

# Research in Agricultural Credit

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## --Scope and Method

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Prepared under the direction of  
**The Advisory Committee on Social  
and Economic Research in  
Agriculture**

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**SOCIAL SCIENCE RESEARCH COUNCIL**

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This report represents the joint effort of most of the experienced research workers in its field in the United States. Most of them who have not contributed to its preparation failed to avail themselves of an opportunity to do so for lack of time or other reasons. A Special Advisory Committee, designated by the Advisory Committee on Social and Economic Research in Agriculture, met and drew up the general outline for the report, made suggestions as to persons to help with various parts of it, and finally approved it for publication. The Executive Secretary of the Special Advisory Committee, with some assistance from the Chairman, performed the task of fitting the various contributions together and filling in the gaps. The name of the principal contributor will be indicated in parenthesis at the beginning of each section of the report.

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## USES OF THIS REPORT

This report is the third in a series on "Scope and Method" of research in the various sub-fields of agricultural economics and rural sociology. This series of reports is part of a program of assistance to research in these fields, upon which the Advisory Committee on Social and Economic Research in Agriculture set forth in 1925 under instruction from the Social Science Research Council. Each report will undertake to outline the research of some sub-field of agricultural economics or rural sociology and then discuss the problems in methodology that are peculiar to it. The outline of any sub-field will be in large part in terms of a listing and discussion of specific research projects that have been undertaken or might be undertaken. Hence the discussion of methodology will be largely in terms of specific projects.

It is expected that these reports will be useful in the following ways: First, directors of experiment stations and chiefs of divisions of agricultural economics and of rural sociology in land-grant institutions in the United States, and persons similarly responsible for direction of the research in agricultural economics and rural sociology in other types of institutions, will find the outlines of the various sub-fields of much help in laying out continuing programs of research for their institutions. Second, individual research workers, graduate students looking for thesis subjects, and teachers conducting research seminars, as well as the agencies above named, will find the listing and discussions of projects helpful in choosing suitable research projects. Third, the descriptions of research already done will save research workers from duplicating other work and help them to find a way of building upon it successfully. Fourth, the discussion of the nature of a project and the qualitative background will reveal the body of the subject-matter which needs to be mastered for its intelligent prosecution, and the difficulties involved, and thus save many research workers from launching forth upon projects for which they have not yet qualified themselves, or which may be too difficult for all but the chosen few. Fifth, the analysis of methodology will furnish a basis for a more intelligent decision as to the procedures and methods which will lead to valid and usable results. Sixth, the discussion of methodology will also suggest helpful devices in technique and details of procedure that might not otherwise be brought to the attention of the research workers. Seventh, the discussions of both scope and methods will make clear to those organizing research in any field the contributions which workers on different subjects have to offer to it, and point the way to the form of collaboration needed.

# Research Relating to Agricultural Credit --Scope and Method

The volume of borrowings by farmers in the past two decades has reached levels far exceeding those of any preceding period in the history of the country. It is estimated that farm mortgage loans in the United States rose from \$3,320,470,000 in 1910 to \$7,857,700,000 in 1920 and to \$9,468,526,000 in 1928 and that in 1923 the total volume of personal and collateral loans to farmers amounted to \$3,000,000,000. (Estimates by the Bureau of the Census and the Bureau of Agricultural Economics.) Although the volume of loans of the latter type is believed to have declined since 1924 (partly through refunding into longer-term loans), it still stands at a very high level. Agricultural economists have become greatly interested in these developments and their effects on agriculture, but have not thus far undertaken many research studies in this field, and most of those undertaken thus far are introductory in nature. It is evident that a considerable field for worthwhile research exists in more intensive studies, such as of the efficiency, organization, division of functions, scale of operations, and adequacy of the institutions handling agricultural credit; of the credit market as relating to agricultural loans, of the relations of national monetary policies to agricultural conditions, and of the possibilities and limitations of the profitable use of credit in the private economy of individual farms.

## OBJECTIVES

The purposes of the present report are: To outline the field from the point of view of research; to indicate its place in the general framework of economics and agricultural economics, pointing out relations to other subdivisions of the field; to outline and orient the research already done in the field; and to analyze the methodology of a number of carefully selected projects.

It is thought that this will make available to those undertaking research in this field much of the experience gained from what has already been done as to possible approaches and methods. It is hoped also that as a result of it the various agencies engaged in agricultural research will be stimulated to undertake a larger and more carefully considered body of research relating to agricultural credit.

## DEFINITION OF THE FIELD

(By M. R. Benedict.)

There is no hard and fast line of demarcation separating agricultural credit from credit used in other types of business. Money loaned to merchants on their stocks of goods may in fact be credit which enables the merchants to defer collections from farmers. Many of the loans made to terminal market dealers in agricultural products would otherwise have to be made directly to farmers or farmers' organizations. The sales of securities by farm machinery companies, farm mortgage companies, and fertilizer companies may be partly or wholly indirect loans to farmers. Even the financing of international trade may involve a form of agricultural credit. Thus the problem of financing the production and handling of agricultural products touches nearly all phases of the credit structure. Agricultural credit then does not constitute a field apart from studies of the general field of monetary theory, monetary phenomena, and financial organization. Justification for separate treatment of the agricultural phases of the field lies in the special knowledge which much of its study requires as to agricultural affairs, agricultural technique, and the special exemplifications of the principles of economics in agriculture. It is significant in this connection that separate institutions have been developed for the handling of some forms of agricultural credit. It is also true that those who do not have a primary interest in agriculture are likely to slight the agricultural phases of the general subject of credit.

For practical study and consideration we may differentiate agricultural credit somewhat arbitrarily as consisting of the following types:

1. Credit extended for the purchase, improvement and rental of farm real estate.
2. Credit extended for the purchase or rental of farm equipment including livestock.
3. Credit extended for the current operating expenses of farms, such as the purchase of feed and supplies, the hiring of labor, the payment of taxes, etc.
4. Credit extended for the processing, storing, and marketing of farm products so long as control remains in the farmer's hands or as the farmer retains an equity in the product.
5. Credit extended to farmers for the maintenance of themselves and their families and for the purchase of articles of family usage not essential to the conduct of the farm.

### *Nature of agricultural credit.*

Loans for the purposes indicated above are, for the most part, relatively small in size (except some of those indicated under 4). They involve relatively unstandardized security characterized by wide variations as to income-producing ability, quality of manage-



ment, salability, and accessibility. Hence rather specialized machinery is needed for handling them. The risks involved and the larger per-dollar expense of handling and supervising tend to hold the general level of interest rates for agricultural loans at a higher level than that prevailing on loans made to city business men.<sup>1</sup>

One of the outstanding characteristics of these small agricultural loans is the closer tie-up with family affairs and family progress than is usually the case with loans to city business men. Moral responsibility or irresponsibility, paying off of loans as a means of accumulating savings, borrowing for consumption purposes without definite provision for regular repayment, deductions for family living prior to payment on loans, loans from one relative to another, etc., all enter largely into agricultural credit. The maintenance of the farm family constitutes so large a part of the farm's production expense that production and consumption credit often are not clearly defined or separated. Of similar import is the fact that many farm mortgage loans are contracted, not as ordinary loans, but as settlements with other heirs who have inherited the land jointly with the borrower.

In general, the turnover of capital in agricultural production is much slower than in most city industries, and the percentage of fixed to total capital is also larger. This affects to a considerable degree the relative liquidity of the two types of loans. One reason for the foregoing is that agriculture has much less than city industries of division of production into stages which are carried on by different individuals and firms. The outstanding example of this division in agricultural production is the separation of the growing of feeder cattle and lambs from the fattening of them. Some tendency toward closer union of the stages of production is noticeable in city industries, but it usually takes the form of integrating different enterprises under one financial control rather than a complete unification of operation.

The risk element is more important in agricultural loans than in other types, both as to production risks and as to price risks. Production risks in the form of adverse weather conditions and of plant diseases and insect pests make the estimates of the amounts of product which can be anticipated from given inputs much more uncertain than similar estimates in most city industries. Partly as a result of these risks, prices for agricultural products are likely to be more erratic than those of industrial products, especially those for which the volume of production is relatively controllable. Thus, either too large or too small a crop is likely to make the meeting of financial obligations difficult or impossible over considerable areas. Such widespread risks are more difficult problems in the set-up and

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(1) The exceptions to this are the large loans made in recent years to some of the large farmer-owned co-operatives. But these are large loans, very similar to many of the loans to city businesses as to methods of handling. The method of securing them may differ somewhat in some cases.

management of credit agencies than are the risks which vary more from individual to individual.

Supplies of credit for agricultural loans, and the accompanying interest rates, naturally cannot move entirely without reference to credit supplies and interest rates for industry in general. There are, however, rather marked differences between agriculture and industry in the nature and timing of the responses to business cycle phenomena which warrant more study than they have so far received. These grow out of the lesser degree of liquidity of agricultural assets, the longer term of the customary loan differences in the nature of the demand curves of most agricultural products as compared to those of many of the industrial products, and differences in the responses of supply to price in the two groups.

There is need for a more careful identification and measuring of the risks involved in agricultural production and marketing, both physical and economic risks, in their bearing on credit use and the cost of credit; also for a much fuller consideration, for individual farm units, of the effects upon physical output, upon gross income, and upon net income resulting from the use of capital and labor under given conditions; in other words, upon the advisability of borrowing more or less than is now borrowed.

#### *Relations to other fields.*

The considerations last mentioned bring the field of agricultural credit into very close relation to and dependence on the field of farm management, since most of the information there indicated is farm management information. Farm management studies need, on the other hand, to take more account of the credit phases of the farmer's problem, since the changes suggested as a result of farm management studies often imply the use of larger amounts of capital. Whether this can be obtained depends usually on the credit load already carried, the definiteness and certainty of the expected advantages, and the methods, the legal and economic set-up, and the control of the credit agencies.

A close relationship also exists between land utilization and tenure and agricultural credit. Rates of interest and the availability of credit may affect materially the profitability of given developments in the way of drainage, land clearing and irrigation, and hence the uses to which land is put. The building of barns and stocking with livestock in one-crop areas may likewise be materially affected in the same way. Even the introduction of the large-scale machinery which in recent years has altered so much the utilization of semi-arid land recently depends to no small degree upon the availability and cost of credit. Nearly all land purchase involves rather extensive use of credit and is therefore affected by the interest rates, the availability of credit, the margins or owner's equities required, and the lengths of the loans and their methods of repayment. Land valuation and appraisal likewise have a close tie-up

with agricultural credit; since the safety of loans, the practical percentages which loans may show with reference to appraised values, and the interest rates necessary to draw funds for such loans depend to a considerable extent upon the accuracy and general acceptance of such valuations and appraisals.

The marketing of farm products is interrelated with problems of agricultural credit in three important respects: first, in loans to grower-controlled agricultural marketing agencies; second, through the growing tendency for co-operative marketing associations and even for some private marketing agencies to extend production credit to their patrons; and third, in the important policy problems involved in determining the extent to which credit is to be used in extending the period of sale and in influencing the availability and cost of such credit.

Needless to state, agricultural credit and insurance have much in common. The subject of risk is treated only briefly in the present report, being handled more in detail in the report on Insurance.

A phase of the credit problem scarcely touched as yet lies in the effects of the liberal or non-liberal extension of credit for agricultural production upon the volumes produced and the prices of agricultural products. Nor have the effects of credit curtailment upon the rate of marketing farm products in periods of stringency, and the consequent effects upon prices, been very much investigated. Considering the reverse channel of causation, the stability of prices and the level of prices of agricultural products or of any given product have much to do both with the volume of indebtedness incurred by farmers and with their ability to meet these obligations.

The relative demands for capital, labor, and land affect materially the economic situation of the farmer, since a large part of his owned resources consists of the labor of himself and family. A change in the amount of capital demanded at given rates in other industries or a change in the rate of accumulation will therefore affect the marginal valuation of the different factors, and therefore the relative portions going to the farmer as payment for his own and his family's labor, for the use of his land, and for the use of his capital. This relationship is important because of the widespread tendency to evaluate land on a basis other than that of its current cash returns and then to borrow on it as security funds for which the prevailing rate of interest must be paid.

#### *The points of view.*

The problems of this field may be looked upon from two principal points of view: (1) that of the entrepreneurial elements of the credit agencies which provide the types of credit indicated above, and (2) that of the users of such credit.

From the first standpoint, the concern will be with methods of reducing costs of handling such loans; with the advantage to the agency from handling types of loans and related lines of activity

which supplement or complement each other; with the factors which will affect the spreads or margins which these agencies can obtain; with the effects of different levels of interest rates upon the volume of loans; with the possible fields for increasing loans; with the risks of loss to the loaning agencies in various types of loans, both those now being made and those in new fields of activity which might be developed; with the effects of given central bank and governmental policies upon the agencies handling agricultural loans, etc.

The users of credit are also interested in the efficiency of the handling agencies and in the possibilities of lessening their costs. In addition, they are interested in the relative advantages of different types of agencies as sources of loans, in the relative risks of loss to them in using loans of given types and amounts, and at given rates of interest; in the effects of various terms and methods of repayment upon the ease of carrying loans, the rapidity of liquidation, total costs, etc.; in the number of loaning agencies needed to provide efficient credit service; in the effects of governmental and central bank policies upon the prices of agricultural and other products.

A third but less definite viewpoint may be distinguished, namely, the interest of the public in agricultural credit, which takes the form chiefly of concern with the effects of agricultural and general credit policies upon agricultural incomes and welfare, with the effects of the level of interest rates, the liquidity of credit for agriculture, and the loaning policies of agricultural credit agencies upon the expansion or contraction of agricultural production, and consequently with supplies and prices of agricultural products.

It will be seen that these three viewpoints have much territory in common and that studies proceeding under any one of them will develop considerable material of value in the others. In the present outline, however, the viewpoint is primarily the second one discussed, namely, *that of the users of agricultural credit*, although important phases of both the other lines of interest are developed.

## BASIC PRINCIPLES AND CONCEPTS

*Production Credit.* (By Norman J. Wall.)

The credit requirements of the farmer are usually classified as being of *short, intermediate, or long* term. In actual practice, the second of these is difficult to distinguish, and the classification that proves most workable is between: (1) Production Credit, with which is usually associated a short-term maturity, and (2) Capital or Mortgage Credit, which is associated with a long-term maturity. This latter classification will be employed in the following discussion, although some reference will also be made to the intermediate type. The latter type represents a form of semi-capital credit, inasmuch as it is utilized in financing operations which do not usually result in a liquidation of the advances within the period which charac-

terizes production loans. Advances of this character are frequently made on the basis of short-term maturities and renewed. Hence the period for which the loan is made does not afford an adequate indication of the intermediate character of the advance. Frequently, too, loans made for production purposes develop as a result of unfavorable conditions into an advance which is intermediate in character.<sup>1</sup>

In considering the first classification, production credit, it may be said that the supply necessary to meet such requirements is furnished largely or entirely by the farmers themselves. Through the agency of the local country bank, the current funds required for the operations of the various individuals are pooled to form a revolving fund from which credit is extended to those borrowers in the community who can meet the established loan requirements. In addition to this accumulation of current operating funds, the revolving loan fund comprises the savings of the community which have been placed in the bank in the form of time deposits or as savings accounts, and also the funds which are contributed by the individual stockholders in the form of their capital stock investment.<sup>2</sup> The

(1) An additional class, Marketing Credit, would need to be added to make the discussion conform to the outline of types given in Dr. Benedict's statement above. But this would complicate this analysis more than is advisable. In practice, also, most of such credit is not advanced to grower-controlled agencies, and hence belongs under the head of commercial credit.

(2) Editor's Note: Difference of opinion has developed among those working on this report as to the degree in which the loan fund of an agricultural community depends upon the locally accumulated savings. The observed large geographic differences in the rate of interest on short loans may be due to differences in risk, liquidity, etc., or to a failure to achieve a nation-wide supply-demand credit adjustment in the short-loans market. No doubt both factors are significant. In the opinion of Dr. Benedict and others, the first is the more significant. Mr. Wall places somewhat more emphasis on the second. Not a great deal of published material on inter-bank borrowing as between agricultural and non-agricultural areas is available. It is probable that the true situation in this respect is somewhat obscured in any national studies because of the inclusion of both capital surplus and capital deficit agricultural areas. There is discussion of this question in L. L. Watkins' "Bankers' Balances," McGraw-Hill, 1929, especially pp. 151-204. Mr. Wall has pointed out that a deficiency of funds for short-loan purposes in any given community may be met in part at least by long-term borrowings, thus bringing into the community funds which will increase its ability to meet short-loan demands. But he does not believe that deficiencies in funds for short-term loans are commonly supplied by inter-bank borrowing. His further comments on this point are as follows:

"The importance of this outside assistance has undoubtedly been over-emphasized in the current texts upon money and banking. As a matter of fact, its importance has been gradually diminishing over a period of years, and outside of certain areas in the South it is relatively unimportant as a proportion of the aggregate funds utilized in agricultural communities. Furthermore, the channel of credit which is assumed to exist, for instance, between the farmer and the Federal Reserve Banks, is not a source of credit from the farmer's standpoint, but is primarily a relationship existing between the country bank and the Federal Reserve Bank. This relationship is influenced more by the operating reserve position of the country bank than any necessity of supplying credit requirements of the farmer customers. This particular subject has been given attention by the Federal Reserve Board. While connected with their Division of Research and Statistics I personally devoted considerable of my time to this subject, as well as to bankers' balances. On the basis of the information for the more

(Footnote 2 continued on Page 10.)

inadequacy of the country bank in meeting the local requirements for production credit is dependent upon three main factors:<sup>3</sup>

1. The type of farming program.
2. The loan policy of the bank.
3. The status of the community's economic development.

*Mortgage Credit.* (By Norman J. Wall.)

Agriculture is faced with materially different problems in connection with the second general classification, capital or mortgage credit. Unlike the facilities utilized in providing production credit requirements, the system of financing based upon the security of farm real estate is chiefly dependent upon sources of credit outside the community. The financing of such long-term loans likewise involves a different set of financial institutions, and the volume of credit and the terms upon which it may be obtained are more susceptible to influences arising out of the general business and financial situation. Due to the fact that agriculture is characterized by a high ratio of fixed capital investment in proportion to the value of its current annual output, with a resulting low rate of net income upon the capital investment, the accumulation of savings sufficiently large to amortize the cost of a farm is a relatively slow process. Except in well established communities with a considerable volume of accumulated savings, therefore, the problem of securing credit with which to improve farm lands and to finance the purchase of farms by new owners is largely dependent upon a source of funds outside the individual community. The two main factors influencing the supply of mortgage funds are, therefore, the relative supply of savings available for investment in the country as a whole, and the machinery that has been established for bringing the farm borrower into effective contact with the capital market itself.<sup>4</sup>

*Other principles and concepts.* (By M. R. Benedict.)

A classification of loans as operating and investment loans is frequently made. This is obviously only a variation of the classification into long-time, short-time, and intermediate term loans indi-

(Footnote 2 continued)

recent period, inter-bank borrowing supplies only a negligible portion of the credit requirements of agricultural producers.

"If one includes in short-term loans from outside agricultural areas that type of credit supplied by manufacturers of farm machinery and equipment and fertilizer, there is some foundation for the position. My view in omitting it was that such credit was so closely tied up with merchandising plans that it could be considered as an element of the distribution plan, rather than in credit in the strict sense. I appreciate, however, that this is a point upon which there can be a fair division of opinion."

(3) Mr. Wall has developed his analysis of production credit and the local loan fund in an article entitled "Agricultural Credit and the Economic Organization" to be published in the January or April 1932 number of the *Journal of Farm Economics*.

(4) Also developed more fully by Mr. Wall in the above-mentioned article in the *Journal of Farm Economics*.

cated above, and is likewise not very definite in the intermediate ranges. So-called "operating" expenses are after all investments but for only a short period of time.

In agriculture the distinction between *consumption* and *production loans* is not at all definite. A cotton farmer may borrow money to maintain his family in order that it may produce a given amount of cotton. An automobile, purchased with borrowed funds, may be primarily for pleasure purposes; yet it is commonly used in part to aid in the farm's production activities. For clearness of definition, it appears best to consider a loan productive to the extent that the expected farm income would be lessened if it were not made. For example, if a cotton farmer borrows \$800 during the year, only \$600 of which is needed to enable him to produce the same amount of cotton by the methods and working standards in common use, three quarters of the loan may be regarded as a production loan and one quarter as a consumption loan.

As has already been indicated, *risk* may be regarded from the viewpoint of the loaning agency or from the viewpoint of the borrower. Both viewpoints are needed in credit studies, but a clear distinction must be made in each case. The various elements and forms of risk also need to be clearly distinguished, and the measurability and insurability of each considered separately. Gross interest rates must be broken up into various elements if progress is to be made in removing any unnecessary causes of high interest rates.

By *fluidity of credit* is meant the ease and quickness with which credit shifts from one place or area to another. Variations in "liquidity" along with risk differences may cause geographic variations in loan rates even when the basic or "pure" interest rates are practically the same. There may be no credit agencies of sufficient size and of suitable set-up to make certain types of loans in an area.

The terms *inflation* and *credit contraction* are used more or less loosely in most writings about agricultural conditions. A satisfactory definition of either is not easily attained. Inflation may be regarded as an expansion of the total purchasing power of the country in terms of money, credit, and rapidity of turnover, in relation to the physical volume of goods exchanged. That this relationship is only very approximately measurable is self-evident.

Contraction of loans is still more indefinite in its connotations. It may be used in discussing a discontinuance of aggressive loaning, an active effort to force liquidation of loans, or the falling-off in loans requested as prospects of profits in business decline. It is probable that all three of these elements will be combined in most cases of severe decline in the volume of credit outstanding. Clarity of analysis, however, involves consideration of the nature and relative importance of all these aspects of the problem. The relations of these processes to the stabilization of prices, to financial crisis, etc., are well discussed in R. G. Hawtrey's "Currency and Credit."

In all studies involving margins or spreads of various kinds, it is necessary to avoid ambiguous use of the term *costs*, and to keep clearly in mind what cost concept is being used if costs are considered. Information as to spreads between interest rates paid by banking institutions and rates charged their customers are relatively easy to obtain, but include elements of profit and loss as well as of cost. The consideration of costs implies a much more intricate problem involving the internal analysis of the business unit. The volume of business, the essential and non-essential functions, the supplementary, complementary, and joint-cost relationships, etc., all enter into such an analysis, and in each case consideration must be in terms of some definite cost concept.

The importance to the agricultural situation as a whole of an increase of contractual obligations is frequently overlooked. When farmers assume fixed obligations in money terms through both private and public purchases, this affects materially the marginal valuation which they will place on money in their efforts to retain the equities actually and supposedly owned which may be lost if payments are not made when due. Such elements in the situation have had relatively little study or consideration but are important in their effects upon supply responses, production control, etc.

Valuation of properties must take account of the purpose for which it is intended. Valuations for tax purposes may, for example, have a different function than those either for loan purposes or for condemnation. Valuations for loan purposes will be concerned primarily with earning ability and secondarily with sale values.

The term "*credit needs*" is also frequently used in a rather loose sense. The amount of credit considered as needed may merely reflect a feeling on the part of farmers that they are unprosperous and would be aided by lower interest rates or by the granting of loans constituting a larger percentage of the valuation of their properties; or by the granting of a larger volume of loans at given rates, or that the size limits of loans should be larger. A more accurate procedure would be to relate the volumes of credit available to the amounts which could be used effectively in increasing profits at prevailing interest rates and prices, or at various interest rates and prices, thus substituting an objective for a subjective basis. The size, nature, and equipment of farms obviously is changing. Larger valuation per economic farm unit, larger opportunities for profitable use of credit in the purchase of equipment, and the change from a free land to an inheritance and purchase situation have affected the volumes of credit required to maintain a situation in which the ordinary processes of land transfer, of efficient operation (in terms of prevailing knowledge and conditions), and of development and progress will proceed without serious interference. The formulation of a concept of credit needs in terms of some such criterion will be



more objective and significant than if formulated in terms of the individual opinions of farmers.

The terms "*frozen assets*" and "*self-liquidating*" loans also represent concepts which need clear definition in the mind of the research worker who uses them. If the means of payment of the loan are developing in the expected way, but some change in the needs of the loaning agency make desirable an earlier conversion of these assets into cash, we may have an apparent "frozen" condition so far as the loaning agency is concerned, but no change so far as the loan itself is concerned. The loan is merely of the "non-liquid" or slowly liquidating type. On the other hand, a condition of weakened markets, loss of crop, etc., may have arisen which makes impossible the expected liquidation of the loan at the time it is due. This would represent in many cases a "frozen" situation for the loan as well as for the loaning agency.

"Self-liquidating" is a term frequently used and often without clarity of concept. In one sense, all wisely granted loans are self-liquidating. In another sense, only those secured by mortgages are, and not all of these. The income resulting from the loan may easily be dissipated without liquidation of the loan itself. Liquidity itself is a relative term, the significance of which depends upon its application to a given time and place. A loan on pure bred cattle for example, may be very liquid when such cattle are selling freely, yet may be practically non-liquid when such property is a drug on the market.

These and many similar expressions and terms are useful in describing and explaining conditions and relationships if clearly defined in the minds of those using them. Where they are used interchangeably or to cover in one term several separate concepts, they will confuse rather than clarify the analysis.

## BRIEF SUMMARY OF RESEARCH IN AGRICULTURAL CREDIT

(By M. R. Benedict.)

Definite investigational studies of agricultural credit are of comparatively recent development and are still relatively limited in number. Many of the studies thus far made have been first steps in the approach to a very complex set of relationships, and therefore represent an analysis only of the more obvious phases of the situation. Methods of attack in terms of cause and effect still need much further development.

Two partial bibliographies are available, *Agricultural Economics Bibliography No. 7, "Livestock Financing"* by Katharine Jacobs, U. S. Bureau of Agricultural Economics (1925) and a "A Beginning of a Bibliography of Agricultural Credit" also by Katharine Jacobs, Bureau of Agricultural Economics (1929).

The most important general description of the agricultural credit situation so far made is that prepared by N. A. Olsen, C. O. Brannen, G. F. Cadish, and R. W. Newton, and published in the Department of Agriculture Yearbook for 1924.

The earlier publications in this field were more largely in the nature of recommendations and deductive analyses than of the results of investigations. Among these are the report of the United States Commission on Land-mortgage or Long-term Credit," United States Senate Document No. 380, Second Session, 1914; and an earlier report, "Land and Agricultural Credit in Europe" (1912). Other early discussions include "How to Use Farm Credit" by T. N. Carver, U. S. D. A. Farmers' Bulletin No. 373 (1914); "How Farmers May Improve their Personal Credit," by C. W. Thompson, U. S. D. A. Farmers' Bulletin No. 644 (1915); and "Factors Affecting Interest Rates and Other Charges on Short-time Farm Loans," U. S. D. A. Bulletin No. 409 (1916); and "Costs and Sources of Farm Mortgage Loans in the United States," U. S. D. A. Bulletin No. 384 (1916) both by C. W. Thompson.

The first state experiment station study in this field appears to be that of B. H. Hibbard and Frank Robotka—Wisconsin Bulletin No. 247 "Farm Credit in Wisconsin" (1915). This gives the proportion of loans to value of property mortgaged by counties, the sources of loans, interest rates, the agencies handling loans, and some analysis of the purposes of loans and the credit needs of farmers. In 1916 appeared Wisconsin Bulletin No. 318, by R. T. Ely, B. H. Hibbard and A. B. Cox entitled "Credit Needs of Settlers in Upper Wisconsin," and J. E. Putnam's study "The Land Credit Problem" published in "University of Kansas Bulletins," Volume XVII, No. 18.

In the period 1919 to 1922, interest in agricultural credits was revived. The Illinois Legislative Reference Bureau published a bulletin on "Farm Tenancy and Rural Credits" (1919), a Joint Congressional Committee on Short-time Rural Credits prepared a memorandum (Publication No. 234, 66th Congress, 1921); also Part II of the Report of the Joint Commission of Agricultural Inquiry was devoted to credit (1922). The U. S. Department of Agriculture presented U. S. D. A. Bulletin No. 986 by L. C. Gray and H. A. Turner "Buying Farms with Land Bank Loans," and U. S. D. A. Bulletin No. 1048 by V. N. Valgren, "Bank Loans to Farmers on Personal and Collateral Security."

After 1920, state experiment station bulletins dealing with agricultural credit appeared as follows: 1923—one (Utah); 1924—two (North Dakota and Cornell); 1925—one (Texas); 1926—one (Arkansas); 1927—two (Texas and Iowa); 1928—three (Minnesota, Colorado and Arkansas); 1929—four (two in Arkansas, one in California, and a mimeographed report from Ohio); 1930—four (Louisiana, Kentucky, Iowa and North Carolina); 1931—thus far

two (Arkansas and Louisiana) and two preliminary reports from the Bureau of Agricultural Economics.<sup>1</sup>

Studies not dealing specifically with agricultural credit, but bearing on phases of it are as follows: "Sale Prices as a Basis for Farm Land Appraisal" by G. C. Haas, Minnesota Technical Bulletin No. 9 (1922); "The Federal Reserve Bank and the Farmer and Stockman" by the Federal Reserve Bank of Minneapolis (1923); "Relation of Land Income to Land Value" by C. R. Chambers, U. S. D. A. Bulletin No. 1224 (1924); "The Effects of Shortage of Farm Storage Space and Inability to Get Local Bank Credit on the Movement of Kansas Wheat to Market" by R. M. Green, Kansas Bulletin No. 244 (1927); the series of U. S. D. A. circulars on "The Farm Real Estate Situation" by E. H. Wiecking; and various studies of irrigation finance such as that of W. A. Hutchins, "Financial Settlements of Defaulting Irrigation Enterprises," U. S. D. A. circular No. 72 (1929).

An interesting experimental study in farm financing and management is that of the Fairway Farms in Montana, but relatively little information has so far been published about it. Studies of agricultural credit are now under way at the experiment stations of Arkansas, Kentucky, Louisiana, South Dakota, Iowa, and California, the first four being Purnell projects and the last two under other funds.

The Division of Finance of the Bureau of Agricultural Economics has under way the following projects, that in Iowa being the same as the one indicated above: "Credit Corporations Affiliated with Cooperative Marketing Associations in Cotton" (in cooperation with the Division of Cooperative Marketing and the Federal Farm Board); "Production Credit in the Eastern Counties of Virginia" (in cooperation with the Division of Farm Management and Costs and Virginia Agricultural Experiment Station); "Volume, Sources, Costs and Terms of Farm Mortgage Loans" (Mortgage Bankers Association is cooperating by supplying some data); "Policies and

(1) A few general articles are also worthy of mention: J. F. Ebersole, in the *Journal of Political Economy*, June, 1914; and F. M. Larmer, in the *Journal of Political Economy*, October, 1918, both on cattle loan companies; a series of discussions on land appraisal in the *Journal of Land and Public Utility Economics* for October, 1926; an article by F. L. Garlock, "Bank Failures in Iowa" in the *Journal of Land and Public Utility Economics* for January, 1926; L. H. Haney, "Farm Credit Conditions in a Cotton State" in Vol. IV of the *American Economic Review*; Meyer Jacobstein, "Farm Credit in a Northwestern State" in the *American Economic Review*, Vol. III; A. G. Black, "The Provision for Agricultural Credit in the United States" in the *Quarterly Journal of Economics* for November, 1928; Clara Wigder, "Farm Mortgage Interest Rates" in the *Journal of Land and Public Utility Economics*, Vol. I; "Cattle Loans and Their Value to Investors" by C. S. Cole in the U. S. D. A. Yearbook for 1918; "Can Farms of the United States Pay for Themselves?" by George Stewart in the *Journal of Farm Economics* for October, 1920; "The Credit Association as an Agency for Rural Short-time Credit" by V. N. Valgren, and E. E. Engelbert, U. S. D. A. Circular 197; "The Weakest Point in the Farmers' Financial Policy", "Agricultural Credits and Co-operative Marketing", and "A Bi-partisan Myth—Federal Reserve Bank Deflation of the Farmers" all by B. M. Anderson in the *Chase Economic Bulletins* of October, 1924, and August, 1923.

Experiences of Iowa Banks with Loans to Farmers"; "Farm Mortgages and Land Values in Selected Counties of Iowa" (in cooperation with the Iowa Agricultural Experiment Station); "Changes in Long-term Interest Rates and the Relationship to Farm Mortgage Financing Policies"; "Short-term Interest Rates in Relation to the Availability of Agricultural Credit"; "Influence upon Agriculture of Instability in the Wholesale Price Level Arising Through Changes in the Credit Situation"; "Credit Conditions in the South—A Resume of Studies Conducted in Several Southern States", and "Agricultural Credit Problems in South Carolina" (in cooperation with Clemson Agricultural College and the Agricultural Experiment Station of South Carolina).

In foreign countries, the most numerous studies are those of Germany, and the various phases of agricultural credit, particularly its cooperative aspect, have been made the subject of a number of doctoral theses.<sup>2</sup> Among other foreign studies may be mentioned "The Landschaften and their Mortgage Credit Operations" (1770-1920) by M. Tcherkinsky, Bulletin of the International Institute of Agriculture; Auguste Souchou, "Agricultural Credit in France", Bulletin Exposition Universelle de San Francisco (1915); H. M. Tory, "Report on Agricultural Credit", Canadian Parliament document (1924); J. B. Condliffe and H. Belshaw, "A Brief Survey of Rural Credit in New Zealand"; A. W. Ashby and J. M. Jones, "The Control of Credit", Bulletin of the University College of Wales (1927). There are a number of books dealing with French agricultural credit, but most of them pertain to conditions around 1900. Little research work in this field seems to have been published in French in recent years. A few circulars describing cooperative credit systems in various countries have been published in Spanish by South American countries, particularly in Argentina and Uruguay.

(2) Some of the more important German studies are listed below, and will be of particular interest to those concerned with cooperative credit. References will be found in these to most of the other German studies: W. von Altroch, "Der landwirtschaftliche Kredit in Preussen", Berlin 1914/15; and "Der landwirtschaftliche Kredit in deutschen Reiche", 1910, Arb. d. D.L.G., No. 32 by the same author; "Archiv des Deutschen Landwirtschaftsrats" (yearly report of the German Agricultural Council) gives a good picture of recent developments; F. Beckman, "Kreditpolitik und Kreditlage der deutschen Landwirtschaft mit der Währungsstabilisierung" Ber. ü. Ldev. Band IV, Heft 1 und 2, Berlin, 1926. *Handwörterbuch der Staatswissenschaften*, 4th edition 1923-1929 the following articles: "Landwirtschaftliches Kreditwesen" by von Altroch; "Landwirtschaftliches Genossenschaftswesen" by O. Rabe; "Landschaften" by W. von Altroch. F. Hecht, "Der europäische Bodenkredit": 1) "Die staatlichen und provinziellen Bodenkredit Anstalten in Deutschland", Leipzig, 1891; 2) "Die Statistik der Hypothekenbanken und die Landschaften und landschaftlichen Kreditanstalten in Deutschland", Leipzig 1903/08; Schulte, "Die deutschen Bodenkreditinstitute 1900/1909." H. V. Johnston, "Der Betriebskredit des grösseren Grundbesitzes in Deutschland", "Tübingen, Staatsw. Archiv, Heft 12, Stuttgart, 1911; Landmann, "Geschichte des öffentlichen Kredits im Handbuch der Finanzwissenschaften", edited by von Gerloff and Meisel, Tübingen, 1926; and several recent publications of the "Preussische Zentralgenossenschaftskasse" and the "Deutsche Rentenbanks Kreditanstalt."

## SOURCES OF INFORMATION

(By M. R. Benedict.)

The details of collecting and handling source data will be more fully discussed under individual projects. Wherever official reports must be made relative to loans, interest rates, collections, security, etc., there is a reasonable presumption of literal accuracy in all but exceptional instances, as the accounts of such financial agencies are so designed that they must check and errors are likely to be detected. There may be real difficulties, however, in the loan classifications used. This generalization holds true for reports of the Federal Farm Loan Board, the Comptroller of the Currency, the Federal Reserve Bulletin, and for the most part for the reports of state banking departments. However, for reports of agencies considerably involved in political controversy, as, for example, some of the state loan systems, considerable discretion and ingenuity may be needed to get at the real facts. In these, the factor which is most indefinite is that of the valuation of assets, though numbers and amounts of delinquencies, deficits, short-term borrowings, and interest rates paid may be omitted from reports over considerable lengths of time.

The valuation placed on non-liquid assets is of course a matter to be given careful consideration.

United States Census data relative to mortgage debt are far from complete, accurate, or dependable, and one must examine carefully the methods of the census enumeration, the specific form of the questions, and any psychological factors which might influence the attitudes of those questioned. Mortgage debt as reported in the census is only for owner-operated farms, and undoubtedly is not complete for these. There are few questions which farmers are more reluctant to answer than those relating to their financial status. Because of this, census enumerators may slide over these questions without getting careful and well-considered answers. Farmers at times are inclined to emphasize their poverty and losses, and at other times their prosperity. The more usual attitude is probably one of minimizing the volume of debts, and data relative to this should be checked as far as possible with other sources of information.

The data on the amounts of mortgage debt which are most readily assembled are those from the reports of insurance companies, land banks, other banks, farm mortgage bankers, etc. The most difficult information to secure in this connection is that relative to loans by individuals. Yet loans of this type undoubtedly constitute a considerable element in the total of agricultural loans, and to ignore them introduces an important unknown quantity. All loans covered by mortgages are on file in the offices of registers of deeds, and this is probably the best source of information relative to them. Many

family loans and unsecured loans may, however, be omitted even then.

The reports of the individual Federal Reserve Banks and the Federal Reserve Bulletin provide considerable material of dependable nature, also the reports of the Comptroller of the Currency. But in nearly all cases the data are insufficiently localized and separated as between rural and urban elements to be very usable for studies in agricultural credit.

It appears probable that future studies in this field will look more to direct information from farmers themselves. Such studies, however, involve a number of pitfalls which must be avoided if satisfactory results are to be secured. The problem of securing a representative sample (more fully treated in "Research Method and Procedure in Agricultural Economics") is further complicated by reason of the fact that more individuals than usual will refuse to give information of this type. As a result, the samples may consist in general of the larger or the smaller operators, or of particular nationality or tenure groups, etc.

It appears that more studies of agricultural credit in the future will be closely related to farm management analysis. Study of the effects of larger or smaller borrowings, of the uses to which such borrowings are to be put, of the risks involved, etc., hinge upon the fuller development of information concerning the nature of the curves of diminishing return for the various farm enterprises, the variations in the capacities of farm operators, the differences in the efficiencies of different types and qualities of the factors of production, their highest profit combinations, etc. These are types of farm management analysis, however, which are as yet little developed. The research worker in agricultural credit may stimulate its development both by showing the need for it, and by helping to devise suitable methods of study.

Somewhat similar relationships occur with reference to credit used in agricultural marketing. Much fuller information is needed than is now available as to the effects of various credit policies and times of selling upon prices, and of the effects of larger or smaller units, different physical equipment, etc., upon the costs of marketing. For such information, the worker in agricultural credit will logically turn to the studies in marketing; and he should be a factor in making these more usable from a credit standpoint.

A possible source of considerable information as yet scarcely touched is that of the records of closed banks. Much of this material is not accessible to the research worker. It is to be hoped that, under proper safeguards, more of it will be made available to research workers who are competent to deal with it. Such material, however, requires for its adequate interpretation a familiarity not only with economics and research procedure, but with the specific local banking practices and customs of the area under consideration. More use will also be made in the future of the records of

operating banks. The bank operator is available to aid in interpretation of such records and to explain procedure; but he may not give sufficiently complete access to the records, or his interpretation may frequently not be wholly frank. For both closed and operating banks, it must be clearly recognized that the farmers to whom loans are made are not necessarily representative of the area. In nearly all cases, these are the better risks, according to the standards of risk judgment used by the banks. Little careful study has yet been given to the extent to which bankers' judgments are based on personal qualities, on property qualifications, on custom, on their views as to the direction which agricultural development should take, etc.

Records of credit extended by merchants, including cooperative associations, will also afford considerable information in many cases. Merchants, like bankers, may not give complete and frank information in cases where they fear that this may injure their credit ratings. Here too, it is unsafe to assume that the individuals on the merchant's books are a representative sample from the community unless this is indicated by other criteria. The membership of cooperative associations may also not be representative of the community. Not infrequently some of the wealthier farmers are able to buy and sell through privately owned agencies on especially favorable terms which cause them to stay out of the cooperative association. On the other hand, where the cooperative methods involve delay on part or all of the payment for products, some of the poorer farmers may be unable to wait that long for payment.<sup>3</sup>

### SUGGESTED PLANS OF ATTACK FOR SPECIFIC RESEARCH PROJECTS

We are now ready to undertake the main purpose of this report, which is to outline the field of research under discussion in terms of a suggested list of possible research projects, and to discuss methodology for each of them. The list is not intended to include all possible projects, but is designed to serve as an outline of the field, with a few examples for each part of it. The projects are not mutually exclusive. Programs of research include both comprehensive and general studies and detailed and specific studies of minor phases of the field. Various studies thus inevitably deal with some of the same elements and phenomena, approaching them from different viewpoints, fitting them into different patterns, etc. Not only this, but different research workers will use different methods of approach in attacking the same problem. This may involve

(3) Some of the principal books dealing with various phases of agricultural credit are the following: Ivan Wright, "Bank Credit and Agriculture", 1922; and "Farm Mortgage Financing", 1923; R. R. Enfield, "The Agricultural Crisis", 1924; J. B. Morman, "Farm Credits in the United States and Canada", 1924; F. M. Larmer, "Financing the Livestock Industry", 1926; C. L. Benner, "The Federal Intermediate Credit System", 1926; V. P. Lee, "The Principles of Agricultural Credit", 1929.

a different organization of the same material into projects. In the following outline, an attempt has been made to represent the more important of the different approaches.

It also needs to be explained that some projects have been listed that are not likely to yield tangible results, at least for the present, since neither adequate data nor satisfactory methods of attack are at present available. It still seems likely, however, that progress will be assisted by calling attention to these problems, and by stimulating deductive and qualitative analyses which may lead to the collection of more adequate data and the development of more effective methods of attack. The limitations to present attack on such problems are, however, indicated in the discussion of them.

## GROUP A

### The Area Approach.

It is obvious that this approach might be construed to include the research under all of the projects listed, since a full development of the area analysis of credit would include the credit institutions serving it, and would necessarily deal with the various types of credit and the credit problems associated with various commodities. In practice, however, it is not usually possible to make in one study such as exhaustive an analysis of the credit problems and relationships of an area. The area analysis of credit is usually confined to certain phases of it which can be most effectively dealt with from this standpoint, such as those involving the interrelationships of different types of credit agencies, and the relation of these to basic economic conditions, and the evolution of these agencies. These aspects of the credit problem are dealt with in Projects 1, 2, 3, and 4. Satisfactory analysis of the institutions themselves, of the farms and their credit needs and usages, of the various functions involved, etc., will usually require subdivision of the problem for more detailed treatment. These first four projects are therefore in the nature of first approaches to be followed up and supplemented by such detailed studies of given phases as the general study of the area seems to indicate the need for.

**PROJECT 1. To describe the general agricultural credit situation in a particular state or district.**

(By E. C. Johnson and B. M. Gile.)

This project undertakes to study and present the facts regarding the credit situation in a state or other district and to interpret these facts to the end of obtaining a clearer understanding of credit problems in agriculture, and of laying a basis for the more detailed studies of particular phases of the credit problem of farmers that will be suggested by it. This will involve:

1. Showing the legal and business-unit set-up of the agencies providing agricultural credit in the district.



2. Classifying and describing the types of agricultural credit used in the district.
3. Showing the relative importance of the various credit agencies and how they function in mobilizing and making available credit for agricultural purposes.
4. Showing the trend in loans by type and by source.
5. Indicating the place of each loaning agency in the credit machinery of the district.
6. Analyzing the relationship of the district under study to other districts, especially to money centers.
7. Indicating briefly the changes occurring in the credit agencies serving the district.

That a study of this kind is needed to provide farmers with a more usable knowledge of the agencies available to them and of their activities and relationships can scarcely be doubted by anyone who has observed the fragmentary nature of the average farmer's knowledge in such matters. It is evident also that most research workers will need the information to be obtained through a study of this kind before more detailed studies can be safely undertaken. The research worker who uses this type of project as a first approach will also be gaining a familiarity with source materials, contacts with people, etc., which will greatly aid him in developing and coordinating other elements of the program of credit study.

The geographical scope of this project may be determined by the field of interest of the director and the resources available. Usually, however, a district as large as a state will be taken, partly because most of the secondary data which can be used are not available for smaller units. Several of the agencies involved operate over areas considerably larger than a county, and the study can hardly be effectively undertaken on a county or township basis unless original data are to be gathered. In states having sections with distinct types of farming such as cotton, rice, and fruit, however, it may be desirable to study these separately, first collecting such primary data as are needed as a basis for a more general study later of the state as a whole.

#### *Qualitative analysis.*

The research worker undertaking this project should begin by familiarizing himself thoroughly with the economic functions performed by credit, especially as they apply to the area under study, with the purposes for which credit is used, the period for which loans are required, the sources of credit, etc. An effective search for satisfactory quantitative measures for all the factors will be facilitated by first working through the problem more or less deductively. Some factors in the situation, such as the local and business set-up of credit agencies, do not lend themselves to statistical statement, but must be included in a complete picture of the situation.

### *Sources of data.*

1. The United States Census Reports contain some information which will be helpful in analyzing the farm mortgage situation. The census reports for 1890, 1910, 1920 and 1925 show by counties and states, for farms operated by owners, the number free from mortgage debt, the number with mortgage debt, the total amount of the debt, the value of land and buildings on mortgaged farms, and the ratios of debt to value. The census of 1890 also gives interest rates, amounts of debt per acre, and objects of borrowing. Interest rates are also given in the census of 1920. The census of 1900 reports only the number of owned farm homes free from mortgage and the number encumbered. All of the census figures are, however, subject to some serious limitations which have been indicated in the general section on sources of information.

2. The Annual Reports of the Federal Farm Loan Board contain information on the loans of the federal land banks, joint stock land banks and federal intermediate credit banks.

3. The Annual Reports of the United States Comptroller of Currency contain financial statements of national banks, state totals of farm mortgage loans by national banks, information on bank failures, and other valuable financial information.

4. The Reports of State Bank Commissioners in a few instances provide useful figures on farm mortgage loans made by state banks. In many states the reports are of little value because loans and discounts are not classified as rural and urban. Surveys are usually necessary to obtain data on agricultural loans by state banks. Most of the state reports contain data as to numbers of banks by counties, consolidation of banks, types of state banks, changes in banking laws, and comments on changes desired.

5. The Proceedings of the Association of Life Insurance Presidents (published at 165 Broadway, New York City) include a statement of the farm mortgage investments of life insurance companies. In recent years, however, these reports have not been sufficiently detailed to provide the required data on farm mortgage loans by insurance companies, and it is necessary to obtain figures direct from the companies on the amounts of loans in particular states. In some states the Insurance Commission can furnish this information. The local farm loan agent for the insurance company can usually provide detailed information in regard to the nature of the loans.

6. Data on farm mortgage foreclosures may be obtained from the loan agencies or from the records of county officials. If loan agencies will cooperate, they can give more detailed data for particular loans. On the other hand, if a statement of all foreclosures is wanted for a particular area, the county record will provide information on foreclosures instituted by all agencies.

7. Reports of agricultural credit corporations will aid in the analysis of intermediate credit problems and seasonal credit prob-

lems. In most cases it will be necessary to visit these corporations in order to obtain data regarding their operations. It may also be advisable to visit some of the borrowers.

8. From township or county records of mortgages may be obtained data on farm mortgage debt to supplement those of the Census sheet which is for owner-operated farms only. A complete record can be taken of the mortgages recorded in one or two typical townships in each type area, which will provide data on volume of debt per farm and per acre, rates of interest, and sources of all mortgages. Such data should be taken beginning with the year 1905 or earlier if possible so as to provide a basis for annual indexes of interest rates, outstanding mortgage debt per acre and newly recorded mortgage debt per acre, and of changes in the relative importance by years of the various sources of long-term mortgages. The first five years of the record will be of importance only for constructing indexes of newly recorded debt. By the end of five years, most of the mortgages filed and outstanding prior to the first year for which the record is taken, will have been renewed or paid.

9. For a complete study of this sort, individual surveys of farmers in selected areas will be needed to reveal the details of farm credit practice, the relationships between income, assets, and credit used, the financial progress of the individual farmers, why one source of credit is used in preference to another, the purposes back of credit operations, the extent to which credit operations are carefully planned, plans of investment, etc. The data obtained in this way constitute the most important part of the study. More general descriptions of kinds and sources of credit have already received voluminous treatment. The historical material will help to interpret the situation found and the study of the functioning of credit institutions, as outlined in succeeding sections of this report, may reveal ways in which both the farmer and the institution might cooperate in reducing credit risks and credit costs. When available, these data should be supplemented by the records from farm management studies in the area. If all the foregoing details are included, however, such a study will probably go somewhat beyond what is ordinarily intended of such a project.

#### *Sampling and choice of period to be covered.*

Most projects of this type will not involve sampling, as they are essentially case studies and must include all of the agencies in the area chosen. Sampling does, however, enter into the problem, usually in a rather difficult form whenever a survey among farmers must be resorted to. Reports given by farmers on the financial condition show rather wide variations and require rather large samples if consistency in distribution is to be attained. Such reports are also subject to an unknown degree of bias in the individual answers for which it is difficult to make any proper allowance. Unless variations are extreme, however, a 10 percent sample from several type sec-

tions should be sufficient if carefully taken. The discussion on "Measures", "Coefficients", "Errors in Data", and "Sampling" in "Research Method and Procedure in Agricultural Economics" covers most of the factors to be considered in this connection. It must be recognized that data of this type cannot conform to a rigid interpretation of the mathematical concepts of sampling; and such material should be tested by logic as well as by statistical methods in judging whether the data are typical of the conditions for which a description is desired.

The period to be covered will be in most cases that for which data are available in relatively consistent series. This project does not contemplate a careful historical study of the evolution of the credit situation in the district such as that indicated in Project 2. Survey data will often be difficult to obtain accurately for more than one year. A record of the financial progress of individual farmers for a period of years may, however, be obtained with reasonable accuracy in areas studied intensively.

#### *Schedules and forms.*

For the material taken from secondary sources, the forms needed will ordinarily be indicated by the qualitative analysis already referred to. A definite conception of the data needed and a brief inspection of the source material will make possible the setting up of forms which are convenient for tabulation and summarization of the data needed. In setting up the forms, time will be saved by arranging the tabulation sheets so that no unnecessary transfers will be made, and totalings and subdivisions can be readily transferred. (A fuller discussion of this subject may be found in "Research Method and Procedure in Agricultural Economics".) Where surveys are made, schedules of any one or all of the following types may be used. It will be noted that they have been prepared with Southern credit conditions in mind.

#### **No. 1. A bank schedule covering the following subjects :**

As of a given date, the capital, surplus, undivided profits, demand deposits and savings and time deposits; total real estate loans, total farm mortgage real estate loans, total personal and collateral loans, personal and collateral loans to farmers, total investments, total funds available as legal reserves; normal percentage of losses since 1921 and as compared with normal percentage of losses on farm loans in the same period.

Prevailing interest rates on first-mortgage loans, second-mortgage loans and personal and collateral loans to farmers, and the percentage of different loans in each of these three categories.

Bases on which loans were made, for example, as an amount per acre or as a percentage of expected returns.

Variations in interest rate between good and poor risks and between large and small loans.

Percentage of loans (personal and collateral) for different periods ranging from demand to one year.

Percentage of loans renewed.

Percentage of loans rejected for each of various reasons.

Percentage of personal and collateral loans on each of different types of security.

Extent to which farmer borrowers require loans in excess of legal limit for one borrower.

Percentage of loans to farmers advanced in installments.  
Percentage of total amount of loans outstanding at any given time which is generally left on deposit.  
The month of the peak of loans and of the lowest loan volume, and the amount of loan at each period and the percentage of it to farmers.  
Extent of borrowing or rediscounting when demands cannot be met by own supplies of loanable funds.  
Interest rate paid on time deposits, commission fee charged on farm mortgages.  
Requirements imposed on farmer borrowers in the matter of crops or livestock to be kept and as to time of marketing.

**No. 2. A merchandise and fertilizer schedule covering the following subjects:**

Name of firm selling merchandise and fertilizer to farmers.  
Kinds of supplies sold.  
Total sales for each of the last five years.  
Percentage of these each year which represent sales to farmers.  
Percentage of farm supplies sold on time.  
Increase of time price over cash price on these supplies; credit sales and collections by months throughout the year.  
Similar data for fertilizer sales considered by themselves.  
Term of credit on fertilizer sales; security on which these sales are based; loss from such sales in the past five years; differences in this respect between owners and tenants.  
Extent of overdue interest; extent to which credit sales have remained unpaid at the end of each of the last five years.  
Average period before which overdue accounts are collected.  
Requirements as to cropping and livestock production as a condition of securing credit.  
Basis on which amount of credit to be granted is to be determined.

**No. 3. Farm credit survey schedule :**

Name, residence and tenure of farm family; mortgage indebtedness; size of farm family; distance from market; type of road.  
Land in farm and its utilization.  
Acreage of land in different crops.  
Method of acquisition of owned land and terms of purchase; value of farm real estate.  
Payments on mortgages.  
Short-term and intermediate-term credit used in previous years classified according to source and interest rates.  
A detailed statement as to the time purchases during the preceding year, including source, amount, purpose, security, time price, interest rates, etc.  
Statement of receipts and expenses for the farm year.  
A financial statement of the farm business for the preceding year.  
State, county and local land taxes; highway assessments, etc.  
Amount of insurance carried for various purposes and annual cost of same.

**No. 4. Landlords financial relations with tenants and croppers :**

In a section of the country where landlord and tenant relations become very much involved with credit, a rather detailed schedule may be needed attempting to secure the facts concerning these in detail.

The procedure in obtaining township data is first to select a representative township, or two of them if conditions vary greatly. A large sheet should then be prepared with the headings as listed at the end of this paragraph. The job can in many cases be done most economically and accurately by an abstractor. If the abstractor does not have clerical help, it is sometimes better to get from him a page and book citation to all mortgages filed and satisfied during the period and then hire a good clerk at the courthouse to copy the data. Several township records have been obtained in Arkansas in this manner at costs varying from \$25 to \$40.

### Headings for township record sheet:

1. Entry number (refers to order in which mortgage record is copied).
2. Mortgage book and page numbers.
3. Name of mortgagor.
4. Name of grantee.
5. Character of grantee (private, insurance company, federal land bank, etc.).
6. Description of land. (When some descriptions are repeated, reference may simply be made to first entry number.)
7. Number of acres.
8. Year and month made.
9. Year and month satisfied.
10. Term (1 year, 3 years, 5 years, etc.).
11. Amount of loan.
12. Interest rate (commission loans often indicated by interest payable after maturity).
13. Remarks (such as mortgage foreclosed; notes due 3-1 and 9-1 each year; payable in 5 installments; also 20 acres in 36-19-32; also town lots).

### *Instructions for field men.*

Aside from the usual instructions to field men which will cover the matters of uniformity in questioning, methods of entering and checking supplies, avoiding suggested replies, etc., it will be necessary to give special attention to the matter of how to approach the farmer so that he will be most likely to cooperate freely in giving the information desired. The field man's work in this respect will in many cases be considerably lightened if the purposes of the survey can first be presented to community groups or to community leaders and their interest and cooperation obtained. This will not, however, obviate the need that field men be fully informed as to the purposes of the study, as to its significance and possible usefulness to the farmer and to the community, and as to the way in which the records will be dealt with after they have been obtained.

### *Methods of analysis.*

Most projects of this sort involve considerable description, but the description may vary widely in quality. It should be remembered that complete description will give complete explanation. Some of the analyses which will need to be made are the following:

1. Total volume of indebtedness of each kind.
2. The ratios of loans to value, (a) for land and buildings, and (b) for personal property.
3. Interest rates in relation to, (a) type and amount of security, (b) size and kind of loan, (c) year in which loans were granted, (d) geographic divisions of the area, (e) method of repayment and (f) source of loan.
4. The costs to borrowers for non-interest items such as commissions, fees, etc.
5. The terms of the loans.
6. The methods of repayment.

The following items will need careful deductive analysis in order to establish their importance:

1. The purposes of loans—as indicated by the nature of the security offered.

2. The distribution of loans among institutions granting them.
3. The geography of loans granted by given institutions.
4. Such historical changes in the foregoing as can be developed from the data secured.

Further treatment of the information obtained will include presenting a concise but detailed description of the working of the various agencies, the laws under which they operate, the legal limitations to their activities, etc. It will probably be possible to indicate some of the cause and effect relationships involved, but these will for the most part require the more localized and detailed analyses which will be taken up under the institutional and commodity credit projects listed later in this report.

#### *Inferences.*

The main problems of inference in studies of this type have to do with the appraisal of the sample as a representation of conditions in the area studied. Strictly speaking, the findings cannot be extended to any other area than the one studied. In some cases, where some elements of the situation have been studied and found similar to those in the given area and where general observation indicates a close similarity of conditions, it may be justifiable to assume approximately the same conditions as to credit. Some phases of inference which are applicable to this type of study are discussed under this head in "Research Method and Procedure in Agricultural Economics."

Another aspect of inference which needs consideration is that of a conscious or unconscious assumption that the loans by given loaning agencies represent true cross-sections of the kinds of and amounts of credit needed in that field of activity. It is necessary to keep in mind that custom, incomplete knowledge, and personal views affect the basis on which loans are made by loaning agencies, and that considerable selective influences are at work in the development of the body of loans held by any given credit institution.

Several studies have been made which include part and in some instances most of the objectives of this project. The study made for the United States as a whole and published in the U. S. D. A. Yearbook for 1924 is the first notable example. State studies of similar nature are "Farm Mortgage Financing in Texas" and "Short Term Credit in Texas", Texas Agricultural Experiment Station Bulletins Nos. 330 and 351 by V. P. Lee. State reports on projects which have included many of the objectives of this project but which in contrast to the foregoing have given greater emphasis to the basis for credit in the sections studied are "Farm Credit Situation in Southwestern Arkansas", Arkansas Bulletin No. 237, by B. M. Gile; "The Agricultural Credit Situation in Minnesota," Minnesota Technical Bulletin No. 55, by J. D. Black and B. M. Gile; an unpublished thesis

on the "Credit Situation in Kentucky" by E. C. Johnson; "The Agricultural Credit Situation in Louisiana" by R. L. Thompson; and "Farm Credit in a Plantation and an Upland Cotton District," Arkansas Bulletin No. 228, by B. M. Gile and A. N. Moore. Most of the foregoing studies do not deal so fully with the legal and business set-up, and interrelationships of the various credit agencies as is contemplated by this project.

**PROJECT 2. To trace the historical development of the agricultural credit problem, the financing institutions, and the credit practices of an area;**

(By C. P. Spruill and M. R. Benedict.)

Stated in more detail, the purposes of this type of study are:

1. To provide an understanding of the stages through which the credit problem and credit agencies have passed.
2. To show what policies and methods have been tried and how they have worked out.
3. To indicate the effects upon the area of various credit and monetary policies.
4. To establish so far as practicable the trends of development and to secure indications as to the probable future developments.

It is evident that a better understanding of the reasons for credit conditions and agencies now existing will be attainable through such a study. Mistakes in the policies and practices of the past can be pointed out. Legislative action directly contrary to the direction of evolutionary development can be avoided, and a philosophy of procedure in credit matters, based upon the experience of the past, can be built up as a dependable base for the consideration of betterments.

*Scope of the project.*

The area studied should be limited so far as possible to a region which has a more or less uniform economic and institutional structure. Much of the source material suggested below refers primarily to the area included in the Carolinas, Georgia, Maryland and Virginia. Smaller areas may be used, but to do so will usually shorten the period which can be covered and will lessen the scope of the material which can be secured. As to scope of subject matter to be dealt with, the lines of demarcation are less easily drawn, and will have to depend to a considerable extent upon the time and funds available for the study and the special interests of the investigator. Nearly all historical developments and economic changes will have had some influence upon the credit situation in the area. Usually an analysis of the major economic and political developments can be secured from more general historical works, and related to the specific developments here under consideration. Periods of currency inflation, wars, the commercialization of agriculture, land booms, and major changes in the comparative advantage of the area for given products



will need to be considered as to their effects upon credit conditions and credit agencies.

### *Basic qualitative analysis.*

The discussion under this heading in Project 1 has pointed out the need for a preliminary qualitative analysis. Much of the analysis in this project will not only be qualitative to begin with, but will necessarily be left at that stage because quantitative data will be lacking. Such preliminary analysis will include an effort to recognize in a general way the major periods involved, the more important events and developments, the facts needed relative to these, and some consideration of the economic principles involved. Such analysis will need further refinement, development and correction as the study proceeds.

### *Source of information.*

a. Newspapers should be used extensively. Articles, editorials, and advertisements throw light upon the methods of financing and the way in which they worked. For the Colonial Period this source is invaluable. *Brigham's Bibliography* indicates where the original papers may be found. With a few important exceptions, photostat copies are available in the collection of the Massachusetts Historical Society in Boston. The exceptions are:

- (1) The (Savannah) *Georgia Gazette, 1763-1776*, in the collection of the Georgia Historical Society, Savannah, Georgia.
- (2) The (Charleston) *South Carolina and American General Gazette, 1764-1781*, and the (Charleston) *South Carolina Gazette, 1782-1775*, in the collection of the Charleston Library Society.
- (3) Certain North Carolina papers in the collection of the North Carolina Historical Society, Raleigh, N. C.
- (4) The (Annapolis) *Maryland Gazette*, in the Maryland State Library, Annapolis, Md. The (Baltimore) *Maryland Journal*, in the collection of the Maryland Historical Society, Baltimore, Md.

For the later periods adequate files of papers are available in the state libraries.

- b. Journals, letters, and account books sometimes provide exact and detailed information. Familiar examples are the diaries, the letters, and the account books of George Washington.
- c. The order books of county courts include records of distressed farmers whose unpaid debts caused them to be brought before courts of law. The court records are scattered, and working through them is extremely tedious, but there is no substitute for them. The state libraries have been trying to concentrate these materials. The Virginia State Library has gathered a sufficient number to make possible representative sampling of counties in that State.
- d. Periodicals such as *De Bow's Review*, New Orleans 1846-1880, should be consulted. The journals of state and

- national historical societies give edited materials from primary sources as well as scholarly articles.
- e. From a vast number of printed books, scattered data may be gathered. Such sources should of course be used with caution. Representative of the best of them is W. Z. Ripley's *Financial History of Virginia*.
  - f. Study of manuscript and printed sources should be supplemented by interviews with farmers, merchants, and bankers in so far as this is practical and the information desired falls within the period which they can be expected to know about.

### *Organization.*

In so far as the material sought can be clearly and specifically defined and the probable or possible sources clearly indicated, routine search can be handled by clerical assistants. Much of the work, however, will require careful appraisal and interpretation which can be made only by the worker in charge of the study. This project does not therefore involve very extensive staff organization.

### *Units and coefficients.*

The significant coefficients which may be used are relatively few in number. Where the per capita debt and the relations of debt to valuation can be determined, these will throw some light on the situation. The relation of borrowings to representative cash incomes may indicate in some degree the change to a commercialized agriculture and its effect upon credit problems. Other significant relationships will no doubt appear in the case of each study as it progresses.

For historical studies, the problems of sampling, collection of data, errors in records, analysis, inference, and presentation of results are well covered in "Research Method and Procedure in Agricultural Economics" and need not be further developed here.

### *Research with similar objectives.*

No studies of agricultural credit have so far been made which carry out fully the procedure here indicated. The nearest approach to it among experiment station bulletins is Colorado Bulletin No. 338, "Financing the Western Cattleman," by Charles I. Bray. The first section of this bulletin deals briefly with some phases of the historical development of cattle financing, with some of the risks involved, with conditions affecting the industry, etc. It does not, however, deal with the whole picture of credit operations and institutions, nor go into much analysis as to the reasons for development proceeding along the lines it did. Various studies contain minor historical phases, but most of the studies in this field have been primarily of a cross-section character and do not present significant historical aspects.

**PROJECT 3. To analyze an area where agriculture is not prospering, with a view to working out an improved program of production, tenure, and credit. (Joint with Farm Management.)**

(By D. L. Wickens and H. R. Tolley.)<sup>1</sup>

The steps in such a program of analysis will include:

1. Determining, in so far as possible, the principal reasons for the lack of prosperity in the area.
2. Finding what types of farming, sizes of unit, and methods of production are best suited to the area.
3. Finding what if anything is preventing the adoption of these types, sizes, and methods.
4. Determining the extent to which such inhibiting factors can be removed.
5. Ascertaining what the situation is likely to be when such improvements in farming methods as seem feasible have been worked out, the probable length of time required for such readjustments, and the credit program that will be possible of fulfillment.
6. Contrasting this with the program of commitments already made, to see what adjustments will be needed to bring the commitments into harmony with what can be reasonably expected of the farm operators.

It is obvious that such a project is fully as much in the field of farm management as in the field of credit, and that it may also involve important land tenure considerations.

*Value and uses of the project.*

In recent years some rather marked changes have occurred in the relative prices of different products, or in the relative advantages of different areas for the production of given products, which have in many cases resulted in widespread financial distress in the areas adversely affected. Both developments may have appeared in the case of irrigation projects and similar ventures that have involved the assumption of unusually heavy debts. Some of these present the problem of great numbers of insolvent creditors. A large loss to the creditors as well as to the borrowers may be involved if these are foreclosed on a large scale. A better procedure in most cases is to adjust the debt payments to what the creditors can pay, on the basis of whatever changes in production and tenure programs seem likely to improve conditions in the area.

*Scope.*

A study of this kind is likely to be limited to specialized areas such as irrigation or drainage districts, or to definite type-of-farming areas. To extend it more widely will complicate an already complex problem. If large areas are involved, a series of separate

(1) Also some suggestions made by Dr. Hartman for Project 4 have been worked into this report.

studies, one for each type area, will be needed. Records for at least three years are highly desirable if the time limit will permit the extension of the project over that long a period. Records of a single year may be used alone if the year is typical. Records in non-typical years may be made more nearly applicable by use of average yields and average prices.

#### *Basic qualitative analysis.*

The distress conditions may have resulted largely from the development of new production areas where conditions are favorable to the use of more efficient methods or where yields and costs are such as to permit of profitable production at lower prices. This type of depression is noticeable in recent years in the eastern cotton belt, and in parts of the wheat producing area. The trouble may be due to a falling-off in the amounts demanded at given prices. This has affected some areas depending largely on sales of hay and oats. In other cases, a change in freight rates may have given the area concerned a different relation to the other producing areas than it had before. The causal factor may lie merely in a general price decline which makes impossible the meeting of obligations which at the time of their assumption seemed reasonable. Price declines usually change area relationships, however, even though all of the areas may be adversely affected. In some cases, a sharp localized increase in a given cost factor such as labor may have been an important factor. Some of the irrigation projects and other ventures of that kind may have over-estimated the ability of the farms of the area to retire the principal of their debts, and thus may require a slowing down of the rates of payment on principal. Still other cases are due to the assumption of unwarrantedly high indebtedness as a result of speculative buying and selling of land. In most cases, several of these factors will be found to have been operative at the same time. The first step in the project is to review the relevant facts concerning conditions in the area and set up hypotheses of the foregoing sorts as to the causes of existing conditions.

The next step may well be the consideration of various possible changes which might be introduced in the area. Some of these may be in the nature of technical changes on a fairly large scale in the production of the standard crops of the area—such mechanical changes as those brought about by the combined harvester-thresher, the cotton-picking sled, potato planting, spraying, and digging machinery, and the possible adoption of units suited to such development. A change from relatively intensive to more extensive methods of cultivation may be involved in the foregoing.

Another line of attack may lie in an attempt to change quality, and to reach some specialized demand, or to find other outlets. The most common approach will be to seek the development of additional or alternative lines of production which will be more profitable under the new set of conditions than the old would be.

If an efficient production set-up can be worked out, the next problem is that of analyzing the credit and other changes needed to bring the situation into line with this more efficient plan of organization and operation. Since this may in some cases involve rather important changes in the size and nature of farm units, study will need to be given to the tenure arrangements of the area with a view to ascertaining the methods by which the area could best be worked into the most efficient units. This may be through an educational program looking to individual action in purchasing, leasing, or selling to make the readjustment; or in some types of areas may indicate some form of federal or state ownership of considerable tracts with arrangements for leasing in accordance with good practice. In still other cases, the new conditions allow no alternative, even with the best of production set-ups and methods of operation, to a continuing lower price of lands in this area. Where such is the case, a clear recognition of the facts and of the various possible lines of action will usually lead to the quickest and most effective readjustments.

A program made up of one or more of the elements indicated above will involve four problems from the credit standpoint: one, to find what are the present financial obligations of the residents of the area; two, to find what additional capital will be needed and in what forms in order that the production program outlined may be carried out; three, to estimate the terms and rates at which payments can reasonably be expected both on the new indebtedness involved and on the old obligations; four, a consideration of the possible sources of such needed credit.

The principal sources of information will be:

1. Farm management studies made in the area.
2. Credit and land tenure studies of the area.
3. Census data.
4. Surveys of farmers, bankers, merchants, and other marketing and financial agencies in the area.
5. Reports of the state agricultural statistician.
6. County records.

#### *Organization and collaboration.*

If this project is to be prosecuted by public agencies, the principal analysis and organization of the project will usually rest on the state experiment station staff. The collaboration of the Bureau of Agricultural Economics is desirable both for bringing in an intimate contact with the experience and findings developed out of similar projects elsewhere, and for bringing into the situation an outside agency which may be able to discuss some of the more delicate problems with a freedom from local political pressure and with an authoritativeness that are not always possible of attainment for the local agencies.

It will usually be desirable also to enlist in a project of this kind the more or less active participation of a number of local groups and organizations such as the principal farm organizations of the area, local chambers of commerce, bankers' associations, boards of county commissioners, and possibly some of the departments of the state governments. The enlisting of these types of cooperation has several purposes. For one thing, it tends to make available to the active investigators considerable data which might otherwise be withheld. Also it provides an effective means of educating the community in regard to its own problems. It has the further merit, if effectively carried through, of preventing the development of possible sharply antagonistic attitudes toward the findings of the study, since those most likely to have such attitudes have been involved jointly in thinking through to the conclusions arrived at.

#### *Sampling and choice of period.*

Situations such as this project proposes to analyze do not usually develop in a few years. Hence it is usually advisable to trace the changes leading up to it about as far back as records or information are available. But usually only the more recent changes are worth studying in detail. If price deflation is involved, the data for the war period will usually not be satisfactory both because of the arbitrary and unsatisfactory nature of the price deflating process, and because many factors other than prices entered into the problem. The main reliance should probably be placed on the trends and other relationships indicated by the limited data of the post-war period.

The sampling problem is affected somewhat by the fact that the census data which will be used as a basis represent only farm owners, and among farm owners, only the fraction, averaging about one-third of all owner farms, which have mortgage debt. The selection of a survey sample from the farms within the area presents the sort of problem which has already been discussed in Project 1, except that probably more attention will need to be paid to geographical variations within the area, variations in type of farming, tenure, etc. Probably it will be well to separate the area into zones, or set up various farm types, the divisions between these being more or less arbitrary, but each group usually showing a rather pronounced mode. By taking a rather large number of farm records by a method of stratification or by some system of random selection, such as the drawing of cards from the area as a whole, and then subsorting these by zones and type groups, one can obtain a group of records that can be used with a reasonable expectation that the conclusions reached will apply to other farms of the same type in the same zone if not in the area as a whole. The size of sample needed for each farm type will vary with the amount of subclassification it is desired to make. In most cases, from fifty to seventy-five farms in each type group will be sufficient. The

more homogeneous the sample, the smaller will be the number of farms that will suffice.

#### *Errors in data.*

In studies conducted under conditions of this kind, the emergency aspects of the situation are likely to be especially prominent, and bias usually in the opposite direction from that indicated in Project 1 is to be looked for. Farmers may exaggerate their debts instead of minimizing them. Checking with bankers and others intimately familiar with the conditions will aid in indicating at least the nature and general extent of such bias, and may provide sufficient data to make some allowance for it if it exists. The investigator needs to keep in mind, however, that such agencies may have their contacts almost wholly with the better risks, and that a summary of their records will probably picture a better situation for the area than a true cross-section would do. Comparing frequency distributions for the farms in the sample with those of the same class in the census data will assist in judging as to the representativeness of the data secured.

#### *Procedure in use of data.*

Because of the limitations of time and funds, some of the following phases of the problem will of necessity be based on deductions drawn from careful observation and personal inquiry in the area rather than from statistical treatment. Such analysis should, however, be verified as carefully as funds and available information will permit.

1. Determine by the budgeting method the production program that seems to provide the greatest income per farm for the different soil, climatic, and economic conditions in the area (see U.S.D.A. Bulletin No. 1564). Conclusions from budgeting analysis should be made in the light of the trend of farm production in the area. Study of such trends may suggest desirable lines of emphasis as indicated by farmers' recent experiments. (See "Budgeting", as discussed in the report in this series on "Scope and Method of Research in Farm Management".)

The determination of the production program will include attention to proportions of different enterprises, intensity of cultivation of individual crops, feeding, size of farms and other related farm management factors. Such studies as Montana Extension Bulletin No. 66, "Dry Farming in the North Central Montana Triangle" illustrate this type of approach. Should the study not show that any marked improvements in the production program are possible, the investigator must expect to find that the tenure or credit situation needs revising or that part or all of the area is of the marginal type, such as will be covered by Project 4.

2. For tenant farms, for the systems and methods worked out under 1 above, determine the value of the inputs of the landlord and tenant with various methods of renting and on this basis determine

an equitable division of the output between landlord and tenant. This procedure will involve determining a proper allowance for the use of the land, the value of unpaid labor, and all of the other items of input. In determining these items, use the results of the analysis of capital requirements mentioned below. (See U.S.D.A. Bulletin No. 1400, p. 40.)

Compare these results with the methods of renting and the leasing contracts in vogue in the area. This may show that some or all of the methods of renting in use result in inequitable division of receipts.

It may be that the methods of renting and the lease contracts in use may be such as to prevent the adoption of the best systems of farming and the best methods of production on tenant farms. In determining the best method of tenure, consider length of term, freedom to follow best production systems, amount of land allowed the tenant for his operation, and the adequacy of the financing of the production program.

3. Determination of capital requirements for different sizes of farm units is a prerequisite to finding the amount of credit needed. This will cover the capital needed for lands, buildings, machinery, livestock, operating expenses, and living expenses for the farmer's family.

Determine the credit needed by farmers possessing different amounts of capital for each tenure in following the particular system of farming desired. Find the amount of credit used and the amount used for each principal purpose, the term for each class of loans, and the cost of credit expressed as a rate per annum. Consider the extent to which owners needing larger farms can advantageously rent additional land needed. Consider the relation of capital needs to the current price level and test the debt-carrying capacity with reference to long-term trends.

4. Analysis of the credit items on the farm schedules will provide a picture of the prevailing credit situation, showing amounts of various kinds of credit being used by farmers, their sources, terms, and cost.

The analysis of credit institutions of this area as indicated in Projects 1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14 will in so far as these studies have been developed be of considerable help. Where none of these studies have been carried out for the area, a special survey of the local credit resources of the area will be necessary. It will not be possible to make this survey in much detail without slowing up the project too greatly; but the methods of analysis will be the same as those outlined in Projects 5 to 14 above mentioned. Hence no discussion of methods is given in this project.

By analysis of farmers' schedules, show the seasonal course of credit needed and income returns. Determine from these results the amounts, terms, and period of credit needs in excess of the credit capacity of the community and relate these facts to the demand on



the banks and other credit agencies and to the methods which these agencies use in meeting the demand.

Determine the adequacy of the supply of credit in average years and in exceptional years. Make special investigation of complaints of insufficient credit. Find the effect of irregularity in the supply of credit. Estimate the extent to which shortage in exceptional years can be offset by the accumulation of feed reserves and other resources by farmers.

Analyse and compare the credit institutions of the area to determine whether credit service can be rendered at lower cost by fewer institutions and by concentration of accounts, and by better inspection of risk.

Next one should determine to what extent there is uneconomic use of credit. This may be related to possible improvements in the production programs or to unwise consumption credit. Appraise consequences of these conditions, determining to what extent they are responsible for the unprosperous conditions found in the area.

Determine the types of institutions best adapted to conditions in the area, the most effective size of such institutions, and possible improvements in their credit policies. Determine whether a considerable part of the loaning capacity of the banks is now employed in real estate loans. Determine whether if mortgage loans were transferred to other agencies the bank could safely loan on the remaining security.

5. Describe the capital requirements for the most effective production program.

Consider the gain to farmers from eliminating the high risk expense which will follow from transfer of merchant credit accounts to banks or other cash credit agencies, and the possibility of closer inspection of risks by the merchants, and the elimination of non-debt paying accounts.

Consider also the possibility of alternative employment of such labor and capital as cannot be profitably employed in agriculture in the area.

#### *Similar or related research work already done.*

No comprehensive study of this nature has been made on the scale and with the intensity here contemplated. Research work bearing on the subject includes U. S. D. A. Farmers' Bulletin No. 1564, "Farm Budgeting" by J. B. Hutson (1928) and Montana State College Bulletin No. 84, "Agricultural Program for Montana" by M. L. Wilson (1927). In the latter study the conclusions were reached by means of a series of agricultural economic conferences of committees in each of six districts of the state. Recommendations are

based on basic agricultural facts, but on a limited amount of close analysis. Other reports dealing with the problem are Circular No. 81, North Dakota Agricultural College, (1928) "The North Dakota Agricultural Highway" (this is a report on agricultural conferences); University of Arizona, Extension Circular No. 57, (1929) "An Agricultural Survey of the Salt River Valley Project in Maricopa County, Arizona"; and Utah Circular No. 19, (1929) "Economic Survey and Committee's Recommendations for Agricultural Development in Cache County." The last one is designed to develop the farm program from the data available. Recommendations were made by committees representing leading commodities of the county rather than by committees representing various districts as was the case in the Montana study mentioned above. None of these are devoted particularly to credit, but they attack the sort of problems proposed in this project.

Of studies making local analysis of credit conditions in small areas with supporting data on farm management, North Carolina Bulletin No. 270, "Farm Credit in North Carolina, its Cost, Risk, and Management" is a clear example. Other bulletins of somewhat similar nature are "Credit Problems of Georgia Cotton Farmers", Georgia Bulletin No. 153; "Farm Credit in a Plantation and Upland Cotton District in Arkansas", Arkansas Bulletin No. 228; "Facts and Problems of Farm Credit in Craighead County, Arkansas", Arkansas Bulletin No. 233; and others indicated in the introductory section of this report. Most of these studies, however, have given a general description of conditions found, but usually have made no analysis of the relation of credit items to farm management factors.

This project should be looked upon as an integral study of farm management, tenure, and credit in the collection of data from farmers, all data being obtained by the same field man. It is essential to relate the farmer's credit to his production. Study of the credit institutions by means of inquiry of those agencies is more definitely a credit investigation, though much of the necessary information concerning these would be obtained from analysis of the farmer's schedules. The investigation of the credit institutions should, however, be made in the light of thorough familiarity with the farm data, type of security, and attitudes of farmers toward the sources of credit. Since a distressed area ought not to be required to wait during a long period for some analysis of its problem, and an exhaustive study would take considerable time, a project such as here considered might well be initiated by a study lasting a few months. This would accomplish much and should indicate the lines of solution.

**PROJECT 4. To analyze the production, credit, and tenure situation for an area of the marginal type, and to outline a plan for meeting the situation existing. (Joint with Land Utilization.)**

(By W. A. Hartman.)<sup>1</sup>

The problem in Project 3 is one of determining the type of farming and credit arrangements best adapted to the region in question, whereas in Project 4 the problem is to determine the use or combination of major uses for which land is best adapted and the accompanying credit arrangements needed. A major part of the old plantation piedmont cotton belt, the cut-over areas of Michigan, Wisconsin and Minnesota, the mountainous sections in eastern United States, and a large number of financially embarrassed and defunct drainage, levee, and irrigation districts will furnish examples of regions and areas where Project 4 would apply. To be sure, some of the lands in such areas may not be sub-marginal for agriculture; but most of the agriculture on them will need to be combined with forestry, recreation or grazing if it is to persist.

On the other hand, considerable parts of the area may be of such a nature and so situated that no combination of cropping with other land uses will make up a profitable system of land use.

Such conditions as the foregoing have usually grown out of one or more of the following situations:

1. A drop in the general level of prices for the products of the area has occurred which has brought the return from them so low as to more than do away with any net return for the use of the land above cash costs of operation and a return for the labor of the operator's family which is in accord with that secured by farmers in other areas.

2. The development of new land or new methods in other areas producing some or all of the same products in such a way as to lower the prices and the returns for this area so as to result in the condition described above.

3. The previous undertaking of a program which involved the development of types of farming, sizes of unit, and expenses of operation, which could not be maintained even at the time they were introduced, but which were supported for a time by previous accumulations of the settlers, by borrowing, or by a temporary period of high prices.

4. The undertaking of a program of public activity such as school, road, and public service development which is greater than the net earnings of the land will support. Taxes have thus come to absorb more than the land can earn even though the best organization and procedure are used.

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(1) Dr. Hartman's discussion as originally submitted included much detail as to conducting a study of this type, but since this has been rather fully developed in Project 3, it was not necessary to include it in Project 4. Some of Dr. Hartman's original suggestions have been included in Project 3.

5. A change in transportation rates which has placed the particular area at a relatively greater disadvantage as compared to other areas than it was before.

6. A decrease in demand for some of the important products of the area.

7. Settlement of the land by a class of people unsuited to operate it successfully.

8. Overpopulation in such areas as the Southern Appalachians and scattered or underpopulation in such areas as the cut-over regions of Michigan, Wisconsin, and Minnesota with and (or) without changes in price levels as direct causes of submarginality. In areas where farming is more or less on a self-sufficing basis, changes in price levels do not materially affect marginality.

9. Erosion and soil depletion making farming unprofitable in many localized areas, particularly in the southern and eastern parts of the United States.

It is important as a first step in the analysis to identify the causes of the difficulty. The next step will usually be to analyze the physical and economic differences in different parts of the area with a view to setting up certain significant classifications of them. The margin relates to a given type of land use, and an area that is submarginal for one type of use may be definitely super-marginal for some less intensive use. Nevertheless, even the better adapted type of uses may be unable to support the program of public activities or the borrowings previously undertaken in the area. It will be unusual, however, if some parts of the area are not super-marginal for the types of activities now being carried on. Trends of change in this and in competing areas will, however, need careful attention. It is probable that the study of these affords the best basis for an estimate of the future relative position of the given area.

It should be remembered, however, that if the conditions in the given area are such that farm families are leaving it, some of its costs are likely to rise except as rather radical shifts in program occur. For example, if the same school and road program is maintained, it will, with fewer persons, cost more per person. Many of the external economies of the social organization may be lessened. Thus interest rates and marketing costs may be higher and buildings and fences may be less adequate.

The area chosen for study may contain more than one "natural region," or may be only part of a "natural region," or may overlap several "natural regions." Locating the area will involve: first, an extensive survey of certain major factors; and second, an intensive study of related factors within what may be called "type situations." Clear-cut definition of "natural" and "economic regions" and "type situations" within these regions is the initial step in the conduct of the study and the hub of the analysis of all parts of the study. Results of intensive study of various factors within "type situations" are to be projected into regions or parts of re-

gions represented by a particular "type situation." Adequacy of data called for on schedules and the determination of whether or not "type situations" are truly representative of larger regions they supposedly represent, can be tested by comparison with census data and other records supplemented by inquiry and general reconnaissance field survey.

Much of the discussions under Project 3 will apply in this case as well. The best combinations of agricultural enterprises and factors that can be arrived at will have to be worked out and appraised as to probable income, probable expenses, debt-carrying capacity, etc. This will include study of the adaptability of the customary tenure and credit arrangements to such set-ups of farm units along the lines discussed in Project 3. The report on "Research Relating to Agricultural Land Utilization" also presents methodology that will be useful for this project. See especially Projects 11 and 12.

Perhaps the most difficult aspect of the study lies in the analysis of possible procedures where parts of the area have been found to be definitely submarginal for the type of agriculture which the farmers occupying them have been attempting to carry on. Usually units have been subdivided till they are unsuitable for the more extensive type of farming or other form of land usage that may be needed; buildings have been built which will have to be sacrificed or greatly depreciated in value, programs of public activity may have to be revised, and local attitudes may need to be changed through education. Nevertheless, an honest facing of the situation will provide the best basis for any improvement of the situation. Without it, the area will be subject to continuous re-exploitation by unscrupulous land dealers, and will maintain a deteriorating residual population. A radical change, such as, for example, that from crop farming to grazing or to forestry, probably cannot be carried out at any one time. Nevertheless, it will facilitate correct adjustments if production units, methods of production, and set-ups of public activities can be worked out with reference more to the physical character and economic location of the area than to its present set-up and lines of production. The problems of transition can thus be more definitely determined, and not infrequently this will aid in securing specific governmental action which will facilitate the transition and lessen the impact of the changed conditions on the farmers of the area.

## **GROUP B**

### **The Institutional Approach.**

Business in credit is conducted by enterprises or institutions. Hence one of the most helpful approaches to the study of credit is in terms of such enterprises or institutions and their problems of organization and operation. Some enterprises are included in the list of projects following which are users of credit rather than sellers of it.

## **PROJECT 5. A study of the organization and methods of agricultural credit corporations within an area.**

(By V. D. Gilman and W. H. Rowe.)<sup>1</sup>

### *Objectives.*

1. To study the organization, the set-up, and the methods of the agricultural credit corporations serving an area to determine which set-up and methods are most satisfactory.
2. To evaluate the agricultural credit corporations as credit agencies, and to study their relationships to other credit agencies in the area.
3. To determine how satisfactory their services are to the farmers they serve.
4. To analyze the loans carried by agricultural credit corporations as to purpose, length of time actually carried, losses and reasons for losses.
5. To determine the effect of area covered and size of unit on the cost of operation.

### *Value and uses of the project.*

The place of the agricultural credit corporation in the credit machinery of the country is still somewhat in doubt. From the farmer's viewpoint the objective in providing credit machinery is to make available to him, with as little expense as possible, the various types and amounts of credit which he can use to advantage. In the long run this is the objective of the public as well. Possible economies in operation can be brought about through a better knowledge of the most satisfactory types and sizes of organization, and of the best methods of operation. It seems probable that the effectiveness of the agricultural finance corporations in farm finance may vary considerably for different areas. To determine, therefore, where these corporations are likely to succeed, one must know more about the types of loans for which they are best suited and the extent to which these loans can or cannot be provided by other agencies.

### *Scope of project.*

Studies under this project will usually be case studies, and ordinarily will be confined, so far as intensive study is concerned, to a very small number of individual corporations, possibly to one only; but this case study will be supplemented by some of the more easily accessible information concerning all the corporations in the area, so that some generalizations can be made for all. In some areas, a small local finance corporation will be found operating while the same area constitutes a part of the territory served by a larger regional corporation which is in the process of eliminating the other; in other cases the two may be handling different classes of loans; while in still other cases it may represent a more or less permanent

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(1) Dr. Frieda Baird of Hollins College also assisted in the preparation of this discussion.

state of active competition for the same business. With organizations so new in the credit machinery of the country, it is to be expected that many maladjustments will be found; agricultural credit corporations established where need for them did not exist; corporations handling loans which could be more efficiently handled by other agencies; two or more corporations serving the same territory in uneconomical ways, etc.

Few studies of this kind will cover less than a state, so far as some of their less intensive aspects are concerned. Wherever cross-tabulations, association analysis, and other simple forms of statistical treatment are to be undertaken, the area will need to be at least that of a Federal Intermediate Credit Bank district. It is possible that some studies will include the whole United States. The phases which can be so handled will, however, have to be very carefully considered, as averages of conditions and relationships, varying as widely as these are likely to, may be lacking in significance. If a national study is split up into studies by areas, it will be practically a series of several studies of the sort here outlined.

This project implies some knowledge of the relationships which Projects 9, 10, and 11 are designed to analyze. If Project 10 can precede this one, it will be possible to limit the scope of the present project largely to matters of organization, methods of operation, loan classifications, etc., which apply specifically to the agricultural credit corporations, but if Project 10 has not been undertaken, it will be necessary in the study here considered to deal to quite an extent with the functions performed by banks, with the types of loans handled by the two agencies, the qualities of service, etc.

On the farm side of the situation, information such as Projects 18, 26, 28, and 33 are designed to bring out will be needed. Where these projects have not been taken up, it will be necessary to broaden the scope of this project enough to gain some understanding of the advantages and disadvantages to the farmer from using various types and volumes of loans.

Some little care is needed in classifying these loans as to length of borrowing period. Not infrequently, a loan on some other security may be taken and an earlier loan paid off though the production process implied in the first loan has not been completed. Also, a loan on a given type of security may be continued when it could be paid off, so far as that particular line of production is concerned, but instead the income has been diverted to other purposes for which less acceptable security can be given. These conditions are probably the exceptions rather than the rule, but cannot be ignored in considering the adequacy of any given credit facilities under any particular set of conditions. In interpreting the time and method of repayment for different types of credit institutions, some attention must also be given to the pressure applied under various conditions, the probable effect of taking out of the farmer's business funds which may have had a high opportunity value in other directions at that

particular time, and the possible effects of a particular timing of the liquidation of the loans upon the time of selling certain crops, the form in which these crops are sold, etc. These aspects of the situation are not likely to appear in any statistical tabulation of the loan periods, and it may be impossible to find any very definite measures of them, but their influence not only upon the farmer's material welfare, but upon his attitude toward the loaning agencies can scarcely be neglected in a thorough interpretation of the situation.

### *Source of information.*

1. Books and records of the corporations.
  - a. Records of stockholders' and directors' meetings.
  - b. Business statements and accounts.
  - c. Correspondence in files.
  - d. Records on borrowers, i.e., application and inspection reports.
2. Conferences with managers, directors and employees.
3. Records and officers of parent and affiliated organizations, if any (particular attention to supplementary and complementary business relationships).
4. The Federal Intermediate Credit Banks and Federal Farm Loan Board.
  - a. Paper of borrower: A large part of the data on loans is in the hands of the intermediate credit banks in the form of rediscounted paper, financial statements of borrowers, etc.
  - b. Inspector's reports.
  - c. Applications of the agricultural credit corporations to the intermediate credit bank for rediscount privileges.
  - d. Examiner's reports on the corporations.
  - e. Federal Farm Loan Bureau. Its own records and the records of the intermediate credit banks.
5. State regulatory board or commission under which agricultural credit corporations, as corporations, operate. This is a particularly valuable source of information regarding amount and character of capital stock.
6. Borrowers—by survey. Obtain their views as to requirements and services received.
7. Competing credit agencies, particularly banks and private financing corporations. (These credit agencies sometimes regard agricultural credit corporations as competitors rather than as supplementing credit agencies. The extent to which competition exists should be studied.)

### *Organization of project.*

The full cooperation of the agricultural credit corporations involved must be secured if this project is to be successfully carried out. The credit corporations as a whole are still in a somewhat experimental stage and will often welcome some study of their problems if they are convinced the information will not be used to their disadvantage.

Arrangements for any unbiased consideration of the problem on the part of competing credit agencies will in many cases be more difficult. Although they have changed their ideas much of late, many bankers have rather fixed presumptions as to the adequacy of the previously existing credit institutions. Provisions must therefore be made as far as possible for objective and definite determination as to what constitutes overlapping, what differences there are in the functions performed, etc. If the cooperation of the state bankers' association can be secured, this phase of the problem will



usually be facilitated. The full cooperation of the federal intermediate credit banks can usually be secured for any responsible and well-planned study of this kind. Where the agricultural credit corporation is affiliated with a cooperative association, the collaboration of the specialists in marketing should be secured.

For most of the work, it will probably not be practical to use much clerical or semi-trained help. The various loans present so many individual differences that the project leader will usually find it necessary to go into the details of them himself.

Where the collaboration of the United States Department of Agriculture can be arranged for, it may be possible to secure a fuller cooperation from the federal banking agencies than would be available to the individual research agency.

#### *Sampling and choice of period to be covered.*

This project will not ordinarily involve any formal sampling since the different corporations will constitute separate case studies. But the selecting of the cases for study will need to be carefully done so as to include all the significant types in their proper proportion. Where farmer viewpoint as to the satisfactory or unsatisfactory working of the arrangement is needed, sampling principles will need to be considered if the farmers interviewed are to represent the group as a whole. This can be judged somewhat by the amount of divergence of opinion found and stability of the distribution as more farmers are included. A sufficient sample should be taken so that some type of frequency distribution is definitely established. It will be necessary to define very clearly what is meant by satisfactory or unsatisfactory service if a worth while opinion is to be secured from the farmer. (See Project 48 in "Research in Public Finance Relating to Agriculture" for discussion of the technique of attitude studies.)

The period covered will usually be the life of the agricultural credit corporation or corporations studied, since none of these date back beyond 1923. In some studies it will be found desirable to include a period prior to the organization of the corporation in order to make a comparison. This procedure is, however, rather unsatisfactory in this case because of the violently disturbed monetary situation which preceded 1923. The period taken should be long enough to allow for consideration of the relationships both under tight money and easy money conditions, in other words, in different phases of the business cycle. The usefulness of such an agency as the credit corporation may be rather sharply different under varying conditions of credit scarcity.

#### *Errors in records.*

1. Data taken from the accounting records will in most cases be reliable. They can if necessary be checked against the records of federal intermediate credit banks and of the state regulatory commission or board.

2. Statements of officers are valuable, but require careful checking and weighing in the light of agricultural credit corporation records and records of the federal intermediate credit bank.

3. In interpreting a borrower's statement, much care is needed. Borrowers often are unreasonable in their expectations; personal likes and dislikes are apt to enter in; and the farmer often has not made any very careful analysis of the relative importance of credit conditions, price conditions, and physical production factors in his problem. It will be necessary, therefore, as far as possible so to frame the questions that they will aid him in defining clearly how and why a given situation is or is not satisfactory, how he would be affected by a different policy, interest rate, time payment, etc. General statements that the service rendered is or is not satisfactory are likely to have little real significance. Careful notes made by the interviewer immediately after the interview will aid materially in the later interpretations. The procedure is, in a sense, a case study of each farmer's individual credit situation and an attempt to generalize from these case studies.

### *Schedules and forms.*

1. List of records to be secured (note: it is a good plan to keep at hand a special sheet for listing questions to be asked of the officers and employees, for many questions will present themselves while studying or transcribing the records).

a. Historical—study of charter, by-laws and minutes of stockholders' and directors' meetings. Prepare a brief of these, emphasizing purposes and policies and proposals or action for the redirection of policy.

b. Capital of agricultural credit corporations. Original amount and changes from time of organization to date. (Purpose for which capital is used; i.e., invested in securities for additional collateral purposes or loaned to farmers.)

c. List of loans granted each year: Amount, time for which drawn, number and size of installments for both advances and repayments, rate of interest, new or renewal. (If the volume of business is too large to justify gathering so much data, information on number and size of loans may be readily transcribed by use of adding machine and tape.)

d. Balance and debit totals of loans and discounts account in the general ledger as of the end of each month for a given period or during the life of corporation.

e. Balance and credit totals of rediscounts account in the general ledger as of the end of each month for a given period or during the life of corporation.

f. Carry-over and amount renewed: Total amount outstanding at opening of each new lending season (if the loans are of seasonal character); and if possible, a list of over-due accounts not paid at that time showing the original loan, amount of carry-over and the amount renewed. Reason for failure to pay loan should be included.

g. Loans rejected. Number and amount by years and the reasons for rejection, if data are available.

h. Distribution of loans by geographical districts, by number and size.

i. Record of discount and rediscount rates by years during the life of the corporation. In this connection also a record of charges to borrowers other than interest, such as inspection fees.

j. Balance sheets—preferably at close of each fiscal year.

k. Profit and loss statements by years.

l. Surplus and deficit adjustment statement showing accumulation to current date; also accumulation of reserves.

m. Sample applications of borrowers showing: (1) Amount of loan, (2) Financial statement, (3) Production, acreage and income, (4) Record of meeting payments in previous years.

2. Interviews with officers or employees—forms for general questions.
3. Interviews with bankers and business men of area—forms for general questions.
4. Survey of borrowers—the following questions might be asked of all borrowers interviewed, although it would be well if the investigator would make the survey himself, not confining his questions to the list but attempting to find out from the borrower what need exists for the corporation and how satisfactorily that need is met.
  - a. What are your reasons for borrowing from the agricultural credit corporation rather than some other source?
  - b. Could you have obtained the loan elsewhere and what assurance have you of it?
  - c. What would have been the cost of the loan from other institutions? What is the cost from the corporation? (Results should be expressed in percent adjusted by the investigator for costs other than interests.)
  - d. What size loan did you obtain? Was it as large as you needed? If not, how large a one did you need? Could you have obtained a sufficient one elsewhere, and what are your reasons for believing so?
  - e. Do you find it any more difficult to obtain other loans because you are borrowing from the credit corporation? Why?
  - f. For what purpose or purposes was the loan obtained?
  - g. Are you required to buy your supplies from or sell your products to any particular dealer as a condition of the loan?
  - h. Are you required to own stock in the corporation from which you borrow? How much stock must you own in relation to the loan? What is your opinion of the value of the stock?
  - i. What do you consider the advantages of borrowing from an agricultural credit corporation? What do you consider are the disadvantages?

#### *Instructions for field work.*

It is advisable that the field work be done by a small staff, preferably one man where time and amount of work will permit. This is deemed advisable because of the large amount of non-quantitative information to be judged.

#### *Methods of analysis.*

The study of agricultural credit corporations can best be made by the case method. The following points need to be developed:

1. Organization.
  - a. Purpose of organization—the conditions which led to its formation.
  - b. Features included in charter and by-laws.
  - c. Characteristics of capital stock—reasons for the stock arrangement used.
  - d. Other alternatives—their advantages and disadvantages.
  - e. Practices in marketing stock.
    - (1) Desirability of requiring borrower to purchase stock either outright for cash or to be paid for out of the loan.
    - (2) Desirability of ownership by affiliated or parent organization.
  - f. Control, management and personnel, including functional analysis and estimates of costs and returns with larger or smaller units.
  - g. Relationships to affiliated organizations such as cooperative marketing associations or commercial banks. Reasons for these relationships. Actual and possible results of such affiliations.
  - h. Geographic territory and its relationship to size of credit corporation; organization set-up, and services performed.
2. Types of loans and risks attending each type in the area; some analysis of these risks as to causes, predictability, preventability, etc.
  3. Basis for making loans and the character of security.
    - a. Considerations in passing upon loans.
    - b. Limits as to size of loans; reasons for and any apparent effect of such limitation in changing loan sources, restricting agricultural operations, etc.
    - c. Appropriate ratios to fit the types of farming selected such as ratio of loan to net worth of borrower, ratio of loan to value of chattels, ratio of loan to borrower's equity in land and buildings, ratio of loan to total indebtedness,

ratio of loan to other chattel indebtedness, loan per acre over all crops, loan per acre over special cash crops, loan per animal for the purchase of livestock, income per acre for all crops, income per acre in special cash crops, ratio of loan per acre to income per acre, ratio of loan per animal to income per animal.

d. Rejections in percent of total applications—number, amount and character, reasons for, standards used, probable effects.

e. Legal requirements in making loan.

f. Customary term of loan and renewal policy.

4. Methods of operation.

a. Procedure in making loans and time required.

b. Control and follow-up of use of funds.

c. Method of collection of loans.

5. Loan experience.

a. Size of loans—average and median size and distribution by size groups.

b. Volume of business by year. This is best measured by total number and volume of loans closed during year and the amount of loans outstanding at the end of each month.

c. Carry-over and renewals—these should be studied by years and by area with regard to both number and amount and in percent of total loans for the area and of the original amount loaned on the accounts carried over. Reasons for carry-over should also be investigated. Comparisons with other financial agencies. Characteristics of loans that run for the longer periods.

d. Losses. Area figures (by years in which loan was made) in percent of total loans by years and for whole history of corporation. Comparisons with other financial agencies. Character of loans, security, and type of farming where losses did or did not occur.

6. Rediscouunts

a. Volume—rediscouunts closed by years and amount outstanding at the close of each month.

b. In relation to total loans.

c. In relation to capital.

d. Excess collateral requirements, character, and amount.

e. Lines of credit granted to corporations.

f. Rediscouunt rates paid.

g. Proportion of the assets that are held liquid to enable the corporation to take up its paper when due if the borrower cannot.

h. Adequacy of the federal intermediate credit system as a source of funds.

7. Interest charges and other costs to borrowers.

a. Actual rate of discount charged.

b. Adjustments to the rate such as would be required for delayed advances on the loan and payments before maturity.

c. Extra fees and costs.

d. Extra costs entailed if purchase of stock in the corporation is required.

e. Comparison with cost of funds from other sources of credit.

8. Income, expenses, and profits.

a. Analysis of income and expense statements (actual and on a percentage basis).

b. Income per loan and per dollar of loan.

c. Cost per loan and per dollar of loan, and variations of these for corporations of different sizes and with different policies.

d. Profit per loan and per dollar of loan, and variations of these for corporations of different sizes and with different policies.

e. The adequacy of the profit margin allowed by law.

f. Effect of seasonal character of loan.

g. Dividends, reserves and surpluses.

9. Extent to which the agricultural credit corporations aid the borrowers of the area.

a. Need which existed for the organization of the corporation.

(1) Adequacy of banking facilities.

(2) Adequacy of credit from other sources.

b. The degree to which loans meet borrowers' needs as regards size.

c. Advantages and disadvantages of loans obtained through the agricultural credit corporations as compared to those obtained from the other credit agencies.

10. Success of the agricultural credit corporation serving the agriculture of the area.

a. What are the proper criteria of success?

- (1) To bring funds to a capital deficit area.
- (2) Ability to furnish money at rates lower than other agencies.
- (3) To relieve banks of frozen loans.
- (4) Ability to earn return on investment.
- (5) Ability to operate without loss.

b. The causes of success or failure of the agricultural credit corporations.

11. A classification of the loans on the bases of geographic location, size, and nature of security should be made as far as such classes can be clearly distinguished. The relations of each of these classes and its subdivisions to the business of the corporation as to cost of handling, effect on corporation profits, risks involved, etc., should be considered; also trends that may be present indicating a change in the size of loans taken, in their geographic distribution, or in the security on which they are based.

The following considerations will need to be recognized in the foregoing analysis:

Interest rates, in the case of agricultural credit corporations, can usually not be directly compared with those of local banks. In the first place, they do not represent payment for the same services. When a farmer borrows from a bank, he expects in many cases to be able to increase or decrease the amount of his loan from time to time as his circumstances may warrant. These changes are usually made with little inconvenience or trouble, and with no additional expense. Such adjustments are much less simple in the case of credit corporation loans where such a change usually involves a reinspection with its attendant expense and inconvenience. In the second place, the credit corporation inspections are often charged for at a fixed rate with an additional charge for the mileage used in visiting the farm. Where this is the case, net interest rate should include consideration of such fees. This may make a very different comparative interest rate situation for large loans and for small loans. It is conceivable that good business may warrant charging much of the overhead to the larger loans. Also with their present practices, some of the corporations find the charges for mileage on inspection trips mounting as the size of the area served increases. Here too, it is possible that good business might justify charging a relatively large part of the overhead on the nearby loans. Analysis in terms of such additional costs and additional returns may well be made where these aspects of the problem are pertinent, even though the adoption of such arrangements may involve policy considerations which rule them out at least for the immediate future.<sup>2</sup>

#### *Inference.*

Statistical inference will have relatively little place in this project. In so far as the corporations themselves are concerned, if part of them are selected as representative of types, it should be possible to develop a number of dependable generalizations from them, and this may constitute one of the important objectives of the study. It is necessary, however, that the investigator recognize the importance of such factors as personality differences among managers, differ-

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(2) Mr. Rowe doubts the value of this suggestion which was made by Dr. Benedict.

ences in the cooperative experience of borrowers, and differences in the economic situations at the times of starting the corporations.

Where groups of farmers are surveyed, the same aspects of statistical inference are concerned as those in any other problems of sampling. (See "Research Method and Procedure in Agricultural Economics.") In other words, the inferences warranted will depend upon the representativeness of the sample, and, for inductive inference, upon the known similarities of the conditions to which such inferences are applied and the universe from which the given samples were taken.

#### *Summary of research with similar objectives.*

The agricultural credit corporation as provided for under the Agricultural Credits Act of 1923 is not of long enough standing for very many studies to have been made of it. One of the earlier ones is that of Claude L. Benner, "The Federal Intermediate Credit System" published in the Institute of Economics series in 1926. This gives something of the history of the agricultural credit problem and of the agencies furnishing such credit, and analyzes the place of the credit corporation in the credit machinery of the country. It is largely deductive and qualitative in nature, as it came too early for much actual data relative to these corporations to be available.

Recent published studies of agricultural credit corporations include, "Organization and Management of Agricultural Credit Corporations in Arkansas" (Arkansas Bulletin No. 259) by B. M. Gile; "The Texas Cotton Growers' Finance Corporation" and "An Analysis of the South Carolina Agricultural Loan Association", both by W. H. Rowe (Bureau of Agricultural Economics cooperating with the Federal Farm Board).

An unpublished study has been made by V. D. Gilman, Montana State College, entitled "The Organization and Business Practices of Agricultural Credit Corporations in Minnesota." Studies dealing with intermediate credit are now being carried on by Miss Frieda Baird, Institute of Economics, and W. H. Rowe, Bureau of Agricultural Economics.

Other current studies dealing with short-term and intermediate credit are now being carried on by B. D. Seeley and F. L. Garlock in a project entitled "Production Credit in the Eastern Counties of Virginia" (Bureau of Agricultural Economics cooperating with Virginia Agricultural Experiment Station), and by Norman J. Wall in a project entitled "Short-term Interest Rates in Relation to the Availability of Agricultural Credit" (Bureau of Agricultural Economics). In addition to these, many of the studies listed under "Summary of Research in Agricultural Credit" in the first part of this outline contain sections which bear upon the problems of agricultural credit corporations. This is particularly true of Utah Circular No. 48, of the article in the 1924 Yearbook of the U. S. Department of Agriculture and of the following experiment station

bulletins: Arkansas No. 208; Texas No. 351; Minnesota Technical No. 55; Colorado No. 338; Arkansas No. 228; Arkansas No. 233; California No. 480; Arkansas No. 237; and Louisiana No. 208. Some material bearing on the subject will also be found in the publications listed in the Bureau of Agricultural Economics Bibliography No. 7, "Livestock Financing", compiled by Katharine Jacobs.

**PROJECT 6. To analyze the organization, methods, policies, functions, and history of a livestock loan company.**

(By M. R. Benedict.)

The differences between livestock loan companies and agricultural credit corporations lie largely in the sources of funds, in the nature of the security on which loans are made, and in the laws under which the organizations operate. Much of the discussion of Project 5 is equally applicable to this project. The objectives will be the same as those listed under Project 5, and in addition the adequacy and dependability of the sources of funds used by livestock loan companies, and the analysis of the laws under which such companies operate as to the limitations on loaning activities, the protection of investors, and regulations governing relations with borrowers. The federal intermediate credit banks are able to reach the general credit pool of the country rather freely with their debentures on account of their strong capitalization and their close tie-up with the government. Livestock loan companies, in many cases at least, depend upon selling to investors the mortgages they have taken. This makes the volume of funds available depend rather directly upon the confidence investors have in the particular loan company and upon the confidence felt in the livestock industry itself. This relationship apparently caused a considerable and rapid withdrawal of such funds from the livestock industry in the period just following 1920, and was in some measure the cause of the agitation which resulted in the enactment of the Agricultural Credits Act of 1923. Much of the significance of any agricultural finance agency lies in its behavior in times of tight money, low prices, or other critical periods. A full understanding of such behavior will require that these loans be followed through to the investors to see what are their attitudes and actions under various conditions, what historical changes have occurred in the investors participating in such loans, etc. The growth in the volume of relatively safe alternative investment media has very possibly affected the make-up of the loaning group as to large or small investors, location of investors, etc. The possibility of a sudden withdrawal of funds also needs to be studied as to its effect upon the relation of borrower to loan company as compared to that between borrower and credit corporation.

Livestock loan companies ordinarily confine their loans practically to beef cattle and sheep enterprises and to relatively large loans. Credit corporations are more apt to include other kinds and sizes of loans. The advantages and disadvantages of this greater specialization by the loan companies needs careful analysis.

A further phase which needs special attention lies in the possible differences in flexibility of control. A loan company operating as a private institution may be able to omit some requirements which the regulations of such a governmental agency as a federal intermediate credit bank impose. For example, more reliance may be placed upon the acquaintance of the local representative with individual borrowers and less upon inspections. There may be economies from combining in the same person inspection and other functions.

Analysis should also be made in so far as possible of any recognizable changes in the loaning policy of these agencies at different stages of the cattle or sheep cycle and of the business cycle and of the probable effect of these in checking or encouraging over-expansion, under-production, etc.

As these agencies have had a longer history than the agricultural credit corporations more use can be made of the historical approach. For the more intensive case studies, the period covered should go as far back as records can be secured. For the companies which are not singled out for special study, but are merely included to make possible broader generalizations from the special case studies, a cross-section covering the last four or five years may be sufficient.

#### *Research with similar objectives.*

Forrest M. Larmer has covered a number of the more general aspects of the livestock loan situation in his book, "Financing the Cattle Industry" (Institute of Economics Series, 1926) especially in Chapters II and IX. Another general study is that of Charles I. Bray, "Financing the Western Cattleman", Colorado Experiment Station Bulletin No. 338 (1928). Some of the early history of beef cattle financing is also discussed in Chapter 8 of "Economic History of the Production of Beef Cattle in Iowa" by John A. Hopkins, Jr., published by the Iowa State Historical Society (1928). Chapter I of "The Federal Intermediate Credit System" by C. L. Benner also deals briefly with the history of livestock loan companies. A considerable number of articles and publications which touch on this subject are listed in Agricultural Economics Bibliography No. 7, "Livestock Financing", issued by the Bureau of Agricultural Economics (1925). Apparently no studies of the livestock loan company from an institutional standpoint such as that here outlined have been made.

**PROJECT 7. Same as No. 6 for farm mortgage companies.**



**PROJECT 8. To determine the factors influencing the efficiency of operation of national farm loan associations within a given area.**

(By F. F. Hill.)

The general objective of this project is to determine as far as possible the factors influencing the successful operation of national farm loan associations. This involves first of all trying to determine the extent to which they are actually functioning as credit organizations set up to comply with the law in order that any and all applications for loans may be passed on to the federal land banks. Where differences are found to exist in the efficiency with which they function, the inquiry will be directed toward trying to account for such differences. They will also be analyzed as cooperative enterprises. The attitude and interest of the farmer-borrowers in their organization will be studied, and the place of the organization in providing for the long-term credit needs of the farming community. The set-up of the associations will be studied in the light of the provisions of the Farm Loan Act, and changes in the Act which seem likely to result in the development of more efficient associations will be indicated.

*Value and uses.*

The following quotation from the Thirteenth Annual Report of the Federal Farm Loan Bureau indicates the importance which this body attaches to the work of the local association:<sup>1</sup> "The associations constitute the foundation of this cooperative system of farm mortgage credits, and should be maintained in strong and sound condition in order that they may serve the purposes for which they were created." If some of the basic factors influencing the successful operation of the associations which "constitute the foundation" of a billion dollar system of cooperative credits can be determined by a study such as is outlined in this project, further justification is unnecessary.

The function which the national farm loan associations serve is to provide the point of contact between the farmers and the federal land bank. While they are entirely independent of the federal land bank of the district in which they operate, they act in effect as the local agencies in the federal land bank system. It is impossible for the members of the loan committee of a federal land bank to be familiar in person with conditions existing in each small district throughout a large territory. This means that they must depend in large measure upon the reports of others for the information they need to pass intelligently upon loans. These others are the land bank appraisers, and the loan committees of the national farm loan associations. The appraiser may be well informed regarding land values in his territory, but he is not in a good position to pass

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(1) Thirteenth Annual Report of the Federal Farm Loan Board. Year ended December 31, 1929, page 51.

upon the personal risk, the farmer, always an important consideration as well as the farm itself. If the local national farm loan association has an active and able loan committee, its appraisals and recommendations provide a valuable check on the appraisals and recommendations of the appraiser. Again, if the applications on properties which are ineligible as a basis for a loan under the Farm Loan Act, and properties which, though technically eligible, are undesirable from the security standpoint, are rejected by the local association, time and money is saved for the federal land bank. An efficiently functioning group of national farm loan associations may therefore almost be said to be the very basis of successful federal land bank operation.

### *Scope of project.*

The policies and financial status of the federal land banks operating in the territory in which a national farm loan association operates, determine to a large degree, not only the functions assumed by the local associations but also their effectiveness. The sources of income of national farm loan associations are fees charged applicants for loans and the dividends paid by the federal land bank on capital stock owned by the farm loan associations in the bank. Application fees ordinarily are not much more than sufficient to cover the cost of placing a loan on the books. If the federal land bank in the district in which a national farm loan association is operating has been forced to suspend the payment of dividends, the principal source of income of these loan associations is cut off. Under these circumstances, the volume of new loans passing through the association is also likely to be small, and hence also the income from application fees. With little or no income, it is difficult for an association to retain the services of a competent secretary-treasurer, or adequately to compensate the members of the loan committee for time spent in making appraisals and passing on loans. As a result, the association ceases to function actively, or if it does continue to struggle along, the quality of the services performed in making appraisals and passing on new loans is not likely to be of a very high order.

Again, there is much variation in the different federal land bank districts in the amount of responsibility placed on the local associations. In some, the local associations are held responsible for collecting interest and principal payments on all loans made through the association in question, and even for seeing that all taxes are paid on properties on which the bank holds mortgages, and that all buildings are adequately insured. In the majority of cases, however, the federal land bank directly assumes these responsibilities.

Because of the foregoing variations between districts, it would seem best to confine such a project as this to associations operating

within a single federal land bank district.<sup>2</sup> But all the important variations in conditions within the district should be represented. The sound financial standing of a particular association and the apparent efficiency with which it is operated may arise in large measure from the fact that it is operating in a territory where agriculture has been relatively prosperous and where land values have shown little or no tendency to decline since the association was organized. Under such circumstances, little or no trouble would be experienced, even though the farms on which loans were made represented nothing more than a random sample of the farms in the area. The same loaning policy, followed from 1917 to 1920, let us say, in an area which has been hard hit by the agricultural depression, might very well have resulted in the bankruptcy of the association. It is probable that selecting associations for study on the basis of a review of conditions in the district will give better representation of the district than random sampling of the associations. In selecting associations to be included in the study care should be exercised to secure a representative group as regards volume of loans closed. A group of associations should be selected in each of the type-of-farming areas, or other major economic areas of the district. Furthermore, both successful and unsuccessful associations should be included as measured by such factors as the value of the association stock, the percentage of loans foreclosed, as explained below under "Measures to be used." The data available in the files of the federal land bank will usually be such as to enable the investigator to select a group of representative associations to be included in the study.

#### *Sources of information.*

The major sources of information will be the records of the national farm loan associations and of the federal land bank operating in the territory in which they are located. Data relative to applications submitted to the bank, applications rejected by the bank, loans closed through each association, loans foreclosed which were recommended by each of the various associations, losses of such loans, and the value of the capital stock of the association over a period of years, can best be obtained from the federal land bank. The relation of the recommendations of the associations to the recommendations of land bank appraisers and to the loans actually closed by the bank, can also be most easily secured from the records of the bank rather than from the records of the associations. Furthermore, the members of the bank's staff are likely to have rather definite opinions, based upon years of experience, as to the reasons for the success or failure of different associations. Such opinions

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(2) The extent to which the policies of the different federal land banks have influenced the functions assumed by the national farm loan associations operating in their respective territories, as well as the efficiency with which those functions have been performed, constitutes a separate field of study which is beyond the scope of this particular project.

are worth careful consideration, and are particularly valuable as a basis for further inquiry.

The financial records and minutes of various meetings of the associations are kept by the secretary-treasurer. These should provide the necessary data for checking receipts and expenses, and for building up comparable balance sheets and operating statements over a period of years. The records of the secretary-treasurers should also indicate the number of applications received, applications rejected, and similar data relating to the operations of the associations. The minutes of the association meetings should indicate the policies of the associations as reflected in the official acts of its officers. The attendance of the stockholders at annual and special meetings reflects, in a measure at least, the interest of the farmer-borrowers in their association.

The success or failure of any organization depends to a large extent upon the ability and character of the personnel. The effect of this factor as determining success or failure is always difficult to measure. Data relative to the experience and qualifications of persons appraising farms and passing on loans for each national farm loan association should be secured if possible, both from the persons in question, and from private bankers and individuals in the territory in which the association operates.

Most of the data needed relative to the territory in which the association operates can be best secured from census data and from the agricultural colleges and experiment stations.

### *Testing the data.*

An audit is made twice each year of the records of each federal land bank. Since each application for a loan from a national farm loan association must be accompanied by an application fee, this provides a check on the applications received from each association. The records of the bank will permit of the making of internal checks on the number of rejections, loans closed, applications withdrawn, and so forth. The audit also provides a check on loans foreclosed through the various associations, losses arising out of such foreclosures, and the basic information for computing the value of the capital stock of each national farm loan association.

Audits are made of each local association from time to time by the examiners of the Farm Loan Board. The reports of the auditors usually include a balance sheet as of the date of the audit, and an operating statement covering the period from the date of the preceding audit. Such records provide a valuable check at least on the internal accuracy and consistency of the records. Since the initial loan fees are usually of a fixed amount, receipts from loan fees provide a check on the number of applications received. Dividend checks issued by the federal land bank provide a check on income from this source.

Information relative to the set-up and manner of functioning of the association, obtained by questioning the secretary-treasurers and the officers, either formally by use of a questionnaire or informally, is open to all the weaknesses of information obtained by such methods. However, if the president, secretary-treasurer, and the various members of the loan committee are questioned individually, a fairly accurate picture of the organization should be secured. This may be checked with the field representatives or other members of the bank's staff, and possibly with the national farm loan association examiner for the district.

#### *Measures to be used.*

A national farm loan association is liable, by reason of the fact that it endorses the notes of its member-borrowers, for all losses arising out of loans made by the bank to its members. All such losses which have not been collected by the bank should be set up as liabilities of the association in determining net worth and the value per share of the outstanding capital stock. After this has been done, a comparison of the value per share of the outstanding capital stock provides a good index of the financial status of different associations. A second measure of business success which may be used is the percentage of loans foreclosed. Comparing on these bases associations operating in similar territory, and with somewhat similar volumes of business, will reveal weaknesses in organization and personnel. Comparing similarly groups of associations of unlike sizes operating in dissimilar territories will indicate the relation of size of business and the conditions under which the different associations operate to success or failure.

The reason for classifying associations on the basis of the nature of the territory in which they operate is that local opinions are likely to be largely colored by local conditions. There is always a tendency for persons within an area to feel that the better farms in the area are excellent simply because they are above the average of the area. This is simply another way of saying that the experience of such persons may not be such as to provide a sound basis for making loans. It may be that even the better farms in the area do not provide a safe basis on which to make a long-term mortgage loan.

The records of the federal land bank relative to applications received from each association, applications rejected, and the ratio of the amounts recommended by the loan committee of the local association to the amounts recommended by the land bank appraiser and the amounts granted by the loan committee of the bank, should give some indication of the care with which appraisals are made, and loans passed upon, by the officers of the local association, particularly in the light of foreclosures and losses among loans which they have endorsed. For example, if a large percentage of the applications submitted by a particular association are rejected, either be-

cause of ineligibility or poor security offered, and if the appraisal figures of the local committee bear little or no relation to the appraised values of the land bank appraiser or the assessed value of the farm, and if the loss ratio has been relatively high (and if it would have been higher had the local association's recommendations been followed), it is probably safe to assume that the local association continues to operate merely in order that any and all applications for loans may be legally submitted to the federal land bank. In other words, it is not functioning efficiently as a credit-granting agency. Such conclusions must, of course, be checked by inquiries among members of the bank's staff, and by personal interviews with the officers and members of the loan committee of the local association.

If the description of mortgaged properties given in the county records is such that each individual property can be readily located, or if access can be had to the records of other loaning agencies, it will be possible to compare the "quality" of the loans made by the national farm loan associations with the "quality" of the loans made by individuals or other types of loaning agencies operating in the same territory. It will also be possible to determine the extent to which the association is meeting the legitimate credit needs of the area in which it operates, since the percentage of the total number of "good" loans in the area which are held by the association would afford at least a rough index not only of the soundness of the loaning policy of the association but of its aggressiveness in securing business of a desirable type.

In attempting to measure the quality of the association's loans, or to determine the extent to which it is meeting the long-term credit needs of the community, it will first be necessary to classify all the loans in the area on the basis of the risk factor along much the same lines as those proposed in Project 22. In making such a classification, objective data, such as soil type, roads, marketing facilities, condition of buildings, and so forth, should be used as far as possible. The relationship between these various factors and foreclosures and losses should be demonstrated.

The use of this measure, which is dependent upon a classification of all loans in the area on the basis of risk, will probably not be feasible unless access can be had to the records of other loaning agencies, or unless the area has been surveyed, and mortgaged properties are described in the county records according to section, township, range, and so forth. Otherwise, the task of locating mortgaged properties and of working out the relation of various factors to risk would probably be such as to make the cost prohibitive. In any case, it should be recognized that the use of this measure will largely depend upon making a study along the lines indicated under Project 22.

The attendance of the stockholders at the annual or special meetings of the association may be used as one index of the interest of

the members in their association. Such a measure also should be supplemented by inquiries made among the officers and members of the association in question.

#### *Method of analysis.*

The analysis will be based upon a combination of the statistical and case methods. The number of associations selected as representative of each region within the territory will, of necessity, be rather small. Care will need to be exercised in the use of averages and other common measures of group tendencies. The case method of analysis may well be applied to those associations which show wide variations from the norm. It must be recognized that the range in variability as between associations is fixed to a large extent by the law under which they operate. The efficiency with which even the best of associations operate might possibly be improved by changes in the Farm Loan Act. A comparison of the operations of the different associations will not, of course, indicate the changes in the Act which might be desirable. A shift from the statistical to the case method of analysis would certainly need to be made in this instance.

So far as the writer is aware, no research into the operations of national farm loan associations has been carried out.

**PROJECT 9. Similar to 6, for insurance companies making loans on farm real estate.**

**PROJECT 10. To analyze the loan and investment policies of country banks.**

(By Fred L. Garlock.)

The loan and investment policies of banks are governed mainly by four considerations: the security, liquidity, earning power and serviceability of funds placed in various employments. It is perhaps safe to say that there are no absolute standards for the application of these considerations and that it lies with careful research to determine the principles which should govern their application.

#### *General methods of research.*

The general methods of obtaining data are available to research workers in country banking. In the past, the greater part of the materials relating to banks has been taken from the published reports of supervisory officials or obtained by questionnaire. The reports of supervisory officials are not often issued more than four times per year, and moreover, lack detailed classifications of the loans. They do not afford, therefore, sufficient information for the study of loan policies. Information obtained by questionnaire from bankers is subject to criticism as to its accuracy, for the reason that bankers seldom classify their loans in the manner desired by research workers. A second and more commendable method of ob-

taining data involves the analysis of bank records by the research worker himself. The following program of research assumes this second method.

### *Choice of banks.*

This method of procedure, however, is costly and precludes including many banks in the study. In selecting the banks to be included, the research worker must be guided by the purposes of his project. If a detailed study is made of one small region, it will be well to select several banks within that region. If, however, the research worker is primarily interested in illustrating differences among banks according to the types of agriculture which they serve, it will be preferable to choose banks from widely different agricultural environments.

Since one object of the project is almost certain to be the determination of sound loan and investment policies for banks, there will be many advantages to selecting banks which have well established businesses and are known to be sound and of high standing. Ultimate results of this study will be based upon the data obtained from banks and if the banks included in the study are not of sound character, it will be doubtful how much validity attaches to the results. The inclusion of some weak institutions, however, may be desirable for the contrasts which will appear between the policies of strong and unsound institutions.

## I. SECURITY OF LOANS.

Off-hand, it might be thought that the loans and investments of a bank should be as secure as they can be made. If this rule were applied, however, we should find the banks refusing large amounts of loans which they are now in the habit of making because of their community's need. While there is a limit beyond which risk should not be taken, it is necessary for any bank which desires to serve the interests of its community to assume some degree of risk. Also the management of banks is not infallible and losses will creep in where it was thought the risk was small. Losses due to the assumption of risk and the fallibility of management, however, should not as a general rule be in excess of the amount which can be absorbed by the current earnings of a bank without impairing its ability to pay reasonable dividends.

### *Types and sources of data.*

The bank's liability ledger, note register, register of income and expense, and the daily journal will indicate the charge-offs and likewise the loans which have been made and which are outstanding at given dates. A method of interpreting data obtained from the liability ledger is described in the section on liquidity. There is no record of loans which are known to constitute a loss but which have not yet been charged off. For information concerning loans of this character, it will be necessary to consult the banker.



Information relative to the purpose, collateral and other bases of classifying the loans will ordinarily have to be obtained by questioning the banker, as bank records do not contain classifications of this character.

#### *Collection of data.*

Perhaps the most feasible method of assembling the data is to take a record of the charge-offs in a period of several years and then trace these loans back in order to determine when they were made, how long they were outstanding before being charged off, what were their purposes, and such other information as may be desired concerning them. When this has been done, it will be well to sample the entire body of loans which was made by the bank during the lifetime of the notes that were charged off. From the latter operation, it will be possible to classify the total loans which have been made by the bank. Information as to time periods, purposes, security and other factors, of course should be obtained for this class of loans as well as for the charge-offs.

A second method is to sample the loans which have been made by the bank in a given period, in order to form an idea of the prominence of the various classes of loans, and then to trace these loans through and ascertain the proportions which have been charged off. This is the easiest method, but it has a serious defect in that the loans made in any given period may have been subject to either greater or smaller loss ratios than is customary in the bank. Furthermore, this method is likely to produce a sample which is inadequate from the point of view of the number of cases involved.

One might, of course, classify the outstanding loans on various dates, and then ascertain the charge-offs against the outstanding loans. This method also would provide a very limited sample of data, particularly with reference to loans intended for a short-time purpose. Short-time loans are eliminated rapidly from the body of outstanding loans, because of their rapid turnover, whereas the long-time loans tend to accumulate. Comparison of the relative amounts of various classes of outstanding loans, consequently does not afford an accurate basis for estimating the volume of the various classes of loans which have been made.

#### *Method of analysis.*

The objective of the project is to determine the loss ratios of various classes of loans. When the data relating to loans made and losses incurred have been tabulated, the results may be set up in the form of tables, or more refined devices may be used to show the relationship between types of loans and loss ratios.

An illustration of the tabular presentation is afforded by Table 8 in the current *Economic Series Report No. 6* of Iowa State College entitled, "Farm Mortgage Debt in Iowa" by Murray and Garlock. Here the relationship of foreclosures and other delinquencies

to indebtedness per acre is computed and it is shown that the delinquency ratio rises rapidly after indebtedness has reached \$76 per acre. A similar method of presentation is found in the article "Size of Failing Banks in Iowa" by Ralph Picket, Table 3, Page 74, *Journal of Business* of the University of Chicago, January 1929.

After the loss ratios of various classes of loans have been ascertained for a number of banks, several types of comparison will suggest themselves to the research worker. Among banks which serve similar types of agriculture within a small area, the ratios will indicate the relative degrees of prudence exercised by the managements of the banks. When the types of agriculture served by banks differ widely, comparison of loss ratios in strong banks will indicate differences in the risk attending similar classes of loans. Within any one bank, the ratios will reflect both the efficacy of management and the risk of making various classes of loans. It should be possible, if adequate samples of data are obtained and accurately classified, to determine danger limits in loans of various types.

## II. THE NEED FOR LIQUIDITY IN BANK ASSETS.

It has been almost a platitude in banking theory that commercial banks should keep their assets in liquid form. Banks having demand liabilities, it is held, cannot safely tie up their funds in long-term securities. When applied to the operation of a given bank, however, this reasoning is almost meaningless. How liquid should the assets be? And to what extent does the need for liquidity depend upon the existence of demand liabilities. These are questions which have never been answered satisfactorily by theorists, but which bankers have answered in their own experience.

Even the most casual observation indicates that there are wide differences among banks in respect to the liquidity of loans and investments which they should require. Some banks have their deposits chiefly in the form of time and savings accounts with relatively small amounts of demand deposits, while in other banks the reverse is true. Obviously we should not consider all banks on the same footing. Furthermore although deposits may legally and theoretically be subject to demand, there is no reason for believing that they actually will be demanded. In fact, the entire business of banking is founded upon the assumption that they will not all be demanded simultaneously. It may further be pointed out that liquidity of assets is not governed alone by the likelihood of depositors demanding their money, but is also governed by the needs of borrowers, and these needs differ widely from community to community. Thus liquidity should be studied with reference to community needs as well as to the types of business which are handled by the banks and the types of liabilities which they incur.

Not all of the requirements of a bank's clientele, however, are brought to bear directly upon the bank. Usually banks are depositories of the current funds of their communities and feel the

effects of depositor's requirements for current funds. Sometimes banks also hold a large part of the investment funds of their communities, in which case still other requirements are brought to bear upon them. Similarly, it is customary for banks to handle a portion of the loans for current purposes, but sometimes they are able, in addition, to make large amounts of loans for fixed capital purposes. The particular role taken by a bank in local financing determines the kinds of local requirements which it is called upon to meet.

Were the study of banks conducted in areas where thorough-going farm business studies have been made, it should be possible to determine the extent and character of the needs of various classes of customers and the realm occupied by the bank in local financing. In most areas where bank studies will be undertaken, however, there have been no farm business studies of the kind mentioned and the research worker will have to rely on general observation and on the records of the bank itself for information on these subjects. Fortunately the records of banks contain much information which reflects the needs of its customers. Changes in the deposit accounts, for instance, indicate the time and extent of changes in the net force of depositors' demands. This net force may be the resultant of the demands of thousands of individual depositors, some of whom are requiring their funds at the same time that others are adding to their balances. Changes in the loans, bank balances, borrowings, and other items likewise contribute to the fund of information on local uses of credit. By studying these items, the research worker can determine with a high degree of accuracy the need of a bank for liquid assets.

#### *Types and sources of data.*

Nearly all banks maintain a record called the "Daily Statement of Condition" which shows the position of the various assets and liabilities at the close of each business day. From this record the net balances of deposits, loans, investments, bank balances, and any other items which suggest themselves for study may be copied directly. It generally is not feasible to work with daily figures; hence some method of sampling the changes in the various types of data must be adopted. The writer has found first-of-month data, supplemented in some cases by data showing the highest and lowest points reached by various items within each month, satisfactory for the purposes of this project. The data required for the study are easy to obtain from bank records and should cover a comparatively long period of time so as to reflect changes in the need for liquidity which come with various time developments.

#### *Requirements for liquidity as reflected by deposits.*

Since bankers rely on their experience to indicate what portion of the deposits is likely to be demanded at any time, it will be well for the research worker to ascertain what the experience of banks has been with respect to the withdrawals of funds by depositors. This

experience can be determined by studying changes in the deposits at different times and under varying conditions.

One of the simplest approaches to this subject is afforded by graphic readings on total deposits for a period of several years. By mere inspection, it may be clear that one bank has a great seasonal change and materially varying level of deposits from year to year, and hence much greater need of liquidity than another bank, in which the total deposits run a comparatively even course. It also will be apparent that the assets of the first bank must be much more liquid when deposits reach their peak in July or August than when they have reached the trough in April or May.

To explain why these differences exist, the research worker may find it desirable to break up the total deposits into various deposit accounts such as time and savings accounts of individuals, demand accounts of individuals, accounts of political subdivisions, and bank accounts; or the classification may be based on occupational groups. A casual observation of the types of agriculture served by banks will indicate many reasons for the differences in their need for liquidity.

It often will be advisable to subject the changes in deposits to more accurate measurement than is afforded visually by Figure 1. This may be done by computing *changes* in the deposits during given periods and tabulating the results in the form of frequency distributions, which can be presented graphically if desired. The great bulk of deviations in the Iowa bank above mentioned were less than 5 percent in extent while few were greater than 10 percent of the total deposits. Moreover, there was no greater tendency toward increase than decrease in the deposits. In contrast, the Virginia bank most frequently had monthly changes of from minus 10 percent to plus 5 percent, and the withdrawals exceeded 10 percent, running in some cases to more than 30 percent. Although the period covered by these data is very short, they indicate that at least within that period the Iowa bank could have met monthly changes in its deposits with a very small cash reserve while the Virginia bank would have needed large reserves or other liquid assets to meet a considerable part of its net monthly changes.

The illustration given above is based on net monthly changes. It will be desirable to study changes covering greater periods of time such as three months, six months, or a year. Furthermore, in analyzing data of this character, it should be borne in mind that the changes measured are net changes rather than maximum changes within the periods covered. Thus the net change between two dates might be 5 percent of total deposits while the maximum deviation might be as great as 10 per cent or more. When comparisons of changes in deposits and other items are made, it doubtless will be found that short-time changes in deposits generally are met in a manner somewhat different than longer-time changes. The research worker consequently will be able to judge pretty well how the maxi-

num changes between two dates were met when these changes were substantially different from the net changes within the same dates.

A further phase of the tendency of deposits to change is suggested by the fact that deposits act differently under varying business conditions. Thus it may be desirable to study changes in deposits occurring in several periods.<sup>1</sup>

#### *Relationship between deposit changes and changes in the principal assets.*

One might measure changes in the principal assets in the same manner as changes in the deposits in order to ascertain their tendency to change and thus gain some insight into their liquidity. Changes in the deposits might be compared with simultaneous changes in various classes of assets, possibly by use of scatter charts, correlation coefficients, or other similar devices. These relationships should be ascertained for changes covering both long and short periods of time and should be related to phases of seasonal or cyclical development. Similar comparisons can be made between changes in the deposits and changes in loans and discounts, also for varying periods of time.

#### *Need for liquidity as reflected by combined demands of depositors and borrowers.*

Particularly in banks whose deposits and loans are subject to well defined seasonal movements, it often will be found that deposits and local loans move in opposite directions. These relationships can be presented graphically. By making measurements and comparisons of the kinds indicated and relating the changes to economic conditions, it is possible to determine quite accurately what degree of liquidity in the total assets is required by the necessity of meeting the depositors' demands and what types of assets the bank usually relies on when it must meet withdrawals of deposits. The analysis may be extended somewhat further to cover occasions when a bank borrows from its correspondent so as to include the requirements for liquidity which arise from the necessity of liquidating assets re-discounted or pledged as security for borrowers. It should be remembered, however, that these data do not measure the liquidity of the various types of assets, although they may indicate the existence of differences in the liquidity of these assets. For measurement of the liquidity of assets, it will be necessary to study the asset accounts in detail.

### III. MEASUREMENT OF LIQUIDITY OF LOANS AND DISCOUNTS.

The term "liquidity" is well enough understood in its general implications, but has after all an inexact meaning. When used in connection with bank assets, the term usually is taken to mean that these

(1) This general method of treatment is incorporated in Research Bulletin No. 129 of Iowa State College, entitled "Long-term Loans of Iowa Banks," by the writer. See also "The Behavior of Prices," by Frederick C. Mills.

assets may be converted into available funds within a short period of time without material loss of principal value. The loans which may be collected within thirty or sixty days and securities for which there is a ready market, ordinarily are regarded as liquid assets. The term sometimes is used to denote loans which are based on current transactions and in that case it is almost synonymous with the term "self-liquidating." This meaning of the term would exclude marketable bonds and bankers' balances from the list of liquid assets. The former meaning is in more common use and will be employed in the description of this project.

A number of bank assets may be classified readily with regard to their liquidity. At the head of the list stands the cash in vault which is at hand and immediately available. Next come bankers' balances, closely followed by United States bonds and certificates, for which there is a ready market at all times. Following these are the bonds of utilities and industrial companies which are quoted currently on the New York and other prominent exchanges. Then there are the securities of states and municipalities and other political subdivisions, for which the market is more restricted, and the loans for which there may be no market at all. Real estate also usually rates low in the order of liquidity. Attention will be given here only to the loans, as the liquidity of security holdings usually is determined by the extent of the market for them and the contacts of the bank with the market.

One of the principal difficulties which must be faced at the outset in classifying bank loans arises in connection with renewals. Borrowers frequently obtain loans and renew them time and time again for the whole or part of the original amount. In some cases, the funds are used first for one purpose and then for another; and at times also the dates of renewal are fixed to correspond with the fulfillment of the various purposes for which the loans are used. Often, however, the funds are used in only one employment, so that the renewals reflect merely the practice of dating notes short of their actual liquidating periods. If, in attempting to classify loans according to liquidity, one were to consider always the purposes for which the loans were made, it would be necessary to examine the basis for each renewal and possibly transactions between renewal dates. The obvious difficulty of making an accurate classification on this basis renders that method of analysis inadvisable.

A second interpretation of liquidity will require the loans to be classified on the basis of the time during which the proceeds are outstanding in the hands of borrowers. Under this classification, every loan is considered to be unpaid until it is actually liquidated in current funds. Renewals consequently are regarded as mere extensions rather than as payments of loans. This type of classification is much easier to make than the one first described; and in addition, provides a better basis for determining how rapidly the funds of a bank must turn over. From the standpoint of the liquidity

needed by a bank, it is of small concern whether the proceeds of loans are used in one employment or in several employments during the time the loans are outstanding, so long as the loans can be collected when needed.

#### *Types and sources of data.*

Detailed classification of the loans made and the loans outstanding during one or more selected periods of time should be made. The periods should be long enough to indicate seasonal movements at least and the loans should be followed for at least 18 months or two years and preferably a longer time. By obtaining data on the outstanding loans as well as the loans made during these periods, it will be possible to check one against the other and thus materially increase the accuracy of classification. Moreover, if both types of data are available, it will be possible to study the effects of the types of loans made upon the loans outstanding at any time.

As a source of information on time periods of loans made and of outstanding loans, the liability ledger is superior to all other of the bank's records. Information of this character can be obtained from the note register of notes paid or the daily blotter, but it is much more difficult to obtain data from these records and arrange it in intelligible form. In most cases, the only source of data on the purposes of loans is the banker's memory. Banks sometimes can keep a record of the types of collateral which are used to secure their loans, but more often than not there is no record of this kind in a small country bank.

#### *Methods of obtaining data.*

Owing to the variety of ways in which bank records are kept, the best methods of obtaining data must be determined after examination of the bookkeeping system employed by a given bank. The following method is presented as a suggestion for banks which maintain a liability ledger.

Although liability ledgers are not all identical, the following is a sample sheet from a type in common use:

| Date    | Loan No. | Interest Rate | Maturity | Payments  | Loans       | Balance   |
|---------|----------|---------------|----------|-----------|-------------|-----------|
|         |          |               |          |           | (Brot Fwd.) | \$1650.00 |
| 1929    |          |               |          |           |             | 1050.00   |
| Jan. 3  | 1760     |               |          | \$ 600.00 |             | 1050.00   |
| June 20 | 1830     | 8%            | 3 mo.    |           | \$ 400.00   | 1450.00   |
| July 17 | 1510     |               |          | 1050.00   |             | 400.00    |
| July 17 | 1864     | 7%            | 1 yr.    |           | 1050.00     | 1450.00   |
| Oct. 1  | 1830     |               |          | 400.00    |             | 1050.00   |
| Oct. 1  | 1913     | 8%            | 3 mo.    |           | 350.00      | 1400.00   |
| 1930    |          |               |          |           |             |           |
| Jan. 1  | 1913     |               |          | 350.00    |             | 1050.00   |
| Jan. 1  | 1980     | 8%            | 6 mo.    |           | 300.00      | 1350.00   |
| July 17 | 1864     |               |          | 1050.00   |             | 300.00    |
| July 17 | 2016     | 7%            | 1 yr.    |           | 1050.00     | 1350.00   |

Taking single sheets or cards for each borrower, the data referring to loans made and paid on the liability register may be resolved into the following form, which is more intelligible than the original form:

| Interest Rate | Date borrowed | Amount    | Date paid or renewed | Amt. actually Paid |
|---------------|---------------|-----------|----------------------|--------------------|
| 1. 8%         | June 20-/29   | \$ 400.00 | Oct. 1-/29           | \$ 50.00           |
|               | Oct. 1-/29    | 350 00    | Jan. 1-/30           | 50.00              |
|               | Jan. 1-/30    | 300.00    |                      | none               |
| 2. 7%         | July 17-/29   | 1050.00   | July 17-/30          | none               |
|               | July 17-/30   | 1050.00   |                      | none               |

This brings all data relating to one loan together and shows what disposition has been made of the loan.

For data relating to the loans outstanding at various dates, one can enter, from the liability ledger sheets of each borrower, the amount of outstanding indebtedness to the bank at the end of each date of change, or on a smaller number of dates if this seems feasible. For the account of John Jones shown above, the entries would be as follows if a beginning is made on January 3, 1929:

January 3, 1929 balance is \$1,050.00  
 June 20, 1929 balance is 1,450.00  
 October 1, 1929 balance is 1,400.00  
 January 1, 1930 balance is 1,350.00

(1.) *Analysis of data—of loans made.*

For some purposes it will be desirable to set up two categories of loans. The first category should consist of the original advances made during a given period. The second should include the first renewals, in this period, of indebtedness carried in from some preceding period. Thus the \$400 note made June 20 represents the first category while the second is represented by the \$1,050 loan on July 17, 1929. Both of these categories of loans, it will be observed, are subject to renewal and subsequent renewal.

The original advances having been separated from the first renewals of carry-over from the preceding period, one can measure the actual time loans which are outstanding by the time between the date when the advance was made and the time when it was actually paid.

When the first renewals of indebtedness carried in from the preceding period are classified, one may choose either the beginning of the period studied or the date when the first renewal was made as the starting point and proceed thereafter as with the original advances.

After determining the periods for which the loans of various borrowers have run before actual payment, it will then be advisable to prepare a table showing the percentages of loans which were paid within given periods of time. Table I is offered as an example of this type of comparison.



**Table 1. Percentage Classification of Loans Made in 1929  
According to Period Elapsing Before Payment.**

|   | Percentages paid within |               |               |                |                 |                 | Indeterminate (1)<br>maturities with<br>known periods<br>of 8 to 20.7<br>mos |                 |
|---|-------------------------|---------------|---------------|----------------|-----------------|-----------------|--|-----------------|
|   | 0-2.9<br>mos            | 3-5.9<br>mos. | 6-8.9<br>mos. | 9-11.9<br>mos. | 12-14.9<br>mos. | 15-17.9<br>mos. |  | 18-20.7<br>mos. |
| Original<br>loans   | 21.61                   | 15.35         | 10.36         | 8.13           | .79             | .07             | .29  | 43.40           |
| First renew-<br>als of in-<br>debtedness<br>carried in-<br>to 1929<br>from 1928 | 5.41                    | 4.32          | 4.96          | 2.52           | 2.95            | .31             | .08  | 79.45           |
| Total loans   | 13.96                   | 10.14         | 7.81          | 5.48           | 1.81            | .19             | .19  | 60.42           |

Various classes of loans as determined by purpose, size, security, and other factors will probably have different degrees of liquidity. There will be differences in liquidity between original loans and renewal loans and as among loans made at different seasons of the year. These differences often will be closely related to changes in the purposes of the loans. Tables classifying loans according to various factors and showing the proportions which are payable within given periods of time will aid in illustrating these differences.

(2.) *Analysis of data—of outstanding loans.*

The liquidity of the outstanding loans at any time may be measured in a similar manner. Usually it will be advisable to trace the particular notes making up the total of outstanding loans at any time to their dates of payment. If the loans outstanding September 1, 1929, and in the account of John Jones (above) are classified, the analysis would be as follows:

- \$ 50.00 which ran for one month, September 1, to October 1, 1929
- 50.00 which ran for four months, September 1, 1929, to January 1, 1930
- 1,350.00 which ran for 11 months certain, September 1, 1929, to August 1, 1930, the date when this study was made, and an indeterminate period thereafter.

A summation of the accounts of individual borrowers will provide the classification of total outstanding loans which is desired. The outstanding loans may also be classified according to purpose, security, and other factors, and the liquidity of the various groups measured in the same fashion as with loans made. Usually, it will be found that the outstanding loans have a degree of liquidity which

(1) Loans with indeterminate maturities include all loans unpaid by September 20, 1930.

The known elapsed periods, therefore, vary from 8 to 20.7 months.

is conspicuously different from the liquidity of original loans that are made in any given period.

#### IV. EARNING CAPACITY OF LOANS AND INVESTMENTS.

By the earning capacity of loans and investments one may refer either to the earnings from individual loans and securities or to the earnings from funds which are sometimes used and at other times held available for given purposes. The distinction between these two meanings of the term becomes apparent if the case of a bank with a seasonal production loan demand is considered. Individual production loans in such a bank may bear a rate of (say) 8 per cent, and the greater portion of such loans may have maturities of 9 months or less. The dates when the notes are made and paid, instead of being staggered to provide an even volume of business throughout the year, are concentrated in given seasons. As a result the bank has a large volume of production loans outstanding at the height of the production season, and shortly after harvest time the volume falls to a low level.

Usually it is necessary for banks to finance a considerable portion of the current production requirements of their communities. During the slack loan season, consequently, it is necessary for a bank, operating under the conditions above described, to keep itself in a position during the slack loan season to meet the heavier requirements which will arise later on. This means that the bank must keep available funds in the form of securities, commercial paper, or bank balances sufficient for this purpose, or at least keep itself in a position to borrow the money needed for the peak loan demand. Funds invested in commercial paper, securities, or bank balances, ordinarily bear a rate which is much lower than the rate borne by local production loans. It follows, therefore, that the earning capacity of funds which are alternately invested in local production loans and outside investments, is substantially below the level indicated by the rates on local production loans.

##### *Earning rates of individual loans and investments.*

To ascertain the earning rates of individual loans, the research worker may refer to the liability ledger, register of income and expense, and the note register. Both the liability ledger and note register in most cases will show the rates which are nominally charged on loans. Since banks follow a diversity of practice with respect to their rates, it will be well to check the showing of the liability ledger or note register against the register of income and expense. It should be observed whether the bank deducts interest in advance or collects it at the maturity date of the loans. Likewise the frequency of renewals should be noted, as a compounding of interest results from making renewals. The register of income and expense will also indicate whether special charges and commissions are imposed in addition to the customary interest charges.

Similar data concerning the securities and commercial paper which are purchased by banks may be obtained from the daily journal and the register of income and expense.

The first point of procedure after collection of the data is to determine the actual income produced by individual loans, and in doing this it will be advisable to place the operations on an annual basis. Thus if there is a flat charge of 8 percent on a six months' loan for \$1,000 and commissions and other charges are added to the amount of \$5.00, the annual rate of earnings for the loan will be approximately 17 percent. After ascertaining the annual equivalents for the earning rates of individual loans, it will be well to relate the earning capacity of loans to various factors such as size, security, and purpose of the loans. When information concerning the competition of outside agencies is available, it may be possible to trace the influence of this competition in the charges imposed by the bank. This is most likely to be possible in the case of the better classes of real estate mortgage loans.

In analyzing the earning capacity of commercial paper and securities, one should give attention to the buying and selling prices as well as to the rates paid by these investments.

#### *Earning capacity of funds for given purposes.*

The materials for this section of the study are identical with those used in studying the earning capacity of individual loans and presumably will have been gathered when this phase of the study is undertaken. The ideal procedure in making this phase of the study would be to classify in detail the various types of loans and study their tendencies to concentration in given seasons. Usually, however, it will not prove feasible to undertake such detailed classification, and it is recommended, consequently, that the classification be made on the basis of the liquidating periods of the loans. Thus the loans might be divided into two groups—(1) those which are paid within a year's time, and (2) those which run for more than one year. The former class will in most cases include the majority of production loans.

Having divided the loans in this manner it is then suggested that the total body of loans in each class be plotted in order to indicate the seasonal peaks and troughs. The earning capacity of the total volume of funds which is invested in this class of loans will be made up then of (1) the earning capacity of the funds for such time as they are invested in local loans, and (2) the earning capacity of the funds while they are invested in bankers' balances, outside paper, and securities. The data acquired in studying the earning capacity of individual loans provide the basis for analyzing the earning capacity of these funds while they are invested in local loans. By consulting the register of income and expense, and taking account of depreciation suffered on securities, the research worker can estimate closely the earning capacity of the funds while they are

not employed locally. By weighting the earnings received from the funds while in these two employments, by the time periods during which they are so employed, it will be possible to ascertain their average earnings.

Concerning this method of procedure, it may possibly be objected that banks often do not keep funds in the form of bank balances, commercial paper, or securities in sufficient amount to meet their peak-loan demand, but on the contrary borrow for this purpose. To this it may be answered that banks whose business is highly seasonal usually have large supplies of bankers' balances, commercial paper or securities at the beginning of the principal loaning season and that it is difficult, if not impossible, to tell to what extent these assets result from increased deposits or collections from loans. Similarly it virtually never is clearly ascertainable whether the reduction in the supplies of these assets during the lending season should be ascribed to declining deposits or to increasing loans. There is little question that the reserves of a bank are more affected by the deposits than by the loans, but within certain limits the effects of deposits and loans cannot be separated. If the research worker has qualms about using the method described above, he may make any division of the bankers' balances, commercial paper and securities held at the beginning of the loan season which to him seems reasonable and then credit the portion assigned to loans with the average rate of income earned by the total holdings of these liquid assets.

#### V. SERVICEABILITY OF LOANS.

By serviceability of loans we refer to the assistance given both industrial and social groups of persons by a bank's lending policy. No methodology will be suggested for this.

**PROJECT 11.** To analyze the economic organization, financial set-up, operating set-up, services, costs and margins, and rates for various services for country banks.

(By J. D. Black.)

No detailed outline for this project is here presented. The sources of data are the same as for Project 10. As to method of collecting the data, there is a possible choice between collecting less complete data from a larger group of banks—say, a hundred of them—enough to make a fairly adequate statistical sample, and collecting more detailed data from, say, a dozen banks carefully chosen as cases. A combination of the two procedures would be highly desirable. Also the sample or case analysis should be supplemented by whatever statistical analysis can be made of the official data collected by the state banking department.

The data collected should cover rather completely the assets and financial organization of the bank, its personnel, its receipts and expenditures classified according to the heads that seem most signi-

ficant. But this should not lead to an attempt to separate the business of the bank into different departments, such as loans and discounts, savings, insurance, real estate, etc., and trying to divide all expenditures and receipts between them. The set of functions performed by a bank are so involved in one another that any attempt to separate them on a cost and profit basis would be futile. There will be value in noting, however, variations in expenditures for the different items and relating these to the volume of business of the various sorts done, and endeavoring to find reasons for these variations. It would also be helpful if data could be collected and analyzed in such a way as to indicate what the probable effect on the net income of the bank would be of expanding or contracting particular departments of its business. It might even be desirable if possible to show the effect on current income of carrying a large or a small volume of real estate loans, of expanding loans on feeder cattle, etc. The relation of volume of business to net incomes, rates and margins should be given especial attention.

The analysis should probably also take into account the territory which the bank serves, its extent and economic activities; the competition between this and surrounding trade centers; and the competition with other banks in the same and surrounding territory.

**PROJECT 12. To analyze the credit extended to farmers by the stores of an area.**

(By M. R. Benedict.)

*Objectives.*

a. To ascertain the extent to which agricultural credit is furnished by stores.

b. To find how such credit is used, and what rates of interest are actually paid by the users of it.

c. To analyze the risks involved in such loans and variations in the same with different types and classes of farmers, and individual variations.

d. To discover relationships of store credit to type-of-farming, stage of development of the area, nationality, race, tenure of land, age of borrowers, etc.

e. To determine the extent to which such credit could be advantageously provided by other agencies.

*Value and uses of the project.*

The use of store credit is rather prevalent in some sections. It is thought by many to represent an undesirable social and financial condition. If this is the case, we need to know how and to what extent it is undesirable and what the possibilities are for developing a more satisfactory credit situation in the area. If the practice of using store credit is not detrimental to the best interests of the community or to given individuals in it, this also should be known. Any program for providing coordinated credit facilities for the area will

need to take into account all sources of credit, and all types of demand for credit, and will need to appraise and classify these. The problems associated with the extensive use of store credit are much more important in some areas than in others. In some sections the control exercised through loans of this type may have an important bearing on kinds and methods of production, forms of land tenure, living conditions, etc.

### *Scope of project.*

Studies of this kind may attempt an analysis of an area as large as a state or at least of a considerable section of a state. They may be confined to a section where conditions affecting the use of store credit are roughly similar; or may include several dissimilar areas each of which is made a case-study unit. The whole section will need to be examined as a basis for outlining the unit or units of area for study. The examination will make use of farm management studies, census data and the like, and may include taking a few preliminary store records in different parts of the area.

The principal contact between this project and others in the credit field will be with Project 10 on country banks. The chief alternatives to the use of store credit lie in securing credit from the local banks or in advances by land owners. Both of these projects will therefore need to consider what types and amounts of such credit can be handled by banks and by landlords and at what rates of interest. The findings in farm management studies will need to be drawn upon to some extent in considering how essential these loans are from the standpoint of production, what represents a reasonable period for them to run, and what possibilities there are for so distributing the farm income as to shorten the periods for which such loans will be needed. Some parts of the study should also be joint with farm family living studies to determine as far as possible how the use of store credit affects the content of living, the attitudes and activities of farm families, the extent to which home production of farm supplies could eliminate the use of store credit, etc.

### *Basic qualitative analysis.*

A differentiation should be made between store credit which is merely a matter of convenience in buying (settlements made every thirty days, etc.), and credit business which represents a real shortage of purchasing power on the part of purchasers. Our concern is with the latter, though no doubt some studies could be given to the net cost of the service afforded by the first type of credit. Store credit of the second type may aid farmers in their production by enabling them to undertake operations for which they are qualified except for lack of capital; or it may simply sustain them and their families while engaged in their usual lines of production. There can be no doubt about the social economy of the former. Ability to produce and supply of capital very commonly do not go hand in

hand. Transfer of control of capital through credit arrangements is desirable because it makes for a better combination of production factors and greater output per unit of input. Consumption loans are not always so easily justified. Many of them are necessary only because of too high a rate of preference on immediate consumption goods, or too low an appreciation of future production goods. This would seem to be the case where such credit is used year after year, and little or no economic progress results or is expected. Money received in lump sums at harvest time, if not needed to pay debts, no doubt is often spent for more or less inconsequential things, the acuteness of future wants being very dimly realized at that time. It is entirely possible, however, that for many of these families the spending in advance and repayment at harvest time may represent a socially desirable practice, since under it they make wiser use of income and less acute sacrifices over the year as a whole, than would otherwise be the case. If such should prove to be true, the problem resolves itself into one of ascertaining the necessary and unnecessary risks involved in such loans and of considering how the credit can be most economically and efficiently provided. Where such conditions exist, however, an educational program might serve to raise the customary estimates of the future utilities of purchasing power. It may also be possible in some of these cases to set up arrangements for joint responsibility (in the form of credit unions, etc.) whereby the influence of opinions of other members of the community would act as a deterrent to unwise expenditures.

Any program for betterment of credit conditions of this type should aim at segregating and making visible the interest actually paid. This can be done fairly readily where active competition with stores operating on a strictly cash basis exists. Where some degree of monopoly prevails, or where all stores extend credit, it is much more difficult to segregate and measure the charges for interest on advances. Some consideration of the effect of cash price competition in classifying types of customers will also be helpful.

#### *Sources of information.*

Professor Leland Spencer in his study of rural store credit in New York (Cornell Bulletin No. 430) secured information by personal visits to the merchants and by questionnaires sent to country doctors, veterinarians, automobile dealers, etc. Studies in the southern states have obtained most of their data from merchants. Surveys of stores in country towns have usually obtained data on the extent to which credit is granted and the losses from it. Credit surveys among farmers have provided some data on such borrowings. Further studies should include some survey of the storepatrons, both those who do and those who do not use this credit; and perhaps also some case histories of families using store credit over a considerable period.

### *Units and coefficients.*

For comparison of different stores, or areas, and of these at different periods, a number of ratios may be helpful. The following are suggested: (a) Ratio of store credit to total business for the year, (the measure of credit may be the average amount of credit on the books as of the first of each month, or the highest amount on the books at any one time, or the number of dollar-months of credit); (b) average amount of store credit per family or per capita (average of amounts on the books at first of each month, or highest total reached in the year); (c) same in relation to assessed valuation of the area; (d) same in relation to bank debits for the area (total for the year or average per month).

### *Sampling and' choice of period to be covered.*

Where an area as large as a state or a considerable portion of a state is to be studied, it will be extremely difficult to secure a representative sample. Rural stores vary considerably in size, combination of lines of activity, policy, etc. It is obviously impossible to cover all stores in the area if it is large. Possibly the nearest approach to a representative sample that is practical of attainment will be secured by a careful selection of typical counties and the study of all of the stores in these counties. Conditions in the sections near large cities are likely to be so unusual as to warrant excluding counties adjoining or containing such cities.

If the study is confined to a cross-section of the business of one year, a year can be chosen when violent variations in yields and prices have not occurred in the immediately preceding period; and even then some effort should be made to obtain reports of conditions and experience in prior years.

Probably the most significant errors to be guarded against in such a study are those of intentional bias on the part of farmers who answer the questions in such surveys as are indicated above. Wherever possible, the figures obtained in this way should be checked with other sources of information. It may also be possible to so organize survey blanks that misstatements will tend to show up and be corrected. Copies of the forms used in the Cornell study are shown in pages 40-47 of Cornell Bulletin No. 430.

### *Methods of analysis.*

The Cornell study is concerned chiefly with the first two objectives named above, and consists to a large extent of the computation of averages for various items for stores of different types and for different areas. The borrower's phase of the subject has not been dealt with to any extent. Analysis of the records from borrowers should include an attempt to group these into significant classes on such bases as frequency of payment, whether tenants or owner-operators, nationality or race, age, number of years in community, net worth. These classes should as far as possible be related to the amounts of store credit used, if possible to the amount



desired by these borrowers and the extent to which they have been refused credit, to interest rates charged, etc. An attempt should be made to show losses to lenders for each such class, and where possible, to find the reasons for such losses.

### **PROJECT 13. Production loans through cooperative marketing associations.**

(By M. R. Benedict.)

Since such loans are usually made through an affiliated credit corporation, the outline presented under Project 5 will apply, and the study from the viewpoint here indicated will involve mainly the consideration of modifications resulting from the tie-up between the credit corporation and the cooperative marketing association.

The principal phases requiring special consideration will be as follows:

a. Does the arrangement provide credit which was not previously provided? If so, can this credit be safely extended? Why was it not previously extended? What risks are involved?

b. What effect has this method of granting production credit on the volume of deliveries to the association, on the attitude of its members toward it, and on the expenses of operation of the business as a whole?

c. To what extent is the corporation used as a recruiting agency for the marketing association? What dangers are inherent in this practice?

d. What effect if any has this additional business upon the success of the marketing association?

e. What percentage of the growers and of the grower deliveries are affected by such loans, and what if any saving is involved for them?

f. What if any is the effect upon interest charges made by other agencies lending to those growers who do not use this agency?

g. In relation to *b* above, but as a separate phase, what effect does the granting of this credit or its availability have in releasing members from the control of creditors who refuse permission to market products through the cooperative?

h. Does the association endorse the paper received through the credit corporation? If so, what effect does this have on the risk costs of the association, the interest rates on its own borrowings, and its financial stability?

i. Does the association own any part or all of the stock in the corporation? What effect does that ownership have on the financial stability of the association? Is the policy sound and is it equitable to all members?

j. What economies are effected by joint operation? If another credit corporation exists in the community, would the additional

cost to it of handling this business be less or more than for the association to handle it?

k. What additional conveniences to the grower are involved by having the credit operations and selling handled jointly? What inconvenience?

l. To what extent if any does refusal of credit or the use of aggressive collection methods offend or alienate members?

The development of these aspects of the problem will not involve any materially different attack than that outlined under Project 5, except that the additional cost and supplementary relationship phases will enter more definitely into consideration, and that a close tie-up with the studies of the marketing unit will be required.

Two case studies (previously mentioned in Project 5) of this type of financing have been published by the Bureau of Agricultural Economics cooperating with the Federal Farm Board. They are "The Texas Cotton Growers' Finance Corporation" and "An Analysis of the South Carolina Agricultural Loan Association", both by W. H. Rowe. Other studies are in progress. There is also some discussion of it in American Cooperation (Proceedings of the American Cooperation Institute for 1925, 1926 and 1928); also in the Proceedings of the Third National Cooperative Marketing conference held under the auspices of the National Council of Farmers' Cooperative Marketing Association at Washington in 1925.

**PROJECT 14. An analysis of the place of credit unions in the credit facilities of an area, and of their organization and operation.**

(By M. R. Benedict.)

Cooperative personal credit associations have long been a prominent feature of the European credit structure. Their use has often been advocated as a means of lessening credit costs in this country. While a number of such associations have been formed especially during the period from 1912 to 1915 when interest in the subject of cooperative rural credit was especially keen, little detailed study has been given to these possibilities. A few projects may therefore be worth while with such objectives as the following:

a. To study the history of a given credit union or of a number of them with a view to finding what kinds of loans have been found practical, the sources and adequacy of the funds used, the organization set-up used, the losses incurred, the costs involved, the relations to other credit institutions, etc.

b. To determine as far as possible to what extent and at what cost these loans could be provided by other institutions.

c. To determine what improvements might be made in the organization and functioning of such associations.

d. In areas where no credit unions have been established, to determine the need for them and possibilities of their success. If, as seems probable, credit unions are suited only to certain particular conditions, it is important that the characteristics of these conditions be analyzed, and clearly set forth.

If credit unions can improve credit conditions, it must be because farmers can, by this means, perform for themselves some of the functions which other credit institutions would otherwise perform, and do it more cheaply; or because risks can in this way be reduced so that the total cost of furnishing credit is less; or because the credit unions stimulate savings among the members of the community or provide types of loans which are not provided by other agencies. The first two are probably the more important. To conduct a bank, several paid employees, a rather expensive building, vaults, etc. are necessary. It may be possible in some particular types of areas in the United States for a small executive board of farmers to assemble the credit requests, to pass upon them intelligently, and to distribute and collect funds more or less incidentally along with their other business at very small cost. Whether this results in a net gain depends somewhat upon its effect upon the banks and credit agencies of the area. If it merely splits up the business among more agencies, it may not lessen the total cost of credit provision to the community. It may, however, reduce losses from poor risks and even provide credit and services not now available. At least this is supposed to be the effect of joint assumption of risks and the intimate knowledge which the loan committee has of the applicants for loans and of their business; and of the close supervision they can give the loans.

The principal information will be the records of the credit unions and of other agencies having dealings or relationships with them. The method of analysis will be the case method for the most part, with generalizations from these cases as the study includes more of them. The cases selected for study should represent varying conditions and varying degrees of success. Some assistance as to methods of investigation may be derived from the numerous German studies of agricultural credit, some of which are listed in the introductory section of this outline. Some phases of the study here outlined are covered in "The North Carolina Credit Union" a bulletin of the North Carolina Department of Agriculture (1922); in "Farm Credit in North Carolina, A Survey of 800 Farms" by F. R. Yoder, H. S. Beardsley, and A. J. Honeycutt, same source (1923); and in North Carolina Agricultural Experiment Station Bulletin No. 271, "Credit Problems of North Carolina Cropper Farmers" (1930). Several of the area studies of credit listed earlier touch on the needs and opportunities for credit of this type. A considerable number

of general discussions of the subject of short-time cooperative credit appeared following 1912.<sup>1</sup>

**PROJECT 15. To determine the financial needs and the most economic means of providing for them on each of the various types of farm organization in a given farming area.<sup>1</sup> (Joint with Farm Management.)**

(By Sherman E. Johnson.)

*Objectives.*

1. To determine the financial needs of each of the various types of farm organization commonly found on different sizes of farms in the area, in relation to interest rates, prices of products, etc.

2. To enumerate and classify such needs according to the agents of production in which the funds are invested.

3. To show the relationship between financing consumption and production needs and the necessary inter-connections between the two uses of funds on family farms.

4. To determine the sources of funds invested in each type of productive agent, i.e., whether furnished by owner, tenant or if borrowed by either party, from what source and on what terms funds are secured.

5. To determine the optimum periods of financial need of each type and to show the present adjustment of maturity dates of loans to such periods.

6. To show the present financial condition of operators on groups of typical farms for each type of organization, their possible needs for more credit to finance their present system of operation, the relative risk involved in making such loans and the availability of the credit which is needed.

7. To determine to what extent additional funds can be used to advantage in such adjustments in farm organization as farm management studies have shown to be desirable in the area, rates of interest, prices of products, wages of labor, etc., being taken into account.

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(1) Among them may be mentioned:

"Preliminary Report on Land and Agricultural Credit in Europe." Washington Government Printing Office (1912).

"Adaptation of the European Cooperative Credit System to Meet the Needs of the American Farmer." Senate Document No. 855 (1912).

"General Theory of Cooperative Credit in France and Other Foreign Countries" by Maurice Duformantelle. Senate Document No. 572 (1912).

"Agricultural Credit—personal or short-term credit" Senate Document No. 380, part III (1914).

Bibliography on Cooperative Credit—Russell Sage Foundation (1914).

"How Farmers May Improve Their Personal Credit" by C. W. Thompson. U. S. D. A. Farmers' Bulletin No. 654.

"The Credit Association as an Agency for Rural Short-time Credit" by V. N. Valgren and E. E. Engelbert. U. S. D. A. Department Circular No. 197 (1921).

"Agricultural Credit" by H. M. Tory—report to Canadian parliament (1924).

(1) This project is closely related to Project 28 below.

8. To study the financial needs of farm organizations as they are affected by systems of land tenure, and to work out means for adequate financing of the farming set-up under each type of tenure prevailing.

9. To work out the most economic means of utilizing the prevailing credit system for farms operated on different tenure bases and with different types of organization.

10. To study from the lender's point of view the profitableness and the relative risk involved in financing the various phases of the farm business on the different types of farm organization.

11. To develop the most economical means of financing each phase of the farm business on each type of farm, and to show how lenders may adapt their methods to the needs of each situation in such ways as will minimize risks, reduce costs and result in benefits to borrowers and lenders alike.

#### *Value and uses of project.*

It is anticipated that the study will uncover relationships between the financial and the technical organization of the farm business which in the past have been neglected in farm business planning. In particular, it will reveal the amounts of borrowed capital that can be used to advantage at various rates of interest with various possible farm organizations. The study should also prove of value to those who supply the funds for use in the farm business in that the results will serve as guides in determining the amount of funds that lending agencies can safely and advantageously provide, and in planning economical ways of providing these funds. These values are as important for credit agencies operating in the central money markets as for local credit institutions.

#### *Scope of project and relation to other types of research.*

This project will cover both problems relating to financing the farm organization from the owner, operator and borrower's point of view, and those relating to meeting the financial needs of the various types of farm organizations in the area studied from the lender's point of view. The work on this project will therefore be closely related to studies of farm organization and farm business planning. It will be equally closely related to studies of credit institutions engaged in financing agricultural production. This, however, aims to approach the subject from the production organization point of view, and then to show how those who supply the funds will need to adapt their organization and methods to the fundamental production situation. It will be related to studies of the needs and nature of credit for the production of certain commodities in so far as these commodities were included as enterprises in the farm organization studied. The risk elements encountered in the systems of farming studied and their effects upon cost and availability of funds will be covered in a separate study and the results used as a basis for the project now under consideration.

### *Basic qualitative analysis needed.*

A preliminary qualitative statement should be made of the underlying principles governing the use of funds in the farm organization. This should show:

1. The application of the principles involved in the proper proportioning of funds to each of the agents of production and in each of the farm enterprises.

2. The economic limits to the use of funds for each of the agents of production as determined by the opportunity of using funds more or less advantageously for some other agent. For example, an expansion of the land area operated may be made either through purchase or lease. The decision as to which method of securing land is most economical may depend upon the opportunity earnings of funds invested in additional livestock and equipment.

3. The economic limits to the use of funds in each enterprise as determined by opportunity for use of funds in some alternative enterprise.

A careful qualitative analysis, embodying the results of other studies, will be needed to reveal the factors influencing the cost of credit and the effect of changes in cost upon the "highest profit combination." This will involve:

1. The theory of normal interest rates as applied to different types of agricultural loans.

2. A preliminary statement of reasons for local variations, including the risk elements encountered.

3. A general analysis of business cycles, price cycles, farm production cycles in their effects upon interest rates from a short-time point of view.

4. A statement of adjustments in use of funds which can be made to meet changes in cost of credit.

### *Sources of information.*

Primary data will be collected from farmers by the survey method, the schedules used being designed to give full information on the financial side of the farm business on different types and sizes of farms operated under different tenure systems. It is assumed that supplementary to this study, or as a separate study conducted previously, farm management information will have been made available as to the prevailing systems of farming in the area and their relative importance, and as to receipts and expenditures from such systems of farming, and the relationships between the enterprises comprising them, as indicated below in the section on "Methods of Analysis." The information may even extend to systems not now found in the area which it may seem economically desirable to introduce. Primary data will also be collected from firms supplying credit, as to the amount of business done, and their lending practices as related to the cost and availability of credit for farmers of the area.

Cooperation with the Bureau of Agricultural Economics and with adjoining states may be found desirable where the conditions similar to those found in the area extend beyond the borders of the state. Furthermore, since this is a new approach, it would seem desirable for the Bureau of Agricultural Economics to cooperate in order that it may help in developing the methodology needed for such studies.

The system of farming analysis needed for this study should be made from census data along the lines developed by F. F. Elliott in Volume X, No. 4 *Journal of Farm Economics*. The adequacy and representativeness of the sample chosen can be checked empirically by varying the size of the sample and noting the effect on the frequency distributions. Some comparison with county averages can also be made. Such analysis provides the data as to the relative importance of the various types of farm organization. The next step is a more detailed study, using data collected by the survey method, of the important systems of farming in the area, the various systems being included in numbers proportionate to their occurrence in the area. Some of the detail needed may perhaps best be secured through case analysis of farms chosen as being adequately representative of the major types of farms found in the area, the data being collected by the method described as "loosely supervised" in "Research Method and Procedure in Agricultural Economics." The finance information to be collected on farm schedules should be taken either from the same farms as the detailed farm management data or from a sample taken in the same manner. Case farms chosen as being representative of certain types may be used to supply more detailed information on the economy of use of funds. Data obtained from agencies supplying agricultural credit will not involve sampling, as all or nearly all of the agencies operating in the area will be interviewed. The aim will be to secure a cross-section picture of the situation, supplemented with such historical yield, price and cost data as will be needed adequately to develop farm organizations yielding the highest returns on resources used in production and the means of financing such organizations.

#### *Schedules and forms.*

1. A schedule will need to be worked out on which to secure the financial information from farmers. This will need to be of such form as to provide for information regarding:

- a. A complete description of the tenure system.
- b. A complete statement of the farm assets classified as to ownership, amounts and value of different types of resources
- c. A complete statement of liabilities of owners and tenants classified as to type, source, security given, term of loan, and its cost (including interest, commissions, bonuses, etc.).
- d. Organization features sufficient to show income possibilities, unless the financial schedule is a part of the detailed farm management study.
- e. Farmers' use of credit for consumption needs.
- f. Farmers' reaction as to adequacy and cost of credit available.

g. Length of production periods for each enterprise and their effects upon the seasonal variations in the use of funds.

2. The schedule to be used for collecting information from lending agencies should provide for information regarding:

a. Amount of money loaned in area by each agency and for what purpose loaned.

b. Whether funds loaned are of local origin or furnished by outside investors.

c. The cost of loans of each kind to the farmer.

d. Security required and time of repayment specified.

e. Promptness of repayment of past loans, necessary renewals, liquidations, and losses on loans.

f. Methods used in making loans, special stipulations as to procedure in use of loan, etc.

g. Methods of inspection and supervision used to insure safety of principal and prompt repayment.

h. All possible checks on financial data secured from farmers.

### *Methods of analysis.*

1. Statistical analysis in the form of simple- and double-frequency tables and graphs will be used to portray the present financial status of owners and operators on farms studied. Such methods will also be used in so far as group comparisons can be made of the organization and operations of lending agencies.

2. More refined statistical methods in the form of correlation analysis may be used to determine the approximate effects of variations in amounts and uses of productive resources upon farm income. Correlation methods will undoubtedly have to be used to some extent in input-output analyses which will form the basic farm management studies of the effective use of the agents of production under various conditions.

3. The ultimate analysis designed to show the most economical use of funds will take the form of setting up a series of hypothetical organizations by the "substitution" or "budget" method, supplemented by actual case illustrations, to show the effects upon farm income of varying the proportions of the agents used in production and varying the proportions of enterprises in which the agents are utilized. A larger number of case and hypothetical organizations will be needed than is usually shown in farm organization studies in order adequately to bring out "the point of highest-profit combination" in the use of funds, and its variation with changing costs of procuring credit as well as changes in other expense items and changing yield and price situations.

4. The analysis indicated in No. 3 will need to be made from the point of view of the farmer already established who needs to make adjustments that will place his business on a more profitable basis as well as from the standpoint of the prospective farmer who is considering the advisability of entering the field. In the case of the going concern, opportunity costs of funds are involved only on additional investments and on shifts of circulating capital, except as the opportunity of closing out the business presents an alternative, while in the latter case opportunity cost is involved on all the



funds which will need to be invested. The analysis will also have to show the effect upon different tenure classes.

5. Difficulty in securing funds adequate to finance the most economical unit of operation, and the necessity of operating within a margin of safety in the use of borrowed funds, will necessitate the working out of additional farm organizations giving the highest alternative returns on the funds available. It is probable that for reasons above named, the marginal returns limits will not be reached on many farms. A careful study of how often this situation occurs should be made.

6. The results of the analysis of the most economical uses of funds in the farm organization will provide a setting for an analysis by means of case and hypothetical illustrations of the set-up of lending agencies to show how lending methods can be adapted to the production organization in such ways as to provide the credit which can be utilized economically under terms of repayment and supervision best calculated to stabilize the business of both borrower and lender.

**PROJECT 16-a. To analyze the financing aspects of local grain elevator organization and operation. (Joint with Marketing.)**

(By H. B. Price.)

The objective of this project is to obtain an understanding of the nature of the financial organization and financing methods of local grain elevators and to analyze the factors affecting these.

Any study of the financial structure of an economic unit involves an analysis of two rather distinct but closely related problems, namely, capital needs and financial policy. The first aspect requires an analysis of the different classes of capital goods and other capital investments in the business, and of the relative importance of these and the factors affecting their amounts. Distinction should be made between investments that are fixed and those that are current. The former include such elements as site, building and equipment. The latter include stocks of grain and merchandise, cash, notes and accounts receivable, advances and the like. Some of the factors affecting the needs for capital will be location, cost of building and equipment, policy in purchasing supplies, and marketing policies, particularly as these relate to the method of paying for grain, storage and sales practices, and the handling of side-line enterprises. Varying seasonal requirements may also be an important factor affecting the amount of capital invested. Thus the ratio of current to total assets for 20 farmers' elevators in Minnesota in 1922-23 ranged from 43 percent in the fourth quarter of the year to 55 percent in the second quarter.<sup>1</sup>

(1) Minnesota Bulletin No. 224, p. 63, "Management Problems of Farmers' Elevators" by H. B. Price and C. M. Arthur.

Capital is obtained from various sources and on various terms. Owners provide capital for a local elevator chiefly by the purchase of capital stock or by leaving savings of the business with the elevator organization. The former is chiefly in the form of stock, but in some instances appears also as stock purchasing coupons or stock subscribed and partly paid for. Profits left in the business may be surplus, undivided profits, or in some instances, a sinking fund item which may be used to account for deductions made from the proceeds of sales of members' grain. Borrowed funds are commonly obtained from grain dealers, sometimes through drafts secured by shipping documents, and sometimes, particularly in the spring wheat belt, by direct loans from commission merchants. Local banks are also an important source of funds, as are also city banks, and under some circumstances, individuals. An important feature of the project will be to ascertain the relative importance of these and any other sources of capital that may be discovered, the terms of borrowing from the different sources, and the conditions determining the terms and the relative importance of the different sources. Some of the important factors affecting variations in sources and terms appear to be the supply of local capital, the organization of the central grain market, the kind of grain, and the method of sale. The amount of capital borrowed from the various sources also fluctuates seasonally chiefly because of changes in the volume of business but partly because of the policy of storing grain.

#### *Sources of data.*

The principal sources of data are the records of local elevators, audits of public accountants, and the records of grain dealers. The local elevators furnish the best information particularly from the standpoint of obtaining complete data. Unfortunately the records of many elevators both proprietary and cooperative are not sufficiently complete to provide more than a part of the information desired. The line elevators are an exception, as they generally have centralized accounting systems that record the business of their chains completely and in considerable detail. In view of this situation, the public accountants who do auditing for country elevators, and the grain merchants in the central markets who finance country shippers and who frequently keep rather complete records of the business of the country buyers whom they finance, may be very helpful in locating elevators that keep the best business records. In most instances the data obtainable from audits will not permit complete analysis of financial organization and financing policy, since the classification of assets and liabilities and also of items in the operating statement will not be sufficiently detailed to explain variations in the different items. Data obtained from central market dealers will likewise generally be too incomplete for satisfactory analysis. Data obtained from both sources will ordinarily have to

be supplemented by information obtained from elevators before complete analysis of the problem of finance can be made.

This project should be correlated with projects in grain marketing. An understanding of the legal organization and the methods of operation of local elevators is essential to a study of finance. If this understanding is not possible without special study in the field, it may be advisable to combine the study of the financing and of marketing methods (studies in "economic" organization of elevators require such a large amount of detailed data and statistical analysis that they should generally be planned as independent studies). The leader of the project should be well versed in the principles of finance and should at the same time have a good understanding of grain marketing. Otherwise there must be very close collaboration with the grain marketing specialists. This may be arranged between an agricultural experiment station and the U. S. Bureau of Agricultural Economics. Experience has demonstrated that collaboration with the federal Bureau in these projects has two possible advantages. In the first place, federal agents do not have restrictions on interstate travel as state employees generally have. Thus the Bureau may act as a coordinating agency. In the second place, research workers of the Bureau may give the project a regional or national point of view whereas the specialists of an experiment station are likely to have a local or state point of view. Cooperation between states having similar financing and marketing problems may also be carried on to the advantage of the various research agencies.

Either the survey or the route method may be used to assemble the data. The former will probably be preferable in most states as it will be less expensive and it will provide adequate information. The extent of the historical study will necessarily be limited by the availability of records and by the amount of time that can be devoted to a given elevator. If the records of at least a few of the elevators are carried back for a decade or two, some unwarranted generalizations from current data may be prevented. The reliability of the conclusions reached by the case method of course depends greatly on the ability, carefulness, and experience of the investigator.

The accuracy of much of the data may reasonably be questioned, since the records particularly of the independent and farmer elevators will often be incomplete or inaccurate. The records in some cases will have to be built up from the primary data found in check stubs, weight statements and other sources. Much of the interpretation of the statistical information will be based upon the opinions of the local managers, which will need to be checked by obtaining similar information from commission firms, auditors, local bankers or other persons who are acquainted with the elevator whose data are questioned. This kind of testing is very essential in any study of small business enterprises such as local elevators which do not have highly specialized management.

Due regard should be given to the major factors that affect financial organization when selecting the units for study. The two principal factors in the case of local elevators are kind of grain handled and combination of enterprises. For example, elevators handling corn with other grains have substantially different financial requirements and hence need a different financing program than those that do not handle corn. Corn receipts supplement the receipts of other grains and thus permit better utilization of fixed as well as operating capital. Likewise elevators that have a sideline business have a different financing problem than those that do a strictly grain marketing business; those that combine the gasoline and oil business with grain from those that combine feed with it. These factors can generally be easily determined in the preliminary survey on the basis of information that is accessible in their annual statements or in the records or reports of public agencies that supervise the local elevator business.

The kind of field schedule that will be used will in considerable measure depend upon the manner in which the project is set up. If it is undertaken without the analysis of the economic organization of the elevators, it will be necessary to provide for the collection of information which will permit the analysis of financial requirements. This will necessitate obtaining specifications for building, site and equipment which can be used to evaluate the properties and the determination of the condition of the properties, in order to calculate depreciation and obsolescence. Inventories of purchased grain, supplies and merchandise as well as credits, deferred charges, etc., must be obtained at stated intervals, as monthly or quarterly, in order to obtain the amount of operating capital during the different parts of an accounting period. In addition, data should be obtained as to sources of capital, the terms of obtaining it, and such other information on selling and buying policy, storing, hedging and the like as will help to explain the financing requirements. None of the schedules used in studies of the local elevator business that have come to the writer's attention are suitable for this study without substantial modification because they were prepared to be used in studies in which aspects other than financing were emphasized.

Experience with studies of this nature demonstrates that only research workers who are thoroughly conversant with the elevator business and who are well trained in the principles of accounting and business organization should be chosen for field men. Less well trained workers cannot be relied upon for accurate and reliable information.

Sampling, from the standpoint of representing the whole group of elevators of the area, is not practical in studies of this type. Instead the effort should be to learn by rather general inquiries what significant classifications can be made, and to select for careful case study certain elevators in each class which have adequate records and are properly representative. Generalizations based on these can

be supplemented by information collected from audits, official reports, or even by surveys covering some of the more general features, such as the nature of the financial set-up, gross borrowings, financial progress, etc. In the case of line elevators which have centralized accounting, most of the supplementary data can be collected and analyzed before the field work is done. These data will be of some assistance in interpreting the available records of the individual elevators, but in most sections of the grain belt the practices of line and other elevators are too dissimilar to permit going very far on this basis.

The first step in the analysis should be a classification of the data on the basis of the important factors causing variations in financing methods and capital requirements, as for example, kind of grain marketed, combination of enterprises, value of the properties including site, building, equipment, inventories, etc. Construction engineers familiar with costs of elevator buildings and equipment can give valuable assistance in determining probable replacement costs once specifications of such properties are obtained. Care should be exercised to have the properties evaluated on a replacement basis and as of a given year in order that variations due to depreciation and price levels may be eliminated. The next and final step in the analysis of the capital needs is to arrange and to present the data according to the different factors of location, value of site, type of construction of building, kind of equipment, storing policy, credit policy and other conditions that determine the amount of capital needed to finance the business.

The analysis of financial organization should include discussions of past, present, and possible future plans for financing local elevators together with a presentation of the relative advantages and disadvantages of the different plans as they are affected by various marketing practices and marketing situations. The size of the business, kinds of grains marketed, selling policy, hedging practice, financial status of members, and sidelines may be mentioned as some of the important factors that should be given consideration in this connection.

This analysis, although based, at least in certain parts, on much statistical data, must be largely qualitative. This is particularly true of the analysis which is based on statements of policies and experiences of the management. It will probably be possible to obtain sufficient information to point out the amount of capital used by businesses of different sizes, or by businesses that store grain for farmers, but it will probably not be possible to go so far in the analysis as to demonstrate statistically the relative importance of the factors causing variations in the amount of capital used. With cooperative elevators, the attitude of members on withholding dividends, extending credit, granting of storage privileges, etc., will be determining factors which may need to be studied.

This project need not be large or expensive. If there are mill,

independent, farmer, and line elevators, and all types are included, the number of cases should of course be larger than if only one or two types are to be analyzed. Approximately one day will be required of the field man to obtain the field data from each elevator. Perhaps an equal amount of time will be necessary to obtain supplementary data from auditors, commission firms and other sources. Six months employment of a clerk should provide ample clerical assistance, and probably a year should be allowed the leader of the project to plan the study and to carry it forward to publication, although not all of his time need be devoted to the project if he has an assistant.

The cost may be substantially reduced if the study is made in conjunction with other phases of local grain marketing, particularly if it is carried on simultaneously with an analysis of the business set-up of the local elevator, as the field men can obtain the data for several aspects of local grain marketing with very little additional expense, and the clerical expense may be similarly reduced where similar tabulations are required of the same data for different studies. The study of finance may also be enlarged to include other areas or elevators operating under other conditions without a proportionate increase in cost.

No studies of the sort here indicated have so far been made, though a considerable number of studies bear on certain phases of the problem. Pages 60 to 76 of Minnesota Bulletin No. 224, "Management Problems of Farmers' Elevators" by H. B. Price and C. M. Arthur deal with it more specifically than any other study so far made. A more specific study of this phase of elevator operation has been partly completed by R. E. Post of South Dakota State College. The series of mimeographed preliminary reports by Mr. W. J. Kuhrt, formerly of the U. S. Bureau of Agricultural Economics, in cooperation with various northwestern states, also provides some valuable material in this connection. Iowa Bulletin No. 211, "Fifty Years of Farmers' Elevators in Iowa," by E. G. Nourse may prove suggestive in connection with some aspects of the historical phase of the study. Since legal elements must of necessity enter into problems of financial set-up of cooperatives, U. S. D. A. Bulletin No. 1106, "Legal Phases of Cooperative Associations", by L. S. Hulbert, and "Cooperative Marketing Associations" by Henry W. Ballantyne in the *Minnesota Law Review* for December 1923 may be found helpful. Another study which will be found helpful is that of G. M. Francis, "The Financial Management of Farmers' Elevators", A. W. Shaw Co., 1926.

**PROJECT 16-b. To analyze the financing aspects of retail feed store organization and management. (Joint with Marketing.)**  
(By Leland Spencer.)

It is known that retail feed stores constitute an important source of credit for many farmers, particularly dairymen, poultrymen and

the like. It is also known that retail credits constitute one of the important problems in the management of these stores. The experience of many cooperative associations engaged in this business indicates that a sound system of financing and credit management is one of the essentials for success. An investigation of the type suggested here should yield valuable information both for those already engaged in this enterprise and for those who may later enter the field.

More specifically, the objectives of this project are to ascertain:

1. The amounts of capital used for various purposes, such as land and buildings, equipment, inventories of merchandise, accounts and notes receivable, cash, and bank deposits; and how these vary by sizes of stores, nature of organization, season of the year, etc.

2. The credit operations, both borrowing and lending, carried on by these stores; why customers use this credit in preference to that from other sources; the periods over which book accounts are carried.

3. The amounts of capital furnished by different agencies, such as the proprietors, banks, manufacturers and wholesalers, holding company (if a chain store), members (if a cooperative store), and the type of security held by each group; also seasonal changes and trends in amounts of capital furnished by these agencies; also the cost, term, and relative efficiency of the capital obtained from each of these sources. Differences according to form of organization, location, size of business and the like should be brought out.

4. The nature and cost to the store of credit extended to customers, including such items as cost of credit accounting, collections, bad accounts, charges made for credit; relation of credit policy to volume of business; and margins and profits.

5. The approximate cost of feed store credit to farmers in comparison with other forms of credit in terms both of interest charges and of higher prices.

6. The nature and amounts of the losses incurred, whether due to price changes, to physical conditions, to incapacity or dishonesty of borrowers, etc.

7. Possibilities of substituting other forms of credit for that furnished by feed stores; attitude of bankers toward financing of feed stores and customers of feed stores; and suggestions as to how farmers may more readily obtain credit at banks.

#### *Scope of project.*

This project will ordinarily cover a section of a state, but in most cases certain counties will be taken as representative of the section (see discussion under sampling). All types of feed stores in these counties should be included with the possible exception of those handling feed along with other commodities and not keeping separate accounts for feed. Both private and cooperative stores should be included. This project may well be made a part of a

more comprehensive project dealing not only with the financing of feed stores but with their physical set-up and operation as well—somewhat along the lines illustrated in Cornell Bulletin No. 471, "An Economic Study of Retail Feed Stores in New York State", and Minnesota Technical Bulletin No. 28, "Economic Aspects of Local Potato Warehouse Organization."

#### *Basic qualitative analysis.*

If feed stores are used as credit agencies, a function for which they do not appear to be especially designed, it should be because they are able to appraise borrowers better or at less expense than banks can, and thus make certain types of advances at less risk; because they provide certain elements of convenience; because they are in a position to collect such loans at small cost; or because they have funds seeking outlet which can profitably be used in this way. Such stores may also extend credit in order to increase their volumes of business, and even carry such credit extension to a point where it costs more than offsets the gains on the additional business thus secured. It is entirely possible that the first of these is a significant factor. The feed store operator is likely to be in closer touch with the farmer's business, progress and personal characteristics than is the banker. If so, he may be able to select risks more accurately, and therefore to provide a given type of loan at less cost. Convenience and absence of annoying detail undoubtedly account for much of this type of credit which could perhaps be more cheaply secured at the bank. Collections may be kept up better and with less expense where the lender is seeing the borrower every few days, and where, as is often the case, produce of various kinds is being received from time to time and may be used for the payment of such accounts. Another factor which very possibly enters into consideration is the invisibility of the interest charge at the feed store as compared to that at the bank.

The relative advantages and disadvantages to the feed store of securing its loans from banks or from wholesalers should also be analyzed. The extent to which advances by wholesalers prejudice the store's opportunity to buy at favorable prices or endanger its life as an independent unit may be significant considerations.

#### *Sources of information.*

The chief source of information will, of course, be the feed stores themselves, their books and the views and experience of their proprietors. This will need supplementing, however, with information secured by survey from patrons, bankers, etc. If Projects 5, 7, 12, 13, and 15 have been undertaken, the data thus secured will help with this project, but such full analysis of the borrower side of the problem will hardly be warranted for this project alone.

#### *Units and measures.*

It does not greatly matter what system of valuation is used, but whatever system is adopted should be used consistently throughout.



Most of the books of accounting that will be used will probably show land, buildings, and equipment valued at cost less depreciation. If this system is used throughout the study, fewer adjustments will have to be made. On the other hand, the records for different stores would be more nearly comparable if all properties were valued at replacement cost.

The cost of credit accounts may be expressed as an annual rate on the average amount of retail credit outstanding. Collections on charge accounts may be expressed in the same way, or for each month as percentages of the average amounts outstanding at the firsts of the months or of the total credits placed on the books for the year. Discounts may be expressed as a percentage of total cash sales for the year, or if allowed for early payment on credit accounts, as a percentage of total sales or of total credits placed on the books for the year. Losses from bad accounts may be expressed as percentages of total sales and as percentages of total credits placed on the books. These may also be subdivided by classes of patrons if the records are such as to permit of this. Returns to management may be expressed in terms of interest on the invested capital (usually as of the first of the year), as a percentage on total sales, or as a residual of managerial income assuming a standard rate of return on invested capital. Expenses should in most cases be stated in terms of percentage of total sales.

#### *Sampling, choice of period, and method of analysis.*

One of the first efforts should be to make up a comprehensive list of feed stores in the region to be covered, such as a section of a state or a whole state. This can be done through the feed dealers association, by circularizing county agricultural agents, etc.

The selection of the counties or other area units to be covered will be the next step. It should be based on a mapping of the area and classifying of the stores by types. The number of significant subclassifications that can be made will depend on the number of stores to be included in the study. Where data are taken from several areas which are dissimilar as to local conditions, e.g., mixed farming areas, dairy sections, prosperous or unprosperous areas, etc., more stores will need to be included unless other bases of classification are to be ignored. It is desirable to have at least ten stores in each group. Size of stores should be determined on the basis of annual net sales. Definite limits for the various groups cannot be set until after the survey has been started or at least not until a preliminary investigation of all feed stores in the areas to be studied has been made. Once the classifications have been determined, careful case studies should be made of certain typical individual stores within the groups. It is possible that the differences between stores in the same size or other groupings may be more significant than the similarities. The sample probably will not be large enough to warrant attempts at statistical treatment of many of

these differences, but qualitative appraisal of them should be possible.

The period to be covered presents some little difficulty. For most studies, a choice will have to be made between covering a larger number of stores in cross-section or taking a smaller number and following the records back farther. The records will be more difficult to obtain and interpret as the period is carried farther back. Nevertheless, a careful consideration of the financial history of at least certain typical stores will be needed if the various relationships are to be understood and effectively presented. This difficulty can probably best be met by making rather thorough historical case studies of some stores and considering in the light of the information available the extent to which the findings from these can be applied to the other stores studied.

Careful case studies of at least part of the stores should be the first step in analysis. This is more likely to reveal causal relationships than any statistical treatment that can be undertaken. These case studies may well be followed by cross-tabulations so set up as to classify the stores in relation to such causal relationships as are indicated in the preceding steps. In addition to these, scatter diagrams may reveal relationships of such a nature that smooth curves can be fitted to them informally. The analysis should go deeper than to attempt to find what differences exist, and should seek to show why these differences exist, how they are related to the interest costs of the farmers served, and the quality and amount of service, and how they relate to the profit-making possibilities of the stores.

No studies having exactly these objectives have so far been made. The nearest approaches to it are: Cornell Bulletin No. 430, "An Economic Study of Rural Store Credit" by Leland Spencer; Cornell Bulletin No. 471, "An Economic Study of Retail Feed Stores in New York State" by E. A. Perregaux; and Cornell Bulletin No. 505, "Some Factors Affecting the Cost of Operation of Retail Feed Stores in New York" by Whiton Powell.

**PROJECT 17-a. To analyze the financial organization and financing policies of a cooperative cheese selling agency. (Joint with Marketing.)**

(By H. H. Bakken.)

The objectives are:

1. To ascertain the nature of the financing needed by such an agency.
2. To study the sources of the finances used and possible alternative sources as to rates charged, security required, possible pressure on organization policy, availability in times of stress, adequacy in volume, etc.
3. To find the phases of financing which have caused difficulties, and the reasons for such difficulties.

4. To analyze the financial policy as to accumulation of owned funds, methods of payment to farmers, reserves of liquid capital, retirement of invested capital, dividend payments, book accounts with customers, etc.

5. To study the effects of various financing policies on member attitude, volume of business, etc.

6. To study the effect of each arrangement and policy on total cost of credit, net profit of the business, etc.

7. To investigate the sources more particularly for the purpose of determining what changes in organization will have to be made to comply with regulations and conditions governing loans such as those made through governmental agencies, cooperative, and private credit institutions.

#### *Value and use of the project.*

The financial arrangements of many cooperative associations are the outgrowth of the limited experience of the organizers and earlier officers, and often represent the results of continuous piecing on of new arrangements as the business grew, as new lines of activity were taken on, and as new viewpoints developed among managers and officers. In some cases, the exigencies of early financial requirements may have caused the acceptance of certain dominations on the part of lending agencies which need not now be permitted. Very frequently, such a business has grown to an extent that the original capital arrangements are inadequate or the gradually increasing value of plant and equipment is appearing as increased book value of earlier issued shares of stock instead of being issued as new shares to current patrons who are probably the real contributors of such capital. This more or less chance development of the financial organization and policies may represent a continuous refitting to a changing environmental situation which gives a better result than any planned arrangement could. It may, however, contain elements of weakness which will cause serious crippling or even failure in a period of special stress. Such an analysis as the one here outlined should indicate whether the financing of the organization has been adapted to the changing conditions and whether serious weaknesses of financial organization and policy exist.

#### *Scope of the project.*

This will necessarily be a case study, as such organizations are ordinarily regional and few in number, and the findings which apply to one of them may not apply to others except in very much modified form. This means that a good deal of the information will have to be drawn from the records and experience of the organization itself, and the study will in most cases cover its whole history. There will also be need for considerable information concerning marketing organization and marketing policy, membership relations and the like, which preferably should be developed as separate projects. The financial phase will need at least the counsel if not the active par-

ticipation of someone who has given considerable attention to corporation finance, and to the legal aspects of financial arrangements.

### *Basic qualitative analysis.*

If a considerable part of the capital needed can be provided in such a way that interest or dividends on it are contingent upon earnings, the agency is likely to have greater ability to absorb the shocks attendant upon temporary reductions in income. These no doubt are not so significant in the case of cheese selling cooperatives as in some other kinds of cooperative organizations, but may be significant if the charge for service is on a basis of percentage of selling price rather than a fixed amount per pound. The latter arrangement is probably the more common. It is probable that some lower limit of safety as to amount of owned capital may be possible of estimation. The upper limit of such financing is probably the smallest amount that is used at any period of the year. To provide more than this in the form of owned capital will usually mean relatively low returns on this capital because of idleness or low-rate investments for part of the year. Such funds are probably more valuable to the farmer members if used in their own individual businesses. This may even be true of such amount of the continuously used capital as exceeds the minimum-for-safety amount. On the other hand, the accumulation of capital by the cooperative may come largely out of what would otherwise be current consumption expenditures and thus may represent a saving which would not be made either privately or cooperatively if not made in this way.

Where new capital is derived by withholding part of the current proceeds of the product, this represents an input of capital by a different group of investors than that which originated the venture, and from various standpoints should be credited to those actually contributing it. Such handling usually makes for satisfactory membership relations, simplifies income tax problems, and avoids injustices. The project should analyze the extent to which these principles are carried out and what difficulties they involve, and may well consider also the methods, if any, and possibilities of retiring the capital participation of members who have ceased to be active participants in the activities of the cooperative. These problems will of course differ somewhat if a relationship of member associations to a central agency is being considered or if a relationship of farmer members to a local element of the central agency is considered, but the principles will be much the same.

Whether payment to farmers for their product is to be made in full on an estimate of present worth at time of delivery also affects the volume of credit used. The merits of this will have to be estimated on the basis of the usefulness of these regular payments to farmers and their effects upon volume of business as compared to the extra cost to the cooperative of this procedure. This problem is not as pronounced in the case of a cheese cooperative as in the

case of a wool or cotton cooperative where the effects of different percentage advances as to risk, cost, administration, etc., would need careful consideration.

Where the lender of funds borrowed by the cooperative has authority to exert pressure in regard to the time and manner of selling, extremely careful analysis is needed. If the selling policy of the cooperative was unwise, this pressure may have been a wholesome check to an unprofitable holding venture. On the other hand, a short-sighted or non-cooperative attitude on the part of the lenders may seriously embarrass the association. The history of the situation in this respect, and possible developments of this kind, should be worked out.

The interest rates charged may vary with the financing policies of the organization, though this is not very likely. Unless suitable assurance of business-like management or suitable security can be given, the loans are likely not to be made at all. Where any variations on this ground do appear to be a factor they will require analysis. A more probable variant of interest rates will be in the size of the loans needed. Whether this involves any significant relationships for the organization may warrant some consideration.

The convenience of various loaning arrangements may be a chief factor in determining the choice of sources of loans. This may range from the annoyance of excessive detail and red tape, to important considerations involving the type of warehousing arrangements which can be made (whether federal or state), the bonding required, the restriction on sales from "free" space as compared to "bonded" space, etc.

#### *Sources of data.*

The main source of data will of course be the cooperative association itself, its records, the experience and opinions of its officers and members, etc. Other information will need to be obtained from the officers of the lending agencies, not only those that have done business with the association but agencies which might do business with it, but do not. The published studies of other cooperative associations of similar nature will be found helpful, and it may be possible by correspondence with or visits to such agencies to gain some little experience and opinion information for purposes of checking hypotheses or conclusions.

This project may be carried out by an independent agency or as a joint study either with some federal government bureau or with the cooperative agency. It might easily be a part of a complete business analysis study similar to some which the Division of Cooperative Marketing of the Bureau of Agricultural Economics has executed.

No studies of the type here indicated have so far been made, and methodology cannot for that reason be very authoritatively discussed. Some suggestive case studies which develop related aspects of the business of such cooperative associations are the following:

Wisconsin Bulletin No. 380, "Marketing Wisconsin Foreign Cheese by Federation"; U. S. D. A. Circular No. 86, "A Business Analysis of the Producers' Live Stock Commission Association of National Stock Yards, Illinois"; U. S. D. A. Technical Bulletin No. 63, "Co-operative Marketing of Grain in Western Canada"; U. S. D. A. Bulletin No. 1237, "Organization and Development of a Cooperative Citrus-Fruit Marketing Agency"; U. S. D. A. Circular No. 100, "Business Analysis of the Tobacco Growers' Cooperative Association."

The studies mentioned under Project 16-a will also provide some suggestive approaches and analyses. Such studies as the one here discussed might well have been combined with or carried on at the same time with these.

**PROJECT 17-b. To analyze the financial organization and financial policies of a cotton pooling organization. (Joint with Marketing.)**

Much the same approach as that indicated for Project 17-a will be needed. Here, however, much more attention will need to be given to the relation between the credit problems and the price or selling policy, and to the size of the advances made, the methods of appraisal of qualities affecting these advances, etc. More attention will also be needed in the matter of production loans, their effect upon the association's business, their cost, risks involved, etc., though it is not the purpose of this project to analyze that as fully as would be done under Projects 15, 18, 26, and 28.

## **GROUP C**

### **The Approach by Types of Credit.**

Considerable of the research in rural credit thus far undertaken has been organized by types of credit, principally classified as farm real estate credit, short-term production credit, and consumption credit; sometimes also as intermediate credit and marketing credit. The approach from this angle emphasizes the special nature of each type of credit and of the necessary provisions for handling it. Several types of agencies may supply a given type of credit, each having certain advantages and disadvantages for it. The analysis therefore cuts across that in Group B, which is organized by institutions or agencies. The present tendency in research in credit is to organize it as in Group B. But the approach by types of credit served well in the period from 1900 to 1924 when the need was for new institutions adapted to the special character of the different types of credit. It still has an important place in many situations.

**PROJECT 18-a. To determine the nature of farm real estate credit, the manner of its provision, and the organization and functioning of agencies adapted to handling it.**

Practically all the important aspects of this project have already been covered in Project 1. There remains simply a narrowing of the scope of that project to one type of credit, and analyzing this more intensively. Hence there is little need for any further discussion of methodology along the lines laid out in Projects 7, 8 and 9.

**PROJECT 18-b. Same as 18-a for short-term production credit.**

This also represents a special phase of Project 1, together with a combining and coordinating of some of the relevant findings in Projects 5, 6, 7, 8, 12, 13, 14 and 15.

**PROJECT 18-c. Same as 18-a for consumption credit.**

(By B. M. Gile and H. B. Price.)

The objectives of this project are (1) to obtain a better understanding of the extent of consumption credit among farmers, and the conditions under which it is obtained, (2) to gain a keener appreciation of the principles relating to this type of credit, and (3) to formulate conclusions that may aid farmers and credit institutions in the management of consumption credit. The first objective is probably the most important at the present stage of research, since our knowledge of the extent and conditions surrounding this type of credit among farmers is based largely on a cursory examination of facts that have been obtained incidentally in connection with studies of other aspects of agricultural organization or other types of credit. What is most needed now is the assembling of all of these data and the collection of supplementary data that have a bearing on the problems of consumption credit. At the same time, research workers should not overlook opportunities to realize the two other objectives.

Consumption credit, strictly defined, differs from production credit in that its liquidation must come from some source other than the contribution which the goods and services purchased make to production. But in practice as pointed out earlier this distinction is hard to make.

It is doubtful if any attempt should be made to separate production from consumption uses in many cases. The criterion of effect on net income is about the only guide to reasoning on such problems. Obviously, much of the data will be of such nature as to preclude quantitative analysis. Beginning projects in this field, as previously mentioned, should aim to obtain information regarding the extent to which farmers are obtaining credit for various purposes in which consumption is represented, and the rates, terms, and risks involved.

The problem of consumption credit assumes various aspects in different areas and for different individuals. In some districts it is used largely for necessary food, clothing, and medicine while a crop is being produced. In others, it is used more largely for gaining control over rather durable consumption goods such as furnaces, pianos, or new dwellings or for personal service of a high order such as a high school or college education.

Research projects on consumption credit among farmers should throw light on such questions as whether users know the real costs to them of such credit; that is, whether it tends to distort or to improve the judgment of the user. Does it discourage the consumer or does it raise his standard of living, and thus stimulate him to greater effort and production; to what extent are commitments irrational in the sense of causing payments to be made with money of higher marginal utility than the money borrowed had? Does credit tend to rationalize spending; does it encourage or discourage savings; does it retard or accelerate the financial progress of the family; and what relation does it have to variations which occur in the annual income because of price fluctuations, failure of gardens, etc.?

#### *Methods of analysis.*

In the development of a new type of study such as this one, definite statements as to procedure are not feasible. There are numerous and difficult problems, some of which are not likely to be foreseen. However, certain aspects of the factual data to be obtained, such as the extent of consumer credit in relation to total credit, cash income, rates, terms, sources, nature, and characteristics of goods or services obtained, will lend themselves to quantitative statement. Because the data relating to the subject are minor and sporadic, and often not recorded at all, it will require years of effort on the part of many agencies to gather the facts needed for adequate statistical treatment.

#### *Types of information desired.*

Amount of credit—mortgage, short-term production, consumption.

Sources of each kind of credit.

Use of consumption credit—food; shelter—housing and furnishings; clothing; health; automobile; recreation; education.

Terms of consumption loans—length of loans; period for which loans obtained; renewal privileges; rate of interest; renewal charges; security.

Some general information regarding the farm—such as tenure, size, location with respect to roads and towns; use of land; farm enterprises.

Some general information regarding family—such as nativity; size of family; number of dependents, children and others.

Income of farm family—sources and amounts of cash income, including income from outside sources.

Farm perquisites—kinds and amounts.



Farmers, business men, hospitals, doctors, dentists and bankers in typical areas of the state will supply much of the data other than that obtained from farmers. There will be other types of studies which contain data that will contribute to an understanding of consumption credit such as (a) agricultural income studies, (b) content of living studies such as made by the Division of Farm Population and Rural Life of the Bureau of Agricultural Economics, and by Black and Zimmerman at the University of Minnesota, and (c) studies of farm organization by farm management specialists.

#### *Organization and cooperation.*

It will usually be desirable in the set-up of such a project as this to provide definitely for the cooperation or consulting counsel of specialists in sociology, psychology, home economics, and farm management. The varied resources of the Bureau of Agricultural Economics will also afford considerable assistance in dealing with the problem.

The number of sections to be studied in each state will depend somewhat upon the number of districts where consumption credit practices vary markedly. A sample of ten percent of the owner operators and tenants, if selected at random, should constitute a sufficiently large group of farmers from which to take records. In addition, data will be obtained from all types of business houses and professional classes in the section. When outside agencies are found to be extending credit for consumption purposes in the section, data with respect to the nature and extent of their operations should be obtained.

In so far as possible, data should be obtained from farmers on the relation of consumption credit to the total volume of seasonal credit for a series of years. Mercantile establishments should preferably be the source of data on total sales, total credit sales and total credit for consumption goods for at least a five-year period. Data on costs and mark-up on credit sales should also be available from merchants.

A consumption credit study such as this can with advantage be made concurrently with such projects as 3, 5, 10, 12, etc. This will save duplication of effort and give a much better basis for analyzing consumption credit. Also the separation of consumption credit items should be more complete since all credit items will be under examination.

There are no research publications which deal specifically with the the subject of consumption credit among farmers. Some of the publications referred to in Project 1 relating to general agricultural credit in certain sections, especially those from Louisiana and Arkansas, do, however, include some data on the use of credit for consumption purposes. The studies on family living above referred to also contain materials which will be suggestive; also such a study as that on "Installment Buying," (1926) made by the Bureau of Business Research, School of Administration, University of Oregon.

**PROJECT 19. To analyze the social and credit economy of loans to a particular economic group, such as tenants in Illinois, for the purchase of farms. (Joint with Land Tenure.)**

(By C. L. Stewart.)

The general objective of the project is to determine the extent to which full-owner and part-owner operators have utilized purchase credit in the acquisition of farm real estate, and why present tenants have or have not tried to purchase farms on credit. More specifically, the objectives are as follows:

1. To determine the proportion of land area of various soil and topographic descriptions of which the title passed (a) into, or (b) out of operator hands one or more times during a selected period, as 1910-1930.

2. To determine the extent to which former full tenants and operators owning less than half the land they operate progressed in reducing the amount of mortgage debt per acre, in paying off junior and senior mortgage loans, in terminating and avoiding delinquencies, and in accumulating more or less liquid personal properties, such as livestock, operating equipment, notes receivable, private and other non-governmental corporate securities, national, state and municipal bonds, etc.

3. To compare the extent of such progress by tenants and minority part owners with that of operators owning more than half the land they operate and of operating and non-operating owners.

4. To determine in all cases of such passing of title the extent of mortgage indebtedness on record at intervals, possibly of one to five years, from passing of title, and the annual interest and instalment requirements.

5. To determine reasons for increased mortgage indebtedness, as shown by change in the amount of the first mortgage loans, as initially recorded, or by additional indebtedness evidenced by added junior mortgages or increases in amounts evidenced by them.

6. To determine reasons why properties of which the title has passed from operator hands have been so disposed of.

7. To ascertain the extent to which selected first-mortgage lending institutions have received formal loan applications from tenants, from minority part-owner operators, from majority part-owner operators, and from operating and non-operating full owners during the period 1928-1930, as compared with selected earlier dates.

8. To ascertain the attitude of present tenants and part-owners toward the acquisition of farm real estate to be operated by them (a) in the area, (b) outside of the area, under one or more assumptions such as (1) a level of local farm real estate prices approximating those in willing-buyer, willing-seller sales of early 1931; (2) 33-year amortized loans at  $5\frac{1}{2}$  percent interest net to the borrower covering 40 to 45 percent of the appraised valuation of the real

estate; (3) a guarantee of non-delinquency so long as the amount paid within a prescribed period of each year is not less than 60 percent of the gross value received from sale of products from the mortgaged trust; (4) a 20-year or other long-term amortized junior indebtedness at  $6\frac{1}{2}$  percent interest net to the borrower covering 20 to 25 percent of the appraised value of the real estate.

### *Qualitative analysis.*

In analyzing the reasons for the situation as it is and the ways in which it has developed, some little consideration will need to be given to the basic elements of the situation. Some tenants buy farms. Others do not. Some prosper though continuing to rent. Some prosper as owners. The reason a prosperous tenant does not buy may lie in the fact that he considers it cheaper to rent than to own. If so, this viewpoint may rest on a lower estimate, on his part, of the probable future increases in land values than that held by the marginal buyers of land in his area. It may, on the other hand, rest on his having an opportunity for a better income from his accumulated capital than the prevailing interest rate of the area. The reason for this may frequently be found in the fact that his owned capital invested in operation of a larger acreage of land may bring him a larger rate of return than it would if confined to a smaller acreage partly or wholly owned. Much of the tenant's attitude in regard to purchase as compared to renting may lie in the nature of the lease under which he operates, the influence of tenant or owner status on his family's social standing in the community, etc. A higher valuation of present income in relation to expected future income may explain the preference of some tenants to retain the somewhat larger present cash income in preference to assuming obligations which involve not only the uncertainty due to substituting an estimated future income for a more assured present income, but the fact that, even ignoring this uncertainty, it is a future income.

A more common situation probably lies in the insufficient ownership of capital to be able to furnish the necessary margins for purchase of a farm of the size and type the tenant is accustomed to. Where this is the case, it is desirable to seek, as far as the limitations of the project will permit, the reasons for this, whether shortness of time on the farm, low earning power, high current consumption expenditures, unsuitable methods for accumulation of savings, etc. Where the study reaches into these aspects of the case, the help of specialists in rural sociology and in farm management will be needed.

It is probable also that many tenants purchase farms in order to raise their social status in the community when a purely economic analysis of their situations would indicate tenancy as a more profitable tenure status. Any satisfactory analysis of this aspect of the matter must, of course, rest upon studies made in rural organization, and possibly on further analysis from a social psychology stand-

point of such elements as intangible income from land ownership, the nature of land hunger, etc.

*Sources of data and information.*

The following procedures are suggested:

1. In the light of the 1930 census and other information, designate in each of the several farming-type areas from two to four townships for tentative consideration, or in larger areas a proportionally larger number, the object being to show diversity within the area in respect to (a) proportion of farm real estate (farms, acres, estimated realty values), operated under lease by tenants, and, in the case of acres and values, by part-owners also; (b) changes in the local tenure situation during the past decade or more tending in some cases to increase and in other cases to decrease the relative prominence of tenancy and part-owner leasing; (c) known emphasis upon significant kinds of leasing practice.

2. Select an average of one township for each farming-type area or further reduce the number of townships to accord with resources available, having as an object in the selection the choice of those likely to be most representative of all the townships of the state or of the particular area studied as tentatively classified on the various bases of interest.

3. Conduct a survey of (a) owners of farm real estate, including those letting their land as well as the occupying owners, (b) part-owners, (c) tenants, (d) courthouse officials and records, (e) Federal Land Bank, other mortgage lenders, including joint stock land banks, local and other banks and private lenders. Some of these may need to be visited more than once.

Informal collaboration with county officials and with officials of state associations in the field referred to is desirable. Much of the data will be drawn directly from county records on special forms. Information from present and earlier owners of the real estate and from present lessees, including tenants and part owners, will be obtained by direct inquiry, in practically all cases by interview.

Little check upon the authenticity of the data in county records would seem ordinarily to be needed. Such records are not always complete; mortgagees, or their agents, sometimes omit to have chattel and even real estate mortgages recorded. Indebtedness other than real estate and chattel mortgage debt may be fully as important as the mortgage debt in determining the financial position of borrowers. The extent to which an owner or lessee interviewed will make a complete statement of all debts differs. Many are willing to give access to a copy of a financial statement on file at a nearby commercial bank. Many will indicate how complete, in percentages, is an exhibited summary of his indebtedness as of certain dates considerably past. Likewise, there may be profit in seeking from a collaborating banker a judgment for a group of his customers as to how complete the recorded mortgage indebtedness was at more recent dates. Ex-

pressed as an average percentage, and as a distribution of percentages, without revealing the identity of customers, this information may be valuable.

Sampling by time periods is handicapped by the fact that the survival factor enters. Those left in local ownership or operating capacity in 1931 cannot be used to reconstruct the distributions characteristic of earlier periods without bringing to bear several indexes of change, none of which has yet been convincingly perfected.

An experimental analysis in an area in which bankers and others are known to be especially sympathetic with the objectives is likely to yield results and to pave the way for success in other areas.

The significance of such a project consists mostly in determining the following: (a) the extent to which minor-equity borrowers fared as compared with major-equity borrowers, thus throwing fundamental light upon the limits to the use of credit in individual agricultural progress; (b) the extent to which credit other than that on record on real estate and chattels has characterized minor-equity as compared with major-equity borrowers, thus throwing light on the possible need for a junior-mortgage supplemental credit system for land-bank administration, for drouth or other emergency periods, or for selected classes of borrowers; (c) the extent to which the absorption of gross receipts from sale of farm products by interest and other fixed-amount payments varied in percentage over a term of years, thus throwing light upon the possibility of affording to buyers of bonds of a specially arranged series a rational basis for estimating the probable effect upon their annual and decennial income if the crop-payment rule of delinquency were made applicable; (d) the extent of interest shown by tenant and minority part-owner operators in obtaining use of land by purchase rather than by renting from others.

**PROJECT 20. To analyze the nature and extent of intermediate-term credit in a region, and the experience of credit agencies in handling it.**

This represents an examination of the relationships studied in Projects 1, 5, 6, 10, 11, 12, 13, 14 and 15 with special reference to the coordination or lack of coordination of these agencies and to the total amounts and kinds of such credit needed. The methods discussed under these projects will apply in this study, though it will not ordinarily be possible to follow them out to the extent there indicated except as separate studies of a number of the projects have been made. The approach here will be more in the nature of a subdivision of Project 1, but with more analysis of competitive relationships than is provided by Project 1.

## GROUP D

### PROJECTS RELATING TO PARTICULAR OPERATIONS OR FUNCTIONS CONNECTED WITH CREDIT.

As research in credit becomes more intensive and detailed, projects will be undertaken increasingly which concentrate on some particular operations, such as appraising property as a basis for loans, or particular credit functions, such as that of assuming some of the risks of business enterprise. Following are several projects illustrating such research.

**PROJECT 21.** To analyze the factor of risk in farm real estate loans in a given area.

(By F. F. Hill.)

The purpose of this project is to determine, in so far as possible, the relative risks attaching to real estate loans made in varying amounts on different classes of farms within a given area.

The term "risk" as used in this discussion refers to the risk of loss (loss of interest or principal or both) assumed by the lender. Such risk arises out of the possibility that the borrower may be unable to meet his obligations and that the mortgaged property will fail to sell for enough through foreclosure sale to reimburse the lender. The failure of the borrower to meet his obligations may be due to one or more such factors as unfavorable weather conditions, unfavorable relationships between the prices received for farm products and the prices paid for items entering into the cost of production, low prices received for particular products due to the opening up of areas with lower costs of production, etc. Failure may also be due to the lack of managerial ability on the part of the borrower, or the failure of his heirs to carry the business on successfully in the event of his death, or to dishonesty and personal extravagance of the borrower.

In cases where the borrower fails to meet his obligations, the risk of being unable to sell the mortgaged property for enough to reimburse the lender is dependent upon such factors as the ratio of the amount loaned to the probable market value of the property and the risk of decline in the market value of the farm. The market value of a specific farm may decline due to the fact that it has been allowed to "run down" as a result of poor management. Farm real estate values may undergo a general decline due to any one of the many factors affecting farming returns or the home value of farm properties within a given area.

The term "class" as used in this discussion refers to a group of farms possessing certain common characteristics, as for example, farms containing from 51 to 100 acres on which loans were made during the period 1921-1925, and which were appraised at from \$76 to \$100 per acre at the time the loans were made.

### *Value and uses.*

An adequate analysis of the risk factor in making loans on various classes of farms within an area would doubtless find its first use as an aid to loaning agencies in placing their loans. Risk is one of the important factors determining interest rates, and any factor which tends to reduce risk, in the long run makes for a greater supply of credit, more favorable terms, and lower interest rates. In an area such as south-central New York, for example, where good valley farms and poor hill farms are in close proximity to one another, it is frequently difficult to secure a loan on a really good valley farm due to the fact that loaning agencies have suffered heavy losses on the hill farms in the same area, with the result that the whole area has a bad reputation as a loaning territory. It is probably safe to state that 90 percent of the trouble and 90 percent or more of the ultimate losses of most loaning agencies originate in connection with less than 5 percent of their loans. Any means of enabling mortgagors to determine in advance the probable risk involved in making loans on different classes of farms in a given area is certain, in the long run, to react to the benefit of the great majority of farmers in the area.

A further indirect effect of risk measurement would be to hasten the abandonment of land in submarginal farming areas through withdrawing credit from such areas. This would ultimately result in benefits to the whole community.

### *Scope of project.*

This project might be limited to a single small type-of-farming area, or expanded to include all of the major type-of-farming areas within a state, or for that matter, within the whole of the territory of a given loaning agency such as a life insurance company, a joint stock land bank, or a federal land bank. It should be pointed out that the more representative the study is of a comparatively large area, the more useful it is likely to be from the standpoint of persons and organizations engaged in the business of making farm loans.

If the agriculture of a state is highly diversified, it is desirable that the major type-of-farming areas should be included in the study so as to permit of a comparison of risks as between different types of farming. The greater the variability of the soils, markets, roads, rainfall, and so forth within a given type-of-farming area, the greater the number of sub-classifications which must be provided for and the larger must be the geographical area covered by the study in order to secure an adequate number of farms in each of the different classes to make the results significant. If such a study is to be of value, each class of loans must be clearly defined, and there should be a class for each combination of the more important factors influencing risk.

The scope of the project is likely to be largely determined by the available source of data. If access can be had to the records of one or more large insurance companies, or joint stock land banks operating

within a state, or to the records of a federal land bank, the scope of the project can be expanded much more easily than if county records must be depended upon as sources of information relative to mortgage loans made and mortgages foreclosed.

### *Sources of information.*

One of the most satisfactory sources of information, from the investigator's standpoint, is the records of large loaning agencies such as life insurance companies, joint stock land banks, federal land banks and farm loan companies, etc. However, even if access can be had to the records of such agencies, it will be found that the completeness of the data will vary at between different organizations. In some cases, practically all that will be available will be the location of the farm, the number of acres, the appraised value of the farm and the amount loaned, together with the borrower's payment record, and the profit or loss (actual or prospective) on the farm if it has been acquired through foreclosure. In other cases, detailed information relative to the farm and farmer will be available, including such items as crops grown the previous year, livestock owned, estimated receipts from various sources, estimated expenses, type of road passing the farm, kind and condition of buildings together with valuations, acres of tillable land, pasture, woods, and waste land together with valuations, when the farm was acquired, purchase price of the farm, how the farm was acquired (trade, purchase, inheritance, etc.), soil type, markets, distance from community centers, a complete financial statement at the time the loan was made, etc. In such cases, a person familiar with the area in which the farm is located can readily classify it as to type, and make such subclassifications under type as appear to be desirable. That is to say, in some cases, practically all of the data necessary to the study except that used for testing purposes, and such other data as it may appear desirable to use for purposes of comparison, can be obtained from a single source.

When access can be had to the records of loaning agencies, but when the data available are limited, it will be necessary to make greater use of type-of-farming studies and farm business studies made by agricultural experiment stations and agricultural colleges. Soil maps, road maps, etc. will also be of use. It may be necessary to do some field work in locating and classifying farms under such circumstances. In any case, it is essential that the investigator be thoroughly familiar with the agriculture of the area studied.

If the records of a large loaning agency are not available, it may be possible in cases where the county records give a description of all mortgaged property such that each farm can be readily located, to make use of county records of mortgage loans made and mortgages foreclosed. Such records would provide data relative to the date of the loan, the amount loaned, the location of the farm, the size of the farm, the source of the loan, and the name of the mort-



gagor and mortgagee. If the investigator is thoroughly familiar with the area covered by the study, he will probably be able to make a fairly satisfactory classification of the farms mortgaged by the use of soil maps, road maps, rainfall maps, and similar data together with his general knowledge of the area and such information as may be available in the form of farm business studies and type-of-farming studies. It is questionable if a study of this nature, based upon county records and supplementary data from other sources, will be feasible except in those counties where land surveys have been made and where the location of the mortgaged property as to section, township, and range is given in the county records. Otherwise, the problem of locating individual farms is likely to be unduly burdensome and the expense prohibitive.

Full use should be made of farm accounts data, farm management survey data, type-of-farming studies, and similar material describing different systems of farming in the area and returns from such systems. If cash renting is common in the area, census data relative to cash rents and land values will be of value, particularly if tabulations of such data by townships can be secured, and if the same type of farming is followed over fairly large areas. Assessed values may be used as a basis for checking appraised values, or farmers' estimates of land values within the area, if due regard is given to the degree of care exercised in making assessments. Tax delinquency may be used as a check on risk, as tax delinquency is likely to be associated with delinquency in interest payments and with foreclosures of farm mortgages. That is to say, classes of farms for which the percentage of tax delinquency is relatively high are likely to be the same as classes for which the percentage of foreclosures of farm mortgages are high.

#### *Testing the data.*

If the data of a loaning organization such as a life insurance company or land bank are used, the data relative to appraised values and the amount loaned should be carefully tested to determine whether or not there has been any change in the "level" of the appraisals and loans made during the period covered. Such a change might result, for example, from a tendency during a period of rapidly rising land values for appraisers to appraise at a lower level of values than current sales prices would suggest as compared with appraisals made during a more normal period. If the period of rapidly rising land values is followed by a period of declining land values, during which a number of foreclosures occur due to the fact that the individual borrower's equity is wiped out, it follows that the number of such foreclosures will be less during the period of falling land values, assuming that loans are made in each period equal to a given percentage of the appraised value, than if appraisals had closely followed current sales prices in the entire period. That is, due to the fact that relatively conservative loans were

made during the period of rising land values, due to a change, unconscious or otherwise, in appraisal policy, the full risk involved in making loans equal to a given percentage of current sales prices over the whole period covered by the study is not reflected in the percentage of foreclosures for any given class of loans.

Appraised values by the loaning organizations should be compared with the assessed values of the farms on which loans were made. Since assessed values represent an independent appraisal of the mortgaged properties, they should provide a valuable check on the appraisals of the loaning organization. The method of assessment and the care with which assessments are made must, however, be carefully scrutinized. In some cases, assessors have been known to copy the tax rolls year after year for a number of years, making little or no revision. Mistakes made in copying rolls have even been carried along from year to year. Data from such sources are of little value for any purpose.

Also an index of appraised values for the area can be constructed and compared with an independent index of land values based on farmers' estimates or actual sales.

Comparisons between different classes of loans should be for loans in which the ratio of the amount loaned to the appraised value is approximately the same. Obviously, a loan which represents 10 percent of the estimated sale value of a farm is a wholly different class of risk from a loan which represents 60 percent of the estimated sale value.

If data are included for more than one loaning organization, such as a land bank and an insurance company, it is essential that the level of appraisals be carefully tested in each case if loans made by the two companies are to be included in a single class. Also if one organization forecloses promptly while the other is inclined to "carry" delinquent borrowers, the comparison under such circumstances may be so distorted as to be worthless.

#### *Period covered.*

It would be desirable in making a study of the element of risk in making farm loans if the period from 1915 to the date of the study could be included. This would permit of analyzing the loans made just prior to the agricultural depression, and would permit of some assessment of the relation of inflation to foreclosures of farm mortgages since 1920. The longer the period covered subsequent to 1920, the better. One of the difficulties in such a study is to secure records of enough foreclosures within a restricted area to provide an adequate sample. The records of such loaning agencies as are available indicate that the number of foreclosed properties acquired annually has shown little tendency to decline during the past few years. The longer the period covered subsequent to 1920, therefore, the easier will be the problem of securing an adequate sample.

### *Sampling.*

The problem of securing a representative sample of the farms in the area studied is important in this project only as it affects the usefulness of the results. It might, for example, be possible to describe clearly the characteristics of a group of farms in an area and estimate the risk involved in making loans on these farms even though the type of farming followed was radically different from that followed in the area as a whole. This might apply, for example, to market milk farms near a large city in an extensive wheat producing section. The results would be valid though not widely applicable to the problem of making loans in the area. Classes should be set-up for each of the major types of farming in the area, and under each type-of-farming group, subclassifications should be made on the basis of the important factors affecting land values and farming returns in the area, such as soil type, type of road passing the farm, size of farm, building valuations, and so forth, as well as various combinations of these factors. Census data, farm accounts data, and farm management survey data can be used effectively in determining the number of classes to be set up and in defining the various classes. It is essential that the number of farms included in each class be sufficiently large so that the results will be significant.

### *Measures of risk.*

The method of measuring risk by direct comparison of the percentage of foreclosures among mortgage loans made on different classes of farms has the advantage of directness, that is, that relative risks are not arrived at by inference as is the case where farm incomes or land sales data are used. A second measure of risk which might be used is the income available for savings or the liquidation of indebtedness for each class of farms, as measured by the excess of current farm receipts over outlays, the latter including expenditures for family living. Any data of this sort collected will need to be adjusted to the basis of a normal year, and a normal farm family for the area. The ratio of the loan to the estimated sale value of the farms in question is a third fairly satisfactory measure of risk, assuming that, in general, loans are made up to a given percentage of the sale price. If data are available as to cash rents paid on different classes of farms, the ratio of net cash rents to land values may be used as a measure of over- or under-capitalization which, over a period of years, constitutes a danger or an additional safeguard on loans bearing a given relation to current sales prices of farm real estate.

If land sales data are available so that an index of land values can be computed, a comparison of the series for the major classes of farms over the period 1920-1930 would indicate those classes which have declined in value the most, and give some indication of future trends, especially if these changes could be related to farming returns and other factors affecting land values in the area.

### *Methods of analysis.*

Given records of the loaning agency that provide an adequate description of each farm on which a loan has been made, these farms can be sorted into clearly defined classes. The following will serve as an example of a class:

#### Dairy farms

On soil type "A"

Of 150 to 200 acres in size

Carrying from 10 to 15 cows at the time the loan was made

Located within 2 miles of the milk shipping station

The classes set-up will represent all the important combinations of factors influencing farming returns and land values in the area.

After the farms have been classified, the number of foreclosures occurring within a certain class of loans per 100 or per 1,000 loans made will be taken as an index of risk for that particular class of loans. It should again be emphasized that two things are essential to this method of analysis. First, the limits of each class of risks must be carefully and accurately defined, and the data relative to farms falling within each class should be carefully tested as to homogeneity. Second, it is essential that the number of loans in each class be sufficiently large so that one or more chance foreclosures occurring within a class will not distort the results. The greater the number of loans in each class the greater the reliance which can be placed on the results.

If data are available for a considerable number of farms, it will be worth while to transfer the data for each farm on which a loan was made to a tabulating card for use with mechanical sorting and tabulating equipment. This will permit of ready classification and reclassification of risks, and will greatly facilitate the work.

If farm accounts are available for a group of farms within the area, or if a farm management survey has been made during the period covered, the farms represented will be classified in the same way and on the same basis as the farms on which loans were made. Mechanical sorting and tabulating equipment will also greatly facilitate this work. The amount of money available for savings and the retirement of indebtedness will then be computed for each class of farms. These results should prove a valuable check on the results obtained from an analysis of risk on the basis of the percentage of foreclosures. Careful analysis of risk based on foreclosures, income data, and land values, made during a period such as that from 1915-1930, will aid in establishing reliable measures of risk based on farming returns and trends in land values which are applicable to periods of agricultural prosperity such as that from 1910 to 1920.

If the data are available, it would be highly desirable to construct index numbers of land values for each class of farms. This would provide a further check on risk as determined by the two methods previously mentioned.

Obviously, the greater the number of subclassifications made, the more valuable will be the results to a person or organization engaged

in the business of making farm loans. Usually, however, the number of farms included in the study will not be sufficiently large to permit of making as many classifications as will appear desirable to the investigator.

**PROJECT 22.** To analyze the element of risk and uncertainty in production loans—in the spring wheat area, taken as an example. (Joint with Risk and Insurance.)<sup>1</sup>

**PROJECT 23.** To analyze an area from the standpoint of providing the basis for making real estate loans in it. (Joint with Land Values.)

This project has in mind the objective of preparing a map or series of maps that a federal farm loan bank might use as a basis for making loans in its territory. It will be discussed in the report on Land Values.

**PROJECT 24.** To outline a suitable program for the collection of current data needed as a basis for appraising farm real estate. (Joint with Land Values.)<sup>2</sup>

**PROJECT 25-a.** An analysis of the related production economy and credit economy of a loan for the purchase of feeder cattle for fattening in the corn belt. (Joint with Farm Management.)

(By William G. Murray.)

The purpose of this project is, first, to make an appraisal of the amount of feeder credit which could be used profitably in an area, and of the most desirable conditions in the handling of the needed credit and most desirable conditions with the actual credit situation and the lending methods in use.

Such analysis will involve:

1. A description of the feeder loans of the area as to amounts, distribution, methods of loaning, and trends of change if the latter can be distinguished.

2. Analysis of the complementary and supplementary relationships of cattle-feeding in this area and in others, determining, for example, the extent to which these depend on the relative charges for shipping corn as compared with those for shipping cattle, etc.

3. Identification and measurement, as far as possible, of risks involved for the lender and for the borrower in loans of this kind.

4. An attempt to classify the borrowers as to experience in feeding, financial resources for assuming risks, feed and equipment available for handling the operations and personal character and ability.

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(1) This project will be discussed in the report on Agricultural Risk and Insurance.

(2) This project will be discussed in the report on Land Values.

5. Relation of these loans to other loans of the loaning institutions making them.

6. Consideration of the effects of the various factors indicated above on the interest rates charged on these loans and on the security if any which is required in addition to the cattle.

7. The effects upon feeder competition of unusual supplies of soft corn, of abnormally large supplies of corn in relation to the number of feeder cattle.

#### *Value and uses of the project.*

Cattle-feeding has always been a rather speculative phase of farming activity, at least from the standpoint of the farmer. What its effects are on his credit standing, whether there are men who could feed cattle successfully if they could get credit, whether credit is in certain years expanded in such a way as to cause undesirable competition between feeders, whether interest rates are as low as the safety and liquidity of these loans warrant, and all significant factors in the credit situation of the corn belt about which we know very little. A study of this kind should be an aid in classifying such loans so as to eliminate undesirable ones, and thus lessen the interest charges on the others; in indicating which types of loaning institutions are best adapted to handling this kind of loans; in judging how much such credit should be expanded in periods of heavy demand and high prices for feeders, etc.

#### *Scope of the project.*

The size of the project can vary within wide limits. It could be one area characterized by a similar set of farming conditions in which one county is taken as typical; but ordinarily from three to five counties will be needed to represent such an area properly. If funds were available, of course, several areas such as the foregoing could be included, in order to make the results more widely applicable and obtain the benefits from comparative analysis. This project will need to lean heavily on farm management studies of the area, and can scarcely be undertaken unless these have already been rather fully worked out at least for those farming types where beef cattle feeding is a prominent enterprise. The studies of credit institutions described in Projects 5, 6, 10, 11, 14 and 15 will also prove extremely helpful.

#### *Qualitative analysis.*

The lines which the qualitative analysis will follow depend upon the conditions encountered in the area. In general for the area concerned, corn is probably the most profitable crop that can be grown whether it be sold as corn or fed to cattle and hogs. The farm management or marketing problem involved for the individual farmer is then one of deciding which of two alternative methods of sale is most advantageous. For the corn-growing group as a whole, there is no such alternative. The corn must be fed or it loses its

value. The question is really then who shall do the feeding, a smaller number of experienced and efficient feeders or a larger number including some who are not very competent; and with a given prospective outlet for the product, how shall the total proceeds be divided between the growers of feeder steers and the growers and feeders of corn? We are concerned in the latter case with the question of what effect the different methods and policies of handling credit will have upon the bargaining conditions of the buyers of feeder cattle as compared to those of the sellers of feeder cattle. Total supplies of such cattle cannot be quickly changed, although there is some elasticity of actual offerings on the market at a given time. Such elasticity may, however, for short periods of time operate as an increase of sales with falling prices or a decrease of sales with rising prices. There is room for worth while collaboration with price specialists in the development of this phase of the question. It lies, however, more in the price than in the credit field, and probably should be developed there rather than in a credit project.

The condition of the corn and its price relative to the price of cattle will have much to do with the bargaining attitudes of the sellers and buyers of feeder cattle. Policies of easy credit or of tight money will have much to do with the extent to which the growers of corn can go in bidding for cattle to consume it, and consequently with the return which they will net for the corn crop fed.

Under the conditions established by any given level of prices for feeder steers and the accompanying outlook for prices of finished beef, the more experienced feeders encounter increasing costs beyond certain points in their scales of operation, these being due to inadequate facilities, and the necessity for purchasing corn as against using that grown by themselves. On the other hand, less experienced feeders may have available certain time, feed, and equipment of low alternative value which will partly offset the superior buying, feeding, and selling skill of the better feeders.

The question confronting both the corn belt farmer and the lender is then one of estimating either consciously or unconsciously the price risks involved in the sale of finished steers, the quality of steers the particular borrower is capable of turning out, and the other opportunities for sale or use of the feed, labor and facilities which may exist in each case. Analysis of the production economy which will give more definiteness to these relationships and thus aid in the accurate appraisal of them by the lender providing credit for the purchase of feeders will be helpful.

The interests of the farmer and of the lender may not be identical in their reactions to a given situation. What constitutes a risk for the farmer may not represent a risk for the lender, since he may have taken other security along with the steers, and nearly always has taken in effect the farmers' feed supply as well as the steers for

security. The study should aim to bring about a clear understanding of the implications of a given policy as to granting loans to various classes of feeders (assuming some classification to be feasible), and making larger or smaller loans to given classes of feeders. (Both of these represent aspects of the variation in volume of loans and in the classification and selection of risks.)

#### *Units and coefficients.*

It is possible that some significant ratios may be developed which will aid bankers and others in following more consistently the progress of loaning operations, as for example, bushels of corn per head of all beef cattle, and the percentage that average loan per head is of value of finished cattle per head. These are mentioned only as types. Actual selection of given ratios or coefficients which would be usable cannot be undertaken until some research work has been done.

#### *Methods of analysis.*

The analysis involved may be divided into three divisions. The first will deal with the nature of the cattle feeding enterprise from the point of view of farm organization and management. Under this heading comes a discussion of the conditions which make for successful cattle feeding. Here it will be well to take up feed requirements, care, and price relationships. From this the region studied can be divided into areas according to the favorableness of conditions for cattle feeding. Next a map may be worked up showing the actual extent of cattle feeding in the different areas, comparing this with the results found above. This type of analysis can be expanded by comparing periods in the past with the present. In so far as available or obtainable farm management data will permit, the farms on which feeding operations are carried on should be classified, and the nature of the curve of increasing and diminishing net returns for each type should be analyzed in order that the effects of larger or smaller feeding operations on the businesses of these farms may be studied. This should be followed by an analysis of the needs for credit to buy feeders, based upon a survey of the farmers and bankers in the area.

The second main division of the analysis will be concerned with the feeder loan situation. This will include the number and size of the loans, the interest rate plus the commissions, the term specified and the actual length of the loan, the institution making the loan, the amount loaned per head of cattle, and the percentage of the value of the cattle represented by the loan. With regard to the institutions lending on feeders, the methods in use, the potential lending capacity, and the financial structure, will need analysis, though not to the extent indicated in Projects 5, 11, 14, etc. As in the first division, an historical analysis can be made in this phase of the problem if sufficient time and funds are available and if it seems likely that such development of the project will be worth its cost.



The last division has to do with the problems arising out of the relations between the first two divisions. One problem will be the extent to which feeder credit in use is meeting the needs of the region. Another will be the availability of credit in emergencies or periods of depression. Still another, one of major importance, will be the policy that should be followed in adjusting the loan limit to price cycles in the cattle industry.

Information to serve the analysis in the first division of the subject will be supplied from livestock feeding standards, published price statistics, and from records gathered on the shipments of feeder cattle in and out of the different areas making up the region. As to railroad shipments, some material may be obtained from the office of the State Statistician, but it is likely that direct contact will have to be made with the division headquarters of the railroad companies concerned in order to get the shipments by stations.

For the data required in the second division, it will be necessary to go through the county chattel mortgage files and to get information by the survey method from the institutions concerned. The material obtained from the chattel mortgage files will be the most extensive and the most important in the study. If only one type of institution is to be studied it may be desirable to take off the loan information from the records of the institutions themselves—for example, institutions rediscounting livestock feeder loans through the federal intermediate credit bank of the region.

Forms have been worked out for recording information on rail shipments and are now in use by the Agricultural Economics Section at Iowa State College and by the State Statistician of Iowa at Des Moines, Iowa. Punch cards which can be run through tabulating machines provide the best form for handling the feeder loan information taken off the chattel mortgage files. The punch card can be so arranged that the data relating to one loan can be transcribed directly onto the card, and the card punched without further copying.

As a sample of the information available from the chattel mortgage index and files of the county, the following data on three loans on feeder cattle were taken from the records of Story County, Iowa, at the court house in Nevada, Iowa:

- I. Loan No. 2440  
Date Filed—March 9, 1927  
Date of Mortgage—March 7, 1927  
Date Due—August 1, 1927  
Date Released—No release of record  
Mortgagor—J. H., Franklin Twp., Story Co., Ia.  
Mortgagee—A.  
Amount of Mortgage—\$4,911.61  
Property Mortgaged—65 steers, 18 calves, 81 pigs.
- II. Loan No. 5808  
Date Filed—October 12, 1926  
Date of Mortgage—October 9, 1926  
Date Due—September 26, 1927, one year  
Date Released—May 24, 1927

Mortgagor—O. O. Warren Twp., Story Co., Ia.  
Mortgagee—Rural Credits Corporation, and assigned to  
Federal Intermediate Credit Bank of Omaha,  
November 27, 1926  
Amount of Mortgage—\$2,085.09  
Property Mortgaged—42 heifers and 50 acres of growing corn,  
said corn to be fed to said cattle.

III. Loan No. 399

Date Filed—January 26, 1926  
Date of Mortgage—January 25, 1926  
Date Due—July 25, 1926, six months  
Date Released—Release not recorded  
Mortgagor—J. S., Franklin Township, Story Co., Ia.  
Mortgagee—W. W. and C. (Comm. Firm, Chicago)  
Amount of Mortgage—\$2,678  
Property Mortgaged—57 steers, 72 hogs.  
37 steers—26170 lbs. @  $6\frac{1}{2}$ —\$1701.00  
20 steers—12925 lbs. @  $6\frac{1}{2}$ — 840.12

From a study of these data, it is evident that this kind of material will lend itself readily to statistical manipulation. For example, the loans can be sorted by institution and then by interest rate to find the amount loaned by the various agencies according to the different rates charged.

How generally the inferences obtained on the loan situation may be applied will depend on the individual case, whether the area studied is typical or not of a much wider area and whether all loans in the area studied are included or only a sample taken. Census material will aid here in the application of the results to surrounding territory. In addition to inferences both statistical and inductive on the actual feeder loan situation in the territory represented by the sample area studied, more important conclusions should follow on such points as the relationship between cattle price fluctuations and the amount of credit extended.

Experience with a similar project suggests that an expenditure of about \$3000, not counting the salary of the person in charge, would cover such a project if five counties are included. Of this amount \$250 could be allotted to cards and machine rent, \$1800 to expenses of gathering information on 25,000 loans, and the remainder to clerical hire in coding, checking, and tabulating the results.

Because so few studies have been made in this field, this project has a rather general character. It aims to establish the facts concerning the general situation past and present. The nature and extent of the detail in the analysis will have to depend to a considerable extent upon the findings as to availability of material, cost of obtaining it, etc. It may be well to add that this study could serve as the basis for a continuous project bringing up-to-date at regular intervals the feeder loan situation. This would be accomplished by getting information on the new feeder loans through the chattel mortgages filed for record at the county seats of the counties included in the study.

**PROJECT 25-b. To analyze the economy of the purchase of a tractor or farm truck as related to credit needs. (Joint with Farm Management.)**

(By R. H. Wilcox.)

*Objectives.*

1. For given conditions to determine volume of farm business warranting the purchase of a tractor or a truck upon credit.
2. To measure the effect of a tractor or truck upon farm costs and incomes.
3. To measure amounts and costs of other forms of farm power displaced by the tractor or truck.
4. To measure the influence of the tractor or truck upon the timeliness of farm work and resultant influences upon crop yields, quality of product, and prices received.
5. On the basis of the foregoing, to determine the conditions under which loans for purchase of tractors should be made.

*Value and uses of project.*

This project will furnish facts regarding the economic place of the tractor or truck in the operation of a farm which will help the farmer as well as the loan agency in determining whether in any particular instance the purchase of a tractor or truck is economical, and if so, the advisability of using credit to purchase it.

Data for this project will best be made available, in most cases, from farm financial record-books kept by farmers, from the data secured in farm management service projects, and to some extent from data secured in route studies. In addition to these, special records on tractors and trucks will probably need to be kept in order to arrive at the costs of operating the truck or tractor, the character of its use, the timing of its use, and so forth.

It will be best to group the farms for which data are available into groups characterized by rather similar types of farming and farm organizations. Further grouping may be made to eliminate the influence of size of business in order that the analysis of the effect of tractor or truck on farm income may be carried out.

The line of attack suggested is to consider the effect of the tractor or truck on the net farm income of the farm. The most important element in this will probably be the reduction in outlays for horse labor and man labor which can be effected by the introduction of the tractor or truck as against the added outlays caused by them. This can be fairly definitely secured from the records of labor and power used on the farm. At the same time, this phase of the study should consider the character of the work performed by the tractor and truck on the farms under study. A second and less tangible factor which can only be roughly obtained, will be the increase in income effected through more thorough cultivation; or more timely operations which may result from the introduction of the truck or tractor. This, however, is an important element in

the decisions of many farmers, and must be considered in relation to the foregoing. It is probable that this phase of the problem can best be handled by special records from farmers who do and those who do not use trucks and tractors and an analysis of their figures on the gains accruing through these means. Experiment station figures as to the effects of deeper plowing, and more timely operations, and studies of seasonal variations in price will aid in checking these records. Where numerous farm records are available, it may be possible to gain some light on the matter by comparing yields on those farms which do and those which do not use tractors, and prices secured where grain, for example, is trucked right from the thresher to the market or where it is hauled in by team in slack seasons later.

**PROJECT 25-c. To analyze the production economy and credit economy of loans for the clearing of land. (Joint with Land Utilization.)**

(By E. C. Johnson.)

Many states have sections where much of the land in farms is cut-over forest land. In some such regions, the clearing is difficult, involving the removal at very high cost of large numbers of stumps and rocks per acre. In other regions, the clearing may involve only the removal at relatively low cost of brush and scattered trees. The prospect for income from crops after the land is cleared also varies greatly between regions. The land hardest to clear may have poor soil; or vice versa.

If a farmer must borrow capital to pay expenses of clearing, he must make sure that the added income will pay interest and principal on the loan. The loan agency needs the same information. Since capital accumulations in such communities are apt to be inadequate, the community is interested in having its limited resources effectively utilized.

In practice, many of the farmers in cut-over regions rely upon their own labor and their horses mostly, and thus the cash outlays for clearing are small. They clear land at the rate of only an acre or two a year over a long period of years and borrow little or nothing specifically for that purpose. But many believe that land should be cleared more rapidly than this by the use of more horse power and more explosives, and that credit should be available for it. Of course some important social aspects are involved. From the social point of view it may be desirable to allow some of the land to go back to forests instead of being cleared for agricultural production. The individual and the social point of view may clash.

The data needed will have to be obtained from surveys of farmers in cut-over regions and of agencies financing the farmers. The farmers will be called upon to furnish information relative to the history of land clearing on their farms, outlays on clearing and

the additions which such outlays make to the cash expenditures of the farm, income from land cleared, and the methods used for financing clearing. Local banks furnish most of what credit is made available for land clearing. Information will be obtained from them relative to loans made for clearing purposes, such information to include amount of loans, period of loans, interest rates, other costs and security demanded, the scale on which these institutions are able to finance such operations, etc. Some consideration must also be given to the activities of land banks and real estate companies in extending credit to settlers for the purpose of clearing land.

Selection of the regions for the survey should be made with great care. Ordinarily the needed data will be most available in new regions where farmers are likely to be still engaged in the clearing of land. It is also in the new regions that the conclusions reached in the study will be most pertinent. If the analysis is to be complete, the communities selected should be in areas where conditions relative to clearing differ. Thus, one area might be selected where clearing consists largely of pine stump and second growth, one where most of the stumps are hardwood and another where there are both stumps and rocks. It would be well if two or three communities could be studied in each area so as to take account of differences in population, credit conditions, soil, etc., between counties in the same areas. Seventy-five to one hundred records from farms in each community should be sufficient. All the banks in the area where a farm survey is made should be visited by the enumerator for the purpose of obtaining information regarding loans for land clearing.

This project is peculiarly one calling for collaboration with workers in other fields, particularly in land utilization, agricultural engineering and farm management. The type of survey of farmers needed is basically that which is outlined in certain projects in the report on "Land Utilization" (No. 2 in this series; see especially Project 11). But with it should be combined information regarding methods of clearing land and financing it. A rather complete farm management record is needed in order to determine the value to the farm business of having additional land cleared. The schedules used may seem long, but experience has shown that they will not in most cases make excessive demands on the farmers' time and interest, since farming activities on these farms are usually of a rather simple and limited character.

The first step in the analysis may logically be a study of the progress which farmers have made in land clearing and of methods of clearing, and of variations in these. The next step will usually be to analyze the effect of various rates of clearing and methods on net incomes and increase in net incomes from year to year. For each representative farm type in the area, the question arises in about the following forms: What additions to cash outlays and to other costs will be made if clearing is undertaken at rates A, B,

C? What will be the probable additions to income and what other outlays will be involved such as providing for more livestock, increased demands for labor and outlay in operating the cleared land? What appears to be the most profitable procedure? And to what extent are loaning agencies justified in financing this most profitable program? Willing and able to do so?

The conclusions derived from these case analyses should then be tested by application in more general terms to the other farms in each community. Differences in income may be related to percentage of land cleared; present financial status may be related to the rate of clearing, method of financing clearing, etc. Conclusions drawn from this method of attack will, however, need to be made with a good deal of care.

Many farmers, especially in the newer cut-over sections, rely on outside labor such as work on roads or in the lumber camps for much of their income in the early years. A more rapid pushing of the clearing program will usually cut down on this source of income. Consideration must therefore be given to the ability of the farmer to forego this income, and if he cannot do so, to the desirability and possibility of his replacing these funds with borrowed funds in order to push his land clearing operations more vigorously. The diminution of the effort and expense necessary in land clearing as the stumps increase in age must also be taken into consideration.

Having analyzed the production phases of clearing, the next step is to find out to what extent farmers use credit to finance land clearing operations. Sources of credit should be studied to discover the relative importance of different agencies in financing this phase of farming. The period of the loan, the cost of the credit, and the security demanded should be analyzed, and variations between farms and communities accounted for. The dates of payment of the loans should also be studied and the extent of renewals determined. An analysis of losses on these loans will indicate the risks involved. The local bank, because of its close contacts with local conditions, will be the source most worth careful study. The bankers' judgments regarding the problem of extending credit for land clearing will be worth careful weighing.

No studies exactly of this type have thus far been made. There is an analysis of the general problem of credit in cut-over areas in several published studies listed in the report on research in "Land Utilization" (No. 2 in this series).

**PROJECT 25-d. To analyze the related production economy and credit economy of a loan for the purchase of fertilizer for the growing of cotton. (Joint with Farm Management.)<sup>1</sup>**

(By D. E. Wickens.)

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(1) Discussed in the report on Farm Management.

**PROJECT 26. To analyze the related consumption and credit economy of a particular type of consumption loan.**

This represents a narrowing of the study discussed in Project 18-c and a more specific consideration of some one type of consumption loans, such as borrowing for the purchase of an automobile, or borrowing to build a farm dwelling. The discussion under 18-c points out the main features of suggested lines of attack.

## **GROUP E**

### **The Approach by Commodities.**

Projects in credit research organized on the commodity basis are likely to be undertaken for the most part in regions where one product outweighs all others in importance—as potatoes do in Aroostook County, Maine; or as adjuncts to projects in the production or marketing of a particular commodity. They permit close study of the peculiarities of these commodities as bases for credit.

**PROJECT 27-a. To analyze the uses and needs and nature of credit in the range cattle industry. (Joint with Farm Management.)**

(By L. H. Hauter.)

The objectives of this report will be to determine.

1. The amount and kind of credit utilized by the range cattle industry, the sources and facilities for securing such credit, and the costs of such credit, considered both from the standpoint of the ranchman securing the credit and from the standpoint of the lending agency.

2. Factors that affect the costs of such credit and the amounts of credit extended.

3. The amount and kind of credit that can be used to advantage, and for what periods, and the relation of credit to the ranch organization and operation.

4. Improvements that might be made in financing the range cattle industry, considered both from the standpoint of securing the credit, and using the credit.

#### *Scope of project.*

This project is presented as for a single state. It is also written as if carried on in connection with a project on ranch organization and operation, or following such a study. This project needs also the counsel of those engaged in studies of range cattle prices and marketing problems, and a certain amount of analysis of these problems, if it is not feasible to have separate projects on marketing and prices.

### *Sources of information.*

Information on ranch organization, ranch credit use, credit needs, etc., should be secured from a sample of a hundred or more ranches by the survey method; that on banks, from fifty or more banks studied by the survey or personal interview method. Livestock companies and cooperative range cattle marketing associations loaning money to members should also be interviewed; likewise commission firms, brokers and contracting agencies, in order to secure information from them as to the contracting, buying and handling of range cattle in the state. Some data can be secured from the federal reserve banks, the intermediate credit bank, and state banking departments, from their reports and by correspondence or personal interview.

Other agencies that may furnish some useful data or information are the Federal Farm Board, the federal farm loan banks and member farm loan associations, the state land office, and land mortgage companies operating in the territory.

### *Organization of project.*

The organization for carrying on this project will depend on the personnel and resources of the institution making the study. Probably the ideal arrangement would be to have one man who has charge of the project devote all his time to it from the time it is started until it has been completed. Twelve months or more could well be allowed for such a study. If a ranch organization and operation study is to be made at the same time, another man could have charge of this phase of the study and the two cooperate in securing the ranch records. In addition, two or three field men will be needed to assist in securing the records, preferably soon after the first of the year, if climatic conditions permit taking records at that time. If a complete ranch study is to be made at the same time that the credit study is made, it would be well to figure on two days in the field for each satisfactory record secured. Hence it would require about eight months of field work to secure 100 ranch records. This time requirement will vary somewhat, however, with the size of the ranches and the distances which must be travelled in reaching them. About 50 days of field work should be allowed for securing the information from financial agencies. Not less than 12 months of clerical work should be allowed for handling the credit part of the study.

An attempt will be made to get approval for the study and informal cooperation in the making of it from the state cattle growers' association, the state bankers' association, cooperative cattle marketing associations, and any other state or regional organizations whose members will be asked to cooperate in giving information for the study.

### *Selection of ranches, etc.*

The study will be confined to specialized cattle ranches or to combination cattle and sheep ranches where the sale of cattle is the



most important source of income. The nature of such ranches will vary somewhat in the different states, and it will be necessary to specify for each state or region just what kind of ranches are to be included. The number of records to be secured from each county or district will be based on the importance of that county or district in range cattle production. The ranches selected within the county or district will be representative so far as can be judged from prior information concerning these districts, but they will have to be those from which reliable information can be secured. This latter requirement will make the group range somewhat above the average of all ranches in the efficiency with which they are managed, but need not cause it to be non-representative as to sizes and types. A comparison of the data with other ranch studies that have been made in the same or similar areas and with census data will give some indications regarding the representativeness of the group studied.

In selecting banks for study, one must recognize that some large city banks may be found which handle much cattle paper even though the county in which they are located is of minor importance as a cattle-producing country. The districts from which the banks are to be selected should therefore be somewhat larger than counties, and the banks selected should be those which have the larger portion of their business devoted to livestock credit. As for other financing agencies, it will not be feasible to secure information from all of them, but the various types should be fairly represented. Checking the information secured from financing agencies against similar information secured from the ranches may be a means of noting the representativeness and reliability of the information secured.

#### *Period to be covered.*

Definite information will be secured on the credit situation for the last calendar year. Because of the close relation of credit to the price situation, and because cattle prices seem to fluctuate irregularly over rather long cycles, no one year can be representative of the range cattle credit situation. In order partly to overcome this difficulty, as much information as feasible will be secured for a longer period, preferably for a 15 to 20 year period, so as to take in the whole range of high and low prices. But probably only partial records may be obtainable for so long a period. Possibly a more effective approach will be to secure as accurate a current cross-section as possible, to ascertain through historical methods the nature of the major trends involved, and to estimate as carefully as possible the probable effects of the trends and cyclical variations on the situation revealed by cross-section analysis.

#### *Errors in records.*

Several types of biased errors are likely to appear in a study of ranch credit and should be guarded against by the field men and

taken into account by those analyzing the data. First, while most cattlemen are very willing to give information on their indebtedness, if they understand the purpose for which the information is desired and are approached in the right way, there will be some concealment at the best to be taken into account of in the analysis. Second, ranchmen have formed something of a habit of underreporting their stock for taxation purposes, and they are inclined to do the same to the field man. Such reports are commonly estimates, because the ranchmen do not know the numbers of their herds exactly except at certain times of the year. Here again we have a bias that the fieldmen must be on their guard against and handle in a tactful way, and which it is not likely that they will eliminate entirely. Third, there will be bias in reporting causes of forced sales and foreclosures. Some ranchmen will blame the bank or other lending company for forcing them to sell at an unfavorable time and take a loss, while absolving themselves from all or most of the blame for their predicament. On the other hand, some banks or lending companies may place an undue amount of blame on the ranchman for unbusinesslike methods, failure to make proper reports, and dishonesty.

#### *Schedules and forms.*

##### 1. Ranch schedule:

If this study is to be made in connection with a study on ranch organization and operation, the ordinary schedule used for this purpose can be used as a basis for the credit study. Since the United States Department of Agriculture and most of the range states have prepared schedules of this kind which are very satisfactory, no attempt will be made to indicate what such a schedule should contain. However, the information secured on credit should include the following information:

a. Loans in effect at the beginning or end of year or both—the following data concerning each: Kind of loan (loans to be classified as to first land mortgages, second land mortgages, chattel mortgages, combination mortgages, unsecured loans, store credit, etc., and also to include back taxes that are overdue), source of loan, date secured, term of loan, amount of loan at beginning of year, amount of loan at end of year, date or dates that a change was made (indicate renewal dates with a star), character of security (give details, number and kind of cattle, etc.), interest rate, commission rate when loan was secured, total interest and commission paid during year, status of loan as to principal and interest payments.

b. Similar data for loans secured and paid during year.

c. General information—Give as much detail as possible as to exact amounts, years, etc. For historical questions, go back as far as ranchman can remember. This will include the changes that have taken place in the sources from which credit of various types is

secured, the terms of the loans secured, change in case of securing credit and in amounts loaned per acre, per cow, etc. or percent of value, in interest rates and commissions paid, and reasons for these changes. One should also ascertain whether more credit could be secured than has been used if it was desired, and if so, what kind of credit and at what interest rate, and if not, whether more credit could be used to advantage if it could be secured, and of what kind and for what purpose; also whether the borrower has ever been foreclosed or forced, unwillingly, to sell stock because of credit situation, and if so, when and under what circumstances and by whom, and if the forced sale could have been avoided, and how; the losses sustained from it; whether fear of credit difficulties has induced the ranchman to sell without being forced, and the resulting losses; whether the borrower believes that in the past he would have done better if assuming that he could have borrowed less, or borrowed more, and reasons for answer; the ranchman's judgment as to whether the present credit machinery gives the kind of credit needed, and if not, what kind of credit is still needed; and his judgment as to other improvements in the credit situation that would be helpful to the range cattle industry of the state.

## 2. Schedules for banks:

The following suggests some of the information that should be secured from the banks; and similar information should be secured from the other financing agencies in so far as it applies. All information should include only loans to cattle ranches as previously defined. The information need not be absolutely correct, but should be the best information that the banker can give.

a. For loans in effect or made or handled for loan companies on a commission basis during the previous calendar year, by classes of security—land, cattle, other chattel, combination, no security—the following information: Total number of loans, and amount, interest rates (high, low and average), length of loans (high, low and average), commission received (high, low and average), commission charged ranchman (if any, maximum and range), maximum and average loan per head of cattle or sheep, and same expressed as percent of value, number and amount of foreclosures and forced sales, and amount of resulting losses, amount of sales of ranch paper to livestock loan companies, intermediate credit bank, federal reserve bank, other banks, and private investors.

b. General information by types of loans. As much detail as possible as to exact amounts, years, etc., for historical data as far as informant can give fairly definite information: Capital, total loans, kind of financial statement required before issuing a loan to cattle ranches (include samples of forms used); provisions made for inspection at the time of issuing loan and during life of loan; average cost of this inspection in terms of time required and cash outlay per inspection (or per dollar loaned); any other costs, outside of overhead, or losses, that can be attributed particularly to

ranch credit. Number of foreclosures or forced sales during past ten years; losses sustained during past ten years in terms of percent of average total loans outstanding; experiences regarding losses prior to 1921; principal reasons for foreclosures, forced sales and losses experienced, and ways, if any, by which they could have been avoided; different rates of interest and commission charged for different loans because of differences in risk, cost of inspection, size of loan, or any other cause; average rate of interest charged (by years) during past ten years; in the interest charged prior to that time; changes in the commission charges; changes that have taken place in the terms of the loans made; changes in the amount of credit extended, i.e., amount per acre, per cow, etc., or percent of value; change in the agencies with whom surplus cattle paper is discounted or sold; advantages or disadvantages of disposing of cattle paper through the different agencies; also whether the present ranch situation is satisfactory from the standpoint of the financing agency, and from the standpoint of the cattleman, and suggestions for improving it.

### 3. Schedules for other financing agencies:

Information that will supplement the information secured from the banks should be obtained from other financing agencies. For cattle loan companies, cooperative marketing associations, commission firms, etc., the number from which information could be secured would probably not be large enough to warrant printing a special schedule. In that case the bank schedule can be used as a basis and modifications made by the enumerator to fit the case involved. If any information is to be secured by correspondence it will be necessary to simplify somewhat the information requested.

Farm loan associations are closely regulated; hence considerable information concerning them can be secured directly from the federal farm loan bank. It seems desirable, however, to secure some additional information directly from the farm loan associations by means of a simple schedule including the following information:

- a. Number of loans to cattle ranches.
- b. Acres of land involved in these loans.
- c. Total amount of these loans.
- d. Maximum loan per acre on range land.
- e. Number of years association has been operating.
- f. Number of cattle ranch foreclosures during that time.
- g. Amount of loans involved.
- h. Total amount of loss.
- i. Number of cattle ranch loans that are now delinquent.
- j. Do you believe the maximum loan on range land should be
  - (1) Increased? If yes, to what amount.
  - (2) Decreased? If yes, to what amount.
- k. Do you believe the present situation regarding range land loans is satisfactory,

l. If not, what suggestions have you for improving it?

m. Other comments.

In some states it may be desirable to make a ranch study by the route method, having the route man visit each ranch three or four times a year to secure detailed information. Where such a study is under way or planned, the credit information can be secured by the same man. In some states it might be desirable to confine the study to a certain section of the state, possibly where conditions are rather uniform.

Very little research work has been done on ranch credit along the lines suggested in this project, but most studies on range organization and management give some attention to credit.<sup>1</sup>

### **PROJECT 27-b. To analyze the uses, needs and nature of credit in dairy farming. (Joint with Farm Management.)**

(By Emil Rauchenstein.)

The uses and needs for credit in dairy farming will vary with the specific type of dairying that is followed and the resources of the particular dairy farmer concerned. In areas where milk is shipped to cities, cows are usually bought, sometimes a number at a time to bring up production in the fall of the year. Although the income in dairy farming is more evenly distributed than in most types of farming, such a purchase of cows is likely to require some credit.

Butter-producing areas raise their own replacements except as better animals are purchased to improve the herds or replace lower-producing stock.

Sanitary regulations such as are imposed when a farmer begins shipping fluid milk to a city may necessitate changes in equipment such as a milk house, cooling equipment, and a separate modern barn for dairy cows. Several years may be required to pay for such additional equipment.

Sometimes feed can be purchased to advantage in large quantities at a certain time of the year, which calls for a heavy outlay at that time, possibly for storage space as well as for feed. Feed credit

(1) Following are a few of the bulletins that may be helpful and suggestive, although they do not all deal specifically with range credit: Colorado Experiment Station Bulletin No. 338, "Financing the Western Cattleman"; U. S. D. A. Technical Bulletin No. 45, "A Study of Ranch Organization and Methods of Range Cattle Production in the Northern Great Plains Region"; U. S. D. A. Technical Bulletin No. 68, "Ranch Organization and Methods of Livestock Production in the Southwest"; Colorado Experiment Station Bulletin No. 327, "A Study of Ranch Organization in Eastern Colorado"; Colorado Experiment Station Bulletin No. 342, "Cattle Ranch Organization in the Mountains of Colorado"; New Mexico Experiment Station Bulletin No. 159, "A Preliminary Study of 127 New Mexico Ranches in 1925"; North Dakota Experiment Station Bulletin No. 237, "Ranch Organization and Management in Western North Dakota"; Texas Experiment Station Bulletin No. 297, "An Economic Study of a Typical Ranching Area on the Edwards Plateau of Texas"; Texas Experiment Station Bulletin No. 413, "Planning the Ranch for Greater Profits"; Utah Experiment Station Bulletin No. 203, "Cattle Ranching in Utah"; Wyoming Bulletin No. 147, "Range and Ranch Studies in Wyoming."

is needed especially during years of more or less serious crop damage from drouth, floods, hail, frost and other physical causes.

The uses, needs, and nature of credit are tied up with the farm business so that it is desirable to have a summary of the assets and liabilities of each farm at the beginning and end of the year, and a record of the income and expenses. The principal sources of income should be obtained by months. This will furnish a basis for understanding the credit situation on each farm. The collaboration of workers in farm management and in farm credit is needed in order to make a thorough study of the situation in any dairy area.

The principal source of data will be the dairy farmers themselves. These data can be checked and supplemented by interviews with and recourse to the records of feed dealers, equipment dealers, cattle buyers, railroads, and banks. The local financing agencies are likely to have information which will give a general picture of the uses, needs, and nature of credit in their localities. Monthly data from banks, for example, on their demand deposits and loans over a period of years will be valuable in supplementing data obtained from farmers.

A 10-percent sample of the farms in a dairy area large enough to give 200 farms, will probably give an adequate picture of some type-of-farming area narrowly defined. The number will vary with the degree of uniformity that exists in the area. As the survey progresses it is possible to check roughly the number of cases of various kinds that occur, the degree to which these cases tend to follow some stable frequency distribution, and the extent to which they check with information from other sources. In a credit survey there is greater need for random sampling than there is in an ordinary farm management survey because the range in financial status and credit practice is very wide. While random sampling in a mathematical sense is practically impossible of attainment in researches of this kind, an approach to it is possible (see the section on *Sampling* in "Research Method and Procedure in Agricultural Economics"). One method of getting such a sample is to select every tenth farm from a list of creamery patrons. If a farmer is not at home or cannot answer the questions, a uniform practice of interviewing the next farmer along the road will not violate the conditions of random sampling to any appreciable extent, and will save considerable time. While a group of survey records will constitute the main material for analysis, it will be well to supplement it by case studies.

In the analysis the first step is to develop a summary of credit conditions as they exist in the area. This summary should include frequency distributions for some important factors such as number of cows, amount of mortgage credit, amount of dealer credit, amount of bank credit, and rates and time for the various forms of credit. The next step is to try to find what changes involving the use of credit can be made in farm organization and operation that will increase the net income, and how farm credit can be used more

efficiently. Dot charts showing the correlation of farm incomes with certain variables in farm organization related to credit, such as investment in dairy cows, and practices in feeding, will suggest that a few hypotheses are worth further analysis. By numbering each farm and then designating each dot with the number of the farm which it represents, one can get suggestions of still other hypotheses to test out. The method of testing which suggests itself at once is that of balancing changes in receipts against changes in expenditure occasioned by variations in the use of capital and credit on a selected list of farms that faithfully represent the situation.

The project described above has not been tried out in a dairy area, but one somewhat similar to this is being tried out by the Bureau of Agricultural Economics in an early potato producing section in Virginia.

It is quite likely that better bases may be found for extending credit than those commonly used. A project of this kind should furnish data for estimating incomes closely and thus should enable credit agencies to place loans where they will be most likely to be repaid and will do the most good.

The analysis of alternative sources of credit and of the economics of credit extension by the different credit institutions, has been sufficiently discussed in Projects 1, 5, 11, 13, 14, etc., and will not be repeated here.

**PROJECT 27-c. A study of the problem of financing the potato grower on the Eastern Shore of Virginia, his need for credit, the manner and degree in which this need is met, and the relationship between credit, production and marketing.<sup>1</sup>**

(By Burton D. Seeley.)

The study will consider the need for credit, the manner and degree in which this need is met as modified by and conditioned upon the type of farm business enterprise, the organization and management of the farm, the social and economic structure of the area, the character of the farm operator, the existing marketing mechanism and the existing financial institutions.

The study will further involve a quantitative determination of potential credit and credit actually used for financing potato production by source and by season in an effort to correlate these items with production and marketing practices over a period of time.

*Sources of data and information.*

Information and data were secured from growers, dealers, bankers, fertilizer companies, U. S. Census, county records, transportation

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(1) This outline is based upon a project now being undertaken cooperatively by the Division of Agricultural Finance and the Division of Farm Management and Costs of the Bureau of Agricultural Economics, U. S. D. A., the Virginia Experiment Station assisting in the field work.

companies, marketing officials and the Interstate Early Potato Committee.<sup>2</sup>

The project by nature includes farm management items as well as data and information of a financial nature. It is a cooperative study undertaken jointly by workers in the field of farm finance and farm management. The active support of the Interstate Early Potato Committee was sought. The function of this committee is "Primarily that of a steering and advisory committee which is attempting to meet and solve the many economic problems affecting the producers of early potatoes in Maryland, Virginia, North Carolina, and other early potato producing States competing in this territory."<sup>3</sup>

#### *Methods of collecting data and information.*

Information and data were secured, in the main, by the survey method. This method was necessary because the project deals with a large area and attempts to depict practice within the entire area, thus requiring that a rather large proportion of the universe be included in the study. Also information and data upon a rather large number of items were required from each individual producer. Data from growers for the extension either side of the base year (1929) were secured, (1) by a less complete survey taken prior to the present study for the 1928 crop year; and (2) by a survey taken in conjunction with supervised farm accounts for the same farmers in 1930. Survey records covering 1929 operations were secured for the same group. Consequently data were obtained for matched farms for the years 1928, 1929, 1930. For 1928, 1929 and 1930, dealer and bank data for years other than 1929 were secured with the 1929 records, save for the year 1931, for which year records are being gathered currently for important variable items. In general, data for the historical extension can be restricted to fewer items and fewer individual practices than are needed for the base year.

Although the method followed in the Bureau survey differed in some respects from the one here suggested, experience gained during the study has suggested the following: Growers' records should be gathered by a field crew composed of experienced workers in farm management and agricultural finance under the direct supervision of the worker or workers who are responsible for the analysis and publishing of the data and information secured. Each enumerator should comprehend the general uses to which the data gathered in the field foreign to his own will be put as well as understand the data secured in his own field. There should be equality of importance

(2) Central market distributors have not yet been interviewed nor have formal records been secured from fertilizer companies. It would be well to include information and data from these sources.

(3) See "Memorandum for the information of the Federal Farm Board concerning the organization and program of the Interstate Early Potato Committee." September 26, 1929.



accorded by each enumerator to questions in both fields. This is essential. The schedule used should be a coordinated farm management and credit blank to be taken by one enumerator upon one visit.

The field crew should be in the field as soon as possible after the close of the fiscal year to be surveyed and should be sufficiently large to complete the survey within one month. A "clean-up" should be made before leaving the area. It would seem that four enumerators with one man to check the schedules each day, or one man to check the farm management and one man to check the credit items, might work to the best advantage.

The field organization and coordination of the two types of information present one of the main problems in a survey such as this one, and every study of this kind should be well organized before embarking for the field.

In the present study records from other agencies were secured by the worker responsible for the analysis and publication of the financial phase of the work.

#### *Tests as to authenticity of the data.*

##### A. Growers' records—

1. Inner checks—whole against sum of parts, and repetition of question in slightly different form.

2. Exterior checks—individual producers' records with dealers' and bankers', local practice, 1930 census records, crop reports, market news reports, transportation companies, county records.

##### B. Supply dealers and shippers—

1. Growers' records, 1930 census record, records of fertilizer companies, bankers, other dealers and shippers.

##### C. Banks—

1. Balance of books, state bank commissioners' reports and records, growers' records, dealers' records.

##### D. Fertilizer companies and central market distributors—

1. Dealers' records, bankers' records.

#### *Sampling method and choice of period.*

In the study now under way, one base year, 1929, was chosen; the year 1929 because that year could be checked with the Census for the universe for the same period, and because limited farm management and credit information was available for 1928, a year of extremes in production and prices, and the results of 1928 conditions could be studied in relation to 1929. The Potato Committee was beginning its work in 1929.

The sampling method chosen for growers' records was the method of stratified proportional sampling. This method was chosen to afford representativeness by distributing the individuals over the entire universe and to secure the greatest precision from the sample taken. (For fuller discussion of stratified sampling see "Research Method and Procedure in Agricultural Economics", the section on sampling.)

Financial expediency dictated that the total number of records from an area of 470,000 acres, containing approximately 4,000 farms in the last census, be limited to around two hundred.

The universe consists of the farms growing potatoes in the potato-growing region of the Eastern Shore of Virginia. This area was tentatively divided into seven regions on the basis of types of farming, soil, geographic location, and credit and marketing practice.

In order to test the representativeness of the sample taken, controls drawn from the whole 1925 farm census of the region were taken. These controls were the tenure, color of operator, acreage in potatoes, and acreage in five other, most important crops. The distribution according to these factors in the sample taken was then compared with that for the entire universe. The census schedules were sorted into seven regions, and these subsorted by post offices. As a result of this, the area was redivided to make eight regions instead of the seven at first set up. All farms not growing potatoes in 1924 and 1925 were eliminated from the tabulation. Successive simple samples were drawn by means of numbered cards for each of the regions, and the samples compared with the universe for the "control" items listed above. The tabulations from the Census aided further in defining lines of homogeneity and determining with what precision a sample consisting of the farms surveyed described the "controls" in the universe.

It was found necessary to sub-stratify proportionally each region by post office address to gain adequate precision in the more heterogeneous of the regions.

For drawing the sample, a list of all the farms in the area was available with the post office addresses and names of owners and operators. The list was numbered and corresponding numbers stamped on cards. The cards representing farms were sorted by region, and sub-sorted by post office addresses. The cards were shuffled and blind drawings from each post office address were made.

The sample was proportioned within the region, but proportionality was not observed between regions nor between counties making up the area.<sup>4</sup> County lines were observed and regions may be readily converted into magisterial district (township) units, in which units the 1929 farm census will be reported.

In order to secure alternatives, three times as many cards as the number required by the sample were drawn in each post office address. Farms represented by these cards were visited in the order drawn until the required number of records was secured. For the farms missed, items of acreage in crops, acreage in potatoes, and tenure and color of operator were secured. The list of farms being an old one, it was necessary to correct for changes.

(4) Proportionality between regions would be possible and desirable in most studies of this kind.

The schedule used is not reproduced here because of lack of space, but copies may be secured on application to the Bureau of Agricultural Economics.

#### *Methods of analysis.*

Statistical analysis will be employed in the main, although analogy and historical treatment will play minor parts.<sup>5</sup> Dealers' records, bank records, records from fertilizer companies and central market distributors will be analyzed by a combination of statistical method and analogy. The historical aspects and the projection from the base year or years through 1930 will require the collection of some historical material and will make desirable some consideration of the analogies between periods of similar characteristics. The growers' records, forming the backbone of the study, best lend themselves to statistical analysis. The analysis is to be made by regions. (In the study here described, 30 records were considered as comprising a stratified sample of each region.) The first step will be to classify by size of farm, proportionate acreage in potatoes, and other crops, tenure, color, income, expenses, total assets, liquid assets. The degree of correlation between these factors and the source, cost, kind, and amount of credit will then be studied. Within these groupings, maladjustments as to kinds and amounts of credit can probably only be brought out by case studies.

The second step will be to consider the various combinations of farm enterprises in relation to credit. Such items as periodicity of returns, periodicity of outlay and crop diversification will be related to amount, source, kind and cost of credit. In some areas, the amount of diversification among farms may be insufficient to permit very full development of this.

A third step will be to compare the effectiveness of various means of appraising credit risks, from the standpoint of the lending agency, and from the standpoint of the borrower, and the effects of various credit policies upon the community as a whole.

This will involve consideration of problems of institutional relationships, risk appraisal, etc., as developed in the outlines for Projects 1 to 17. If no such studies have been made of the credit institutions of the area, it will be desirable in this study to cover some aspects of these projects. A determination of the relative positions of the banks, the dealers, the fertilizer companies and central

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(5) It is possible that the study would be strengthened and the dependability of the conclusions enhanced if the statistical study here outlined were accompanied by careful case studies, involving more complete data, of a number of type farms in the area. The cross-tabulation and other types of statistical procedure indicated will probably bring out the variations in average cost of credit for farms of different size, tenure, crop combination, etc., but are likely not to show clearly how additional credit would be used, what the limitations are to obtaining it, what its effects on income would be, etc. It is desirable to show, as far as possible, not only the conditions which do exist, but what changes may be advantageously made. This is likely to require more detailed consideration of the internal organization of a few typical farms of the area than the analysis outlined above would seem to imply—M. R. Benedict.

market distributors as sources of credit will be made. An evaluation of each source of credit in its individual and supplementary capacity will be attempted, the efficiency of each institution being judged by the degree in which it or the system tends to promote the efficiency in production and to penalize inefficient production.

The fourth step will consider the changes in the financial condition of the grower over a three-year period in connection with his type of farming, his credit management, etc., and will seek to relate his financial position to his need for credit, source of credit, etc.

Finally, an attempt will be made to determine quantitatively the credit needs of the region, and credit availability for each of three seasons in an effort to correlate these items with production. The residual effect of production and prices upon the credit availability the following seasons will be studied. This if carried very far will, however, involve carrying the study back farther than has been contemplated for other phases of the study. Marketing practice in its relationship to credit will be considered also.

#### *Statistical inferences.*

It is assumed that such items in the sample as average size of farm, types of farm enterprise, credit needs per acre of potatoes, cash outlays per acre of potatoes, income per acre of potatoes, credit costs per farm and per acre of potatoes, proportion of colored to white operators, assets and liabilities per acre of potatoes and per farm will apply to the entire region with a small limit of error. These assumptions are valid if the sample drawn is representative in these respects. The sample is believed to be representative in these respects because the area was stratified on the basis of types of farming, average size of farm, proportionate acreage in potatoes, color and tenure of operator, and geographic location. Preliminary tests suggested that the sample drawn would be of sufficient size, if stratified, to allow close precision in the averages of the "controls." If the sample as drawn fulfills the expectancy as to precision, and there is a measurable degree of correlation between the "controls" and such items as credit needs, assets, liabilities, expenses, income, etc., in the sample, it may in most cases be assumed that there is like correlation in the universe. The final test as to representativeness and precision must depend upon how nearly the results coincide with what is already known about the region and that which can be learned from other sources.

#### *Statement of inductive inferences.*

Inasmuch as the region studied is conspicuously different from any other region in the United States both as to type of farming and credit practice, it would be impossible to make inductive inferences from this region to other regions. It may be possible, however, to extend the findings for the year 1929 into 1930 and some few years into the future. This procedure will be justified only if the association found is a true association and the rate of institu-

tional change is slow from one year to the next. Credit needs per acre of potatoes, credit costs per acre of potatoes and per farm, income and expenses per acre of potatoes and per farm may be estimated for 1931 and for several years in the future if basic relationships remain unchanged.

The length of the grower records and the consequent time involved in securing a record from an individual seriously limits the size of the project. Three hundred records of the sort prescribed in the project above would consume a month's time for a crew of four to five men. For a project of 300 records together with supplementary records from banks, dealers, etc., it is estimated that salary and expense would amount to about \$7000 besides material and publishing expenses.

## **GROUP F**

### **Miscellaneous**

**PROJECT 28. To explain variations in the interest rates within an area, such as the state (or the nation).**

(By Gabriel Lundy.)

#### *Objectives.*

This project divides into two rather distinct objectives: first, to find what differences do exist in the interest rates obtained, and second, to explain the variations thus found in order to develop a better understanding as to which of them can and should be wholly or partly eliminated and which are of such a nature that they cannot be modified or eliminated.

1. Variations in the rate on the same kind of loans from one area to another.
2. Variations in the rate charged by different institutions or agencies within a given more or less homogeneous area for the same kind of loans.
3. Variations in rates charged on different kinds of loans by a given type of institution in a more or less homogeneous area.
4. Variations in rates on the same type of loan made to different individuals by a given type of loaning agency in a given area.

#### *Sources of data and information.*

For differences of the type indicated in No. 1 above, the reasons for the variations found are likely to lie chiefly in differences in soil and climate, differences in location relative to market centers, differences in the age of the community, differences in the set-up of the financial institutions, and differences in race or nationality. Source material for study along these lines will be likely to appear in previous credit studies in the area, census data (both for cross-

section and historical analysis), soil surveys, farm management studies in the area, assessed valuations as shown by tax records taken by survey from farmers and credit institutions in the area or furnishing credit to it.

The types of data indicated should yield information as to income per capita and per farm, and the type-of-farming data (see special reports of The Census Bureau on types of farming) should indicate something as to the seasonal distribution of credit needs, seasonal distribution of income, risk, and possibility of saving or accumulating funds. In areas where income may vary considerably from year to year, it will be desirable to attempt estimates of the range of variation and also the average income over a period of years. Constancy and regularity of income may be conducive to saving and lower interest rates.

Since often the rate of interest varies by source of funds as well as by periods and areas, the data on farm mortgages should show volume of loans and rate from each source for the year in which the mortgage was placed, and also term and repayment privileges. The duration of mortgages can be determined only from records of mortgages paid and satisfied. The volume of land loans from local individuals is difficult of ascertainment, but valuable estimates can be secured from local bankers, abstracters, and registers of deeds. In the representative-sample areas selected for more detailed study, the public records will give the most nearly complete data on the source of all mortgage funds. But even in such cases, the help of local people may be needed to classify individual mortgages as either local or non-local. Information on commission charges is not so readily available, since this is not always recorded; but some information can be secured from the institutions or agencies that customarily make these charges.

Complete data on delinquencies of interest and principal can be secured only from the mortgagees or lending institutions. Data as to cause of delinquency and foreclosure are important, but may be difficult to ascertain from borrowers. The act of foreclosure usually involves some legal procedure, and public records of the same. But for delinquencies not involving foreclosure often little can be ascertained. Even for foreclosures, the actual losses can be determined only by information from the mortgagee or assignee in case the latter has bid in the land and later sold it.

Data as to purpose of loan may also be difficult to get, and in many cases may yield little of value in explanation of the interest rate. Presumably the size of loan will be less if for consumption use. Larger loans may be granted if intended for increasing the productive capacity of the security, but the proceeds of such loans will usually not be made available to the borrower except in payment for the agreed or specified improvement. However, if the mortgage is given in lieu of part of the purchase price, the interest

rate may be lower than on regular loans, and for this reason the data should show the purpose of the loan.

For the information required under 2, 3, and 4, chief reliance will have to be placed on records taken directly from farmer borrowers and from the credit institutions making these loans.

Usually studies of the type here indicated will not be among the first credit studies undertaken, but are likely to be preceded by such studies as those indicated in Projects 1, 2, 5, 7, 11, 12, etc., and much of the information needed in this study may have been revealed in these earlier studies. Information such as the following will be that chiefly needed: What loan institutions and agencies operate in the area? What is their organization, source and cost of funds; adjustment of term or specified duration and repayment conditions to needs of borrowers; interest and commission charges, appraisal methods, ratio of loan to value, delinquencies, foreclosures, losses, volume of loans and cost of doing business?

Where it seems feasible, the various classifications may be based upon institutions making the loans, purpose of loans, term, ratio to value of security, etc. Classification of collateral may be on the basis of liquidity, tenure of borrower, net worth of borrower, etc. Where interest is collected in advance, this feature will need to be allowed for in comparing interest rates. Differences in seasonal variations in interest rates may also require consideration in connection with the shorter loans. This probably will not be a factor in comparing interest on mortgage loans.

The collection of some information on legal factors affecting interest rates will be necessary; for example, the following: Usury rates, legal rate of interest, maximum rate permitted by law and degree of enforcement of law, laws governing security or collateral, ease or difficulty of foreclosure and cost of such redemption privileges, taxes on moneys and credits, etc.; banking laws: ease or difficulty in organizing banks, capital and reserve requirements, and other requirements affecting earnings or cost of operation, laws relating to interest permissible on deposit (customary under guaranty of deposit law). This information on laws can be obtained from banking departments and from attorney generals or states attorneys.

The extent of competition may be indicated to some extent by studying the number of banks and loaning capacity in proportion to area and population. These data can usually be obtained from state banking departments and from the comptroller of currency. In some cases it may be possible to get from the bankers' association of the state, county, or region, some information as to agreements among bankers as to rates and charges.

Data as to risks from weather may be secured from the Weather Bureau, or from state hail insurance departments, or from private hail insurance companies, or from associations of such companies. Soil specialists, agronomists, animal husbandmen, and entomologists should be able to furnish helpful information as to risk. For example,

certain loaning agencies refuse to place loans in sandy soil areas in the wheat regions. Reduced competition resulting from this as well as the risks themselves may be a cause of high rates in these areas.

While the rate on somewhat comparable industrial or commercial securities would not directly explain the rate on agricultural loans, it will be well to get sufficient data on city financial conditions to indicate the major causes of difference, if any, between urban and rural rates. What type and proportion of security? How readily marketable? Is the market price always known? How does the average size of the bank and the cost of operation<sup>1</sup> per dollar of loan compare with the rural bank; etc.? Also average size of deposits and of loans, terms, costs?

Frequently the most economical way of obtaining data from county records is to employ one of the local abstracters in each county seat. In some cases local abstracters have fairly complete abstracts of all recorded documents and can furnish the information from such abstracts of all recorded documents at lower cost than by going direct to the county records. The local abstracter is also likely to know of the sales and is able to identify and list purchase money mortgages more readily than can a stranger in the community. Time and expense will prohibit getting data on all farm mortgages. It will be necessary to consider whether to get rates on only current loans or on all loans in force. For comparative purposes, since the proportion of all mortgages still in force and of new mortgages just placed may differ from place to place, and because the interest rate may have changed, care must be taken to make comparison of rates only between mortgages of concurrent date.

The determination of cost of rendering various banking services may involve considerable work and may be impractical in this study except in so far as the data of other studies such as Project 5 can be used. Considerable information as to methods applicable to smaller banks can be had, however, through the bankers associations, and for the larger city banks where costs are computed, information as to both costs and the method of analysis can usually be secured upon request. Even here, however, judgment may differ as to the apportionment of cost.

#### *Method of analysis.*

Only experience with actual collection, organization and analysis of data in such a project will indicate the most effective method of analysis. The following points may be suggestive, however. Assuming that it has been possible to obtain an accurate measure of the interest differences sought, the next problem is that of seeking to determine the causes of these variations. The tracing of cause and effect will prove difficult and elusive. While the interest rate supposedly represents a balancing of supply and demand, the fact still remains that if any factor or factors determine the rate of interest, the amount of credit asked and granted will tend to adjust itself to



the rate. If on the other hand, demand is the more rigid element of the situation, rates will tend to adjust themselves at the points necessary to draw in these amounts of credit, to cover risks involved, etc. These represent the extremes. No doubt the true situation as to cause and effect lies somewhere between the two.

We must therefore in each of the classes of differences cited seek first of all to identify the reasons for variation. These should, of course, manifest themselves in the differences between the regions, agencies, types of loans, or kinds of borrowers' fund. Certain of these differences may be expected to affect the supply side of the problem. For example, are there significant differences in the average net worth of the farmers of the different communities as a result of longer settlement, differences in the percentage of the value of the land which must be borrowed, differences in the saving and investing habits of the community, etc. Qualitative treatment of these will be necessary as a first step and some of them may be impossible of anything other than qualitative treatment. However, such quantitative measures as per-capita or per-farm loaning capacity of the credit institutions of the area related to per-farm or per-capita borrowings may provide usable indicators. Relative risks, especially if not subject to accurate measurement, will also affect the supply of credit available. The effect of differences in the hook-up of credit agencies in the areas with the general credit pool of the country will likewise affect supply. It may be possible to gain some indication of this from the amounts borrowed from outside and the rates paid on them. This, however, may be a measure of the supply shortage at a given rate rather than of the effectiveness of the channels of communications.

In studying the cost of banking as a cause of regional differences in interest rates, it will be necessary to give some consideration to the causes of differences in cost, whether size of the average business unit, differences in size of average loan and deposit, differences in cost of supervision and collection of loans, legal requirements, losses, etc., and why these individual costs differ. Consideration should also be given to the effect of the type of bank organization (individual unit bank, member of chain or group) on costs. Conceivably the type of organization might have some effect on the mobility and hence the cost of funds. Efficiency should also be considered in the study of banking costs. The presence of a sufficient number of banks to make competition possible does not justify the assumption that efficiency will result. The seasonal distribution of deposits in relation to the peak demand for loans may have some bearing on costs and rates. If Projects 10 and 11 have been carried out for the different areas, they probably will have provided answers to these questions.

On the demand side, differences are most likely to be due to differences in the age of the community and in the valuations placed on land and the effects of these upon the amount of borrowing necessary to supplement the average amount of accumulated wealth. The de-

mand side of the situation will also be affected from two opposite conditions as to profitableness of production. If production is profitable, there will be a strong demand for credit for expansion and for increasing the valuations of land. If production is very unprofitable, there is likely to be a strong demand for credit to meet current expenses, for advances to finance changes in types of farming, etc. Between these is a condition where credit demand will tend to be at a minimum. Both conditions, however, tend to affect supply, the one favorably, the other adversely. Some quantitative indications relative to these conditions can be developed out of data as to trend of farm incomes, trends in farm land values, trends in delinquencies on interest payments, taxes, etc.

A comparison of the rate on deposits and on loans may be fruitful in connection with a study of the cost of banking operations. A determination of the reason for this spread would help in explaining the interest rate. A correlation between the cost of bank operation and the rate of interest on bank loans would be expected to show some cause-and-effect relationship. But the isolation of true credit costs in a small country bank, where the same workers perform several duties, some of which are not connected with banking nor any part of the banking function is next to impossible in many cases.

Risk as a factor influencing the interest rate will have to be considered in at least two different ways: By prorating the losses as well as the extra collection costs caused by poor loans, one may be able to get a measure of risk as a cost or as a necessary percentage addition to the interest rate. This might or might not be a measure of risk in the given area, since some of the higher risk loans may be taken on in a supplementary way at very small net returns provided these net returns are estimated to cover the special costs involved. An attempt should also be made to determine the extent to which risk reduces the supply of loan funds offered in the region and the probable effect on the interest rate. Lack of knowledge as to what the risk actually is may cause the risk element to have an undue influence on the rate. In this connection, it will be necessary to identify as clearly as possible what factors in the local agricultural situation, in the credit policy of the bank, etc., give rise to the risk and consequent loss. It may be desirable to check explanations of delinquencies as given by lenders with those given by the borrowers. These explanations may not agree, and both views are needed for a correct appraisal.

A full understanding of the supply situation will involve comparison of the mobility of funds of various kinds between different regions and especially between country points and the larger financial centers. Investment opportunity and mobility of funds will need consideration with reference both to the local financial institutions and the local individual lenders and borrowers. Mobility and investment opportunity may both be affected either by the knowledge possessed by lenders and borrowers or by the organization of the

financial institutions concerned. These phases of inter-area movement of funds are discussed more fully in Project 32.

There are undoubtedly a number of factors or forces influencing the interest rate which at present do not seem to be measurable in a numerical sense. The entire problem, therefore, may be impossible of exact solution on a quantitative basis alone. Progress can be made, however, only by attacking problems which hitherto have resisted explanation.

U. S. D. A. Bulletin No. 409, "Factors Affecting Interest Rates and Other Charges for Short-Time Farm Loans," shows regional differences in interest rates and the co-variations of these with natural conditions. The type of farming, the distance from financial centers, characteristics of borrowers, the size and purpose of the loan, etc., are shown to have some effect on the interest rate. Another study is reported in "Farm Mortgage Interest Rates" by Clara F. Wigder in the *Journal of Land and Public Utility Economics*, January, 1925, Vol. I. pp. 102-117. The author holds that "conditions affecting farm-mortgage interest rates are primarily local in character," and confines her investigation to more general factors. She shows inverse correlation between land values and the interest rate, land values in turn being based on physical and economic factors determining productivity. The investigation is based on the 1920 census data, and consequently does not include loans on farms not owner-operated. It is possible also that the rates reported by the census covered old as well as new mortgages at the time of enumeration. These defects of the census data may or may not have any material effect on the accuracy of the results. Most of the explanations of interest rates in recent rural credit bulletins are on a qualitative rather than a quantitative basis, or show some association or correlation between various factors or conditions and the interest rates.

**PROJECT 29.** To measure changes in interest rates and account for them.

**PROJECT 30.** To develop significant indexes of changes in the agricultural credit situation and collect the data needed therefor.

(By R. C. Engberg and H. I. Richards.)

#### *Objectives.*

In many studies of agricultural credit policies and problems, representative index series of the amount and kind of loans made for agricultural purposes, of interest rates, payments on loans, foreclosures and other features of the agricultural credit situation over a series of years, would be exceedingly useful. They would furnish a criterion for estimating the effect of agricultural credit policies that are adopted from time to time or that have been adopted in the past. They should enable credit agencies to estimate more accurately than

at present the demands for credit that are likely to be made in the near future. Some of them would also furnish indicators of agricultural conditions. Measures of the volume of farm mortgages foreclosed would make possible an analysis of the factors to which these are related, such as changes in agricultural income, the level of agricultural prices and other factors. Series of this kind would be particularly useful if worked out for type-of-farming areas, individual states or agricultural regions.

Following are some of the index series that would be significant for the foregoing uses:

I. *Farm mortgages.*

a. Loans secured by first mortgages on farm real estate.

(1) Number and amount of loans closed.

Representative series of this kind will indicate the volume of such credit being extended currently. In order that the data may be properly interpreted, however, a number of classifications will be needed. The most important classification probably will be that indicating the purposes of the loans. It will be particularly helpful to note the extent to which credit is used for the purpose of refunding existing mortgage debt, of liquidation of short-term credit such as loans from commercial banks, or for some other purpose. The Federal Farm Loan Board now classifies its loans according to the purpose stated by the borrower as follows: "purchase of land," "payment of mortgage," "payment of other debts," "buildings and improvements," and "equipment, fertilizer, livestock and irrigation." Representative series of this kind for all farm mortgage loans would throw considerable light on trends in agricultural development.

Another classification could well be made according to sources of credit. Such a classification would indicate shifts in the relative importance of various types of lending institutions in furnishing credit of this kind. These shifts can then be studied with relation to the loaning policies of each type of institution. If both the number and amount of loans are obtained for each of these classifications, it will also be possible to study trends in the average size of loans for each purpose and for each type of lending institution.

Series of these kinds will be most useful if worked up for each state or agricultural region as well as for the United States as a whole. There will no doubt be significant differences in trend in different states or regions. In constructing these series, data from the official publications or reports of the loaning agencies should be used wherever possible. These sources are discussed more fully later. They will need to be supplemented, however, by questions sent to lending agencies, and perhaps even to farmers, in

order to keep in touch with trends in the amount of mortgage credit furnished by these agencies, if a representative index of all farm mortgages closed currently is to be obtained. These supplementary sources of farm mortgage credit are important, and changes in their relative significance have no doubt been taking place in recent years. The individual farm mortgage holder is probably not so important as in earlier years. For this reason, trends in the farm mortgages closed by the regular lending institutions may not represent accurately the total volume of new mortgages issued. They will, however, be very significant indicators of changes in their total volume.

(2) Number and amount of such loans in force.

Representative series of this kind will indicate changes in the number and volume of farm mortgage loans outstanding. They will reflect trends in the balance between payments and foreclosure of loans and volume of new loans closed. These trends no doubt should be studied in connection with trends in agricultural income, methods of agricultural production and other factors especially in particular areas. They will be useful also in studying the effect of particular loaning practices and policies of lending institutions on the volume of mortgage loans in force.

The United States Department of Agriculture now publishes annual estimates of the total volume of mortgage debt, and the debt on owner-operated, tenant-operated and manager-operated land by states. Separate series for each type of lending institution will therefore indicate changes or trends in the proportion and amount of mortgage loans supplied by each type.

(3) Ratio of payments on such mortgages to the principal and interest maturing currently.

A representative ratio of payments on the principal of farm mortgages to the principal maturing currently would indicate the extent to which farmers are meeting their farm mortgage obligations. It would also furnish a good indication of the financial condition of farmers, although interest payments and maturities would want to be included with the principal for that purpose. Many persons will also be interested in determining the relationship between these ratios and agricultural income over a series of years. Such ratios in order to be most useful, will want to be worked up by states or agricultural regions as well as for the United States as a whole.

In the construction of this index, it may be possible or feasible to obtain data from only a part of the agencies lending money on farm mortgages. At present, no lending institutions publish data of this character in sufficient de-

tail for this purpose. In view of this fact, it will be necessary to establish contacts with representative lending agencies and make arrangements with them for the reporting of the data needed.

It is not necessary to obtain such data for all farm mortgages in order to construct a good series. Ratios of this kind for representative types of lending institutions should give a fairly good indication of changes in the financial condition of farmers. Of course, institutions or companies that are very careful and conservative in making loans will naturally have smaller fluctuations in this ratio. For instance, ratios of this kind for first mortgage loans cannot be expected to fluctuate as widely as those for junior mortgage loans. They may be expected, however, to show about the same fluctuations on a minor scale. In any case, separate series for both types of mortgage loans should be constructed if data are available and the differences in fluctuations studied. Then if the differences are small only one series may want to be continued.

One important factor that must be taken into consideration consists of the obligations removed by foreclosure and the amount carried over from previous periods. Mortgages are not ordinarily foreclosed immediately upon failure of the borrower to meet his interest and amortization payments when due. These loans are carried forward for a time and the borrower is given an opportunity to make up his delinquency. In years when agricultural incomes are large, many of these back payments will be made, while if incomes are low many of these will be foreclosed. Probably the best way of working up this ratio will be to express the payments for each period as a percentage of current maturities, including those for loans foreclosed during the period, but not including delinquent payments that have been carried forward from the preceding year or period. Such a ratio would be especially useful in studying the relation of agricultural income to payments on mortgage debts. It would not, however, be an accurate measure of the rapidity with which loans were being paid up. For that purpose, payments on the principal would want to be expressed as a ratio of both current maturities and amounts carried forward, but not including loans foreclosed during the period. In this connection it should be noted that while these series would furnish a good indication of the financial condition of farmers, it is often possible for them to negotiate other loans out of which they can meet interest and amortization payments on mortgages.

(4) Loans foreclosed.

There is a great deal of interest, especially at the present time, in the number of loans foreclosed, and the acreages of land involved. Series of this kind are wanted for individual states and agricultural regions as well as for the United States because they indicate fairly well the financial conditions and income of farmers. Some economists would also like to know the appraisal value of this land, and the unpaid principal of the loan when foreclosed, as well as other data, in order to study the causes of these foreclosures. Some of the foreclosures will be consummated by the purchase at the sheriff's sale of the lands by an outside party and no loss sustained to the lending agency. In recent years, however, most of them have been consummated by the purchase of the lands at the sheriff's sale by the lending agency. It will be of interest to obtain this segregation of the foreclosures consummated, and such a segregation, of course, will then show the amount of current real estate acquisitions by the lenders.

Records are probably available showing most of the data desired for practically all of the farm mortgage loans foreclosed. The problem here is to secure sufficient data to make up a representative index with the least effort, especially in keeping it up-to-date. The Federal Farm Loan Board, in its annual reports previous to 1930 gave the number of loans foreclosed, the amount of the unpaid principal and the bank's total investment. Insurance companies are also required in many states to report the real estate acquired to superintendents of insurance, and banks may be required to report some information of this kind to state banking departments. Records of foreclosure by these and other lending agencies can be found at the county courthouse in most states.

In general, it seems likely that records of foreclosure by banks, insurance companies and the federal land bank and Federal joint stock land banks would furnish a representative series in most states. However, some intensive studies in a few counties or townships from which complete data can be obtained over a series of years would be of use in testing the reliability of this conclusion.

(5) Sales of acquired farm real estate.

The information of most general significance in regard to the sales of farm real estate acquired through foreclosure, is the number of farms, acreage of land, appraised value of the farm and the year appraised and the sale price. Series of these kinds will indicate changes or trends in the demand for farm land. A ratio of sale price per acre to appraised value per acre, each adjusted for the level of

land values in the year when made, would furnish a particularly good indication of the demand for farm land.

Two other series will be of use in determining the losses sustained by the lending agency or institution. These are the unpaid principal of the loan represented and the investment in the property at the time of the sale. Series of this kind will be useful in analyzing the risk involved in making farm mortgage loans.

In order to obtain comparable figures for such series, care should be exercised in ascertaining the method by which the investment is computed by the reporting agency or institution. For example, some institutions make a practice of accruing interest on their investments up until the date of sales, while others include only cash outlays in their investment figures. Variations of this kind, of course, will preclude a satisfactory comparison of losses sustained.

(6) Acquired farm real estate on hand.

The number of farms and acreage of land acquired by foreclosure and still held by the loaning agency is of general significance in the agricultural situation. This land is now being held in the hope of obtaining higher prices. The owners, however, are in most cases anxious to sell, and this land may well be called "distressed" real estate. In judging the prospective trends in land values in the near future, it is important to know the amount of this land being held for sale.

The unpaid principal and investment of the lending institution in this land will also be of significance, especially to the lending institution. So would the estimated recovery or market value of the land if available.

(7) Interest rates.

There are relatively wide differences in interest rates for different types of loans in the same area. There are also differences in interest rates over a period of time for the same kind of loans, or in different areas at the same time. In measuring these differences two types of series are of significance. One is the weighted average rate of interest paid for farm mortgage loans in different areas or at different times. The data needed are the interest rates and volume of new loans closed in each area. The other series is an index number summing several series of interest rates each representing one kind of loan and one amount of service at each period or place. The individual series are expressed as relatives of some base period, and these are weighted by the volume of loans represented by each interest rate series in some base period or by other methods of weighting commonly used in constructing index numbers.



b. **Loans secured by junior mortgages.**

It will be desirable if possible to secure a few series for second and other junior mortgages. Complete data on these will, however, be much more difficult to secure, and in many cases will have a different significance than the changes in first mortgage loans.

2. **Loans secured by agricultural commodities.**

Loans of this type ordinarily will be made for the purpose of financing the marketing of the commodities involved, and will therefore be for a relatively short term. The following series will be of general significance. The significance of the first three will probably be increased if they can be classified by commodities. The nature of the problems involved may be judged from the discussion above for real estate loans.

1. Dollar volume granted.
2. Ratio of payments made by borrowers to the amount due.
3. Volume of credit outstanding at a particular time.
4. Rates of interest on new loans.

*Sources of data.*

The sources of data will be mainly primary in nature and will correspond closely to the sources of the credit. Very little dependence can be placed upon secondary sources, at least for current data. The published material for both previous and current periods is very meagre. Sources of data not presented fully in projects already discussed, are as follows:

1. Life insurance companies. *The Survey of Current Business* publishes each month the volume of farm mortgage loans held by 10 life insurance companies (this series is the same as the one for 40 companies previous to June, 1931) having 81 percent of the total admitted life insurance assets of the United States legal reserve companies. This information runs back to 1923, and the September, 1926 issue includes a compilation by states of mortgages owned by 57 companies outstanding December 31, 1925. The published proceedings of the annual convention of the Association of Life Insurance Presidents usually include some data on farm mortgage loans held. For example, the proceedings of the twenty-fourth annual meeting, December 11-12, 1930, give data on farm mortgage loans held by 52 companies on December 31, 1906 to 1930, and a segregation of total loans outstanding December 31, 1928 and 1929, by census districts. The interest rate on these loans, however, is not reported. An important primary source of data regarding farm mortgage loans of life insurance companies is to be found in the reports which they submit annually to the insurance department of many states in which they operate. Perhaps one of the best states for this purpose is New York, since a very large proportion of all

life insurance companies operating in the United States report to the superintendent of insurance at Albany who publishes annually a report based upon them showing the farm mortgage loans held by each reporting company classified by states. This report, however, does not include such information as the amount of loans closed, retired, foreclosed, and the acquirement and sale of farm real estate by life insurance companies. However, such data can be obtained from the individual reports in the various state insurance offices. A few such compilations of these data have been made. A mimeographed report of these compilations for companies operating in the State of Ohio relating to their activities in that state has been issued by the Ohio agricultural experiment station. Estimates of the total mortgage debt made by the Department of Agriculture include an estimate of the amount of loans held by life insurance companies.

2. Federal land banks and joint stock land banks. Data on loans closed and outstanding, and the rates of interest charged are included in various forms in the annual reports of the Federal Farm Loan Board and the pamphlet which it publishes quarterly. The balance sheets which are included in the quarterly publication show the amount of acquired real estate held, but more detailed information regarding the properties on hand December 31, as well as sales, are included in the annual reports. All of these data are reported by states and land bank districts as well as for the United States. Figures on real estate acquired were included in the reports up through that for 1929. None of the published reports of the Board include data on maturities or collections. A few of the banks issue annual reports giving details not included in the publications of the Board.
3. Private mortgage companies. To our knowledge there are no data available showing the amount of credit handled by these concerns except what has been collected at various times by the Department of Agriculture and included in its estimates of the total mortgage debt. The possibility of obtaining such information through the Mortgage Bankers Association of America might be investigated.
4. National, state and other commercial banks. The reports of the Comptroller of the Currency include a segregation of the loans and discounts of all reporting commercial banks outstanding, of which one class is designated "Loans and discounts secured by farm land." Before using this figure, one must ascertain its exact significance. The asset item "Other real estate owned," also may be of some significance, since any farm real estate acquired by foreclosure undoubtedly is carried opposite this caption. However, it probably includes also any urban real estate acquired by fore-

closure. The data available from state banking departments should be investigated. The U. S. Department of Agriculture includes the amount held by commercial banks in its estimates of total mortgage debt.

5. Loans made by state governments. A number of states have established funds or authorized existing funds to be used for the purpose of making farm mortgage loans. Any available reports from these sources should be obtained.
6. Individuals and other sources of farm mortgage credit. Aside from certain special studies, which will be referred to later, and the estimates of the U. S. Department of Agriculture based on information in its files, there are no data regarding farm mortgage loans from these sources available.
7. Other sources of data. In addition to obtaining information from the sources referred to in 1 to 6 inclusive, each institution itself constitutes a primary source of data, if its cooperation can be obtained. Another primary source consists of the record of mortgages made by the county. In this record the terms of the loan are set forth together with a description of the security. A few studies of farm mortgage credit based on data obtained from this source have been made. One is a cooperative project between the U. S. Department of Agriculture and the Iowa Agricultural Experiment Station covering all the recorded mortgages in Story County, Iowa, from 1854 to 1930. The results have not yet been published. For some published studies see David Rozman, "Land Credit in Walnut Grove Township, Knox County, Illinois," *Journal of Land and Public Utility Economics*, August, 1928, pp.305-312. This covers data from 1850 to 1925. Also David Rozman, "Land Credit in the Town of Newton, Manitowoc County, Wisconsin, 1848-1926," *Journal of Land and Public Utility Economics*, November, 1927, pp. 371-384.

**PROJECT 31. To determine the relation of public credit policy to agricultural policy as exemplified in the influence of credit policy upon:**

1. Expansion and contraction of the production of farm products.
2. Land utilization and agricultural development in general.
3. The same in particular areas.
4. Emergency situations.

(By M. R. Benedict.)

The purpose of this project is to provide a better understanding of the effects of various credit policies on the responses of farmers, on their later financial condition, and on the production, balance of income, and financial condition of the nation as a whole. It has been

apparent that such violent monetary changes as occurred in the United States between 1914 and 1925, and even many of the less pronounced variations such as those accompanying the business cycles, create maladjustments to which farmers find it particularly difficult to adjust themselves and which cause them considerable loss. It is also probable that variations in the credit policies and costs affect such problems as over- and under-production of beef cattle, sheep, cotton, etc. Until a fuller knowledge is available, or at least a more complete hypothesis as to the relationships involved in these problems, it is impossible to develop or to try out any comprehensive policy with regard to agricultural credit. There is much to indicate that farm sentiment has often favored credit expansion when credit restriction would have been more to the advantage of farmers in general. However, too little work has been done on this great complex problem to warrant the laying out of any definite lines of procedure. Methods and relationships will need to be tried out and new leads followed up as they develop. This method will require devising some measurable criterion of public credit policy, especially as to credit policy in relation to agricultural production. Conceivably, if we accept a theory of credit appropriate thereto, such a measure might be in terms as the relation of the Federal Reserve rediscount rate and open market operations to the trend for these over a period of years. These might indicate the Reserve Board's efforts to affect the credit situation. If a measurable relationship of these factors could be established, it would be possible to identify certain periods as being characterized by a policy of credit expansion and others by a policy of credit contraction. However, since either of these lines of activity is likely to be running consciously counter to the trend of events as influenced by other factors, the effects of the credit policy in itself are very difficult to isolate.

It is doubtful if a credit expansion or contraction policy can be so formulated or its execution so regulated as to differentiate it for the various groups in the national economy. It is probably possible, however, to identify different sequences and behaviors associated with particular general policies. If this can be done, it will probably be possible to indicate with some degree of accuracy the influences of different policies on various phases of agriculture. In this connection, it appears to be a mistake to attempt to handle agriculture as a unit. Different agricultural products and different agricultural areas will be differently affected. It is probable that the most fruitful approach will be in attempting to develop certain groupings of agricultural products which have within themselves similar situations as to demand elasticities, as to classes of buyers, and as to supply conditions; that is, groupings which would be affected in a similar way by changes in the credit situation. It may then be possible to find some recognizable order in the sequence of price movements and production changes during major changes in the general situation indicated above.

If this approach proves feasible, the next step will be to combine these effects for the particular combinations of products for given areas in an effort to estimate the gross effects upon the agriculture of these areas. It may be possible then to relate these roughly to such things as land prices and changes in mortgage debt.

All such estimates as those above indicated will involve much reasoning from analogies, careful consideration of unique factors which may have affected given situations, and the applications of particular hypotheses. Conclusions drawn from them will not usually be sufficiently substantial to be regarded as demonstrated relationships, but should contribute to a more carefully reasoned explanation of such relationships than has been available heretofore.

The discussion up to this point has had to do primarily with the general commercial credit structure in its relation to agriculture. A second phase of the problem has to do with the effect of given policies in the handling of those credit agencies especially designed for the provision of agricultural credit, especially the federal land banks, the intermediate credit banks, the insurance companies and the country banks. It is probable that any study of these will best be taken up by regions, possibly by land bank districts, as these policies are likely to vary from region to region.

Here again a difficult problem arises in getting any objective measure of changes in policy. For land loans the most significant element of policy will probably consist in deciding whether to let appraisals follow such rather rapid movements of sale prices as those of 1919-1920, or to attempt by limiting the size of loans, to hold land prices to a more stable basis. It is probable that some types of loaning agencies will follow different policies than others. If so, it is desirable to identify these differences and to consider their effects in changing the relative volumes of loans by different agencies and the total volume of loans made. State loan systems may, for example, follow a more liberal appraisal or percentage loan policy than the federal land banks or the insurance companies.

Probably the best criterion of loaning policy by these agencies will be found by plotting *historigrams* of the appraisals of land of a given type and location, the best obtainable estimates of current sale prices, the maximum loans per acre on these lands, and the volumes of loans made, both volume of new loans and changes in total loans in force. This will not make possible an appraisal of the effect of the loan policy on land prices, as the loan policy will be simply a means of checking or intensifying land price movement and sales activity which is arising from other causes. It may be possible by surveys among farmers to gain some idea of the effectiveness of such checks on land sales activity and land prices.

In the case of loans by intermediate credit banks, and by local banks for production and marketing, it may be possible to find written statements of policy or settled oral agreements which will represent policies adopted. These will usually need careful checking

up, however, to see whether the stated policy was actually that followed.

The choice of period to be covered may prove difficult, but in general, since much of the conclusion must be drawn from analogy, it will be desirable to consider for some phases of the problem a period going back as far as the beginning of the main period of commercialized agriculture. Probably no very well defined credit policies will be ascertainable back of 1914, but some of the monetary phenomena which tend to accompany given credit policies may be recognizable. More intensive study will of course be given to the period since 1918.

The most important types of error to be on guard against will be the misinterpretation of related variations in the different phases of the problem. So many different factors are responsible in varying degree for each change in the situation that very careful qualitative analysis will be necessary in each case for even an estimate of the effect of any given factor.

The preceding discussion represents only a general consideration of possible lines of attack on the subject. The problem is so complex and so little has yet been done on it that much of the methodology will have to be worked out and tested as the study proceeds.

Some suggestive approaches to a related problem will be found in two articles by L. H. Bean of the Bureau of Agricultural Economics, "Post War Interrelations Between Agriculture and Business in the United States," address delivered before the second international conference of agricultural economists, Cornell University, August, 1930 and "The Agricultural Situation and Its Effect on Business in 1931," paper read before the joint meeting of the American Statistical Association and the American Farm Economics Association, Cleveland, Ohio, December, 1930. A paper by O. C. Stine, "The Effect of the Business Depression on Agriculture" read at the twenty-second semi-annual meeting of the American Railway Development Association, Chicago, December, 1930, may also be helpful.

Of the projects now under way in the Bureau of Agricultural Economics, the one most specifically concerned with this problem is under the leadership of Norman J. Wall, and entitled "The Influence upon Agriculture of Instability in the Wholesale Price Level Arising Through Changes in the Credit Situation."

**PROJECT 32. To analyze the use by agricultural areas of short-term credit from outside these areas.**

(By M. R. Benedict.)

A number of questions relative to the relationships between the short-term credit situation in agricultural areas and that in the money centers have not as yet been very definitely studied. Only the general outlines of the movement of short-term funds into and out of

agricultural areas are known. Answers are sought to such questions as the following:

1. To what extent are high short-term rates in agricultural areas due to the character of agricultural loans (risk, liquidity, etc.) and to what extent to a failure to achieve a nation-wide supply-demand credit adjustment in the short-loans market?
2. To what extent can agricultural short-term paper be sold directly in other parts of the country?
3. To what extent is the "revolving loan fund" of the agricultural area supplemented by inter-community borrowing through:
  - a. Rediscounting with city correspondents.
  - b. Rediscounting with federal reserve banks.
  - c. Direct borrowing from such agencies as livestock loan companies, dealers in the products of the farm, etc.
4. To what extent (a) can and (b) should such inter-community borrowing occur?
5. To what extent could the situation be improved by a better, stronger, and more regionally and industrially diversified banking organization?

The following discussion is not a complete project outline, but is designed to present some phases of the problem and to suggest possible lines of attack on it.

A given agricultural area must supply the short-term loans used by it either from the loan fund accumulated by it or by borrowings from other areas which have a surplus of credit at the interest rates prevailing. If its capacity for the granting of short-term loans is limited to the loan fund accumulated in the community, this limitation probably constitutes one of the important reasons for differences in interest rates between areas. If it is not so limited, such differences in interest rates are due primarily to differences in the risk, the liquidity, and the availability to investors of the loans in the area.

Very considerable amounts of credit in the form of mortgage loans are known to move from area to area. The movement of short-term loan funds is not so easily measured nor so well understood, nor has the degree of interchangeability of these types been very fully analyzed.

The analysis of areas and of credit institutions outlined in Group B, will if previously carried out afford much of the basic information needed for the summarization contemplated in this project. The analysis indicated for Project 30 also provides an attack which should aid materially in estimating the extent to which non-fluidity in the short-loan market is a factor in the differences in interest rates found and the importance of other factors as causes of them.

Credit available from sources within the area provides partly for both short-term loan funds and for farm mortgage or real estate loans. For most agricultural areas, these are inadequate to cover

both. A balance tends to be developed between such short-term and long-term loans within the community. In general, credit machinery seems better designed to provide for a continuous use of outside credit in long-term and intermediate-term loans than in short-term loans because they require less frequent and careful supervision and the security on which they are based is not subject to such quick changes. Since the development of the federal farm loan system, the flow of long-term funds to various agricultural areas is assumed to be fairly free except for variations due to differences in risk. Whether this assumption is warranted needs somewhat further study. There is a pronounced tendency both in the insurance companies and in the federal land banks to maintain nearly uniform interest rates in various areas and to limit loans and appraisals to such as it is thought can be safely loaned at these rates. Some further study is needed of the problem of measuring these variations in risk and of methods of assuming them. This is partly covered in Project 22.

To the extent that suitable security is available so that free flow of long-term funds into the community is possible, any shortage of loanable funds in the community probably can if necessary be brought in by this means. If the short-loan fund is limited in amount so that short-loan rates are above long-term rates by materially more than the local estimates of the difference in risk, there will probably be some tendency to turn more of the local loan fund to short loan, through time deposits in the local banks, and to let more of the long-term loans be supplied from outside. Some study might well be given to the relations between these rates for given areas, to the differentials necessary under given conditions for transference from one form of loan to another, the factors involved in these decisions, etc. Such transference cannot be regarded as occurring with entire freedom in any case. There will always be a substantial part of the local loan fund tied up in the long-term loans partly because some individuals definitely prefer these loans, and partly because some of this credit load has to be accepted in order to make sales of land. In addition to these factors, the local confidence in the stability of banks and in their efficiency as judges of risk will affect the situation by causing larger or smaller amounts of local loan fund to be invested outside the community or to be hoarded.

Much of the specific method of attack on this problem will need to be developed as study of it progresses. First steps will involve:

1. Determining as accurately as possible the amounts of bankers' balances held outside the community that are necessary for efficient handling of inter-bank transfers.
2. Estimation of the amount of the local loan fund invested outside the community and the reasons for such investment.
3. Estimation of the amounts and variations in amounts of the outside funds invested in the community through:
  - a. Local banks, by:



- (1.) Rediscounts with reserve banks.
  - (2.) Borrowings from other city banks.
- b. Credit extended by wholesale houses and manufacturers through local merchants.
  - c. Direct borrowings, for example, by elevator companies from city banks and from dealers, commission houses, etc.
  - d. Outside funds loaned through livestock loan companies, cooperative associations and as direct to farmer advances from outside dealers.
  - e. The value of outside funds invested in farm mortgage.

Such summarization should give a picture of the total volume of outside funds used in the community, and of the distribution of the local loan fund as between local long-term loans, local short-term loans and outside loans. Resort to the local mortgage records will be necessary in estimating the amount of local long-term loans in effect.

From these data especially if they can be derived periodically for a time, it should be possible to measure at least approximately the flow of funds into and out of the community, and the volume of outside funds used at various times.

The next step may logically be an attempt to judge whether the loaning agencies base their volumes of loans on the funds in hand as a result of the operations of the previous year or years or upon what they believe to be the prospects of successful operation in new ventures. This may very possibly be different for different loaning agencies in the area. Banks may limit their loans in accordance with their deposits and stability of the banking situation. It is very probable, however, that dealers, as for instance in cotton or wool, will tend to provide credit rather largely in accordance with prospects for sales and with banking conditions in the larger centers, which factors may have little connection with the size of the local loan fund.

A somewhat different attack on the problem is possible, but will probably involve the assembling of most of the information here indicated. This is to follow out the reasons for differences in interest rates from place to place along the lines indicated in Project 30 and to attempt a measurement of the factor of risk as indicated in Project 22 and in various projects in this series which deal with risk and insurance.

The project should lead eventually to an appraisal of the volume of short-term loan credit which could be effectively used in the area at given rates of interest (along lines indicated in Project 15, 18, 26, 28, and 29), and to consideration of the effect which a greater fluidity of short-term loan funds might have on such rates, what factors tend to inhibit such fluidity, and what steps are likely to operate to facilitate such freedom of flow. This last will include both consideration of facilities for measurement of risks, for a standardi-

zation of such risks, for providing methods for intelligent loaning to a wider range of investors, and for better grouping of risks to lessen possible individual losses.

Some discussion of interbank borrowing has been developed in L. S. Watkins, "Bankers' Balances," McGraw-Hill, 1929, particularly in Chapter VII. Some study of the problem has also been carried on for the Federal Reserve Board by Mr. Norman J. Wall.

## ANNOUNCEMENT

This series of reports is part of a program of assistance to research in agricultural economics and rural sociology in the United States undertaken under the auspices of the Social Science Research Council. The following other numbers in the series on "Scope and Method" are in process of preparation: Rural Population, Rural Social Work, Agricultural Income, Marketing of Farm Products, Transportation and Agriculture, Prices of Farm Products, Index Numbers for Agriculture, Farm Family Living, Rural Organization and Farm Management. Other numbers contemplated will deal with such fields as Agricultural Insurance, Agricultural Cooperation, Farm Labor, Rural Social Psychology, Rural Institutions, Rural Land Values, Rural Land Tenure and Agricultural Policy.

These reports are being sold at cost of printing and distribution. The editions are limited to a few hundred more than the orders received in advance. Those desiring additional copies of this report should therefore send in their orders at once. The publication venture is being financed out of a small revolving fund, which means that the first numbers must be sold before those following can be printed.

The first stage in this program of assistance to research was the making of a survey of the research work under way in these two fields, including the methods in use and facilities and personnel available. The results of this survey were published in limited mimeographed editions which can be found in most of the agricultural libraries in the United States. The three major conclusions reached were that the research personnel is not adequately trained, that better methodology needs to be developed and more generally employed, and that the field of research in these two subjects needs careful mapping.

The first stage in the program for improving the training of the personnel has been to secure provision of a score or more of fellowships each year for a period of five years under a grant from the Rockefeller Foundation. The first stage in the program with respect to research methods and mapping the fields of research has been to prepare and publish in three volumes a discussion of those phases of methodology which are common to most of the research in these two fields. Two of these volumes are called "Research Method and Procedure in Agricultural Economics" and the other is called "Rural Sociological Research in the United States." The third of these not only discusses method but undertakes a general mapping of the field of research in rural sociology. The two devoted to agricultural economics contain only meagre discussion of the scope and content of the field.

The next stage in the program is this present series of reports in which the various sub-fields of agricultural economics and rural sociology are made the units of study.