate of 24 percent and a loan limit of ₱300/ha resulted in an increase of 70 percent, 23 percent and 23 percent on fertilizer input, yields and net income, respectively. A great part of these changes is due to more liberal loan limits rather than lower interest rates.

Rosegrant's approach in deriving benefit of credit is limited by the narrow farm framework of analysis. The potential

TABLE 9: Average Simulated Farmers Borrowings, Input Use and Production Results from Farmer Decision Model with Two Nominal Interest Rates and Three Loan Size Limits

Financial Market		Nitrogen (kg/ha)	Comple- mentary Inputs (P/ha)	Loan (P/ha)	Yield (kg/ha)	Income (P/ha)
Interest Rate (%/season)	Loan Limit (P/ha)					
8	1200	80	204	482	2402	847
8	600	78	175	445	2350	840
8	300	49	73	292	1971	737
24	1200	75	204	475	2374	759
24	600	73	175	445	2320	773
24	300	47	66	292	1951	686

SOURCE: [19]

impact of credit on non-farm activities or present consumption were not considered. Given the fungible nature of loans, it would be very difficult to determine the degree of underestimation of a partial measure of farm instead of farm-household benefits. Also, the use of nominal interest rates which understates the effective cost of borrowing by the borrower's transaction cost, may have overestimated the effect of supervised credit.

Income distribution effect

Formal credit at concessionary interest rates is considered a simple instrument for redistributing income to small farmers facing apparently high interest rates in the informal markets. Gonzalez-Vega, among others, has argued that the opposite effect is often realized because excess demand for credit leads to non-price rationing usually favoring larger sized loans made by wealthier farmers with collateral or proven records of repayment [10].

Income transferred through concessionary interest rates is not small. Assuming an equilibrium real interest rate of 10 percent, which is similar to the U.S. for comparable types of loans where capital is relatively abundant, the negative real interest rates of 10 percent in the Philippines during the 1970s imply an annual income transfer of about ₱800 million.^{5/}

^{5/} The assumption seems reasonable given the 60 percent average nominal interest rate in the informal market. This methodology followed Vogel's estimation for Costa Rica [25].

The subsidy, which represents about 4 percent of gross domestic product in agriculture, is shouldered by holders of currency, bank deposits and taxpayers in general through inflation, low interest rate on savings, and direct government outlay.

Government policies regarding credit distribution are to some extent not supportive of the poorer segment of the rural sector. Only farm operators are entitled to institutional credit despite the significant number of landless households in the rural areas. During the early phases of the M99, the program was limited to irrigated areas close to primary markets, i.e., relatively progressive locations. The procedure of setting loan limits on a per hectare basis means a greater credit ceiling for farm households with larger farms.

Empirical evidence to demonstrate who benefits from concessionary interest rate policies are scanty. Less than 15 percent of the value of loans in the CB-IBRD Loan Program was used for power tillers of small farmers [11]. Four-wheel tractors and other large farm equipment was purchased with the bulk of the loans by sugar farmers with 50 hectares or more who constituted less than 10 percent of the number of farmers in 1971. As discussed in the earlier section, sugar farmers have historically received the largest share of formal credit.

A rough approximation of the pattern of credit distribution by farm size in 1967 and 1974 compared to the distribution of farm households are presented in Table 10. Seventy-three percent of the farm households with less than 3 hectares received only 2 percent of value of formal loans granted in 1967. Relatively

TABLE 10: Distribution of Farm Households and Formal Loans Granted by Farm Size (%)

Farm size	1967		1974	
	No. of <u>1</u> / farms	Value of loans	No. of <u>2</u> / farms	Value of loans
Less than 1 ha } 1-under 3 has }	73	2	14	1
			47	19
3-under 5 has } Over 5 has }	27	98	24	8
			15	72

1/ Based on 1961 Agricultural Census, Bureau of Census and Statistics (BCS).

2/ Based on 1971 Agricultural Census, BCS.

SOURCE: [22]

more small farmers were served in 1974, but this may have worsened with the rapid contraction of M99 since then.

Policy Implications

The analysis in the previous sections raises some questions about the wisdom of current agricultural financial policies. Aggregate agricultural loans made have declined in real terms. Empirical studies have not clearly identified any significant impact of supervised credit programs on productivity and income growth. Distribution of credit does not seem to be consistent with equity goals. Past experience also does not warrant an optimistic outlook regarding the long-run viability of supervised credit programs. It is argued in this section that the choice of policy instruments would have been more appropriate in improving rural welfare if the longer-run objective of establishing a viable rural financial market was given more emphasis. This policy redirection implies at least two approaches: using more flexible interest rates and increasing flexibility in the use and timing of agricultural loans.

Letting the price of borrowing and lending more closely reflect the true cost of capital would lead financial institutions to more efficiently reallocate resources from economic units with lower productive opportunities to those with higher productive opportunities. Correct price signals would also improve resource allocation within farm-households between consumption and savings, labor and capital, and among enterprises. Interest rates and specialized credit programs are likely to be less

efficient policy instruments in affecting sectoral or input allocation compared to price policy or irrigation development.

Adams pointed out that assumptions about lender and borrower behavior which seem to underlie low interest rate policies such as interest elastic credit demand and lack of rural savings capacity have not been supported by recent empirical analysis [1]. He particularly emphasized how negative real interest rates on savings deposits and artificially low rediscount rates discourage financial institutions from mobilizing savings in the rural areas. The Philippine experience reflects this concern as indicated in Table 11. Rapid growth in loans granted by the rural banking sector has originated mainly from the rediscount window of the Central Bank. The share of equity capital and deposits to total bank resources decreased by 66 percent and 33 percent, respectively between 1961 and 1975. Reliance on borrowings, on the other hand, rose almost three-fold from 18 percent to 54 percent during the same period. Rural banks appear to function as retailers of Central Bank money instead of mobilizers of resources in the rural sector.

Improving the flexibility in timing and use of small farmer credit would likely reduce the cost of administration and default in these programs. Low returns on agricultural lending and misconceptions about the role and nature of credit in the farm-household context largely explain the controls imposed on timing and use of credit. Most of the economic analysis of agricultural credit seems to view credit as an input of production ignoring the fungibility of credit and

TABLE 11: Pattern of Resource Structure of Rural Banks in the Philippines (%).

	1961	1965	1969	1973	1975
Equity Capital	45	44	36	23	16
Deposits	32	28	32	32	25
Borrowings	18	24	22	39	54
Miscellaneous	5	4	10	6	6

Source: [13]

the interdependence of production and consumption decisions within the farm-household. The farm-household will allocate additional units of liquidity (including credit) according to which activity--farm inputs, non-farm investment, present consumption--will give a higher level of marginal utility.

Loan supervision to disseminate technical knowledge and regulate loan use will not likely be effective. Linking extension with loan administration quickly dissipates the efforts of scarce competent technicians and neither task is accomplished efficiently. Regulating loan use may have little influence on the allocation of additional liquidity permitted by loans. Even if loans are directly spent on fertilizer, this may be simply substituting for their own savings and additionality may occur in the non-farm activities. Allocation of credit is affected by rate of profitability, marginal rate of time preference for present consumption, and so forth rather than by rules. Limiting the role of supervision to loan processing and more active collection effort is expected to lower transaction costs and default rates.

A more flexible credit program would raise repayment rates by increasing the value of good credit ratings with formal lenders. Several studies found that farmers tend to repay informal loans first suggesting a greater value to a good credit rating with the informal lender despite the apparently lower interest rate of formal loans [23]. One explanation is the ability of informal lenders to help farmers cope with unexpected shortfalls in income or increases in household expenditures

especially important under Philippine environmental conditions. Borrowing from informal sources even at 50-100 percent interest rates may indeed be preferable because of more flexible use and timing and more reliable supply of credit than formal sources.

The arguments presented to justify the two suggested policy changes admittedly are contrary to conventional beliefs about farm-household financial behavior. Part of the difficulty of policymakers in accepting the wisdom of these policy changes stems from the limited empirical studies on the responsiveness of farm-household credit demand to changes in policy variables, and other related micro-level analysis. More analytical research about borrower and lender behavior is required to more effectively influence policymaking in this area.

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Appendix Table 1: Coverage of Selected Supervised Credit Programs

	No. of Borrowers (thousand)	Area Financed (thousand ha)	Loans Granted (P thousand)	Repayment Rate (%)
1. Gulayan sa Kalusugan ^{a/}				
Phase I (Dry season 1974/75)		No credit component		
Phase II (Dry season 1975/76)	4.1	5.5	8705.9	80
Phase III (Dry season 1976/77)	3.6	3.3	6464.5	90
Phase IV (Dry season 1977/78)	0.2	0.2	205.4	--
2. Tobacco Financing Program ^{b/}				
Phase I (Oct. 1975- Jul. 1976)	6.2	5.4	11173.9	76
Phase II (Aug. 1976- Jul. 1977)	6.5	3.9	6535.8	76
Phase III (Oct. 1977- Jul. 1978)	4.2	2.4	3898.2	--
3. Cotton Financing Program ^{c/}				
Phase I (Dry season 1974/75)	0.3	0.2	585.8	99
Phase II (Dry season 1975/76)	1.5	0.8	1336.3	65
Phase III (Dry season 1976/77)	4.4	2.2	3497.5	61

^{a/} As of October 1977.

^{b/} As of January 1978.

^{c/} As of September 1977.

SOURCE: [22]