

Background Paper No. 4

Colloquium on Rural Finance
September 1-3, 1981
Economic Development Institute
World Bank
Washington, D.C. 20433 USA

IMPROVING DONOR INTERVENTION IN
RURAL FINANCIAL MARKETS

By

J.D. Von Pischke
Financial Analyst
World Bank

Sponsored By

Economic Development Institute of
The World Bank
The Agency for International Development and
The Ohio State University

IMPROVING DONOR INTERVENTION IN RURAL FINANCIAL MARKETS

J. D. Von Pischke

Credit project design largely determines credit project performance. Criticisms of the performance of donor-supported credit projects often cite problems which can be traced to project design flaws. The principal modifications required for a reorientation of donor approaches to farm credit include (a) recognition and accommodation of risk, (b) attention to creating confidence in debtor-creditor relationships, (c) viewing finance as part of a process rather than as an input, and (d) consideration of non-financial as well as financial means of creating debt capacity. Taken together, these imply a dramatic change in credit project conceptualization. Taken partially, these should still prove effective for making useful incremental changes in project design.

August 1981

Economics and Policy Division
Agriculture and Rural Development Department
The World Bank

Views expressed in this paper are those of the author. They should not be attributed to the World Bank, its affiliated organizations, or any individuals acting on their behalf.

The author wishes to thank Professors Dale W Adams and Jerry R. Ladman for their detailed comments on an earlier draft, and to the other participants in the Workshop on Rural Financial Markets held in Granville, Ohio, in April 1981 for their reactions to the presentation of an outline of this paper.

IMPROVING DONOR INTERVENTION IN RURAL FINANCIAL MARKETS

by J. D. Von Pischke

I. Introduction

Intervention in rural financial markets by development assistance agencies occurs through agricultural credit projects, and credit components in rural development projects. These projects are found in many countries. Their popularity is reflected in cumulative commitments by the World Bank for agricultural credit exceeding US\$ 3,000 million by 1981 (World Bank, Annual Report).

Credit projects have provided substantial amounts of liquidity in rural areas and are frequently thought to produce high economic returns. Beginning in the late 1960s, however, critics have argued that the impact of these projects may be considerably more complex than suggested by their design, and even that rate of return calculations miss or obscure their most important effects (Adams, David and Meyer, Graham and Bourne, Howse, Illy, Kamajou and Baker, Kratoska, Ladman and Tinnermeier, Mottura, Penny, Rice, Robert, Tinnermeier, Von Pischke and Adams, Von Pischke et al., Youngjohns).

This paper attempts to explain how rural credit projects and components are presently designed and why present design techniques often cause serious problems. The paper goes on to suggest an alternative approach to rural credit and finance. The alternative approach stresses debt capacity and places credit in a financial context. It also examines the extent to which financial and non-financial stimulants to rural development may be substitutes or complementary interventions.

II. Current Rural Credit Project Design

Starting the Project Cycle. Credit project design includes identification, preparation and appraisal prior to implementation (Baum). Identification and the early stages of preparation generally involve two major considerations dealt with either sequentially or simultaneously. These are: (1) technical objectives, and (2) identification of intended project beneficiaries. Technical objectives which are expected to be realized through provision of donor funds may include adoption by farmers of new agricultural technology, such as a technical package of improved seeds, chemical fertilizers, and other purchased inputs (World Bank, Agricultural Credit). Projects are justified in terms of incremental tons of grain or other farm produce, increases in farm income and rates of return to real resources used.

Identification of intended beneficiaries, who would borrow project funds, may be done in several ways. Projects may be area-specific, crop-specific or deal with farmers who are not yet using a specified technology or mix of technologies. Another basis for identification is affiliation. Members of a cooperative society or some officially organized village unit may be identified as potential loan applicants.

Farm Budgets. An important agricultural credit design tool is the farm or farm enterprise budget (Brown, Gittinger). A highly simplified model is given in Table 1. It indicates the activities of a representative farm without the project and estimates what would occur with the project. (In Table 1 only a single "with project" year is shown, in the interest of simplification. The usual analysis incorporates annual figures for each

year of the investment's economic life. Several other gross simplifications are made to facilitate presentation.) Calculation of the rate of return to the investment uses the stream of annual net benefit before financing over the life of the investment at the farm level. The rate of return to the farmer's own stake in the investment is derived from the annual net benefit after financing over the life of the investment.

Table 1. Model Agricultural Budget

	<u>Without Project</u>	<u>With Project</u>	<u>Calcula- tion</u>
1. Produce (tons)	5	10	+
2. Produce consumed on the farm (tons)	<u>2</u>	<u>2</u>	-
3. Marketed produce (tons)	3	8	=
4. Farmgate price per ton (\$)	<u>40</u>	<u>40</u>	x
5. Total farm cash receipts (\$)	120	320	=
6. Purchased inputs (\$)	<u>20</u>	<u>100</u>	-
7. Net Benefit Before Financing (\$) <u>a/</u>	100	220	=
8. Loan receipts (\$)	-	90	+
9. Debt service (\$)	-	<u>108</u>	-
10. Net Benefit After Financing (\$) <u>a/</u>	100	202	=

a/ "Before Financing" refers to the costs and benefits directly related to production, while "After Financing" includes these costs and benefits plus loan receipts and debt servicing.

Credit is generally accorded an extremely important role in the financing package which accompanies and supports the technical package or innovation provided under the project. The proportion of farm investment cost which is financed by project credit is frequently 80, 90, 95 or 100% (Von Pischke). These numbers reflect convenience and convention. Since farmers are generally assumed to be poor or not to have sufficient liquidity, high percentages such as these are common. Loan size is calculated by applying one of these percentages to average investment cost, and is often called "credit need."

Repayment terms are also derived from the farm budget. In the assumptions used in Table 1, for example, loan size (\$90 in line 8) is 90% of the cost of inputs (\$100 in line 6). In this simple example the loan is for seasonal inputs, repayable with a 20% interest charge at the end of the season (\$108 is shown as debt service in line 9). There appears to be ample space in this budget for these repayment terms because the incremental (i.e., "with project" less "without project") net benefit before financing is \$120 (i.e., \$220-\$100), which is much greater than the \$18 net cost of borrowing (i.e., \$108 - \$90).

From the perspective of this paper, the most interesting fact about this method of determining loan size and credit terms is the use of the normal year assumption. Farm or enterprise budgets typically use normal year assumptions because the sequence of good, normal, and bad years is impossible to predict and because their distribution is not considered important in calculating a representative rate of return. In other words, no allowance is specifically made in conventional farm budgets to accommodate variable returns from investments in agriculture.

is specifically made in conventional farm budgets to accommodate variable returns from investments in agriculture.

The total size of a credit project is based either on an aggregation of investments projected for individual farms, or the project size may be given in advance from the donor's budget and the size of the government's contribution, in which case the number of intended beneficiaries is a function of project size divided by the amount to be invested on each farm. Other elements which enter into determination of project size are project overheads such as training, vehicles, technical assistance, monitoring and evaluation and other supporting investments designed to stimulate the rate of adoption by farmers or to improve the credit system.

The approach outlined here in very simplified form is accompanied by problems cited in the critical literature on credit projects. Low levels of repayment performance, a major problem, may reflect high levels of farmer indebtedness, as well as instability in farmers' cash flow (Sanderatne, Von Pischke). A complicating factor is that credit from government agencies involved in donor-supported projects is often regarded by rural people as a grant (Donald). Another problem is that specialized farm credit institutions often perform poorly in financial management and loan administration (Roberts). This may reflect emphasis on technological rather than financial factors in project design, as credit projects are typically oriented towards extension of agricultural technologies rather than provision of improved financial services. Disappointment has also been expressed with the number of farmers who gain access to rural credit (Dell'Amore, Gonzalez-Vega). This may reflect a technological bias in project design, especially where the technical packages are not well

restricts the number of borrowers. Low interest rates on loans force lenders to restrict credit access (Gonzalez-Vega), while high levels of overdues tend to limit the amount of energy lenders devote to developing new business (Von Pischke et al). In addition, the costs of institutional credit appear to be considerably greater than suggested by the interest rates charged (Adams and Nehman, Datey).

III. An Alternative Approach to Intervention in Rural Financial Markets

The state of the art in credit project design is primitive. Problems associated with these projects are serious, subtle, overlooked and misunderstood. In view of these problems, how would it be possible to design a more effective means of intervening in the operation of rural financial markets? The approach outlined below can alleviate many of the present problems while stimulating the role rural financial markets play in economic and social development. It consists of three steps intended to place finance, and intervention through finance, in an appropriate conceptual framework. The first step is to ascertain the repayment capacity of intended borrowers. The second is to identify economic and institutional measures which will build confidence between intended borrowers and lenders. The third is to design intervention to create debt capacity. If the reorientation implied by these three steps is not feasible, partial application of this approach, applying only one or two of the steps, should still be useful. Improvement in project design could occur incrementally, through a series of small changes.

A. Ascertain Repayment Capacity

The repayment capacity of borrowers is central to the performance of any credit scheme. It is reasonable to begin credit design with this element because it reflects a lender's perspective. Focusing on repayment capacity also permits identification of other financial services, such as savings deposits, which would be useful for intended beneficiaries and enhance the role of finance in development.

Three steps may be used to ascertain repayment capacity in the with project case. The first is to quantify the normal year uncommitted cash flow of the borrower. The second is to adjust uncommitted cash flow for senior claims on the intended borrower. The third is to quantify the impact of reasonably expected adversity on the cash flow of intended borrowers.

Normal year uncommitted cash flow may be quantified as indicated in Table 2, which incorporates the normal year with and without project data found in Table 1. Uncommitted cash flow is defined simply as minimum repayment capacity, which is the net benefit before financing adjusted for senior claims on the intended borrower. Senior claims are financial obligations which the borrower would regard as more important than repayment of the loan. A prime example is purchases of food and fuel. Taxes and school fees fall in this category in many parts of Africa, while expenditures associated with family emergencies and important social ceremonies are generally regarded as more important than timely repayment of a loan to a government institution. Farmer behavior the world over appears to confirm that claims by moneylenders and other informal sources of credit also rank

ahead of those of formal credit institutions. In the example given in Table 2, senior claims are expected to be greater with the project than without project because the farm family's level of income is higher and consequently its consumption expectations and possibly its obligations to members of the extended family and to the community may be greater.

Quantification of senior claims requires judgment on the part of the project designer and imposes additional information costs on lenders. Difficulties involved in quantifying senior claims cannot be lightly dis-

Table 2: Alternative Agricultural Budget

	Without Project	With Project	
		Normal Year	Bad Year
A. Produce (tons)	5	10	5
B. Produce consumed on the farm (tons)	<u>2</u>	<u>2</u>	<u>2</u>
C. Marketed produce (tons)	3	8	3
D. Farmgate price per ton (\$)	<u>40</u>	<u>40</u>	<u>55</u>
E. Total farm cash receipts (\$)	120	320	165
F. Purchased inputs (\$)	<u>20</u>	<u>100</u>	<u>90</u>
G. Net Benefit Before Financing	100	220	75
H. Senior claims	<u>50</u>	<u>60</u>	<u>60</u>
I. Minimum repayment capacity = Uncommitted cash flow	50	160	<u>15</u>
J. Loan receipts			12
K. Debt service			<u>15</u>

missed, but they are not formidable. Estimates of senior claims are essentially no softer than those of certain other variables currently used in project design. In fact, competent lenders with experience in an area are able to give rough estimate for all of the items contained in the adjusted model agricultural budget found in Table 2. If the lenders are not competent, projects design should address this deficiency or use alternative, non-financial means of achieving project objectives.

Adjustment for adversity should reflect reasonable expectations about the risks facing the target group. Projection of the bad year result requires a number of assumptions, but these are not fundamentally different from those used to estimate normal year performance. However, further knowledge is required on the part of project designers to identify a range of probable outcomes rather than simply the most probable outcome. The objective is to indicate the range of performance which could typify levels of production under normal circumstances rather than to define the limits of catastrophe.

There is no scientific way of precisely identifying the "normal expected adverse situation", although an obvious starting point is a distribution of expected results. Some may prefer to measure it in terms of standard deviations of yields and prices, while others would argue for different measures. In a smallholder dairy credit project, for example, loans might be given to farmers for the purpose of assisting their purchase of two improved cows, plus fencing and watering facilities. In this case, adjustment for adversity could begin with attempts to answer the question: What if one or both cows die? Once the lender has made 100 of these loans and has 18 months' lending experience, the answer to that question will be

fairly obvious. The probabilities will be known in rough terms (e.g., 1 in 6 that a cow dies within 12 months of purchase by the borrower) and the characteristics of farmers suffering accidental stock losses will have been identified. At this point, lending terms and conditions can be redefined. When the credit decision system has accommodated the probability of accidental mortality it can go on to consider the impacts of longer than expected calving intervals. Once these are factored into lender strategy, availability and use of different stock feeding regimes or milk prices or marketing arrangements may become interesting to credit decision makers.

Adjustment for adversity can in fact be based largely on the extent to which the lender is willing to assume the risks of prospective borrowers' inability to repay, which will determine the prudent credit limits which the lender can offer. This point will be elaborated upon later in this paper.

In the example given in Table 2 production is expected to fall by half in physical terms from ten to five tons while the price is expected to increase somewhat from \$40 to \$55 per ton, reflecting an overall fall in agricultural output. Input cost (line F) is reduced somewhat in the adverse situation because the farmer may be able to reduce labor and other costs, such as bags and transport, as a result of a small harvest.

The bottom line in Table 2, after adjustments for adversity and senior claims, shows the minimum repayment capacity of the prospective borrower. In all years--good, normal or bad--the borrower is expected to have not less than \$15 available for the repayment of a loan. Based on this observation a loan of approximately \$12 could be offered, which when repaid with a 20% interest charge would absorb the \$15 adjusted adverse uncommitted cash flow of the target group farmer.

This illustration suggests the repayment capacity of the farmer in bad years may be greatly reduced. If credit terms are specified using normal year assumptions, and without allowances for senior claims, the farmer may not be able to meet debt servicing obligations in situations which may reasonably be expected to occur. This can embarrass the farmer and jeopardize the liquidity of the lender. In many cases the adjustments for adversity and senior claims leave only a very small amount of liquidity for debt servicing, as illustrated in Table 2. When the bottom line of the exercise is very small, credit may not be an appropriate way to assist the farmer. This concern leads to consideration of alternative means of assisting farmers under projects, as well as of ways to make the financial arrangements for satisfactory project participation by farmers more flexible. From this perspective, the "bottom line" from the analysis is not primarily a means for determining project size or number of beneficiaries, but rather a starting point for strategic decision-making.

B. Building Confidence

Confidence is fundamental to modern finance and commerce. The absence of confidence increases information costs and other transaction costs. Businesslike behavior in markets of all types engenders confidence and reduces risk, which lowers transaction costs. Without confidence, private credit markets could not operate. In donor supported credit projects, however, the question of confidence between borrowers and lenders using project funds is generally not directly addressed. It is apparently

assumed that project overhead components supporting the operations of the lender, and extension services helping farmers realize the potential of the technological package offered under the project, will produce confidence. Given the performance of many projects, however, where extension services do not appear to be very effective and where lenders' thinly stretched management is swamped by the project, confidence is an important issue. This is simply because without confidence there is an absence of willing buyers and willing sellers of funds capable of providing a basis for the development of credit markets. The system which may be forced into existence instead is a state owned farm credit system with a mandate to undertake operations specified by the government, such as donor supported credit projects. Special attention to the means by which credit projects can create or destroy confidence among the various parties involved is needed when the "market" does not require confidence for its existence and growth.

Certain arrangements between debtors and creditors in projects may encourage cheating (Von Pischke et al.). High levels of financing which burden farmers' debt servicing capacity tempt borrowers not to repay as scheduled. Low interest rates and lax loan administration may tempt the farmer to obtain more credit than will be used for project purposes, possibly by overstating the area to be planted or the costs of investment goods. Also, given the technological bias of project design, borrowers may be forced to accept an entire technical package in order to receive a loan, when in fact they are comfortable with and will use only a portion of the package. Incomplete adoption may be rational risk avoidance on the part of the farmer, but poses problems for projects founded on optimistic assumptions about farmer adoption rates and yields.

The political fanfare which may surround the introduction of a project may also work against good debtor-credit relationships by introducing political factors into credit allocation. Farmer poverty, or loyalty to certain factions, may receive precedence over indicators of potential financial performance in the loan allocation process. Politicization may tempt farmers to believe that the credit is transitory, and that with political changes it will disappear. Given a short-run perspective, the incentive to establish a credit history is lacking. The farmer knows that the government will some time again want to use credit to increase food production or the rate of adoption of an improved technology, and that there is little likelihood that loan default now will result in denied access to credit later when some new campaign is mounted.

Because of the difficulties which get in the way of good relationships between borrowers and lenders, there are several questions which should be asked at the early stages of project design for the purpose of strengthening the integrity of debtor-credit relationships. The first is: What services can be sold by lenders that will produce a continuing series of transaction that will create longstanding relationships with borrowers? In certain credit projects, for example, the farmer is expected to visit the lenders' office once each year to make an annual loan payment. A relationship restricted only to this transaction may not be conducive to building a good understanding of the borrower's business on the part of the lender and of the lender's expectations on the part of the borrower. Services that are used more frequently offer a stronger potential for building good relationships and enhancing their potential value. They can also impart value to good credit ratings. Transactions on savings

accounts, for example, may occur several times a year. Money transfer services likewise may be extremely important in areas where farmers do not normally have checking accounts. Transfers may arise because of the nature of the extended family, with certain members working in towns and other members remaining on the farm. Deposit account and money transfer services are available continuously, while most types of loans have a final due date. A reasonable expectation by a provider of deposit and transfer services is that deposit accounts may remain on their books for a considerable length of time and that these and money transfer services have a certain volume and frequency of use by rural people, providing opportunities for the development of new business. Provision of these services stimulates savings mobilization, as stressed in the critical literature.

A second question is: What is the commercial value to the lender of accurate and timely information about borrowers and potential borrowers?

Relevant information is required to provide useful rural financial services. Deposit accounts and transfer services generate such information -- histories of transactions provide a financial record which the lender can interpret for credit and product design decisions. For example, the level and timing of deposits provide some indication of the volume of funds which the lender might tap or the borrower might mobilize for loan repayment, and the times in the farmer's seasonal production cycle when loan due dates could conveniently be scheduled.

No special incentive is given in most projects for borrowers to establish records or reputations as good payers so that their access to credit in the future will be enhanced. For example, few credit projects specify that penalty rates of interest be charged on overdues, or that meaningful late payment fees be charged. Also, it is rare that established

borrowers with good records have access to credit at lower interest rates than new borrowers, that they are subjected to fewer information requirements, or that they are eligible for new services on a preferred basis. In other words, their transaction costs or effective access are not greatly dependent upon their past and present performance. Without a sense of history, credit projects fail to provide the long term perspective to both borrower and lender which is essential to building confidence. A sense of history can be stimulated by a record keeping system which rates the credit behavior of borrowers and by loan terms and conditions which give them an incentive to keep their records as clean as possible.

Finally, the third question is: What premium, if any, should voluntarism command over coercion in rural development strategy? Or, what is the most useful role for the state and for intervention? Regulations and limitations over farmer behavior weaken confidence, especially when lenders are part of larger control systems and possibly even required to enforce or to implement regulations and limitations not of their own making. If development is viewed as a top down phenomenon, credit constitutes a valuable tool of control and dependence, and regulations are normally required to direct farmer behavior. (This may be one of the reasons for the popularity of credit projects on the part of governments and donors.) If development is viewed as a bottom up process, the role of savings becomes more important and questions of structure for development programs involving credit require more attention. "Supervised credit," for example, would appear less attractive, and lines of credit more appropriate. Credit unions, with opportunities for member participation in management and loan decision-making, would be preferred to bureaucratically organized government credit agencies.

C. Creation of Debt Capacity

Debt capacity is borrowing power. It is created by the loan applicant's estimated future payment capacity, and is equal to the amount of credit this capacity can command in financial markets. Creation of debt capacity is a project objective under the approach recommended here. Its validity as an objective stems from the fact that minimum repayment capacity of target group farmers is typically small when adjusted for adversity and senior claims. Measures which can increase minimum repayment capacity and access to credit are suggested by the components used in the derivation of minimum repayment capacity (see Table 2).

Debt capacity involves more than the mathematics of a farm budget. It is a product of numerous factors. Its complex basis is consistent with the fact that credit is a necessary condition for development only in a textbook world of steady state equilibrium (Schumpeter), but not in the real world of economizing behavior. Rather, credit's capability does not extend beyond stimulation or acceleration of development (Mosher). The factors which are necessary for development should be carefully reviewed before a role is specified for credit. These include technology, infrastructure and government performance.

Debt capacity may be created by technological measures incorporated in a project's technical packages. Risk reducing technologies at the farm level, for example, diminish adversity, thereby increasing minimum repayment capacity. Innovations which increase the uncommitted cash flow or the net benefit before financing likewise increase repayment capacity. This effect is apparent in existing credit projects, as Table 1 suggests.

Physical infrastructure is a second means of increasing debt capacity. Roads that increase access to markets for example, reduce transport costs. This may in turn reduce the farmgate cost of inputs and likewise increase farmgate produce prices. Information costs may be reduced by communications services such as telephone, telegraph, radio, and postal facilities. With more information, both borrowers and lenders are in a better position to capitalize on opportunities and to reduce uncertainty surrounding economic decisions. Storage facilities and improvements in storage techniques permit increased control over the timing and prices at which produce is sold and transported, and in reducing the per unit costs of carrying agricultural input supplies.

Price policy reforms may create debt capacity. If commodity prices are kept low in an effort to subsidize consumers, for example, farm incomes and minimum repayment capacity are also kept low. Input price policy is likewise important. Formal sector wage regulations, especially minimum wage legislation, may influence agricultural wages and the costs of hiring seasonal farm labor. Government decontrol of interest rates in the formal sector should increase rural access to credit, as outlined in the critical literature (Adams, Gonzalez-Vega, Vogel).

Institutional measures outside financial markets may increase target group debt capacity. Non-price efforts to regulate markets often have an important impact on the minimum repayment capacity of the borrower. Monopoly produce purchase arrangements, for example, may be reflected in low prices to farmers as well as in situations in which the monopoly procurement agent is incapable of absorbing the produce farmers are willing to tender. Monopoly input supply arrangements may also work

against farmers when these systems are not able to supply modern inputs on a timely basis and in the quantities desired by farmers, or when they shield inefficient input producers and delivery systems.

Contract law innovation and enforcement are often overlooked in credit project design. Poor loan repayment by borrowers weakens the effectiveness of contract law in rural areas. Willful default which is not effectively dealt with provides an object lesson to non-defaulters.

Another fundamental institutional determinant of minimum repayment capacity is land tenure. Relationships between tenure and credit are always complex and few general rules can be provided here. However, security of tenure appears essential to credit relationships for reasons of lender risk aversion and because tenure relationships influence the operator's incentive to invest.

Farmer education and extension services can create debt capacity by reducing risk to the borrower as well as providing reassurance to lenders that the technological basis for a borrower's operation is sound. Training for those providing services to agriculture can also contribute indirectly to rural debt capacity by increasing farmer access to information.

Provision of collective guarantees and the aggregation of repayment capacity through farmer organizations may enhance debt capacity (von Stockhausen). Cooperative and pre-cooperative structures can be instrumental in mobilizing resources, either locally, nationally or externally, for investment and for allocating loans to members.

Institutional measures within rural financial markets can also ultimately increase farmer debt capacity. For example, better accounting

and internal controls in farm credit institutions should help to increase their overall efficiency, making them more interested in developing new business. Likewise, decentralization of loan decision-making in formal financial institutions accompanied by increased accountability of loan officers may expand farmer access to credit and make loan terms and conditions more responsive to the situations of loan applicants. Upgrading the skills and qualifications of people working in financial intermediaries may also create debt capacity. In certain instances increased remuneration for staff of government owned lenders may be necessary to reduce staff turnover and contribute to efficient operations.

D. Financial Measures that Increase Farmer Debt Capacity

Having considered price policies and technical, infrastructural and institutional ways of creating debt capacity, it remains to determine what financial measures and innovations could increase the debt capacity of intended borrowers. Examples include lengthening the term structures of financial markets, expanding the services of intermediaries, designing more flexible lending and repayment terms, mobilizing local resources, and providing external assistance to enhance the supply of loanable funds.

Lengthening the term structure of financial markets should be especially beneficial to agriculture. Conditions in many countries do not favor long term financial contracts. Uncertainty, high and variable rates of inflation, low interest rate policies and gaps in legal systems and enforcement practices all tend to discourage long term financial contracts. This works against agriculture in general because returns from

investments in agriculture, other than those limited to changes in cultivation practices which bear fruit in a single season, tend to be slow, with relatively long gestation periods and slow payoff. Land reclamation, drainage, irrigation, pasture development, tree crops, terracing, and other capital improvements frequently have cash flow profiles which are not capable of quickly reproducing the initial investment. In these cases medium and long term loans may be appropriate. In markets where medium and long term loans are unavailable to farmers, the lengthening of term structures through the provision of medium and long term credit obviously greatly increases farmer debt capacity. The lengthening of term structures in markets can be a very difficult task for government, however, because confidence is the fundamental requirement for longer time horizons in financial markets. Donors have been very active in providing longer term funds to help overcome this problem.

Expanding the services of intermediaries may also create debt capacity. The agricultural lender providing solely medium or long term loans is in the worst possible situation from the standpoint of offering diversified financial services to rural people (Graham and Bourne). Contacts with borrowers are limited to intensive start-up periods while funds are being disbursed, but then contact declines markedly as interactions are limited to periodic repayments by borrowers. Such a lender may increase service to clients by expanding into short term credit operations. Experience accumulated through provision of credit on different terms provides information to the lender that makes it possible to have greater confidence in borrowers and more information about their use and potential use of credit. The intermediary providing only credit may likewise increase

service to the target group by offering money transfer and deposit account facilities. These again expand the information available for credit decisions and give clients an incentive to establish more meaningful and complex arrangements with the institution.

Flexible lending and repayment terms increase the debt capacity of borrowers. To return to the example in Table 2, the minimum repayment capacity of the intended borrower was only \$15 per year in the with project situation adjusted for adversity. A prudent profit-oriented lender would not restrict loan size to \$12 as indicated in Table 2, however. The basis for departure from the minimum repayment capacity criterion lies in the observation that in normal years the representative farmer's minimum repayment capacity increases from \$15 to \$160. The lender providing a loan of \$12 in this situation leaves considerable repayment capacity untapped in normal years. The lender wishing to tap this unexploited repayment capacity could lend substantially more than \$12 with arrangements for rescheduling debt servicing obligations in bad years. This practice is used by village credit cooperatives in India. When harvests fall below a certain level, loan repayments due in the bad year are automatically rescheduled over the following two years. This perspective is the basis for the statement in the part of this paper devoted to adjustment for adversity that the ultimate criterion for establishing prudent loan size or determining the limits of "normal situations" within a range of probable outcomes is simply the amount of money which the lender is prepared to have tied up in arrears or rescheduled loans.

Flexible lending terms increase farmers' debt capacity, but farm credit is often rationed on a per hectare, per head, and per tree basis for

arable crops, livestock and tree crops, respectively. These rules of thumb minimize lenders' costs of dealing with large numbers of small farmers. Cost saving efforts such as these are especially attractive to lenders when interest rates are low, because they reduce the lender's transactions costs. However, this form of lending is not optimal for development because it does not distinguish between borrowers on the basis of potential and performance. Better farmers and those with great potential are given the same per unit credit limits as others, while the limits may in fact be too high for certain borrowers to handle adequately. More flexible approaches can produce a greater developmental impact from lending.

Obtaining flexibility is often difficult in government credit institutions without systems of decentralized decision-making based on loan officers' knowledge of their borrowers' operations. Flexibility may also be difficult in lending agencies which do not mobilize deposits. Funds are available on a budget basis, and equal loan amounts per hectare, head and tree are confused with egalitarian treatment of farmers and equal justice in dealing with loan applications. Inflexible systems limit borrowers' and local loan officers' participation in credit decisions, consistent with top down approaches to development.

Rural or local resource mobilization increases the debt capacity of the target group for three reasons. The first is simply that the lender providing deposit services to rural people has valuable information concerning their financial behavior, permitting responsive lending. Second, the multi-service dimension of the relationship between the lender and the borrower builds incentives for businesslike attitudes on the part of both

banker and client. Third, funds mobilized provide a borrowing base for the depositer. If deposits represent additions to financial savings rather than simply transfers from other forms of financial savings, debt capacity is also increased. For example, loans may be available on easier terms to borrowers in a position to offer a deposit as security, and transaction costs may be reduced.

External financial assistance may augment debt capacity by contributing to the supply of loanable funds in rural financial markets. More farmers may be able to borrow, and those already borrowing may obtain additional loans because lenders have more resources available for commitment. Debt capacity may also be augmented by the effect of the additional donor-provided liquidity on the cost of credit. The rightward shift in the supply curve created by injections of liquidity suggests decreases in costs to borrowers, which in turn produce larger loan amounts within any given expectations regarding repayment capacity.

It is probably impossible to restrict donor involvement merely to supplying loanable funds, because the impact of credit is multi-dimensional (Von Pischke and Adams). For example, donor funded credit projects frequently provide farmers loans at less than cost. Critics charge that the ultimate effect of subsidized credit is to constrain the supply of loanable funds (Gonzalez-Vega, Von Pischke et al.). Also, loan size is not currently determined by repayment capacity in credit projects, making the interest rate effect of increased liquidity ambiguous. Another complicating factor is that external assistance, working through government-owned intermediaries, easily imposes substantial transactions costs on borrowers, partially or possibly wholly off-setting the advantage gained by access to subsidized credit (Adams and Nehman).

A misplaced concern for "credit needs" rather than for the entire operation of rural financial markets easily leads to excessive emphasis on external assistance as a supply of loanable funds. In fact, it is apparent that the whole issue of rural financial market performance has been inflated by donor intervention -- without donor funds formal RFMs would be only a fraction of their present size, and so would the problems and distortions they manifest. The debt capacity approach outlined here would diminish this function in relative importance, while opportunities for donors to improve the operation of rural financial markets in general would be accorded greater priority.

IV. Intervene to Create Debt Capacity

Designing credit projects or rural financial market projects to create debt capacity would greatly change donor intervention. First, credit would not be used in efforts to attain objectives which it is incapable of achieving. Credit would not be used in attempts to persuade farmers to undertake investments which have unattractive returns because of government price policies, inadequate infrastructure or institutional arrangements. Credit would be viewed as one or many means of stimulating investment, but not as a tool for working against the basic economic signals perceived by farmers. Neither would it be used to promote technologies with attractive normal year returns but with risks beyond the capacity of average borrowers to manage effectively in bad years.

Second, it would be important to promote institutional viability in rural financial markets because viable institutions are more capable

than moribund intermediaries in serving farmers. Institutional viability in the financial sector is measured in financial terms and the financial wealth of intermediaries should be of paramount concern. In traditional credit project design the value to the intermediary of participating in the project is generally not calculated. Under the approach proposed here, efforts would be made at all stages in the project cycle to quantify the extent to which rural financial institutions are or could be strengthened financially because of donor intervention.

Third, design criteria would view financial intermediation as a process, involving confidence, risk and relationships, as well as resource mobilization and allocation. The objective would be to improve the process. Under traditional design criteria the amount of credit delivered is of primary importance. Under the debt capacity approach a number of other variables such as costs of delivery, real interest rates, the service mix of institutions and the return to investments in the financial sector would be viewed as indicators of the vitality of the process of financial intermediation.

Finally, the debt capacity approach views rural financial markets as a sector. The function of this sector is to develop and exploit rural debt capacity. Debt capacity created would be accepted as a proxy for development.

References

- Adams, Dale W. "Agricultural Credit in Latin America: A Critical Review of External Funding Policy." Am. J. Agr. Econ. 53(1971):163-172
- Adams, Dale W, and Douglas H. Graham. A Critique of Traditional Agricultural Credit Projects and Policies. Columbus, Ohio: The Ohio State University Econ. and Socio. Occ. Pap. No. 621, 1980.
- Adams, Dale W, and G. I. Nehman. "Borrowing Costs and the Demand for Rural Credit." J. Dev. Stud. 15(1979):165-176.
- Baum, Warren, C. "The Project Cycle." Fin. and Dev. 15(1978):10-17.
- Brown, Maxwell L. Farm Budgets: From Farm Income Analysis to Agricultural Project Analysis. Baltimore and London: The Johns Hopkins University Press, 1979.
- Datey, C. D. The Financial Cost of Agricultural Credit: A Case Study of Indian Experience. Washington, D.C.: World Bank Staff Wkg. Pap. No. 296, 1978.
- David, Cristina C., and Richard L. Meyer. "Measuring the Farm Level Impact of Agricultural Loans." Borrowers and Lenders. London: Overseas Development Institute, 1980:201-234.
- Dell'Amore, Giordano. "Discours d'ouverture - Conference mondiale sur le credit a l'intention des agriculteurs dans les pays en developpement." Finafrica Bull. 3(1976):3-13.
- Donald, Gordon. Credit for Small Farmers in Developing Countries. Boulder, Colorado: Westview Press, 1976.
- Gittinger, J. Price. Economic Analysis of Agricultural Projects. Baltimore and London: The Johns Hopkins University Press, 1973; Revised ed. Washington, D.C.: Economic Development Institute of the World Bank Course Note 32, 1981.
- Gonzalez-Vega, Claudio. Papers presented at the Colloquium on Rural Finance. Washington, D.C.: September 1-3, 1981 (forthcoming).
- Graham, Douglas H., and Compton Bourne. "Agricultural Credit and Rural Progress in Jamaica." Borrowers and Lenders. London: Overseas Development Institute, 1980:59-80.
- Howse, C. J. "Agricultural Development Without Credit." Agr. Admin. 1(1974):259-262.
- Illy, Hans F. "How to Build in the Germs of Failure: Credit Cooperatives in French Cameroon." Rural Africana (1978):57-67.

- Kamajou, F., and C. B. Baker. "Reforming Cameroon's Government Credit Program: Effects on Liquidity Management by Small Farm Borrowers." Am. J. Agr. Econ. 62(1980):709-718.
- Kratoska, P. H. The Chettiar and the Yeoman. Singapore: Institute of Southeast Asian Studies Occ. Pap. No. J2, 1975.
- Ladman, Jerry R., and Ronald L. Tinnermeier. "The Political Economy of Agricultural Credit: The Case of Bolivia." Am. J. Agr. Econ. 63(1981): 66-72.
- Mosher, Arthur. Getting Agriculture Moving: Essentials for Development and Modernization. New York: Praeger, 1966.
- Mottura, Paolo. "Quelques considerations sur la politique des taux d'interet." Svgs. and Dev. 1(1977):129-140.
- Penny, D. H. "Farm Credit Policy in the Early Stages of Agricultural Development." Aust. J. Agr. Econ. 12(1968):32-45.
- Rice, E. B. "Summary of the Spring Review of Small Farmer Credit." Small Farmer Credit Summary Papers. Washington, D.C.: Agency for International Development Spring Review of Small Farmer Credit Vol. XX, 1973.
- Robert, Bruce L., Jr. "Agricultural Credit Cooperatives in Madras, 1893-1937: Rural Development and Agrarian Politics in Pre-independence India." Ind. Ec. and Soc. Hist. Rev. 16(1979):163-184.
- Roberts, R. A. J. "Personnel Deficiencies in Agricultural Banking Systems in Developing Countries." Svgs. and Dev. 2(1978):20-42.
- Sanderatne, Nimal. "An Analytical Approach to Small Farmer Loan Defaults." Svgs. and Dev. 2(1978):290-304.
- Schumpeter, Joseph A. The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle. Cambridge, Mass.: Harvard University Press, 1934.
- Tinnermeier, Ronald L. "Rural Financial Markets: A Critical Problem Area." Svgs. and Dev. 1(1977):150-166.
- Vogel, R. C. Paper presented at the Colloquium on Rural Finance. Washington, D.C.: September 1-3, 1981. (forthcoming).
- Von Pischke, J. D., and Dale W Adams. "Fungibility and the Design and Evaluation of Agricultural Credit Projects." Am. J. Agr. Econ. 82(1980): 719-726.

Von Pischke, J. D. et al. The Political Economy of Specialized Farm Credit Institutions in Low-Income Countries. Washington, D.C.: World Bank Staff Wkg. Pap. No. 446, 1981.

von Stockhausen, J. Credit Guarantees as an Instrument for Self-help in Developing Countries. Bonn: Friedrich Ebert Stiftung, 1979.

von Stockhausen, J. "Guarantee Funds and the Provision of Capital in the Self-Help Sphere." Svgs. and Dev. 3(1980):234-262.

World Bank. Agricultural Credit Sector Policy Paper. Washington, D.C.: World Bank, 1975.

World Bank. Annual Report 1981. Washington, D.C: 1981.

Youngjohns, B. J. "Cooperatives and Credit - A Reexamination." Borrowers and Lenders. London: Overseas Development Institute, 1980:179-198.