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**IMPROVING DONOR INTERVENTION  
IN RURAL FINANCE**

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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 approaches to farm credit include recognition and accomodation of risk, attention to creating confidence in debtor-creditor relationships, viewing finance as part of a process rather than as an input, and consideration of non-financial as well as financial means of creating debt capacity. Taken together, these imply a dramatic change in credit project design. Even if partially implemented, these changes could be useful.

Agricultural credit projects and credit components in rural development projects are a form of intervention in rural financial markets by development assistance agencies. These projects are found in many countries. Their popularity is reflected in cumulative commitments by the World Bank for agricultural credit exceeding US\$ 3,500 million by 1981 (World Bank, Annual Report) and by US\$ 209 million in assistance of this type by the Inter-American Development Bank in 1980 alone (Inter-American Development Bank).

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

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Credit projects have provided substantial amounts of liquidity in rural areas and are frequently thought to produce high economic returns. Beginning in the late 1960's, 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 the most important project effects (Adams, Adams and Graham, David and Meyer, Howse, Kratoska, Ladman and Tinnermeier, Penny, Von Pischke and Adams, Von Pischke and others, Youngjohns).

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

#### Current Project Design

Credit project design includes identification, preparation and appraisal prior to implementation (Baum). Identification and the early stages of project 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 that 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 purchased with loans. Identification of intended project beneficiaries may be done in several ways. Projects may be area-specific, crop-specific or deal with farmers who are not yet using certain technologies. Another basis for identification is affiliation. Members of a cooperative or some officially organized village unit may be identified as potential loan applicants.

Farm budgets are an important agricultural credit design tool (Brown, Gittinger). A highly simplified example is given in Table 1. It shows the activities of a representative farm without the project and presents estimates of 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.)

Credit is generally accorded an important role in financing technical packages or innovations provided under projects. The proportion of farm investment cost that is financed by project funds is frequently 80 percent or more. Since farmers are generally assumed to be poor or not to have sufficient liquidity, high levels of loan financing are common.

Table 1. Hypothetical Agricultural Budget

	Without Project	With Project	Calcula- tion
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>400</u>	<u>400</u>	x
5. Total farm cash receipts (\$)	1200	3200	=
6. Purchased inputs (\$)	<u>200</u>	<u>1000</u>	-
7. Net Benefit Before Financing <sup>a/</sup> (\$)	1000	2200	=
8. Loan receipts (\$)	-	900	+
9. Debt service (\$)	-	<u>1080</u>	-
10. Net Benefit After Financing <sup>a/</sup> (\$)	1000	2020	=

Repayment terms are also derived from the farm budget. In the assumptions used in Table 1, for example, loan size (\$900 in line 8) is 90 percent of the cost of inputs (\$1000 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 (\$1080 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 \$1200 (i.e., \$2200-\$1000), which is much greater than the \$180 net cost of borrowing (i.e., \$1080 - \$900).

<sup>a/</sup> "Before Financing" refers to the costs and benefits directly related to production. "After Financing" includes these costs and benefits and also loan receipts and debt servicing.

The most interesting feature of 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 variations in prices or yields.

This approach, outlined here in 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). A complicating factor is that loans from government agencies are often regarded by rural people as grants (Donald). Another problem is that specialized farm credit institutions are often poorly managed (Roberts). This results from emphasis on technological rather than financial factors in project design; credit projects are typically oriented towards extension of agricultural technologies rather than provision of improved financial services. Disappointment has also been expressed with the small number of farmers who gain access to formal loans (Dell'Amore). This may result from technical packages that are not well received by target group farmers. It may also result from relatively large average loan size, which within the lender's budget limitations obviously

restricts the number of borrowers. Also, as Gonzalez-Vega argues elsewhere in this volume, low interest rates on loans force lenders to restrict credit access, while high levels of overdues limit the amount of energy lenders devote to developing new business (Von Pischke and others). In addition, the costs of institutional credit are considerably greater than suggested by the interest rates charged (Adams and Nehman, Datey), and this discourages lenders from servicing new or small borrowers.

#### An Alternative Approach to Intervention in Rural Finance

The state of the art in credit project design is primitive. Problems associated with these projects are serious, subtle, generally overlooked and misunderstood. In view of these problems, how would it be possible to design 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 development. It consists of three stages. The first is to ascertain the repayment capacity of intended borrowers. The second is to adopt measures that build confidence among borrowers and lenders. The third is to design intervention to create debt capacity. If the reorientation towards these three stages 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.

### Determining Repayment Capacity

The repayment capacity of borrowers is vital in the performance of credit projects. Credit project design should begin 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, that would be useful for borrowers and that would also expand 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 borrower's liquidity. The third is to quantify the impact of possible adversity on the borrower's cash flow.

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 as minimum repayment capacity, which is the net benefit before financing adjusted for senior claims on the borrower. Senior claims are financial obligations that the borrower regards as more important than repayment of the perspective loan. Examples of these claims are purchases of food and fuel, taxes, school fees, expenditures for emergencies and important social ceremonies. Farmer behavior the world over confirms that claims by informal lenders also often 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

the project because the farm family's level of income is higher and consequently its consumption and possibly its obligations to members of the extended family and to the community may be greater.

Determining senior claims requires judgment and imposes additional information costs on lenders. Difficulties involved in quantifying senior claims cannot be lightly dismissed, but are not insurmountable. Estimates of senior claims are essentially no more difficult to make than are estimates of certain other variables currently used in project design. In fact, competent lenders with experience in an area are able to give rough esti-

Table 2: Alternative Agricultural Budget

	Without Project	With Project	
		<u>Normal Year</u>	<u>Bad Year</u>
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>400</u>	<u>400</u>	<u>550</u>
E. Total farm cash receipts (\$)	1200	3200	1650
F. Purchased inputs (\$)	<u>200</u>	<u>1000</u>	<u>900</u>
G. Net Benefit Before Financing(\$)	1000	2200	750
H. Senior claims (\$)	<u>500</u>	<u>600</u>	<u>600</u>
I. Minimum repayment capacity= Uncommitted cash flow (\$)	500	1600	<u>150</u>
J. Loan receipts (\$)			125
K. Debt service (\$)			<u>150</u>

mates for all of the items contained in the adjusted agricultural budget found in Table 2. If the lenders are not competent, project 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 borrowers. Projection of bad year results is not fundamentally different from estimating normal year performance. Further knowledge is required, however, to identify a range of probable outcomes rather than just the most probable outcome.

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 small-holder 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 several years' 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 can

be identified. At this point, lending terms and conditions can be redefined. When the lending institution has accommodated the probability of accidental mortality it can go on to consider the impacts of calving intervals. Once these are factored into the lender's 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 borrowers' inability to repay, which will determine the prudent credit limits which the lender can offer.

In the example given in Table 2, production is expected to fall from ten to five tons while the price is expected to increase from \$400 to \$550 per ton, reflecting an overall fall in agricultural output. Input cost (line F) is reduced in the adverse situation because the use of labor, bags and transport is less 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 \$150 available for the repayment of a loan. Based on this observation a loan of \$125 could be offered with a 20 percent interest charge. Repayment of this loan would absorb all the borrower's \$150 adjusted uncommitted cash flow in the bad year.

This illustration shows that the repayment capacity of the farmer in bad years is 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 that 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 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, 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 a starting point for project design.

#### Building Confidence

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

lender and extension services 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 important. Special attention to how credit projects can create or destroy confidence among the various parties involved is needed when financial markets are force-fed.

Certain arrangements between debtors and creditors in projects may encourage cheating (Von Pischke and others). High levels of financing that burden farmers' debt servicing capacity tempt borrowers not to repay on time. Low interest rates and lax loan administration may tempt the farmer to obtain more credit than will be used for project purposes. 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 they use only a portion of the package. Incomplete adoption may be rational risk avoidance by the farmer, but poses problems for projects founded on optimistic assumptions about farmer adoption rates and yields.

Political fanfare surrounding the introduction of a project may also work against good debtor-credit relationships by drawing politics into credit allocation. Poverty, or loyalty to certain factions, may be stressed over indicators of repayment capacity in the loan allocation process. This may tempt farmers to believe that the credit program is transitory, and that political

changes will cause it to disappear. This short-run perspective kills the incentive to establish a good repayment record. The farmer suspects 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 loan default now will probably not result in denied access to loans later.

There are several questions that 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 will produce a continuing series of transactions that will build longstanding relationships between borrowers and lenders? In certain credit projects, for example, the farmer is expected to visit the lenders' office once each year to make an annual loan payment. This limited relationship is not 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 strong relationships. They can also increase the value of a good credit rating. 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. Needs for 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 can be used at anytime, while most loans have

a final due date. A reasonable expectation by a provider of deposit and transfer services is that deposit accounts will 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, providing opportunities for the development of new business.

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 financial services. Deposit accounts and transfer services generate such information -- histories of transactions provide a financial record for the lender. For example, the level and rate of accumulation of deposits provide some indication of the volume of funds that the lender might tap or the borrower might mobilize for loan repayment. The timing of deposits and withdrawals over the farmer's seasonal production cycle may suggest when loan due dates could conveniently be scheduled. Without a sense of history, credit projects fail to provide the long term perspective to both borrower and lender that is essential to building confidence.

The third question is: What premium, if any, should voluntarism command over coercion in rural development strategy? Regulations and limitations over farmer behavior can 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. 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 bureaucratic government credit agencies.

#### Creating Debt Capacity

Debt capacity is borrowing power. It is created by the estimated future payment capacity of the loan applicant, 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. It is a valid objective because minimum repayment capacity of target group farmers is typically small when adjusted for adversity and senior claims. Debt capacity may be created by technological measures incorporated in a project's technical packages. Farm innovations that increase the uncommitted cash flow or diminish the impact of adversity increase repayment capacity.

More physical infrastructure can also increase debt capacity. Roads that increase access to markets, for example, reduce transport costs, which may reduce the farmgate cost of inputs and

increase farmgate produce prices. Telephone, telegraph, radio, and postal facilities reduce information costs. Storage facilities and improvements in storage techniques permit increased control over the timing and prices at which produce is sold and inputs are purchased.

Likewise, price policy reforms may create additional debt capacity. Commodity prices kept low to subsidize consumers, for example, keep farm incomes and repayment capacity low. Input price policy is also important. Minimum wage legislation may raise the costs of hiring seasonal farm labor, destroying debt capacity. As various authors in this volume argue, government decontrol of interest rates should increase rural access to credit.

Institutional measures outside financial markets may also affect target group debt capacity. Non-price efforts to regulate markets often have an important impact on the minimum repayment capacity of the borrower. Monoposony buyers of produce and monopoly input supply arrangements may work against farmers. In addition, contract law and enforcement are often overlooked in credit project design. Poor loan repayment by borrowers weakens the effectiveness of contract law in rural areas, raising lending and borrowing costs. Land tenure is a fundamental determinant of repayment capacity. 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, extension services and training for extension agents can create debt capacity by reducing risk to the borrower as well as providing reassurance to lenders that the technical basis for a borrower's operation is sound. Collective guarantees and aggregation of repayment capacity through farmer organizations may also enhance debt capacity (von Stockhausen).

Institutional measures within rural financial markets can ultimately increase farmer debt capacity. Better accounting and controls in farm credit institutions should help to increase their efficiency, making them more interested in developing new business. Decentralization of decision-making accompanied by increased accountability of loan officers may expand farmer access to credit and make loan terms and conditions more responsive to local situations. Upgrading the skills 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.

#### Financial Measures that Increase Farmer Debt Capacity

There are financial measures and innovations that could increase debt capacity. These 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. In many countries, uncertainty, high and variable rates of inflation, low interest rate policies and gaps in legal systems and enforcement practices discourage long term financial contracts. This works against farmers in general because returns from many investments in agriculture tend to have long gestation periods. Land reclamation, drainage, irrigation, pasture development, tree crops, terracing, and other capital improvements frequently have cash flows that are not capable of quickly reproducing the initial investment. In markets where medium and long term loans are unavailable, 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 long time horizons in financial markets. Donors have been very active in providing medium and long term funds to help overcome this problem.

Expanding the services of intermediaries may also expand debt capacity. The agricultural lender who provides only medium or long term loans is in the worst possible situation from the standpoint of offering diversified financial services to rural people. Contacts with borrowers are limited to intensive start-up periods while loan applications are being reviewed and 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 offering short term loans. 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 of credit. The intermediary providing only credit may likewise increase service to the target group by offering money transfer and deposit account facilities, which also expand the information available for credit decisions and increases the value of clients' relationships 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 \$150 per year in the with-project situation, adjusted for adversity. A prudent profit-oriented lender would not necessarily restrict loan size of \$125 as indicated in Table 2, however, because in normal years the representative farmer's minimum repayment capacity is \$1600, leaving considerable untapped repayment capacity. The lender wishing to tap this unexploited repayment capacity could lend substantially more than \$125 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. The amount of money that the lender is prepared to tie up in

arrears or rescheduled loans determines how much credit the lender can offer above the limit of minimum repayment capacity.

Flexible lending terms increase farmers' debt capacity, but farm credit is often rationed on a per hectare, a per head, or on a per tree basis. 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. This form of lending, however, is not optimal for development because it does not distinguish between borrowers on the basis of potential and performance. Farmers 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.

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 that do not mobilize deposits but rely on budgeted funds. Inflexible systems limit borrowers' and local loan officers' participation in credit decisions, consistent with top down approaches to development.

Local resource mobilization increases the debt capacity of target groups because the lender providing deposit services to rural people has valuable information concerning their financial behavior, permitting responsive lending. The multi-service

dimension of the relationship builds incentives for businesslike behavior by both the lender and the borrower. Funds mobilized provide a borrowing base for the depositer and a supply of loanable funds for the lender.

#### Intervening to Create Debt Capacity

A misplaced concern for "credit needs" rather than for the operation of rural financial markets has led to excessive emphasis on external assistance to increase the supply of loanable funds. The debt capacity approach outlined here would diminish this emphasis and provide donors with more opportunities to improve the operation of rural financial markets in general. Designing rural financial market projects to create debt capacity would greatly change donor intervention. First, credit would be viewed as one of 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 of serving farmers than are moribund intermediaries. Institutional viability in the financial sector is measured in financial terms, and the financial health of intermediaries should be of paramount concern. In traditional credit projects the impact of the project on the intermediary 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. In traditional projects 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 constitutes a proxy for development.

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