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An Economic Analysis of the Effect of Commercial Bank Credit on Economic Growth in South Dakota

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AN ECONOMIC ANALYSIS OF THE EFFECT OF COMMERCIAL BANK CREDIT ON ECONOMIC GROWTH IN SOUTH DAKOTA

BY

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This thesis is approved as a creditable and independent investigation by a candidate for the degree, Master of Science, and is acceptable as meeting the thesis requirements for this degree, but without implying that the conclusions reached by the candidate are necessarily the conclusions of the major department.

Thesis Adviser Date

Major Adviser Date

Head, Economic Department Date

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CHAPTER I

INTRODUCTION

Contemporary economic growth theories generally emphasize the importance of capital accumulation as a requirement for growth. Capital accumulation is possible by diversion of a portion of present production from consumption into production of capital goods. If a portion is diverted from consumption, the dollar value of consumption goods available is less than the total income of the factors of production. The consumer is forced to forgo consumption and save part of his income. That portion of income which is saved by the firm may be directly invested because the firm is the investing institution. The savings of the other sectors must be channeled to a firm before they can be invested. A financial intermediary is useful to link the saver with the investor.

It would be possible for the transfer of savings to the investor to be accomplished on an individual to individual basis. This is not very practical. A financial structure which makes these transfers has developed and is capable of handling large sums of savings. Savings are transferred not only from individuals to firms but often from one geographic region to another. Commercial banks are but one segment of this financial structure.

Providing a medium for the transfer of savings to investors is only one of the functions of commercial banks. It is this function,

the extension of credit, made possible because people save money or temporarily hold money in the form of deposits in banks, with which this study is concerned. Commercial banks can lend money, thereby creating new bank deposits, by using the money deposited and the capital accounts of the bank to back the newly created deposits. Banks, acting as a link between savers and investors, are important to economic growth because capital accumulation is a factor in economic growth. Individual bankers have control over how much will be loaned and for what purposes the loans will be used.

The importance of the commercial banking system's demand deposit-creating potential is stated in Kent's Money and Banking textbook:

> The extraordinary capacity of the commercial banks to create new money in the form of demand deposits when granting loans and buying investment securities, and to extinguish demand deposits through the calling of loans and the sale of investment holdings, gives them significant power to influence the course and volume of business activity. To the extent that newly created deposits are spent in hiring idle factors of production to increase the output of the economic system, the commercial banks act wisely in creating them, but to the extent that they are used merely to bid up the prices of the factors of production already employed, the expansion of deposits must be regarded as pernicious. In the former instance, the welfare of the general public is promoted because larger supplies of goods become available in the market; but in the latter instance, the price increases produce many maladjustments throughout the economic system unaccompanied by any significant benefits.[1]

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1 Kent, Raymond P., Money and Banking, 4th Ed., Holt, Rinehard and Winston, New York 1964, p. 107.

Despite the fact that capital accumulation is stressed in growth theories, commercial banks, which in part control capital accumulation in the local community, are not given special mention in the theories of economic growth. Dr. Richard T. Cherry wrote of commercial banks in the community:

> The tempo of economic activity and the potential for growth in any community is closely related to the volume and quality of banking activity in that community. Bank activity mirrors the underlying vitality (or lack of it) of the local business community, but the causal relationship runs in the other direction as well; the character of local banking can itself either stimulate or retard this same vitality that it reflects.[2]

The importance of banks as a supplier of credit is evident from the amount of credit they supplied to the agriculture industry of South Dakota in 1966. The major suppliers of agricultural non-real estate credit loaned $562 million to South Dakota farmers. Banks supplied $242 million of this credit, 43 per cent.[3] Banks are traditionally less active in the real estate credit market because these loans are of considerable duration which limits the flexibility of a bank's credit policy. Banks supplied four per cent of the real estate credit in 1966.

Statement of the Problem

The effect of commercial bank credit policy on economic growth poses the problem of this study. There has been no systematic study

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2 Cherry, Richard T., Bank Liquidity and Area Development, Texas A & M University, Leaflet #18, February 1964.

3 These figures were obtained from a forthcoming report on Agricultural Credit authored by Dr. Kenneth R. Krause, Economics Department, South Dakota State University.

of the implications of capital formation as a determinant of economic growth related to the community bank or clusters of banks within trade areas. A method for evaluating the contribution to growth of the commercial bank has not been developed. The aggregative nature of regional growth studies is important in outlining broad policies; but their omission of factors on the local level which affect the broad policies does not allow direct local application. This study suggests that bank credit policies are one of the local factors which affect the broad policies. The purpose of this study is to validate or refute this suggestion and to develop a method to evaluate local bank contributions to economic growth.

Objectives

The existing credit policies and attitudes toward credit extension of South Dakota were investigated in the light of the following objectives:

1. To discover the relationship between the credit policies of commercial banks and the economic growth of trade areas.

2. To determine the effect of loans to various sectors of the economy on the economic growth of trade areas.

Presuming a positive, significant relationship could be established between economic growth and the loan-to-deposit ratio as an index of credit policies, an additional objective was:

3. To discover attitudes which are relevant factors in determining the loan-to-deposit ratio of commercial banks.

Hypothesis

The hypothesis of the study is that the bankers' credit policies are relevant factors in determining economic growth of the trade areas in South Dakota. It is further hypothesized that a method for evaluating local bank contribution to economic growth can be established for use by bankers and community leaders.

Need for the Study

South Dakota's efforts to develop economically have not resulted in the state keeping pace with the nation. South Dakota has lagged behind the nation in recent years both in the absolute level of per capita income and in the rate of change of per capita income. The annual average per capita income for the period 1960 through 1965 in South Dakota was $1888; the average for the nation was $2427. The average annual rate of change for this period in South Dakota was 3.4 per cent; for the nation the rate was 4.3 per cent.[4] By contrast, in the period 1929-1940, South Dakota income was rated as highly sensitive to changes in national income, showing a 14.3% change forevery 10% change in the latter.[5]

A wide range of attitudes towards community development and the role of the banker in this development is evident from conversing with several bankers in South Dakota. Some bankers

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4 The source of the data used for these computations was obtained from Survey of Current Business, Vol. 46, No. 8, August 1966, p. 11.

5 Winston, Clemant, and Smith, Mabel A., Sensitivity of State Income Payments to Nation's Total, Survey of Current Business, January 1946, p. 8.

perceive their role as providing leadership, financial support through loans, and financial advice to community or individual economic growth. Other bankers assume a more passive role in community development. Agriculture Secretary Orville S. Freeman stated, "How local problems are handled, and how growth is achieved is the decision which can only be made in each local area--and the banker is one of the best equipped and most logical leaders in this effort."[6] Some South Dakota bankers have not accepted this challenge.

The analysis and writing of this research is directed at the local community banker and community leader. Some aspects of bank policy are not quantifiable, but they are presumably reflected in other quantifiable aspects. The unanswered questions of the effect of commercial bank credit policies on economic growth may help South Dakota more nearly keep pace with the nation.

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6 Agricultural Committee, American Bankers Association, Rural Development: The Banker's Responsibility, New York 1964, p. 4.

CHAPTER II

THEORY OF THE EFFECT OF BANK CREDIT ON REGIONAL ECONOMIC GROWTH

Capital accumulation, which stems from the investment of savings, is possible partly because banks act as a go-between for savers and investors. It would seem plausible that banks influence economic growth by the disposition of the savings of their depositors.

Modern growth theory begins from the obvious starting point that to produce goods, labor and capital must be employed.[7] While both capital and labor are essential if one is to produce at all, economic growth is the result of capital accumulation.[8] Modern growth theory concentrates on three main variables besides national income or output:

1. Rate of change of population and of the actual work force.
2. Rate of growth of the community stock of capital goods--the rate of capital accumulation.
3. Rate of technical progress.[9]

National output is determined by these three variables plus the level of natural and human resources. Commercial banks influence capital

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7 Stonier, Alfred W. and Douglas Hague, A Textbook of Economic Theory, John Wiley and Sons, Inc., New York 1964, p. 503.

8 Ibid., p. 503.

9 Ibid., p. 504.

accumulation and technical progress by making credit available for the purchase of resources.

Commercial banks have an impact on the necessary conditions of economic growth. A necessary condition for growth is an appropriate combination of the factors of production. Banks affect this combination by making loans for capital and technological purchases. A necessary condition in a capitalistic economy is an environment which will motivate individuals or corporations to pursue profit-oriented endeavors and to invest in capital goods. The policies of commercial banks associated with making loans affect the environmental conditions.

The ability of the commercial banking system to create investment in excess of savings stems from the fact that only a percentage of a saver's deposits must be held in reserve. The reserve requirements is set by the state or federal agency which charters the bank. The requirements of individual banks depend upon the chartering agency. The remainder of the deposits are excess reserves.

An individual bank can safely lend only an amount equal to the size of its excess reserves. It is limited because checks drawn by borrowers may be deposited in other banks and cause loss of reserves and deposits equal to the amount of the loan. However, the banking system can lend by a multiple of its excess reserves because the banking system cannot lose reserves by deposit transfers. The multiple is the reciprocal of the reserve ratio.[10]

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10 McConnell, Campbell R., Economics: Principles, Problems, and Policies, 2nd Ed., McGraw-Hill Book Company, Inc., New York 1963, p. 318.

The commercial banks of a state cannot be considered a closed banking system. Loss of reserves to banks outside the state would undoubtedly result from making loans. The loss may be balanced by a gain of reserves from banks outside of the state. This results in a possible reduction of the multiplier effect of bank loaning for the state.

The smaller the area or unit considered, i.e. the banks in a trade area, the more likely the reserves will be lost to a bank outside the area. The multiplying effect will be limited to those deposits which are transferred to other accounts in the bank and to the deposits lost to banks in the same trade area. It is conceivable that the multiplier could be or approach one for a small area. In a state which produces few capital goods, the multiplier effect for investment loans would be limited to an amount equal to or less than the profits and local expenses of capital goods retailers.

The theory advanced in this study contends that the output of an area is influenced by bank loans to the extent that these loans are used for capital or technological advancement purchases. This influence will be something less than the reciprocal of the reserve ratio.

CHAPTER III

DESCRIPTION OF DATA COLLECTION METHODS AND ANALYTICAL TOOLS

Bank credit has generally been excluded in the past from the many variables which affect the rate of change in per capita disposable income used as an index of regional economic growth.[11] Per capita disposable income was used as a measure of growth for two reasons: (1) almost all writers direct attention to this measure, and (2) despite some obvious weaknesses in its use, there does not seem to be a practical alternative.[12] The model used in this study describes the nature of the relationship between the availability of bank credit and economic growth based on the theory proposed in the preceding chapter.

Assumptions of the Model

Certain assumptions were necessary because this study is limited to one factor of economic growth. The author recognizes that the natural and human resources are probably not equal in each

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11 Disposable income is an after-taxes income measure.

12 Bruton, Henry J., Theories of Economic Growth, Edited by Berthold F. Hoselite, "Contemporary Theorizing in Economic Growth," Free Press, Glencoe, Illinois, 1960, p. 241.

of the trade areas[13], but the assumption that changes in the level or resources have been similar in the trade areas relieves the necessity of having equal resources. It was assumed that in the past the resources have been fully employed so that past growth in per capita disposable income is not the result of a shift from underemployment except when the shift is the result of the extension of bank credit. The level of technology was assumed to be equal or equally available in each of the trade areas. Changes in the structure of the labor force were assumed to be similar in the trade areas.

Changes in bank policies and in income patterns were assumed to be substantially unaffected by external forces during the time period of this study, 1960 through 1965.

Limitations of the Model

The time period of the study was from 1960 through 1965. There have been few changes in the number and the structure of the banking system in South Dakota during this period. Bank policies can be measured only as of a given time. This limited the time period over which it could be reasonably presumed that these policies were in effect, although the effects of a specific policy might be evident over a longer period than used in this study.

The entire state of South Dakota was studied. The state was divided into 14 trade areas, each centered around either a complete shopping center or a secondary or primary wholesale and retail center.

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13 A trade area is defined as the area surrounding at least a complete shopping center where the residents of the area go to fulfill almost all of their shopping desires.

A complete shopping center has all the convenient business functions, most of the specialty functions, but few if any wholesale functions.[14] All banks located geographically within the boundaries of the separate trade areas were aggregated and treated as if they were one bank in the analysis of the data.

The basic outline for delineation of the boundaries of the trade areas was developed by the Upper Midwest Research and Development Council.[15] Some minor revisions were made to accomplish the objectives of this study. The basic outline was revised to follow county lines as nearly as possible. Where this did not seem practical, the counties were divided among two or more trade areas. Other revisions included: (1) Union County was assigned to the Vermillion trade area instead of the Sioux City, Iowa trade area to keep within the state boundaries, and (2) Lawrence County, a trade area by itself, was combined with the Rapid City trade area because of its proximity to Rapid City and the fewness of banks in Lawrence County.

Some of the data used in this study was available only on a county basis. When counties were divided between areas, the data was allocated to the trade areas on the basis of township, town, and city population of the portion of the county in the trade area. Recognizing that distinct boundaries of the trade areas cannot be

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14 See Appendix A for a graph of the trade center heirarchy for cities in the Upper Midwest.

15 The Upper Midwest Research Council, Economic Progress Bulletin, September 25, 1963.

drawn, it was presumed that crossing of trade area boundaries would approximately cancel out this movement. Counties which were divided between trade areas and the percentage of the county population in each trade area are indicated in Figure 1.

Data Collection Methods

A questionnaire was mailed to all main office banks and some of the larger branch banks in South Dakota in the spring of 1965.[16] The questionnaire was sent to the executive officer in charge of bank operations. The branch questionnaire was used when it was returned, supplemented by the main office questionnaire. If the branch bank did not respond, it was assumed that the policies of the main office bank were in effect in the branch.

There were thirteen questions on the questionnaire. Each question had a specific measurement intent: (1) the banker's attitude towards credit extension, or (2) the banks' credit policies and practices. Question number twelve and thirteen were responded to in a manner which did not allow quantification.[17] Part B of question eleven did not yield usable answers.[18]

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16 A copy of the questionnaire with cover letters is found in Appendix B.

17 Question twelve asked for the factors which influenced the banker's decision if the collateral for a specific kind of loan varies from borrower to borrower. Question thirteen asked for other services which the bank provided that influence economic development and an explanation of them.

18 Part B of question eleven asked, "Ordinarily what per cent of the loan (for the kinds of loans listed) is secured by collateral?"; this part was either not answered or it was obvious that the answers were not homogeneous.

FIGURE 1

MAP OF THE TRADE AREAS (NUMBERS IN THE UPPER LEFT CORNER ARE IDENTIFYING NUMBERS)

STATE OF SOUTH DAKOTA

* The percentage of county population located in each trade area when the county is divided, based on the 1960 Census.

The measurement intent of questions one, two, three, four, eight, and nine was to indicate the banker's attitude towards credit extension. Questions five, six, seven, ten and eleven measured specific credit policies and how often they were used.

Question number one was:

> The following is a list of objectives of commercial banks. Please rank them according to their importance to your bank (first, second, third).
>
> A. earnings
> B. service to depositors
> C. credit to the community

This question was asked to indicate how the bankers view their role in the economy of the community. While earnings are necessary for a bank to survive, the trend of urbanization makes "B" and "C" necessary conditions for survival. This is especially true for the small town bank. It is presumed that if "B" or "C" is fulfilled "A", earnings, will automatically result. However, if earnings is listed as the number one objective fulfillment of "B" or "C" will not automatically result.

Question number two was:

> What percentage of your deposits and capital accounts does your bank prefer to carry as:
>
> A. cash and due from other banks
> B. liquid earning assets
> C. loans

This question was asked to estimate how banks prefer to use the funds at their disposal. Banks are regulated by their chartering agency, federal or state. The reserve requirement for national banks is set

by the Federal Reserve System. The requirement was 12 per cent of demand deposits and four per cent of time-savings deposits for country banks during the period of this study.[19] All banks in South Dakota are classified as country banks. This reserve must be held as cash in the vault or on deposit with the Federal Reserve Bank. State banks which are members of the Federal Reserve System must also meet this requirement. Banks chartered by the state government must have 17.5 per cent of all deposits held in reserve; 40 per cent must be held as cash or due from other banks and the remainder may be held as secondary reserves.[20] Secondary reserves as defined by South Dakota law include United States Bonds, United States Certificates of Indebtedness, United States Treasury Certificates and any other evidence of obligation of the United States Government.[21] A state bank which is a member of the Federal Reserve System must meet both reserve requirements. The cash reserve requirement of the state law is less than the Federal Reserve requirement for state-member banks having not more than 65 per cent of total deposits in time-savings accounts.

After the reserve requirements are met, the bank may elect to loan, to buy bonds or securities, or to hold extra cash with the

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19 Board of Governors of the Federal Reserve System, Federal Reserve Bulletin, Vol. 51, Number 12, Washington, D.C., December 1965, p. 1734.

20 Banking Department, State of South Dakota, Laws Relating to Banks and Banking and Small Loan Companies, Revised 1959, Chapter 6.04, p. 32.

21 Ibid., p. 32 and 33.

remainder of the funds. Another minor category of assets, bank building and fixtures, was not considered in this question.

Question three had two parts:

> What is the highest ratio of loans-to-deposits with which your bank would feel comfortable?
>
> What is the lowest ratio the public should expect of a bank which is doing a good job?

Answers to this question set the limits within which the banker prefers to operate. The position of actual operation would be determined by many factors, only one of which is the banker himself. It was presumed that a banker with a high maximum and minimum relative to other bankers is more apt to let the other factors determine where the level of operation will be. A banker with a relatively low maximum and minimum would be a more important determining factor in the actual level of operation.

Question four was:

> What ratio between demand deposits and time-savings deposits does your bank prefer to maintain?

Banks regulated by the Federal Reserve System, all national banks and state-member banks, have a lower reserve requirement on time-savings deposits. The four per cent reserve requirement on time-saving deposits affects South Dakota's 33 national banks and 25 of the 140 state banks.[22] Time-saving deposits were presumed to be more stable than demand deposits.

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22 Polk's Bank Directory, R. L. Polk & Co., Nashville, Tennessee, September 1965.

These two factors, lower reserve requirement or more stable deposits, would allow a bank to extend more credit. If the bank had some time-savings deposits as opposed to all demand deposits, either the reserve requirement would be less, or the present reserves would be in less danger of being lost because the deposits were more stable, or both effects could be present. The profits are less on time-savings deposits because a return is earned by the depositor; but the demand for deposits among financial institutions is high, necessitating the paying of a rate of interest on deposits. The commercial banking system, which can loan up to a multiple given by the reciprocal of the reserve requirement as opposed to a one-to-one ratio for other financial institutions have the ability to be a greater force in the local economy if they control the funds by competing for time-savings deposits.

Question eight was:

> If the legitimate demand for loans increased beyond your present capacity, which one or more of these methods would your bank use to meet the increased demand?
>
> A. place overlines
> B. make loans from personal funds
> C. encourage deposit transfers to time-savings
> D. merger or consolidation
> E. sell assets to increase cash holdings
> F. would take no action
> G. others (specify)

There are two main reasons by which the loan demand may exceed the present capacity of the bank: (1) lack of capital and surplus to meet the regulation limiting the amount loanable to one person to a percentage of these two accounts, or (2) lack of excess reserves to meet the reserve requirement of newly created demand deposits.

In the first situation, lack of capital and surplus, a permanent solution would be to increase capital and surplus accounts. This could be accomplished by a shift of capital funds from undivided profits or reserves to these two accounts. This was not among the choices given the bankers on the questionnaire, but could be listed under "G". Another permanent solution would be "D", merger or consolidation. Temporary solutions which have a limit to them would include placing overlines and making loans from personal funds.

The second situation, lack of excess reserves, could be solved permanently by selling assets to increase cash holdings or, for a few banks, encouraging deposit transfers to time-savings accounts. Mergers or consolidations might solve the problem. Overlines and loans from personal funds have limits in their ability to meet excess credit demands.

It was presumed that bankers which seek a permanent solution to this problem are more aware of the importance of the credit extending function of commercial banks.

Question nine was:

> Which one of the following is most likely to put a ceiling on your loan-to-deposit ratio? (Please rank them first, second, etc.)
>
> A. state or federal control
> B. credit worthiness of loan applicants
> C. economic resources of your community
> D. stockholder control

Factors "A" and "D" are given to the banker. He has little, if any, room for interpretation of these controls interior to the banking

system. Factors "B" and "C" are exterior. They may be limiting factors at the bankers discretion. Whether or not these factors are limiting depends upon the banker and how he thinks they affect his loaning ability.

Questions five, six, seven, ten and eleven survey some specific credit policies. The bankers were asked how often they used a certain practice. The possible responses were:

A. frequently
B. occasionally
C. seldom
D. rarely

Question five asked:

> Does your bank encourage the transfer of demand deposits to time-savings deposits?

It was presumed that bankers would encourage the transfer for two reasons: (1) to lessen the reserve requirement, or (2) to compete for funds (savings) which might be lost to another financial institution if the transfer was not encouraged. Either reason has an effect on the banker's ability to make loans. Time-savings deposits increase the stability of the deposits and increase the types of loans possible by the bank.

Question six asked:

> Does your bank actively encourage consumer or installment loans?

Installment loans for consumer goods do not affect the borrower's income earning ability; in reality it is spending future expected

income.[23] The local merchants may turn over their inventory at a faster rate because of this type of loan. The merchant may also be in a better competitive position with a larger out-of-town merchant which has installment plans available. The availability of installment credit should increase local economic activity.

Question seven was:

> Is your bank willing to "go out on a limb" for a young person who is willing to stay or return to your community if sufficient credit is available?

South Dakota exports young educated people. The earning power of these people is potentially high. Since South Dakota lacks competitive wage scales with much of the nation, credit availability could offset some of the wage differences and keep some young, high income potential people in the state.

Question ten dealt with management services banks perform for borrowers or potential borrowers. The question had five parts.

> Which of the following management services do you perform for your borrowers or potential borrowers?
>
> A. detailed investigation of nonprofitable enterprises of borrowers
> B. investigation of enlargement potential
> C. investigation of new enterprises
> D. investigation of new business
> E. others (specify)

The mere availability of credit, important as it may be, is not the entire impact of a bank's credit policy. The banker's influence as

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23 Consumer goods as used here are not goods related to a vocation but goods used for consumption or enjoyment.

the financial leader of the community has an impact of the economy because he often is an advisor. It was presumed that the bankers are in a more advantageous position for advising in the areas of this question than are the borrowers.

Question 11, Part A, asked for the per cent of the banks' loans in each of several categories. It was expected that an idea could be derived of how the loans were divided within the community and how much was loaned for the purchase of capital goods. In answering this question, the bankers generally grouped their loans into four general categories:

A. agriculture loans
B. business loans
C. installment loans
D. other loans

The economy of any community will be basically oriented in one direction, particularly in small communities which characterizes South Dakota. However, if balanced growth is to be attained, the credit needs of all segments of the economy will need the attention of the banker. South Dakota's agriculture industry, no doubt, demands the bulk of the credit; but other areas also have credit needs. If bankers do not recognize these needs, economic growth in the community would be inhibited.

A trade area loan-to-deposit ratio was compiled from estimates of total loans and total deposits of all banks for each trade area.[24]

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[24] See Appendix C for the estimates of total loans, total deposits, and semi-annual loan-to-deposit ratios for each trade area.

These data were taken from the December and June call reports. In the case of the branch banks systems, percentage estimates of the main office statement were allotted to the trade areas affected. These estimates and the methods of estimation remain confidential with the author to protect the operations of individual branches and to protect the many people who helped with these estimations who asked to remain unknown.

Computation procedure for the average annual change in per capita disposable income for each trade area was:

1. compute trade area per capita disposable income from county estimates of population and per capita disposable income for each year included in the study,
2. compute the rate of change from year to year from the trade area per capita disposable income expressed in percentages for each trade area,
3. add the rates of change in per capita disposable income and divide by the number of periods (five) which equals the average annual rate of change in per capita disposable income for each trade area.

The county population and per capita disposable income data were obtained from estimates given in the Sales Management Survey of Buying Power.[25]

Scoring the Questionnaire

The questionnaire was scored for use in statistical analysis by assigning an arbitrary rank or rating to the responses, except

25 See Appendix D for the estimates of population, per capita disposable income and annual rates of change for each trade area.

for those which asked for answers in percentages.[26] The percentage answers were used as given. Question one was scored by assigning three points for a first rank, two points for a second rank, and one point for a third rank. Questions two, three, four and twelve were scored by using the percentages given by the bankers. Questions five, six, seven, and ten were scored by assigning three points to a "frequently" response, two points to "occasionally", one point to "seldom", and zero points to "rarely". Each method selected in question eight was given a score of one point. Question nine was scored by assigning four points to a first rank, three points to a second rank, two points to a third rank, and one point to a fourth rank.

The scored points and percentages were multiplied by the average percentage of the trade area total assets which the bank controlled to aggregate all banks within a trade area. The questionnaire responses were expressed as percentages of the total possible points or percentages in the statistical analysis.

Statistical Analysis .

Frequency distributions were tabulated by trade areas. The responses to the questions were not weighted in the frequency tables to emphasize the differences which exist within the trade areas as well as between trade areas.

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26 Ferber, Robert and P. J. Verdoorn, Research Methods in Economics & Business, The Macmillan Company, New York 1962, p. 283, 284.

The method of analyzing the data developed from the questionnaire and the secondary sources was multiple correlation. Three statistical models were developed to test the economic model. Relevant variables in each model were selected with the use of a computer step-wise multiple correlation program. The program selects the independent variables which explain the variation in the dependent variable in descending order of importance.

An equation was fitted to the relevant independent variables for the fourteen observations (trade areas). Measures of goodness-of-fit and measures of correlation were used to determine and analyze the relevant variables.

In areas of new research, lacking prior knowledge and lacking strong theoretical reasons, the criteria for establishing the level of significance are unknown. Hodges and Lehmann wrote:

> . . . the reasonable compromise in choosing the critical value will depend on the consequences of the two errors. However, it also depends on the circumstances of the problem in another way. If the null hypothesis is very firmly believed, on the basis of much past experience or of a well-verified theory, one would not lightly reject it and hence would tend to use a small α. On the other hand, a larger α would be appropriate for testing a null hypothesis about which one is highly doubtful prior to the experiment.[27]

The ten per cent level of significance was used in selection of the relevant variables. At the ten per cent level of significance, there is a ten per cent chance of rejecting the hypothesis tested when it

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27 Hodges, J. L., Jr. and E. L. Lehmann, Basic Concepts of Probability and Statistics, Holden-Day, Inc., San Francisco 1964, p. 326.

is true. The probability of accepting the hypothesis when it is false is unknown, but is decreased when a higher level of significance is used.

Where there is little or no basis for selecting a particular level of significance, such as the traditional five or one per cent levels, the researcher is allowed some leeway in selecting the level of significance. It remains for the reader to make the final decision as to significance with the information provided.

CHAPTER IV

SUMMARY OF THE QUESTIONNAIRE RESPONSES

A questionnaire was mailed to each of the 169 main office banks in South Dakota and to 23 of the 73 branches. The main office banks returned 85 per cent of the questionnaires; the branch banks returned 82 per cent.[28] A copy of the questionnaire with the cover letters appears in Appendix B.

Each of the banks in South Dakota has an attitude towards credit extension and has credit policies which are undoubtedly different in some manner from any other bank in the state. There are, however, some similarities among banks. In establishing the norms of South Dakota bankers concerning credit, individual banks instead of the composite trade area banker attitudes and policies were compared. The banks which responded to the questionnaire were presumed to be representative of the spectrum of attitudes of all banks in South Dakota.

The bankers were questioned on seven areas which indicate their attitude towards credit extension. These attitudes influence what the actual loan-to-deposit ratio is. The seven attitude areas were:

1. objective of a commercial bank
2. investment of funds

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28 See Appendix E for a breakdown by trade area of the number of questionnaires sent out and returned.

3. maximum loan-to-deposit ratio
4. minimum loan-to-deposit ratio
5. time-savings deposit to total deposit ratio
6. methods of increasing loaning ability
7. factors limiting loaning ability.

The attitude on bank objectives was measured in question one. The banker had three objectives to rank:

1. earnings
2. service to depositors
3. credit to the community

Six combinations were possible in the first, second, third rankings. The most frequent response was ranking the deposit function first, credit to the community second, and earnings third. This response occurred on 32.9 per cent of the responses. The number of banks by trade area responding to the six possible combinations is presented in Table F.1 of Appendix F.

Of particular interest for this study is the ranking of the credit function. State-wide, 12.9 per cent of the bankers ranked credit as the number one objective, 36.8 per cent ranked it second, and 47.7 per cent ranked it as the least important of the three objectives. The objectives were ranked equal on 2.6 per cent of the responses. The ranking of the credit to the community objective is given by trade areas in Table F.2 of Appendix F.

Question two asked the bankers to list the preferred investment of deposits and capital accounts. The three investment possibilities were:

1. cash and due from other banks
2. liquid earning assets
3. loans.

While not all bonds are liquid earning assets, the question forced the bankers to answer that portion of the question as if they were. The most frequent response to the percentage of cash and due from other banks was in the 11 to 20 per cent range. This occurred on 66 per cent of the responses. The 31 to 40 per cent range was the most frequent response to liquid earning assets occurring on 47 per cent of the responses. The percentage of loans preferred occurring most frequently was in the 41 to 50 per cent range. This occurred on 49 per cent of the responses. Closely matched for the second most frequent response range were the 51 to 60 and 31 to 40 per cent ranges, 22.5 and 20.4 per cent respectively.

The weighted averages for the fourteen areas were: cash and due from other banks, 15.9 per cent; liquid earning assets, 32.0 per cent; and loans, 51.9 per cent. The number of banks in the trade areas grouped by deciles for the three categories is presented in Tables F.3, F.4, and F.5 of Appendix F.

The maximum loan-to-deposit ratio with which the banker would feel comfortable and the minimum loan-to-deposit ratio the public should expect of a bank doing a good job are presented in Tables F.6 and F.7 respectively of Appendix F. The maximum limit preferred by 38.1 per cent of the bankers was the 51 to 60 per cent range. Second most frequent was the 41 to 50 per cent range occurring on 30.6 per cent of the responses. The minimum range within which the most responses fell was the 31 to 40 per cent range occurring on 49.7 per cent of the responses. In second place was the 41 to 50 per cent

range, 27.2 per cent of the responses. The weighted average maximum loan-to-deposit ratio for the trade areas was 59.5 per cent. The weighted average minimum was 43.7 per cent.

Question four asked the bankers to indicate the ratio of time-savings deposits to total deposits they preferred. The 31 to 40 per cent range was preferred by 52.7 per cent of the responding bankers. The second most frequent range was the 41 to 50 per cent range occurring on 23.3 per cent of the responses. The weighted average for the trade areas was 38.6 per cent of the total deposits preferred in time-savings accounts. The results of this question are presented in Table F.8 of Appendix F.

Seven methods of meeting the demand for loans if it increased beyond the present capacity were proposed:

1. place overlines
2. make loans from personal funds
3. encourage deposit transfers to time-savings
4. merger or consolidation
5. sell assets to increase cash holdings
6. would take no action
7. others (specify)

The method selected by a majority of the bankers was "place overlines." An overline is defined as a loan or some portion of a loan arranged with a correspondent bank because the originating bank does not have sufficient capital and surplus to legally carry it. This method was selected by 62.3 per cent of the total number of methods selected. The second most frequent was to "sell assets to increase cash holdings," 14.6 per cent of the total. The number of banks by trade area and the methods selected are given in Table F.9 of Appendix F.

The banker himself makes the decision of what the ceiling on the loan-to-deposit ratio will be. However, the factors which he considers most important in this decision regulate what the ceiling will be. The four factors which contribute to setting a ceiling considered in question nine were:

A. state or federal control
B. credit worthiness of loan applicants
C. economic resources of your community
D. stockholder control.

A complete ranking was not often given; however, most of the responses did complete first and second rankings. There are twelve first-second combinations possible. The combination ranking "credit worthiness of loan applicants" first and "economic resources of your community" second occurred on 35.4 per cent of the responses. The reverse of this combination was the second most frequent response, on 19.2 per cent of the responses. These combinations are presented in Table F.10 of Appendix F.

These factors may be grouped as those banks ranking first and second:

1. the two interior factors
2. the two exterior factors
3. an interior factor first, an exterior second
4. an exterior factor first, an interior second.

Factors A and D were considered interior; B and C exterior. These combinations are presented in Table F.11 of Appendix F. The most frequent combination was the two exterior factors occurring on 54.6 per cent of the responses. The number of banks ranking each of the

factors first is also given in Table F.11. Credit worthiness of loan applicants was ranked first most frequently, on 46.8 per cent of the responses.

Summarizing the banker's attitude towards credit extension, the bankers do not rank extending credit to the community as the main objective of commercial banks. Therefore, they do not prefer to loan more than half of their funds. There is not widespread agreement of what the comfortable maximum loan-to-deposit ratio is. There is slightly more agreement of what minimum loan-to-deposit ratio should be expected of a bank doing a good job; but it is an ineffective minimum as the banks are operating presently closer to the maximum. Credit worthiness of loan applicants is most apt to put a ceiling on loaning ability, but if the legitimate demand for loans exceeds present capacity a permanent solution is not apt to be selected to meet the excess demand.

Five questions were asked about specific credit policies and practices. The general areas of the questions were:

1. encouraging the transfer of deposits from demand to time-savings accounts
2. extending credit to young people to keep them in the community
3. encouraging installment loans
4. performance of management services for borrowers or potential borrowers
5. how the total amount of credit extended is divided among the segments of the economy.

Numbers one, two, and three affect the amount of money the bank can or is willing to loan. Number four affects the credit worthiness of the

borrowers. The bankers recognition of the total community credit needs is reflected in number five and affects the amount of credit extended.

Questions five, six, seven, and the five parts of ten referred to specific practices; the bankers were asked how often they used them. The possible responses were:

1. frequently
2. occasionally
3. seldom
4. rarely.

The most frequent response to the question of how often the transfer of deposits from demand to time-savings was encouraged was "occasionally." This response was selected by 45.1 per cent of the bankers. The data are presented in Table F.12 of Appendix F. "Frequently" was selected by 67.1 per cent of the bankers when asked how often they encouraged installment loans. The number of banks and their selections are given in Table F.13 of Appendix F. The extension of credit to young people to keep them in or bring them back to the community was a policy questioned. The most frequent response "occasionally" occurring on 56.1 per cent of the responses. The responses are presented in Table F.14 of Appendix F.

The five areas of management services included in question ten were:

1. detailed investigation of nonprofitable enterprises
2. investigation of enlargement potential
3. investigation of new enterprises
4. investigation of new business
5. others (specify).

Part one is presented in Table F.15 of Appendix F. "Occasionally" was the most frequent response occurring on 46.3 per cent of the responses.

Part two is given in Table F.16 of Appendix F. "Occasionally" was the most frequent response, on 50.0 per cent of the responses; "frequently" was next with 39.1 per cent of the responses. Part three is presented in Table F.17 of Appendix F. The response most frequent was "occasionally" occurring on 49.7 per cent of the responses. Part four is given in Table F.18 of Appendix F. The most frequent response was "frequently" occurring on 47.8 per cent of the responses.

Part five of question ten asked of the bankers for any other management service they performed. Fifteen banks listed some other services. The services listed were:

Advice on new farming techniques
Changes in farming and feeding methods
Record keeping
Advice on overall debt management
Advice about market and operating factors
Assistance in feeder cattle purchases
Looking for the right young man to buy out the business of an older man ready to retire or sell
Helping businesses which have extended credit
Providing financial aid for needed community projects.

The number of banks by trade areas are given in Table F.19 of Appendix F.

The bankers generally grouped their loans into four general categories. They were:

Loan category	Most frequent decile	Percentage of the responses
Agricultural loans	61-70 per cent	22.4
Business loans	0-10 per cent	61.2
Installment loans	0-10 per cent	75.0
Other loans	0-10 per cent	38.9

The "other loans" category is comprised mostly of city real estate. The complete responses are presented in Tables F.20 of Appendix F. The weighted averages for the trade areas were:

Agricultural loans	-- 54.9 per cent
Business loans	-- 14.7 per cent
Installment loans	-- 10.9 per cent
Other loans	-- 18.2 per cent

Summarizing the credit policies and practices, it is difficult to ascertain whether the bankers were reporting their actual policies or reporting their opinion of the conventional wisdom of banking. The conventional wisdom of banking is strongest in regard to the bank's connection with agriculture. The following excerpt from How Banks Help illustrates this.

> . . . today's relationship between banking and agriculture, while basically financial, is by no means entirely so. It is, in fact, one of the most unusual, intimate connections in the business world. The banker in hundreds of communities is better known to the farmer than is the machinery salesman, not because the bank is always at his elbow seeking business, but because it helps him in many other ways. Examples of this extra-curricular service are well worth reporting as a part of the how-banks-help story.
>
> Banks help on the farm in so many ways that this report can be only a sampling. They buy farm machinery and lend it to farmers. They introduce new crops, encourage farmers to change from, say, cattle or sheep. They take a lively interest in youth projects.
>
> Banks bring industries to districts where agriculture is a dying business. They aid in Main Street face-lifting . . . [29]

There is some support for the view that the bankers reported the conventional wisdom. Sixty-seven per cent of the bankers said

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29 Cooley, John L., How Banks Help, The American Bankers Association, New York 1962, p. 34, 35, 36.

they "frequently" encouraged installment loans, yet 75.0 per cent said they had less than ten per cent of their total loans in installment loans.

CHAPTER V

STATISTICAL MODELS

Multiple correlation models were used because they serve the objectives of determining the nature and the extent of the relationships involved in this study. Each trade area contributed one observation to the models. The distribution of the variables was assumed normal and the variance equal. The error term was assumed independent and normally distributed in all models.

Model One

A function was hypothesized to describe the relationship between credit policies and the average annual rate of change in per capita disposable income. The credit policies were developed from the questionnaire and from secondary data. The hypothesized function was:

$$Y = f(X_i)$$

where Y = average annual rate of change in per capita disposable income (dependent variable) and X_i = measures of credit policies (independent variables). The measures of credit policies initially

considered were:

X_1 = frequency of encouraging deposit transfers to time-saving
X_2 = frequency of encouraging installment loans
X_3 = frequency of "going out on a limb" for a young borrower
X_4 = frequency of investigating non-profitable enterprises
X_5 = frequency of investigating enlargement potential
X_6 = frequency of investigation of new enterprises
X_7 = frequency of investigation of new businesses
X_8 = frequency of using other management services for borrowers
X_9 = average loan-to-deposit ratio, 1960 - 1965.[30]

The variables used in the final equation were X_3, X_4, X_5, and X_9.

The dependent variable was hypothesized to be a linear function of independent variables X_3 and X_9 and a quadratic function of variables X_4 and X_5. Variables X_4 and X_5 are measures of management service which would involve a large amount of time if each were used frequently; therefore, there is a degree beyond which the bank cannot use these methods without detracting from some other aspect of banking.

The hypothesized equation was:

$$Y = a + b_3X_3 + b_4X_4 + b_5X_5 + b_9X_9 - c_4X_4^2 - c_5X_5^2$$

The estimated equation was:

$$Y = \underset{}{.80292} - \underset{(.08404)}{.20330X_3} - \underset{(.32960)}{.61582X_4} - \underset{(.45881)}{1.32258X_5} + \underset{(.08743)}{.16887X_9}$$

$$+ \underset{(.21724)}{.38418X_4^2} + \underset{(.33383)}{.96802X_5^2}$$

The standard error of estimate, s, is in parentheses.

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30 See Appendix G, Table G.1, for the values of these variables.

Testing the hypothesis that the coefficients are not significantly different from zero, the null hypothesis is written

$$H_o: b = 0$$

The formula for testing the null hypothesis is:

$$t_c = \frac{b}{s} \text{ or } \frac{c}{s}$$

where t_c = computed t value
b = coefficient of independent variables
c = coefficient of independent variables squared
s = standard error of the estimate

The computed t values for the variables were:

$X_3 = 2.42$
$X_4 = 1.87$
$X_5 = 2.88$
$X_9 = 1.93$
$X^2_4 = 1.77$
$X^2_5 = 2.90$

Compare the computed t to the tabular t value of Student's t-test table with N - 1 = 13 degrees of freedom (where N = the number of observations) to determine whether to accept or reject the hypothesis. If the computed t is larger than the tabular t, the hypothesis is rejected; if smaller, the hypothesis is accepted. The tabular t value at the ten per cent level of significance is 1.77; at the five per cent level of significance it is 2.16. Therefore, the hypothesis that b = 0 is rejected at the ten per cent level for all variables; but at the five per cent level it would be rejected only for variables X_3, X_5, and X_5^2.

The non-linear coefficient of determination, R^2, is the percentage of variation explained in the dependent variable by the

independent variables (R^2 x 100 = percentage). The coefficient for this model was .802; that is, 80.2 per cent of the variation was explained. The test of significance for the coefficient of determination is:[31]

$$F = \frac{\frac{.802}{6}}{\frac{1-.802}{7}} = 4.726$$

This test determines whether R^2 is significantly different from zero at $n_1 = 6$ and $n_2 = 8$ degrees of freedom (where n_1 = the number of constants minus one and n_2 = the number of observations minus n_1). The tabular F value at the five per cent level of significance is 3.58. The coefficient of determination is significantly different from zero at the five per cent level.

Model Two

The second multiple correlation model was concerned with the average loan-to-deposit ratio, 1960-1965, and the banker's attitude towards credit extension. It was hypothesized that the loan-to-deposit ratio was a function of various banker attitudes:

$$Y = f(X_i)$$

where Y is the average annual loan-to-deposit ratio, 1960-1965, and X_i is measure of banker's attitude towards credit extension.

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31 Croxton, Frederick E. and Dudley J. Cowden, Applied General Statistics, Prentice Hall, Inc., Englewoods Cliffs, N.J. 1955, p. 729.

The following variables were initially considered:

X_1 -- ranking of credit to the community as an objective of commercial banks
X_2 -- percentage of deposits and capital accounts preferred held as loans
X_3 -- minimum loan-to-deposit ratio to be doing a good job in the community
X_4 -- percentage of total deposits preferred held in time-saving accounts
X_5 -- ranking of state or federal control as a loan limiting factor
X_6 -- ranking of credit worthiness of loan applicants as a loan limiting factor
X_7 -- ranking of economic resources of your community as a loan limiting factor
X_8 -- ranking of stockholder control as a loan limiting factor
X_9 -- selection of "place overlines" to meet increased credit demands
X_{10} -- selection of "loan from personal funds" to meet increased credit demands
X_{11} -- selection of "deposit transfers to time-saving" to meet increased credit demands
X_{12} -- selection of "merger or consolidation" to meet increased credit demands
X_{13} -- selection of "selling assets to increase cash holdings" to meet increased credit demands
X_{14} -- selection of "would take no action" when there is increased demand for credit
X_{15} -- selection of "other methods" to meet increased credit demands
X_{16} -- maximum loan-to-deposit ratio with which the banker would be comfortable with.[32]

The dependent variable, Y, was hypothesized to be a linear function of the independent variables, X_i. The hypothesized equation of the relevant variables was:

$$Y = a + b_2X_2 + b_5X_5 + b_8X_8 - b_{10}X_{10} + b_{16}X_{16}$$

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32 See Appendix G, Table G.2, for the scores of these variables.

The estimated equation was:

$$Y = -65.07788 + \underset{(.14995)}{.37246X_2} + \underset{(.02958)}{.13373X_5} + \underset{(.03711)}{.12183X_8} + \underset{(.07782)}{.57639X_{10}}$$

$$+ \underset{(.16278)}{1.36338X_{16}}$$

The standard error of estimate is in parentheses. Results of the t-test were:

X_2 -- $t_c = 2.48$
X_5 -- $t_c = 4.52$
X_8 -- $t_c = 3.28$
X_{10} -- $t_c = 7.41$
X_{16} -- $t_c = 8.37$

The tabular t value at the five per cent level of significance is 2.16; at the one per cent level the value is 3.01. All variables were significantly different from zero at the five or one per cent level.

The coefficient of determination, R^2, was .965. The test of significance for R^2 was:[33]

$$F = \frac{\frac{.965}{5}}{\frac{1-.965}{8}} = 44.114$$

The coefficient is highly significantly different from zero at the one per cent level of significance. The tabular F at five and nine degrees of freedom is 6.06 at the one per cent level.

Model Three

The third multiple correlation model was used to determine which sector of the local economy had the most effect on total

33 Cowden, op. cit., p. 734.

disposable income when loans were made to that sector of the economy.

The variables considered in the model were:

$$Y = f(X_1, X_2, X_3, X_4)$$

where

Y = total disposable income (dependent)
X_1 = estimate of total loans to agriculture
X_2 = estimate of total loans to business
X_3 = estimate of total loans for installment loans
X_4 = estimate of total loans for city real estate[34]

These estimates were based on the percentages reported on the questionnaire and the estimates of total loans by trade areas averaged over the five year period, 1960-1965.

The hypothesized equation was:

$$\text{Log } Y = a + b_1 \text{Log} X_1 + b_2 \text{Log} X_2 - b_3 \text{Log} X_3 + b_4 \text{Log} X_4$$

The estimated equation in logarithmic form was:

$$Y = 2.78942 + \underset{(.14616)}{.31481X_1} + \underset{(.08522)}{.31410X_2} - \underset{(.11588)}{.00909X_3}$$

$$+ \underset{(.10736)}{.33213X_4}$$

The standard error of estimate are in parentheses.

The t-test results were:

$$X_1 - t_c = 2.15$$
$$X_2 - t_c = 3.69$$
$$X_3 - t_c = 0.08$$
$$X_4 - t_c = 3.09$$

The tabular t value at 13 degrees of freedom at the five per cent level of significance is 2.16; at the ten per cent level 1.77.

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34 See Appendix G, Table G.3 for the values of these variables.

Variables X_2 and X_4 were significantly different from zero at the five per cent level and variable X_1 was significant at the ten per cent level.

The coefficient of determination, R^2, was .972. The test of significance was:[35]

$$F = \frac{\frac{.972}{4}}{\frac{1-.972}{9}} = 78.110$$

The tabular F value at four and ten degrees of freedom is 5.99 at the one per cent level of significance. The coefficient of determination is highly significantly different from zero at the one per cent level.

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35 Croxton, op. cit., p. 734.

CHAPTER VI

INTERPRETATION OF THE CORRELATION MODELS

The purpose of model one was to establish the relationship between average annual per capita disposable income change, the dependent variable, and measures of bank credit policies, the independent variables. The estimating equation did not agree in all cases with the hypothesized relationship of the relevant variables with the dependent variable.

Variable X_9, the average semi-annual loan-to-deposit ratio 1960-1965, was hypothesized to be linearly and positively related with the dependent variable. Bank credit affects investment (capital purchases) in the community by (1) making direct loans to capital purchasers and (2) making loans for consumption goods which induce investment. The percentage of total loans in each trade area used for capital purchases was presumed equal.[36] If the percentage of total loans is equal the effect of loans on growth in per capita disposable income is determined by the total loans. The loan-to-deposit ratio is a measure of total loans relative to the loaning base of the trade area banks.

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36 An attempt to distinguish between capital and consumption loans was not possible from question eleven of the questionnaire because of the normal grouping of most of the respondents.

The loan-to-deposit variable was significant at the ten per cent level of significance; that is, there is a ten per cent chance that accepting the loan-to-deposit coefficient as significantly different from zero is accepting a false hypothesis. The loan-to-deposit ratio in the five trade areas with the highest average annual rate of change in per capita disposable income was five per cent higher than the five trade areas with the lowest rate of change in per capita disposable income, 54 to 49 per cent. The data are presented in Table 6.1.

The other three relevant credit policies were hypothesized to be positively related to the dependent variable but estimated by the equation to be negative. Variable X_3, the frequency of "going out on a limb" for a young borrower was hypothesized to be linearly and positively related to the dependent variable. Variables X_4 and X_5, management service variables, were hypothesized to have a quadratic relationship with the dependent variable and a maximum would result. It was presumed that X_4 and X_5 could involve a sufficient amount of the banker's time that at some point of frequent usage the results would diminish because other important aspects of banking would be neglected. The estimating equation resulted in a minimum rather than a maximum.

The extension of credit to young people in an attempt to keep them in the community normally involves high risk loans. High risk loans necessitate more liquidity and therefore may reduce the total loaning ability of the banker. This is indicated by the negative

TABLE 6.1

TRADE AREA PERCENTAGES OF THE VARIABLES USED IN MODEL ONE

Y*	Trade Area	Variable X_3 Banks Selecting Frequently	Variable X_3 Banks Selecting Occasionally	Variable X_3 Weighted** Percentage	Variable X_4 Banks Selecting Frequently	Variable X_4 Banks Selecting Occasionally	Variable X_4 Weighted** Percentage
%		(per cent)	(per cent)		(per cent)	(per cent)	
10.0	1	0	100	67	25	50	62
9.8	5	50	50	80	0	75	51
7.9	13	80	20	96	0	100	67
7.2	3	30	70	79	60	40	88
7.0	2	50	30	92	29	29	62
6.9	12	25	55	75	25	55	61
6.7	14	20	80	73	60	40	94
5.7	6	32	55	89	22	48	83
5.4	4	42	50	80	33	42	70
4.8	9	33	62	78	30	43	79
4.6	7	38	46	72	50	42	89
4.6	11	50	50	84	50	50	97
4.0	8	29	65	75	44	33	78
3.8	10	50	50	79	30	60	74
Average of top five		42	54	83	23	59	66
Average of bottom five		40	55	78	41	46	83
Trade Area Average		38	56	80	33	50	75

(continued on next page)

TABLE 6.1 (Continued)

TRADE AREA PERCENTAGES OF THE VARIABLES USED IN MODEL ONE

Y*	Trade Area	Variable X_5 Banks Selecting Frequently	Variable X_5 Banks Selecting Occasionally	Weighted** Percentage	Variable X_9 Average Semi-Annual Loan-to-Deposit Ratio
		(per cent)	(per cent)		(per cent)
10.0	1	0	75	54	55
9.8	5	25	75	82	62
7.9	13	100	0	100	40
7.2	3	40	60	80	57
7.0	2	20	50	46	56
6.9	12	26	58	54	52
6.7	14	20	80	73	55
5.7	6	40	60	89	53
5.4	4	42	42	62	56
4.8	9	44	44	83	52
4.6	7	42	58	80	52
4.6	11	50	50	84	50
4.0	8	39	39	77	42
3.8	10	60	30	82	51
Average of top five		37	52	72	54
Average of bottom five		47	44	81	49
Trade area average		40	51	75	52

* Y is average annual change in per capita disposable income in percentages, 1960 through 1965.

** Weighted by the size of the bank using the scoring system described previously.

partial correlation coefficient of -.184 between extending credit to young people and the loan-to-deposit ratio. Linear partial correlation coefficients are presented in Table 6.2. Despite the negative coefficient estimated in the equation, the partial correlation between X_3 and Y (Y = the dependent variable) with the effects of the other independent variables held constant is positive. The effect of high risk loans on the total loaning of the bank prohibits a more positive effect on the rate of change of per capita disposable income.

Bankers are not necessarily more capable farm managers than their borrowers but in cases where a borrower has an unprofitable enterprise while other farmers with the same enterprise are profiting, an investigation by the banker should be beneficial to the borrower. This policy should also affect the bank favorably by making the borrower a better credit risk. The estimating equation developed a different hypothesis. The more frequently this policy is used, the less likely the rate of change in per capita disposable income will be high. Assuming the banker can contribute something to the borrower from such an investigation, the resulting negative correlation is not logical. However, if the bankers responded to the question in such a manner to reflect their opportunities to investigate non-profitable enterprises, the resulting negative relationship is logical. Low income growth areas would be most apt to have the most unprofitable enterprises. In this variable there is undoubtedly some of the conventional wisdom of banking towards agriculture since enterprise is often considered an agriculture term not applied to other businesses.

TABLE 6.2

LINEAR PARTIAL CORRELATION COEFFICIENTS FOR MODEL ONE

Correlation Order*	Relationship Between Variable: Y & X_3	Y & X_4	Y & X_5	Y & X_9	X_3 & X_4
Zero	r_{Y3} = .010	r_{Y4} = -.602	r_{Y5} = -.253	r_{Y9} = .408	r_{34} = -.094
First	$r_{Y3.4}$ = -.058	$r_{Y4.3}$ = -.604	$r_{Y5.3}$ = -.275	$r_{Y9.3}$ = .430	$r_{34.5}$ = -.279
	$r_{Y3.5}$ = +.112	$r_{Y4.5}$ = -.565	$r_{Y5.4}$ = -.017	$r_{Y9.4}$ = .372	$r_{34.9}$ = -.160
	$r_{Y3.9}$ = .147	$r_{Y4.9}$ = -.584	$r_{Y5.9}$ = -.103	$r_{Y9.5}$ = .345	
Second	$r_{Y3.45}$ = -.057	$r_{Y4.35}$ = -.559	$r_{Y5.34}$ = .010	$r_{Y9.34}$ = .373	$r_{34.59}$ = -.289
	$r_{Y3.49}$ = +.067	$r_{Y4.39}$ = -.574	$r_{Y5.39}$ = -.497	$r_{Y9.35}$ = .372	
	$r_{Y3.59}$ = .183	$r_{Y4.59}$ = -.589	$r_{Y5.49}$ = .139	$r_{Y9.45}$ = .394	
Third	$r_{Y3.459}$ = .017	$r_{Y4.359}$ = -.570	$r_{Y5.349}$ = .124	$r_{Y9.345}$ = .390	

Correlation Order	X_3 & X_5	X_3 & X_9	X_4 & X_5	X_4 & X_9	X_5 & X_9
Zero	r_{35} = .361	r_{39} = -.290	r_{45} = .400	r_{49} = -.194	r_{59} = -.410
First	$r_{35.4}$ = +.437	$r_{39.4}$ = -.315	$r_{45.3}$ = .467	$r_{49.3}$ = -.232	$r_{59.3}$ = -.342
	$r_{35.9}$ = .277	$r_{39.5}$ = -.167	$r_{45.9}$ = .358	$r_{49.5}$ = -.036	$r_{59.4}$ = -.369
Second	$r_{35.49}$ = .363	$r_{39.45}$ = -.184	$r_{45.39}$ = .424	$r_{49.35}$ = -.087	$r_{59.34}$ = -.271

* The correlation order refers to the number of variables held constant, i.e. $r_{Y3.459}$ is the correlation between variables Y and X_3 with X_4, X_5, and X_9 held constant or eliminated.

Variable X_5, investigating enlargement potential, received much support from the bankers but the relationship (linear) between this variable and the dependent variable was estimated to be negative. Enlargement of a firm would generally involve capital purchases which would require borrowing to make the purchases. These loans would not necessarily be high risk loans; therefore, they should not restrict the loaning ability of the bank. The linear relationship between X_5 and X_9 (loan-to-deposit ratio) is negative indicating that when this policy is used it has a diminishing effect on the loan-to-deposit ratio. There is evidence that the bankers are not using this policy as frequently as they responded they were. This policy was used "frequently" or "occasionally" by 91 per cent of the bankers responding to this question. If this was the case, there should be a positive relationship with the loan-to-deposit ratio instead of negative.

The effect of the policy variables, except the loan-to-deposit ratio variable, will not be consistent with the theory if the policies are not consistently used or if they are used only when it becomes evident that the community is economically stagnant. If such is the case, these policies will be used more frequently in the low per capita disposable income annual change areas. Even though the policies may be successful in adding to change in per capita income, the results might not compare to other trade areas. The effects of these policies are long-run effects, not necessarily evident unless consistently used.

Model Two

The attitudes of the bankers which determine the loan-to-deposit ratio have an indirect effect on the rate of change in per capita disposable income if the hypothesis that the loan-to-deposit ratio is a factor in economic growth is accepted. Measures of banker attitude towards credit extension were correlated with the loan-to-deposit ratio in model two. Several attitude measures developed from the questionnaire were initially considered in the model. Five of the sixteen variables were significant at the five per cent level of significance:

X_2 -- percentage of deposits and capital accounts preferred held as loans
X_5 -- ranking of state or federal control as a loan limiting factor
X_8 -- ranking of stockholder control as a loan limiting factor
X_{10} -- selection of "loan from personal funds" to meet increased credit demands
X_{16} -- maximum loan-to-deposit ratio with which the banker would be comfortable.

Variable X_2 was hypothesized to be positively related to the average semi-annual loan-to-deposit ratio. Bankers have two alternatives for the use of cash after the legal reserves have been met: (1) hold idle cash, or (2) use the cash to back deposits created by buying bonds and securities or by making loans. Buying bonds and securities generally sends the deposits outside of the local community. Banks located in slow income growth areas need to keep the deposits in the local community by making loans to local residents. The bankers must also be concerned with liquidity to protect the

depositors and be concerned with the investment portfolio to earn a profit for the stockholders. Loans are normally the more profitable investment but also more risky. Some bonds and securities are needed for liquidity but each individual banker has a substantial range of operation. The banker's attitude towards liquidity reflected in his choice between bonds and securities or loans was significantly different from zero at the five per cent level as a factor in determining the loan-to-deposit ratio. The partial correlation between X_2 and the dependent variable of model two was .759 but was slightly less with the effects of the other independent variables held constant. Table 6.3 presents the partial correlations.

Bankers were asked to rank four factors which put a ceiling on their loan-to-deposit ratio in order of importance to their bank. The four factors were (1) state or federal control, (2) credit worthiness of loan applicants, (3) economic resources of your community, and (4) stockholder control. The first and fourth factor, variables X_5 and X_8 respectively were not the factors the majority of the bankers ranked first or second; but they were significantly and positively correlated with the loan-to-deposit ratio. Variable X_5 was ranked first by 24 per cent of the bankers and variable X_8 was ranked first by ten per cent. The weighted percentage based on the 4, 3, 2, 1 scoring system for first, second, third, and fourth rankings indicates that some of the larger banks ranked these two factors higher than the other banks did.

TABLE 6.3

PARTIAL CORRELATION COEFFICIENTS OF MODEL TWO

Correlation Order	Relationship Between Variables* Y & X_1	Y & X_2	Y & X_3	Y & X_4
Zero	rY1 = .759	rY2 = .233	rY3 = .201	rY4 = -.201
First	rY1.2 = .751	rY2.1 = .163	rY3.1 = -.068	rY4.1 = .394
	rY1.3 = .748	rY2.3 = .346	rY3.2 = .327	rY4.2 = -.173
	rY1.4 = .791	rY2.4 = .209	rY3.4 = .190	rY4.3 = -.190
	rY1.5 = .493	rY2.5 = .327	rY3.5 = .287	rY4.5 = .582
Second	rY1.23 = .715	rY2.13 = .149	rY3.12 = .012	rY4.12 = .411
	rY1.24 = .792	rY2.14 = .207	rY3.14 = -.128	rY4.13 = .406
	rY1.25 = .457	rY2.15 = .272	rY3.15 = .094	rY4.15 = .777
	rY1.34 = .786	rY2.34 = .321	rY3.24 = .309	rY4.23 = -.133
	rY1.35 = .427	rY2.35 = .498	rY3.25 = .477	rY4.25 = .687
	rY1.45 = .740	rY2.45 = .531	rY3.45 = .416	rY4.35 = .636
Third	rY1.234 = .766	rY2.134 = .169	rY3.124 = -.033	rY4.123 = .412
	rY1.235 = .257	rY2.135 = .375	rY3.125 = .312	rY4.125 = .877
	rY1.245 = .777	rY2.145 = .596	rY3.145 = .167	rY4.135 = .784
	rY1.345 = .684	rY2.345 = .836	rY3.245 = .819	rY4.235 = .888
Fourth	rY1.2345 = .667	rY2.1345 = .849	rY3.1245 = .860	rY4.1235 = .966

(continued on next page)

TABLE 6.3 (Continued)

PARTIAL CORRELATION COEFFICIENTS OF MODEL TWO

Correlation Order	Relationship Between Variables*				
	X & X_5	X_1 & X_2	X_1 & X_3	X_1 & X_4	X_1 & X_5
Zero	rY5 = .756	r12 = .169	r13 = .320	r14 = -.548	r15 = .699
First	rY5.1 = .484	r12.3 = .338	r13.2 = .426	r14.2 = -.537	r15.2 = .706
	rY5.2 = .772	r12.4 = .106	r13.4 = .332	r14.3 = -.533	r15.3 = .731
	rY5.3 = .768	r12.5 = .211	r13.5 = .430	r14.5 = -.173	r15.4 = .539
	rY5.4 = .839				
Second	rY5.12 = .538	r12.34 = .257	r13.24 = .378	r14.23 = -.527	r15.23 = .765
	rY5.13 = .487	r12.35 = .458	r13.25 = .572	r14.25 = -.142	r15.24 = .554
	rY5.14 = .800	r12.45 = .188	r13.45 = .423	r14.35 = -.151	r15.34 = .587
	rY5.23 = .807				
	rY5.24 = .884				
	rY5.34 = .864				
Third	rY5.123 = .599	r12.345 = .401	r13.245 = .510	r14.235 = -.052	r15.234 = .653
	rY5.124 = .896				
	rY5.134 = .805				
	rY5.234 = .962				
Fourth	rY5.1234 = .974				

(continued on next page)

TABLE 6.3 (Continued)

PARTIAL CORRELATION COEFFICIENTS OF MODEL TWO

Correlation Order	Relationship Between Variables*									
	X_2 & X_3		X_2 & X_4		X_2 & X_5		X_3 & X_4		X_3 & X_5		X_4 & X_5	
Zero	r23	=-.393	r24	=-.149	r25	=+.026	r34	=-.078	r35	= .018	r45	=-.649
First	r23.1	=-.479	r24.1	=-.068	r25.1	=-.131	r34.1	= .123	r35.1	=-.303	r45.1	=-.444
	r23.4	=-.410	r24.3	=-.196	r25.3	= .036	r34.2	=-.150	r35.2	= .031	r45.2	=-.653
	r23.5	=-.394	r24.5	=-.174	r25.4	=-.094	r34.5	=-.087	r35.4	=-.043	r45.3	=-.650
Second	r23.14	=-.475	r24.13	=-.012	r25.13	=-.329	r34.12	= .103	r35.12	=-.421	r45.12	=-.458
	r23.15	=-.549	r24.15	=-.143	r25.14	=-.181	r34.15	=-.014	r35.14	=-.280	r45.13	=-.433
	r23.45	=-.417	r24.35	=-.228	r25.34	=-.112	r34.25	=-.172	r35.24	=-.082	r45.23	=-.656
Third	r23.145	=-.557	r24.135	=-.182	r25.134	=-.371	r34.125	=-.111	r35.124	=-.423	r45.123	=-.459

* X_1 = percentage of deposits and capital accounts preferred held as loans, X_2
X_2 - ranking of state or federal control as a loan limiting factor, X_5
X_3 - ranking of stockholder control as a loan limiting factor, X_8
X_4 - selection of "loan from personal funds" to meet increased credit demands, X_{10}
X_5 - maximum loan-to-deposit ratio with which the banker would be comfortable, X_{16}
Y - average semi-annual loan-to-deposit ratio, 1960 through 1965

Selection of these two variables as the loan limiting factors indicates that the banker is removing his judgment of credit risks and area resources from his loaning policy to an extent. If the banker thinks a potential borrower is a poor credit risk, the borrower may not receive the opportunities to progress. If the banker thinks the resources of the community are limiting growth, the capital accumulation and technological advancement will be restricted to those who do not need to borrow. The banker's ideas will then become a reality because the resources of the community will not grow. The banker's interpretation of the factors which put a ceiling on the loan-to-deposit ratio were significant factors in determining the loan-to-deposit ratio. Both variables, X_5 and X_8, have positive correlations which increased when the other variables were held constant. Table 6.4 presents the partial correlations.

Variable X_{10}, selection of "loaning from personal funds" to meet increased credit demands, was one of several methods selected to meet increased credit demands beyond the banks present capacity. Almost all the banks selected "place overlines" as one of the methods, but the coefficient of this variable was not significant. Use of "loaning from personal funds" was not a method which was selected frequently.

The coefficient estimated for variable X_{10} by the estimating equation was negative as hypothesized. Loaning from personal funds has some limits as to the extent it might be used as it was not considered a permanent solution to meeting increased credit demands.

TABLE 6.4

TRADE AREA PERCENTAGES OF THE VARIABLES USED IN MODEL TWO

Y*	Trade Area	X_2 Banks Preferring 40 or Less	X_2 Banks Preferring 41 to 60	X_2 Banks Preferring Over 60	X_2 Weighted** Percentage	X_5 Per Cent of Total First Ranks	X_5 Weighted** Percentage
		(per cent)	(per cent)	(per cent)			
62	5	0	75	25	62	25	44
57	3	33	67	0	53	20	64
56	2	30	50	20	48	30	57
56	4	0	100	0	57	50	85
55	1	33	0	67	52	25	69
55	14	0	100	0	55	60	82
53	6	30	70	0	50	14	48
52	7	30	60	10	52	31	76
52	9	24	76	0	51	17	50
52	12	35	65	0	53	20	67
51	10	11	89	0	51	10	42
50	11	0	100	0	50	25	83
42	8	40	60	0	43	11	57
40	13	20	80	0	49	0	39
Average of top five		19	58	22	54	32	64
Average of bottom seven***		23	76	1	50	16	59
Trade area average		20	71	9	52	24	62

(continued on next page)

TABLE 6.4 (Continued)

TRADE AREA PERCENTAGES OF THE VARIABLES USED IN MODEL TWO

X_8 Per Cent of Total First Ranks	Weighted** Percentage	X_{10} Per Cent of Methods	Weighted** Percentage	X_{16} Banks Preferring 40 or Less (per cent)	Banks Preferring 41 to 60 (per cent)	Banks Preferring Over 60 (per cent)	Weighted** Percentage	Trade Area
25	70	0	0	0	25	75	66	5
20	65	7	8	10	60	30	59	3
10	28	18	12	0	50	50	62	2
0	26	0	0	0	50	50	63	4
0	44	0	0	0	75	25	62	1
0	39	0	0	0	80	20	62	14
5	56	20	11	22	65	13	58	6
8	48	21	19	0	92	8	54	7
9	49	14	8	4	65	31	59	9
0	27	8	3	0	80	20	60	12
10	42	12	7	10	50	40	62	10
25	50	0	0	0	100	0	59	11
6	34	15	16	11	83	6	52	8
20	53	0	0	0	80	20	55	13
11	46	5	4	2	52	46	62	Average
11	43	10	8	4	57	18	57	Average
10	45	8	6	4	68	27	60	Average

* $\bar{Y}$ is the average semi-annual loan-to-deposit ratio, 1960 through 1965.

** Weighted by the size of the bank using the scoring system described previously.

*** The bottom seven were used because they all had a loan-to-deposit ratio of 52 per cent.

However, when the effects of the other variables were held constant, the partial correlation switches from negative to positive. The partial correlation between X_{10} and the other independent variables was negative in all cases. Bankers who were willing to loan from personal funds are more likely to loan out more of the bank's funds.

The maximum loan-to-deposit ratio with which the banker would be comfortable was significant at the one per cent level of significance. Bankers which responded that they may have a high maximum loan-to-deposit ratio and still be comfortable tend to have a high actual loan-to-deposit ratio. It was assumed that as a banker approaches his comfortable maximum he will be more selective in making loans. Therefore, the banker would be less likely to pursue policies which would increase the loans or his loaning ability. Bankers operate at a level somewhere between the maximum and the minimum they feel the public should expect of a bank doing a good job.[37] Both the maximum and minimum will put upward pressure on the actual loan-to-deposit ratio if they are high. As the minimum is approached the banker will be more aggressive; the banker will have less resistance to increasing the ratio if the maximum is high.

The average actual loan-to-deposit ratio for the top five trade areas was 57 per cent. These five areas had an average comfortable maximum of 64 per cent. The average actual loan-to-deposit ratio for the bottom seven areas was 48 per cent; the average

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[37] Although the minimum loan-to-deposit ratio, X_3, was not significantly related to the actual loan-to-deposit ratio, it was positively related to the maximum loan-to-deposit ratio, .514.

maximum was 48 per cent. The bankers with relatively high maximums presumably are more cognizant of the effect of credit in the community.

The significant variables in model two explained 96.5 per cent of the variation in the actual (average semi-annual) loan-to-deposit ratio. There is some duplication of measurement in the independent variables. Variables which were not included in the final equation because they were not significantly different from zero or because of errors of omission are to an extent included in the five variables used. Variables measuring attitudes are to an extent redundant because attitudes are interrelated.

Model Three

Model three correlated estimates of the five-year average amount loaned to agriculture, to business, for installment loans, and for city real estate with total disposable income averaged over 1960 through 1965. The estimate of total loans to each sector of the local economy was based on the percentages reported by the banks which responded to the questionnaire. Total loans and total disposable income were used in model three because the assumption of equal levels or equal changes in the level of resources was relaxed.

The form of the equation estimated for model three was logarithmic. The logarithmic form was used because the rate of change at all levels of total loans is not necessarily constant.[38] When the

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38 The logical form of the equation would be quadratic if more and more credit were added to fixed variables because a saturation level at some point would be reached. This study assumes that increasing levels of total loans will increase the level of capital stock.

logarithmic equation is estimated, the coefficients of X_1 are the percentage change in the dependent variable, total disposable income, associated with a one per cent change in one of the independent variables. The four independent variables were (X_1) loans to agriculture, (X_2) loans to business, (X_3) installment loans, and (X_4) city real estate loans.

The estimating equation explained 97.2 per cent of the variation in total disposable income. The coefficient of determination was highly significant at the one per cent level of significance. Variables X_1, X_2, and X_4 were significantly different from zero at the ten or five per cent level of significance; each was positively related to the dependent variable. Variable X_4, installment loans, was not significantly different from zero; this agrees with the economic theory suggested in this study because installment loans would generally be used for consumption rather than investment purposes.

A one per cent change in agriculture loans, or in business loans, or in city real estate loans will result in almost an identical effect on total disposable income. The coefficients of these three variables respectively were .315, .314, and .332. Switching loans from one sector to another would not greatly affect total disposable income. However, what is apparently happening in most areas of South Dakota is that agriculture, the state's dominant industry, is being given first choice on bank loans and the other

sectors are not considered to merit equal consideration. Approximately 40 per cent of the bankers responding to the questionnaire reported over 70 per cent of their loans are loaned to the agriculture sector. If the bankers are meeting their agriculture credit demands and not considering the other sectors for additional loaning, the total impact of bank loans is not being realized. The estimating equation indicates that loaning to businesses and for city real estate investment has the same effect on total disposable income as agriculture does.

CHAPTER VII

SUMMARY AND CONCLUSIONS

Efforts to develop South Dakota economically have not resulted in the state keeping pace with the nation. South Dakota lagged behind the nation, both in percentage growth and the absolute level of per capita income, for the period 1960 through 1965. Past regional growth research has excluded bank credit as a relevant factor in the models. The purpose of this study was to determine the nature of the relationship between bank credit policies and trade area growth. The time period of the study was 1960 through 1965. The average annual rate of change of per capita disposable income was used as an index of economic growth. Several measures of bank credit policies were developed from a mailed questionnaire and from secondary data. Questionnaires were mailed to all the main office banks in South Dakota and to the larger branch banks. Additional data was collected from secondary data on per capita disposable income, total loans, and total deposits for each bank. The statistical tools of analysis were frequency distributions and multiple correlation models.

The objectives of the study in addition to the main purpose were to (1) determine relevant attitudes which influence the loan-to-deposit ratio, and (2) to discover the relationship between loaning to various sectors of the local economy and the total disposable income.

South Dakota bankers, in general, were not credit oriented during the time period of this study. The primary objective of commercial banks was to serve the depositors rather than extend credit to the community. Attitudes and policies which would increase loans or loaning ability were not the most frequent responses on the questionnaire. The banks, average over the trade areas, are operating seven per cent below the maximum loan-to-deposit ratio with which they would still be comfortable.

The bankers were in general agreement that they often use the credit policies they were asked about. The conventional wisdom of banking, particularly in association with agriculture, is such that they should answer these policy questions as often used. The conventional wisdom of banking is undoubtedly reflected in some of the responses the bankers gave.

Three models were developed using multiple correlation to determine the nature and degree of the relationship between the dependent variable and the independent variables of the model. The models were based on the fourteen trade areas surrounding the major shopping areas in South Dakota. Models one and two assumed that changes in the levels of resources in the trade areas were similar. This assumption was relaxed in model three.

Model one related credit policies to the rate of change in per capita disposable income. Several credit policies were initially considered in the model. The significant variables were dropped from the equation. The equation was of the second-degree

in form. The dependent variable was hypothesized to be a linear function of "going out on a limb" for young borrowers and the average semi-annual loan-to-deposit ratio, and a quadratic function of the two management service for borrowers variables. The equation estimated for this model explained 80 per cent of the variation in the dependent variable.

The average semi-annual loan-to-deposit ratio, 1960 through 1965, was significant at the ten per cent level. The estimated coefficient was positive which agreed with the theory proposed in this study. Capital accumulation, a factor in economic growth, is possible partially because banks make loans for capital purchases. "Going out on a limb" for young borrowers was hypothesized to have a positive effect on rate of change in per capita disposable income. The influence of the other independent variables resulted in a negative coefficient; however, the partial correlation coefficient with the other variables held constant was positive. The high risk nature of loans to young borrowers limits the total loaning and the overall effect of this type of loan is negligible.

The management service variables, investigation of non-profitable enterprises and investigation on new enterprises for borrowers, were hypothesized to be positively related to the dependent variable up to the point where these methods took too much time away from other bank functions. The estimating equation resulted in a negative slope. These two variables contain the influence of the conventional wisdom of banking as well as being

measures of last resort which the banker does not consistently use in economically stagnant areas.

There is a ten per cent chance that accepting the hypothesis that the coefficient of the loan-to-deposit variable is significantly different from zero is accepting a false hypothesis. Assuming that this chance is tolerable, the attitudes which determine the loan-to-deposit ratio have an indirect impact on the growth of an era.

Model two related banker attitudes with the average semi-annual loan-to-deposit ratio, 1960 through 1965. Several measures of banker attitude towards credit were developed from the questionnaire. The loan-to-deposit ratio was hypothesized to be a linear function of the attitude measures. The percentage of deposits and capital accounts preferred held as loans opposed to bonds or cash was a significant variable. The central idea behind this question is the banker's concern with liquidity. Four methods which could put a ceiling on the loan-to-deposit ratio were ranked by the bankers. The two factors receiving the lowest ranking, state or federal control and stockholder control, were positively and significantly correlated with the dependent variable. These two factors are prescribed to the banker and not a matter of his judgment. Bankers who attempt to judge the credit worthiness of loan applicants or evaluate the economic resources of their community and use these judgments to put a ceiling on the loan-to-deposit ratio rank state or federal control and stockholder control as unimportant factors

in putting a ceiling on the loan-to-deposit ratio. The areas which rank these factors low are the areas which have a low loan-to-deposit ratio and also tend to have a slow rate of growth. The maximum loan-to-deposit ratio which the banker would be comfortable with was highly significant. Bankers which indicated a high maximum have less pressure to hold the line on loaning as the credit demands increase.

Total loans to four sectors of the local economy; agriculture, business, installment loans, and city real estate, were correlated with total disposable income in model three. Installment loans were not significant; but the other three were. Installment loans do not generally constitute investment. A logarithmic equation was used; therefore, the coefficients of the independent variables are the percentage change in the dependent variable associated with a one per cent change in an independent variable. The coefficients of agriculture loans, business loans, and city real estate loans were almost the same. Loans to these sectors have a similar effect on the total disposable income. However, if a banker serves only the agriculture credit needs and does not consider loans to the other sectors, the bankers are not contributing all they could to the growth of the local economy.

Conclusions

This study substantiates the hypothesis that commercial bank credit policies have an effect on economic growth of the trade areas in South Dakota. The suggestion that bank credit is a local factor affecting growth policies seems to be valid. Although a higher than

normal significance level was used in the statistical analysis which increases the probability of accepting a false hypothesis, sufficient evidence for including bank credit policies in future growth studies has been presented.

A method for analyzing the performance of an individual bank may be drawn from the trade area approach. The individual bank can evaluate its contribution to the growth of the community; the contribution to growth should not be confused with the growth of the community. Commercial banks outside of the community may be influencing the community's growth. The community banker can assess his contribution by analyzing his position on the factors significant in determining the loan-to-deposit ratio and assessing his use of the significant credit policies, and comparing this assessment with the banks of other trade areas or with the banks in his trade area.

Bankers must realize, if they do not already, the importance of their policies and attitudes if South Dakota is to keep pace with the rest of the nation. A negative appraisal of a situation can make the situation negative in reality if the banker allows this appraisal to govern his total credit policy. South Dakota's reliance upon agriculture, which may be a factor in the state lagging behind the nation, is perpetuated by bankers who do not realize the importance of the credit needs of other economic sectors. There is evidence that some banks fulfill the agriculture credit needs, but do not look to other sectors. Loans to the business community and for city real estate have almost the same effect on income as do agriculture loans; if the loaning potential of a bank is not reached because the agriculture

needs are fulfilled, the potential effect of the bank on economic growth is not realized.

Commercial bankers are placed in a leadership role by the nature of the tools they command even if they do not choose to be leaders. Those who accept the leadership role reluctantly do so with the risk of not having a voice in their future. In an era of declining farm population and declining rural communities, the very existence of community banks is threatened by decreasing economic activity. However, the banker cannot act alone. The residents of the community or trade area must equally be interested in community growth if the banker is to be able to use the tools at his command. A community will probably not grow without a progressive banker; but a banker will not be able to do much without a progressive community.

Past contributions of commercial banks to the development of South Dakota are numerous. But the future calls for an all out effort. The banks have loaned large sums in the past, yet they could still loan more and be within their comfortable maximum loan-to-deposit ratio. The challenge of economic growth requires leadership from the banker, maximum use of the bank's tools, and a forward looking community.

Future Research

The opportunities for research on economic growth are unlimited. The theory proposed in this study passed the first test, but it should be tested at several levels before totally accepted.

Case studies of individual communities using finer refinements of credit policies and wider measures of economic growth would be particularly beneficial to South Dakota's economic growth. Adding bank credit and non-bank credit to the other factors which affect economic growth and economic activity at the trade area level would further test the validity of the proposed theory.

A more sophisticated study of the banker's attitudes, along with an entire community's attitudes, towards development is recommended to discover the origin of existing attitudes. This may be a necessary step to plan an education program which would allow the findings of this study to be implemented by community leaders.

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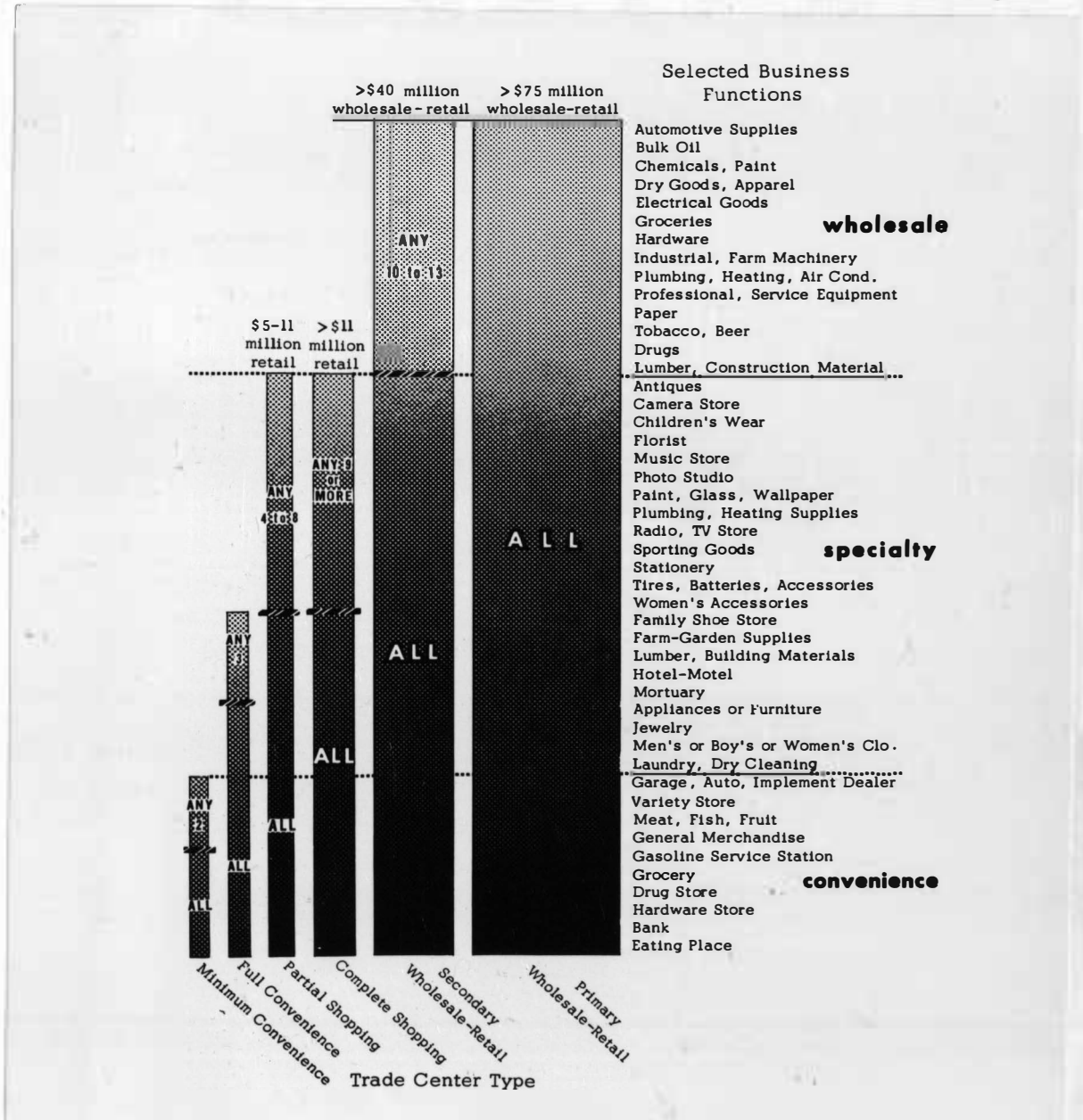
APPENDIX A

FIGURE 2

GRAPH OF TRADE CENTER HIERARCHY OF CITIES
IN THE UPPER MIDWEST



Source: Economic Progress Bulletin, The Upper Midwest Research Council, September 1963.

APPENDIX B

April 14, 1965

Dear Sir:

There is much real concern today about the problems of economic growth in our communities, particularly in the rural areas. Many of the factors that are associated with development are not known. As part of my graduate work in the Economics Department of South Dakota State University, my thesis is a study of the relationships of specific banking policies and practices to levels of community economic development.

A brief questionnaire, with return envelope, is enclosed. We hope that you will take a few minutes required to complete it. For your convenience, we have limited our request for data about your bank to that which can only come from you. Other banking information needed for the study will be obtained from published reports. Data about your community is also being compiled from other sources.

The information on your questionnaire will be kept strictly confidential. It will be combined with other information so as to obscure the particular operations of any one bank. In assembled form, however, it will be available to you and to the South Dakota Bankers Association.

Your cooperation will sincerely be appreciated.

Sincerely,

Robert W. McKellips

Box 1257 Huron, South Dakota
Telephone 352-6423

SOUTH DAKOTA BANKERS ASSOCIATION

February 2, 1965

TO WHOM IT MAY CONCERN:

The attached questionnaire is being submitted to a number of South Dakota banks in a research project conducted by Mr. Robert McKellips, State University of South Dakota, Brookings, South Dakota.

Mr. McKellips has assured us that when the survey is completed and the tabulations compiled, we may have the information and thus share the benefits of his research.

May I urge your cooperation in the completion of this confidential questionnaire.

Sincerely yours,

A. S. GULLICKSON,
Executive Secretary - Treasurer

G/s

CONFIDENTIAL

Bank Number_____

1. The following is a list of objectives of commercial banks. Please rank them according to their importance to your bank (first, second, third)

   a. earnings _____
   b. service to depositors _____
   c. credit to the community _____

2. What per cent of your deposits and capital accounts does your bank prefer to carry as:

   a. cash & due from other banks _____
   b. liquid earning assets _____
   c. loans _____

3. What is the highest ratio of loans to deposits with which your bank would feel comfortable?

   _____

   What is the lowest ratio the public should expect of a bank which is doing a good job?

   _____

4. What ratio between demand deposits and time-saving deposits does your bank prefer to maintain?

   Demand _____
   Time-Saving _____

5. Does your bank encourage the transfer of demand deposits to time-saving deposits?

   a. frequently _____
   b. occasionally _____
   c. seldom _____
   d. rarely _____

6. Does your bank actively encourage consumer or installment loans?

   a. frequently _____
   b. occasionally _____
   c. seldom _____
   d. rarely _____

7. Is your bank willing to "go out on a limb" for a young person who is willing to stay or return to your community if sufficient credit is available?

   a. frequently _____
   b. occasionally _____
   c. seldom _____
   d. rarely _____

8. If the legitimate demand for loans increased beyond your present capacity which one or more of these methods would your bank use to meet the increased demand?

a. place overlines _____
b. make loans from personal funds _____
c. encourage deposit transfers to time-saving _____
d. merger or consolidation _____
e. sell assets to increase cash holdings _____
f. would take no action _____
g. others (specify) _____

9. Which of the following factors is most likely to put a ceiling on your loan-to-deposits ratio? (Please rank them first, second, etc.)

a. state or federal control _____
b. credit worthiness of loan applicants _____
c. economic resources of your community _____
d. stockholder control _____

10. Which of the following management services do you perform for your borrowers or potential borrowers?

a. Detailed investigation of non-profitable enterprises of borrowers
   a. frequently _____
   b. occasionally _____
   c. seldom _____
   d. rarely _____

b. Investigation of enlargement potential
   a. frequently _____
   b. occasionally _____
   c. seldom _____
   d. rarely _____

c. Investigation of new enterprises
   a. frequently _____
   b. occasionally _____
   c. seldom _____
   d. rarely _____

d. Investigation of new business
   a. frequently _____
   b. occasionally _____
   c. seldom _____
   d. rarely _____

e. Other (specify)
   _____
   _____
   a. frequently _____
   b. occasionally _____
   c. seldom _____
   d. rarely _____

11. In the following table are several kinds of loans. Please answer the questions if applicable.

Kinds of loans	What per cent of your loans are normally invested?	Ordinarily what per cent of the loan is secured by collateral?
Livestock		
Farm Machinery		
Farm Real Estate		
Farm Operations		
Business Improvements		
City Dwellings		
Home Improvements		
Other City Real Estate		
Consumer or Installment		
Signature		

12. If the collateral for a specific kind of loan varies from borrower, what factors influence your decision? Explain.

13. Are there other services which you provide that influence economic development? Explain.

APPENDIX C

TABLE C.1

ESTIMATED TOTAL LOANS FOR THE TRADE AREAS
(ROUNDED TO THE NEAREST THOUSAND DOLLARS)

Trade Area	1965		1964		1963		1962		1961		1960	
	Dec.	June	Dec.	June	Dec.	June	Dec.	June	Dec.	June	Dec.	June
1	21686	22232	20285	19197	17777	17239	15473	14363	12646	13070	12770	12682
2	93852	92505	86276	94334	84527	82615	75335	69111	62812	61081	56904	54502
3	20695	18701	18847	17526	16880	15753	15939	12788	11844	12772	12393	10042
4	31781	31813	31083	30700	28582	27379	24190	23633	19715	20312	19548	16850
5	20582	20768	20336	20843	19892	18541	17000	15164	13746	13265	13604	11217
6	62240	59230	57287	53905	51092	46686	45123	39842	36502	38830	40127	29655
7	46506	43240	40262	40032	38393	38132	34236	32108	28936	29189	27538	24234
8	45676	43141	41212	40358	38248	36127	31706	27883	26488	25612	25677	21913
9	45437	45459	42787	43370	41414	39078	35899	34856	30571	33410	32674	29477
10	24999	23628	22561	22217	21630	20502	19056	17948	17014	16738	15956	14978
11	10346	10056	9997	9712	9172	9016	9804	8293	8097	7444	8819	6946
12	114367	106925	100057	101284	96864	92822	88987	81092	77498	76438	75397	67139
13	22846	20782	17917	17974	17013	15100	14465	11152	11592	10868	10840	9569
14	17117	14807	14555	14423	13975	12971	12422	11459	11109	11116	10673	9923

Source: Call reports published by the Superintendent of Banking and Polk's Bank Directory

APPENDIX C

TABLE C.2

ESTIMATED TOTAL DEPOSITS OF ALL BANKS IN THE TRADE AREAS
(ROUNDED TO THE NEAREST THOUSAND DOLLARS)

Trade Area	1965		1964		1963		1962		1961		1960	
	Dec.	June	Dec.	June	Dec.	June	Dec.	June	Dec.	June	Dec.	June
1	35042	32724	34399	31237	32300	29929	29841	26873	29564	25364	27283	24890
2	156057	150542	156650	145452	147922	141414	141704	129065	130318	113838	115406	105391
3	32613	29280	30194	28128	28935	26589	28609	24012	25164	23189	23092	21955
4	54399	50009	49982	47637	49115	44335	46314	43673	41529	37466	39928	36978
5	35869	32417	32038	29067	29824	26871	27930	24956	25263	22271	23712	21113
6	107914	97177	98947	90907	93838	86612	90684	79366	82665	74619	79789	66722
7	84008	76354	78337	72771	72290	67704	69523	61624	62055	55553	58040	53802
8	98390	89050	89026	83764	85896	77397	81163	69333	72469	65412	67501	63157
9	90496	80660	84516	76513	79110	71441	76644	67478	69074	61049	64253	60328
10	48752	43844	44055	41043	40960	36994	38394	34793	34914	32425	32809	30859
11	21424	19997	19892	18640	18659	17852	18319	16718	17185	15484	15660	14614
12	210172	195356	195398	184825	184427	172849	175364	162593	159160	144766	149890	136488
13	49213	44466	43840	39729	39895	37257	37243	33141	32652	30121	29965	28378
14	29205	27309	26421	24271	24222	22928	23495	21611	21131	19790	19369	19197

Source: Call reports published by the Superintendent of Banks and Polk's Bank Directory

APPENDIX C

TABLE C.3

LOAN-TO-DEPOSIT RATIO COMPUTED FROM TOTAL LOANS AND TOTAL DEPOSIT ESTIMATES (PERCENTAGES)

Trade Area	1965		1964		1963		1962		1961		1960	
	Dec.	June	Dec.	June	Dec.	June	Dec.	June	Dec.	June	Dec.	June
1	61.9	67.9	59.0	61.5	55.0	57.6	51.9	53.4	42.8	51.5	46.8	51.0
2	60.1	61.4	55.1	64.9	57.1	58.4	53.2	53.5	48.2	53.7	49.3	51.7
3	63.5	63.9	62.4	62.3	58.3	59.3	55.7	53.3	47.1	55.1	53.7	45.7
4	58.4	63.6	62.2	64.4	58.2	61.8	52.2	49.5	47.5	54.2	49.0	45.6
5	57.4	64.1	63.5	71.7	66.7	69.0	60.9	60.8	54.4	59.6	57.4	53.1
6	57.7	61.0	57.9	59.3	54.4	53.9	49.8	50.2	44.2	52.0	50.3	44.4
7	55.4	56.6	51.4	55.0	53.1	56.3	49.2	52.1	46.6	52.5	47.4	45.0
8	46.4	48.4	46.3	48.2	44.5	46.7	39.1	40.2	36.6	39.2	38.0	34.7
9	50.2	56.4	50.6	56.7	52.3	54.7	46.8	51.6	44.3	54.7	50.9	48.9
10	51.3	53.9	51.2	54.1	52.8	55.4	49.6	51.2	48.7	51.6	48.6	48.5
11	48.3	50.3	50.3	52.1	49.2	50.5	53.5	49.6	47.1	48.1	56.3	47.5
12	54.4	54.7	51.2	54.8	52.5	53.7	50.7	49.9	48.7	52.8	50.3	49.2
13	46.4	46.7	40.9	45.2	42.6	40.5	38.8	33.7	35.5	36.1	36.2	33.7
14	58.6	54.2	55.1	59.4	57.7	56.6	52.9	53.0	52.6	56.2	55.1	51.7

Source: Computed from call reports published by the Superintendent of Banks and Polk's Bank Directory

APPENDIX D

TABLE D.1

ESTIMATED TOTAL DISPOSABLE INCOME BY TRADE AREA (THOUSANDS OF DOLLARS)

Trade Area	1965	1964	1963	1962	1961	1960
1	33304	33619	33386	31263	29492	22466
2	283639	284056	274097	233544	216330	177957
3	41573	42624	42243	37757	35670	30592
4	67535	71923	69366	61611	57499	51439
5	38814	36842	36953	33553	31817	24683
6	114404	111691	111051	100132	94300	87086
7	86909	86245	84452	73799	69223	68419
8	99069	91775	96074	86150	80976	82743
9	107075	108147	106531	94681	88868	87762
10	51825	51826	51214	45461	42337	42221
11	23709	24290	24245	21493	20138	19782
12	281480	277381	266023	233358	218174	193109
13	51831	49906	49441	43253	40415	34304
14	36087	36950	36836	33156	31269	27639
STATE TOTAL	1317254	1306545	1280912	1129211	1006508	950202

Source: Sale Management Survey of Buying Power, 1961, 1962, 1963, 1964, 1965, 1966

APPENDIX D

TABLE D.2

ESTIMATED POPULATION OF THE
TRADE AREAS (THOUSANDS)

Trade Area	1965	1964	1963	1962	1961	1960
1	15.9	16.1	16.2	16.8	16.9	16.9
2	137.8	136.6	132.9	125.5	123.5	120.0
3	26.1	26.6	26.6	26.5	26.8	26.9
4	32.5	34.3	33.7	33.1	33.0	32.1
5	23.3	22.5	22.6	22.7	23.2	23.2
6	64.7	63.3	63.6	63.8	64.5	64.8
7	49.4	49.4	49.1	48.1	48.6	48.6
8	62.7	61.0	61.4	61.7	62.6	63.3
9	67.8	68.8	68.6	69.0	69.7	70.0
10	30.8	31.1	30.9	30.7	30.7	30.5
11	14.6	14.8	14.8	14.9	15.0	15.1
12	134.3	133.9	129.9	125.4	124.5	123.1
13	27.9	27.8	27.8	26.8	26.9	26.8
14	20.0	20.5	20.6	20.7	20.9	21.0

Source: Sales Management Survey of Buying Power, 1961, 1962, 1963, 1964, 1965, 1966

APPENDIX D

TABLE D.3

ESTIMATED PER CAPITA DISPOSABLE INCOME
FOR THE TRADE AREAS IN DOLLARS

Trade Area	1965	1964	1963	1962	1961	1960
1	2095	2088	2061	1861	1745	1329
2	2058	2004	2055	1861	1752	1483
3	1593	1602	1588	1425	1331	1137
4	2078	2097	2058	1861	1742	1602
5	1666	1637	1635	1478	1371	1064
6	1768	1764	1746	1569	1462	1344
7	1759	1746	1720	1534	1424	1408
8	1580	1505	1565	1396	1294	1307
9	1579	1572	1553	1372	1275	1254
10	1683	1666	1657	1481	1379	1384
11	1624	1641	1638	1442	1343	1310
12	2096	2072	2048	1861	1752	1569
13	1858	1795	1778	1614	1502	1280
14	1804	1802	1788	1602	1496	1316

Source: Sales Management Survey of Buying Power, 1961, 1962, 1963, 1964, 1965, 1966

APPENDIX D

TABLE D.4

PERCENTAGE CHANGE IN PER CAPITA DISPOSABLE INCOME BY TRADE AREAS

Trade Area	1964 to 1965	1963 to 1964	1962 to 1963	1961 to 1962	1960 to 1961	Average Annual Rate of Change
1	0.3	1.3	10.7	6.6	31.3	10.0
2	-0.7	0.8	10.4	6.2	18.1	7.0
3	-0.6	0.9	11.4	7.1	17.1	7.2
4	-0.9	1.9	10.6	6.8	8.7	5.4
5	1.8	0.1	10.6	7.8	28.9	9.8
6	0.2	1.0	11.3	7.3	8.8	5.7
7	0.7	1.5	12.1	7.7	1.1	4.6
8	5.0	-3.8	12.1	7.9	-1.0	4.0
9	0.4	1.2	13.2	7.6	1.7	4.8
10	1.0	0.5	11.9	7.4	-1.8	3.8
11	-1.0	0.2	14.0	7.4	2.5	4.6
12	1.2	1.2	10.0	6.2	15.7	6.9
13	3.5	1.0	10.2	7.5	17.3	7.9
14	0.1	0.8	11.6	7.1	13.7	6.7
State Average	0.8	0.6	11.4	7.2	11.6	

Source: Computed from data published by Sales Management Survey of Buying Power, 1961 through 1966

APPENDIX E

TABLE E.1

QUESTIONNAIRES SENT OUT AND RETURNED

Trade Area	Number Sent	Number Received	Per Cent Returned	Per cent of Assets Represented by Responding Banks
1	5	4	80	76.8
2	18	14	78	52.7
3	10	10	100	100.0
4	14	12	86	90.6
5	5	4	80	91.8
6	26	24	92	96.2
7	15	13	87	97.7
8	21	17	81	80.1
9	24	23	96	98.5
10	11	9	82	98.9
11	4	2	50	76.4
12	26	21	81	79.4
13	7	5	71	64.2
14	6	5	83	80.2
Total	192	163		

APPENDIX F

TABLE F.1

RANKING OF COMMERCIAL BANK OBJECTIVES

Trade Areas	First, Second, and Third Rank Combinations*							First Ranked In Incomplete Responses
	ABC	ACB	BAC	BCA	CAB	CBA	Equa l	
	(Number of Banks)							
1	2	1	0	0	0	1	0	
2	3	0	1	4	0	2	0	
3	1	0	3	3	1	0	1	b
4	2	0	3	6	0	0	1	
5	2	0	0	1	0	1	0	
6	6	2	4	8	0	1	1	
7	4	0	2	3	1	1	0	
8	5	1	4	6	0	1	1	
9	7	1	3	6	1	4	0	a
10	4	1	1	1	0	3	0	
11	1	0	1	1	0	1	0	
12	7	0	3	8	1	0	0	b
13	0	0	1	3	0	1	0	
14	2	0	2	1	0	0	0	
Total	46	6	28	51	4	16	4	
Per Cent	29.7	3.9	18.1	32.9	2.6	10.3	2.6	

* A = Earnings; B = Service to depositor; C = Credit to the community

APPENDIX F

TABLE F.2

RANKING OF THE "CREDIT TO THE COMMUNITY" OBJECTIVE OF COMMERCIAL BANKS

Trade Area	First Rank	Second Rank	Third Rank	Equal Ranking	Total
			(Number of banks)		
1	1	1	2		4
2	2	4	4		10
3	1	3	4	1	9
4	0	6	5	1	12
5	1	1	2		4
6	1	10	10	1	22
7	2	3	6		11
8	1	7	9	1	18
9	5	7	10		22
10	3	2	5		10
11	1	1	2		4
12	1	8	10		19
13	1	3	1		5
14	0	1	4	-	5
Total	20	57	74	4	155
Per Cent of Total	12.9	36.8	47.7	2.6	

APPENDIX F

TABLE F.3

PREFERRED PERCENTAGE OF FUNDS HELD AS CASH

Trade Areas	Deciles 0-10	11-20	21-30	31-40	41-50	51-60	61-70	Total
				(Number of banks)				
1	2	1			1			4
2	1	8						9
3	2	8						10
4	1	8						9
5		3						3
6	4	17	1					22
7	6	6						12
8	7	8	1					16
9	6	17						23
10	1	9						10
11	1	2	1					4
12	6	9	3					18
13	4	1						5
14	1	3	-		1			5
Total	42	100	7		2			151
Per Cent of the Total	27.8	66.2	4.6		1.3			

APPENDIX F

TABLE F.4

PREFERRED PERCENTAGE OF FUNDS HELD
AS LIQUID EARNING ASSETS (BONDS)

Trade Areas	Deciles 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	Total
				(Number of banks)					
1		1	1	1					3
2			4	5	1				10
3		3	3	2		2			10
4	1	3	2	3					9
5			2	1					3
6			2	15	4		1		22
7		2	1	5	3				11
8		2	2	9	2			1	16
9		2	7	8	3	2			22
10		1	3	5		1			10
11		2		1	1				4
12		3	4	9		1			17
13			1	2		2			5
14			2	2					4
Total	1	19	34	68	14	8	1	1	145
Per Cent of the Total	0.7	13.1	23.4	46.9	9.7	5.5	0.7	0.7	

APPENDIX F

TABLE F.5

PREFERRED PERCENTAGE OF FUNDS HELD AS LOANS

Trade Area	Deciles 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	Total
					(Number of banks)						
1				1		2					3
2			1	2	5		2				10
3			1	2	3	3					9
4					4	4					8
5					2	1		1			4
6		1		6	13	3					23
7				3	3	3			1		10
8		1		5	7	2					15
9			1	4	11	5					21
10			1		6	2					9
11					3						3
12				6	7	4					17
13			1		3	1					5
14	—	—	—	—	3	2	—	—	—		5
Total	0	2	5	29	70	32	2	1	1		142
Per Cent of the Total		1.4	3.5	20.4	49.3	22.5	1.4	0.7	0.7		

APPENDIX F

TABLE F.6

PREFERRED MAXIMUM LOAN-TO-DEPOSIT RATIO

Trade Area	Deciles 0-10	11-20	21-30	31-40	41-40	51-60	61-70	71-80	81-90	91-100	Total
					(Number of banks)						
1					1	2		1			4
2					2	3	3	2			10
3			1		2	4	3				10
4					2	4	6				12
5						1	2	1			4
6			1	4	8	7	3				23
7					4	7	1				12
8				2	8	7	1				18
9				1	6	9	7				23
10			1		2	3	4				10
11					2	2					4
12					8	8	4				20
13					3	1	1				5
14			—	—	1	3	—	1			5
Total			3	7	49	61	35	5			160
Per Cent			1.9	4.4	30.6	38.1	21.9	3.1			

APPENDIX F

TABLE F.7

PREFERRED MINIMUM LOAN-TO-DEPOSIT RATIO

Trade Area	Deciles 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	Total
					(Number of banks)						
1			1	1	2						4
2			2	4	2	1					9
3		1		6	1	1					9
4				6	5	1					12
5				1	3						4
6	1		3	12	5						21
7			2	6	2		1				11
8			4	11		1					16
9			4	9	4	4	1				22
10				2	6	1					9
11				2	2						4
12			4	10	3						17
13			1	1	2						4
14	-	-	-	2	3	-	-				5
Total	1	1	21	73	40	9	2				147
Per Cent	0.7	0.7	14.3	49.7	27.2	6.1	1.4				

APPENDIX F

TABLE F.8

PREFERRED TIME-SAVING DEPOSITS TO TOTAL DEPOSIT RATIO

Trade Area	Deciles 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	Total
					(Number of banks)						
1				2	1						3
2			3	5	1						9
3			2	6	2						10
4	1		4	1	2			1			9
5		2	1	1							4
6			2	18	3						23
7			2	7	2	1					12
8	1		4	9							14
9			2	10	9	1					22
10			2	4	2						8
11				1	2						3
12			3	11	5						19
13				2	3						5
14	-	-	3	-	2	-		-			5
Total	2	2	28	27	34	2		1			146
Per Cent	1.4	1.4	19.2	52.7	23.3	1.4		0.7			

APPENDIX F

TABLE F.9

METHODS SELECTED TO MEET CREDIT DEMAND
INCREASED BEYOND PRESENT CAPACITY

Trade Area	Methods: Place Overlines	Make Personal Loans	Deposit Transfers	Merger	Sell Assets	Nothing	Other Methods
			(Number of banks)				
1	4						1
2	9	3			3		2
3	10	1	1		1		1
4	11				5		2
5	3						2
6	22	8			4	2	4
7	12	4			1		2
8	16	4			6		1
9	22	5	1		5		2
10	9	2			3		
11	4				1		
12	17	2		2	3	1	1
13	5				1		1
14	5	—	—	—	2	—	—
Total	149	29	2	2	35	3	19
Per Cent	62.3	12.1	0.8	0.8	14.6	1.2	7.9

APPENDIX F

TABLE F.10

FIRST AND SECOND RANKED COMBINATIONS OF FACTORS WHICH ARE LIKELY TO PUT A CEILING ON THE LOAN-TO-DEPOSIT RATIO*

Trade Area	AB	AC	AD	BA	BC	BD	CA	CB	CD	DA	DB	DC
					(Number of banks)							
1			1		3							
2	1				3			2		1		
3			2		2		1	2		1	1	
4	3	1		1	2		1	1				
5			1		1						1	
6	2		1	2	9		1	5				
7	3			2	3				1			
8				3	4		1	4				
9	2	1	1	2	10			2		1	1	
10			1		2		1	3			1	
11			1	1				1			1	
12	2	1	1	4	5			4				
13				1	2					1		
14	2	1	–	—	—	—	–	1	–	–	–	—
Total	15	4	9	16	46		5	25	1	4	5	
Per Cent	11.5	3.1	6.9	12.3	35.4	0.0	3.8	19.2	0.8	3.1	3.8	0.0

* A = State or federal control; B = Credit worthiness of loan applicants; C = Economic resources of your community; D = Stockholder control

APPENDIX F

TABLE F.11

INTERIOR AND EXTERIOR COMBINATIONS OF FACTORS LIKELY TO PUT A CEILING ON THE LOAN-TO-DEPOSIT RATIO AND THE NUMBER OF FIRST RANKS FOR EACH FACTOR

Trade Area	Combinations of First & Second Ranks				Number of First Ranks*			
	Both Interior	Both Exterior	Int. First/Ext. Second	Ext. First/Int. Second	A	B	C	D
	(Number of banks)							
1	1	3			1	3		
2	1	5	1		3	3	3	1
3	3	4	1	1	2	2	4	2
4		3	4	2	6	4	2	
5	1	1	1		1	2		1
6	1	14	2	3	3	11	7	1
7		3	3	3	4	6	2	1
8		8		4	2	10	5	1
9	2	12	4	2	4	14	3	2
10	1	5	1	1	1	4	4	1
11	1	1	1	1	1	1	1	1
12	1	9	3	4	4	12	4	
13	1	2		1		4		1
14	—	1	3	—	3	1	1	—
Total	13	71	24	22	35	73	36	12
Per Cent	10.0	54.6	18.5	16.9	22.4	46.8	23.1	7.7

* Includes first ranked from incomplete answers; A = State or federal control, B = Credit worthiness of loan applicants, C = Economic resources of your community, D = Stockholder control

APPENDIX F

TABLE F.12

FREQUENCY OF ENCOURAGING DEPOSIT TRANSFERS TO TIME-SAVING ACCOUNTS

Trade Area	Policy Used			
	Frequently	Occasionally	Seldom	Rarely
		(Number of banks)		
1		3		1
2		5	5	4
3	1	5	2	2
4	1	8	1	2
5		2	1	1
6	1	9	8	5
7	1	8	2	2
8	2	5	2	7
9	6	8	7	2
10	3	6		
11	2	2		
12	2	6	6	6
13		4		1
14	—	2	2	1
Total	19	73	36	34
Per Cent	11.7	45.1	22.2	20.9

APPENDIX F

TABLE F.13

FREQUENCY OF ACTIVELY ENCOURAGING
CONSUMER OR INSTALLMENT LOANS

Trade Area	Policy Used			
	Frequently	Occasionally	Seldom	Rarely
		(Number of banks)		
1	2	1	1	
2	8	1		1
3	4	4	1	1
4	9	2	1	
5	3	1		
6	13	10		
7	11	1		1
8	9	3	4	1
9	18	5		
10	7	2	1	
11	3	1		
12	12	6	1	1
13	4	1		
14	5	—	—	—
Total	106	38	9	5
Per Cent	67.1	24.0	5.7	3.2

APPENDIX F

TABLE F.14

FREQUENCY OF BANKS WILLING TO "GO OUT ON A LIMB" FOR A YOUNG BORROWER

Trade Area	Policy Used			
	Frequently	Occasionally	Seldom	Rarely
		(Number of banks)		
1		4		
2	5	3	1	1
3	3	7		
4	5	6	1	
5	2	2		
6	7	12	3	
7	5	6	1	1
8	5	11	1	
9	7	13	1	
10	5	5		
11	2	2		
12	5	11	4	
13	4	1		
14	1	4	—	—
Total	54	87	12	2
Per Cent	34.8	56.1	7.7	1.3

APPENDIX F

TABLE F.15

FREQUENCY OF DETAILED INVESTIGATION OF NON-PROFITABLE ENTERPRISES

Trade Area	Policy Used			
	Frequently	Occasionally	Seldom	Rarely
	(Number of banks)			
1	1	2	1	
2	4	4	2	4
3	6	4		
4	4	5	1	2
5		3	1	
6	5	11	5	2
7	6	5	1	
8	8	6	2	2
9	7	10	3	3
10	3	6	1	
11	2	2		
12	5	11	2	2
13		5		
14	3	2	—	—
Total	54	76	19	15
Per Cent	32.9	46.3	11.6	9.1

APPENDIX F

TABLE F.16

FREQUENCY OF INVESTIGATION OF ENLARGEMENT POTENTIAL

Trade Area	Policy Used			
	Frequently	Occasionally	Seldom	Rarely
		(Number of banks)		
1		3	1	
2	2	5	1	2
3	4	6		
4	5	5		2
5	1	3		
6	8	12		
7	5	7		
8	7	7	4	
9	10	10	2	1
10	6	3	1	
11	2	2		
12	5	11	1	2
13	5			
14	1	4	—	—
Total	61	78	10	7
Per Cent	39.1	50.0	6.4	4.5

APPENDIX F

TABLE F.17

FREQUENCY OF INVESTIGATION OF NEW ENTERPRISES

Trade Area	Policy Used			
	Frequently	Occasionally	Seldom	Rarely
	(Number of banks)			
1	1	3		
2	5	7		1
3	4	5	1	
4	6	5	1	
5	1	3		
6	8	8	7	
7	5	6	1	
8	7	9	2	
9	9	12	2	
10	4	5		
11	2	2		
12	4	12	2	1
13	5			
14	2	3	—	—
Total	63	80	16	2
Per Cent	39.1	49.7	9.9	1.2

APPENDIX F

TABLE F.18

FREQUENCY OF INVESTIGATION OF NEW BUSINESSES

Trade Area	Policy Used			
	Frequently	Occasionally	Seldom	Rarely
	(Number of banks)			
1	1	3		
2	4	4		1
3	4	5	1	
4	7	3	2	
5	1	3		
6	9	9	4	1
7	7	5		
8	7	8	2	
9	10	12		1
10	5	4	1	
11	2	1	1	
12	11	5	2	1
13	4	1		
14	3	2	—	—
Total	75	65	13	4
Per Cent	47.8	41.4	8.3	2.5

APPENDIX F

TABLE F.19

FREQUENCY OF PERFORMING OTHER MANAGERIAL SERVICES FOR BORROWERS

Trade Area	Policy Used			
	Frequently	Occasionally	Seldom	Rarely
	(Number of banks)			
1				
2				
3	2			1
4	1			
5	1	1		
6	1			
7				
8		1		
9	2			
10		2		
11	1			
12				
13	2			
14	—	—		—
Total	10	4		1
Per Cent	66.7	26.7		6.7

APPENDIX F

TABLE F.20

PERCENTAGE OF TOTAL LOANS TO SECTORS OF LOCAL ECONOMY

	Trade Areas														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
	(Number of banks)														
Agriculture Loans															
0-10												3			3
11-20		2													2
21-30		2				1		1		1		2			7
31-40			1			1	1		3						6
41-50	1	1				1	1	2	1	1	2	1	2	1	14
51-60	1	1	1	5			3	3	3			5	2	1	25
61-70		3	4	3	1	6	2	3	4	3	1	3	1		34
71-80	2			2	3	5	4	5	3	3		3		1	31
81-90			2	1		5		2	5	2		2		2	21
91-100		1	2			1		1	2		1	1			9
															152
Business Loans															
0-10	4	3	3	6	4	13	7	11	15	7	4	11	2	3	93
11-20		2	6	3		5	2	5	5	2		6	2	2	40
21-30		4	1	2		2	2	1	1	1		1	1		16
31-40	1														1
41-50												1			1
51-60															0
61-70															0
71-80												1			1
															152

(Continued on next page)

APPENDIX F

TABLE F.20 (Continued)

PERCENTAGE OF TOTAL LOANS TO SECTORS OF LOCAL ECONOMY

	Trade Areas														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
	(Number of banks)														
Installment Loans															
0-10	2	4	9	7	4	17	8	14	16	9	4	14	2	4	114
11-20	1	5		3		3	2	3	5			4	2		28
21-30	1	1	1	1		1	1					1	1	1	9
31-40															0
41-50												1			1
															152
City Real Estate Loans															
0-10		3	4	4	2	10	4	4	10	7	2	5	1	3	59
11-20	2	3	4	6	2	6	4	10	4	2		6	3		52
21-30	2		2	1		3	3	2	3		1	5	1	1	24
31-40		3				1		1	2		1	3		1	12
41-50		1							2			2			5
															152

APPENDIX G

TABLE G.1

VALUES OF VARIABLES CONSIDERED IN MODEL ONE (PERCENTAGES)

Trade Area	Variables									
	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	Y
1	60	81	67	62	54	74	74	0	55	10.0
2	51	96	92	62	46	69	69	0	56	7.0
3	61	79	79	88	80	78	78	32	57	7.2
4	49	97	75	70	62	85	80	20	56	5.4
5	32	96	80	51	82	82	82	37	62	9.8
6	45	95	89	83	89	86	89	4	53	5.7
7	58	96	72	89	80	80	85	0	52	4.6
8	52	83	75	78	77	82	83	4	42	4.0
9	74	96	78	79	83	86	86	4	52	4.8
10	82	94	79	74	82	77	76	8	51	3.8
11	84	98	84	97	84	84	69	47	50	4.6
12	45	93	75	61	54	59	94	0	52	6.9
13	61	96	96	67	99	99	98	22	40	7.9
14	45	99	73	94	73	82	82	0	55	6.7

APPENDIX G

TABLE G.2

VALUES OF VARIABLES CONSIDERED IN MODEL TWO (PERCENTAGES)

Variable	Trade Area													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
X_1	52	46	52	53	68	60	44	49	59	57	52	43	85	36
X_2	52	48	53	57	62	50	52	43	51	51	50	53	49	55
X_3	41	47	41	48	48	43	44	38	46	48	43	36	43	46
X_4	44	39	40	29	27	39	37	36	43	44	45	43	44	31
X_5	69	57	64	85	44	48	76	57	50	42	83	67	39	82
X_6	99	96	68	75	86	84	87	93	88	88	76	84	95	67
X_7	75	75	68	87	51	89	65	78	65	80	42	83	66	70
X_8	44	28	65	26	70	56	48	34	49	42	50	27	53	39
X_9	99	96	99	92	71	98	99	93	98	97	99	71	99	99
X_{10}	0	12	8	0	0	11	19	16	8	7	0	3	0	0
X_{11}	0	0	23	0	0	0	0	0	15	0	0	0	0	0
X_{12}	0	0	0	0	0	0	0	0	0	0	0	7	0	0
X_{13}	0	6	8	61	0	14	5	27	41	32	44	36	11	38
X_{14}	0	0	0	0	0	3	0	0	0	0	0	27	0	0
X_{15}	10	4	23	7	75	59	25	5	20	0	0	2	6	0
X_{16}	62	62	59	63	66	58	54	52	59	62	59	60	55	62
Y	55	56	57	56	62	53	52	42	52	51	50	52	40	55

APPENDIX G

TABLE G.3

VARIABLES USED IN MODEL THREE (THOUSANDS OF DOLLARS)*

Trade Area	Agriculture Loans (X_1)	Business Loans (X_2)	Installment Loans (X_3)	City Real Estate Loans (X_4)	Total Disposable Income (Y)
1	9472	997	2991	3324	30588
2	19800	20562	11423	24369	244937
3	10130	1842	1074	2302	38410
4	16043	2547	2547	4838	63229
5	12127	1366	1366	2050	33777
6	26625	4671	4204	10743	103111
7	17265	6694	4580	6694	78174
8	20539	5051	3367	4714	89464
9	20828	2083	2083	9467	98844
10	12257	2570	1582	2965	47481
11	5116	808	538	2334	22276
12	25174	32366	8991	20678	244921
13	7055	3452	2552	1951	44858
14	9051	1030	1546	1803	33656

* The loans were based on percentages (see Table, next page) and averaged over the five-year period, 1960-1965.

APPENDIX G

TABLE G.4

PERCENTAGE OF ESTIMATED TOTAL LOANS LOANED TO VARIOUS SECTORS OF THE ECONOMY

Trade Area	Agriculture	Business	Installment	City Real Estate
1	57	6	18	20
2	26	27	15	32
3	66	12	7	15
4	63	10	10	19
5	71	8	8	12
6	57	10	9	23
7	49	19	13	19
8	61	15	10	14
9	55	10	10	25
10	62	13	8	15
11	57	9	6	26
12	28	36	10	23
13	47	23	17	13
14	70	8	12	14
Trade Area Average	55	15	11	19