COST OF AGRICULTURAL CREDIT IN DEVELOPING COUNTRIES AND LENDING CRITERIA

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BORROWERS PROBLEMS

Extension of credit to the millions of subsistence farmers in developing countries is loaded with problems for the farmers as well as the lender. For farmers operating at the subsistence level the risk attached to adopting technical innovation such as new seed varieties, new seeding methods, use of fertilizer and pesticides represents a great leap from tradition. Only the most courageous and venturesome are likely to make that leap even if the credit and new technical package are available at subsidized interest rates. Often the farmer's only previous experience with credit has been with private money lenders whose interest rates varied from 10 to 100 percent per month. Thus, fear of credit as a new productive factor is natural and not easily overcome. When new production inputs such as seed and fertilizer are in short supply and distribution points are several kilometers from his holding, the subsistence farmer is further disadvantaged. He must depend on hired trucks or more primitive methods to move the materials to his holding. All too often the larger and better equipped producers obtained their needs first and at a lower cost. Other obstacles are the strange new regulations and forms associated with the loan application and frequent time lag between application and granting of the loan. If the loan proceeds and the new inputs arrive after the crop is planted then the new package becomes useless and frustrating to the producer. Timing of loan processing and the logistics of distribution of the new inputs are of critical importance. Finally, many developing countries went through a colonial period in which the agricultural sector received grants or "gifts from the government," which were not repaid. Unfortunately, this attitude toward repayment has continued among subsistence farmers and remains a force to be overcome in economic development. The above list, while not complete, sketches credit problems from the traditional farmer's viewpoint. Next consider problems faced by the lending organization in the primitive rural environment.

LENDERS PROBLEMS

Any lending institution, government or private, operating under a loan program with guaranteed features from the central or provincial government treasury faces the administrative problem of making, supervising and collecting thousands of small loans. Under such a program elements of income transfer or subsidization to the agricultural sector are intended as a government policy. Objectives of such a policy include

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increasing production of all food supplies, and hopefully transforming traditional subsistence producers into cash surplus, market-oriented farmers with greater productivity per worker, and increased per capita income. The magnitude and difficulty of this task is so great that one study group 1/ estimated that the developing countries would not reach the level of living or per capita income of the developed countries in the next 250 years. Credit to agriculture is only one of many needed inputs for economic development. It is not always the most important input. Yet in the fragile financial position of most developing countries loanable funds are always in short supply, interest rates generally are higher than in developed countries. In most developing countries the agricultural sector includes 55 to 80 percent of the population many of whom are illiterate and have no titles to land to offer as security for a loan. Farms are often from 0.5 to 3.0 hectars in size and sometimes fragmented in small plots in 2 or more locations. Typically, markets are thin and prices move in wide seasonal variations from one harvest to the next. Storage for such crops as rice, maize, soybeans, wheat and the pulses is often costly in terms of losses from spoilage of insect damage, and the lack of drying facilities. Modern safe storage for crops may be non-existent or located far from the small holdings. Transportation to market centers or collection points is hampered by the absence of roads. In such an environment can any credit institution conduct a successful business like lending operation? A brief examination of experience in 25 developing countries provides tentative answers to this question.

THE RESULTS OF AGRICULTURAL LENDING PROGRAMS

If the government policy for a lending program to stimulate growth in the agricultural sector includes elements of income transfer and subsidization how can success be measured? From the lender's viewpoint administrative costs as a percent of new loans, provides one measure the rate of default and arrears is another. Table 1 gives data for 17 countries on three continents.

Administrative costs were lowest in Latin America with an unweighted average of 8 percent for the six countries, Asia was next at 15 percent for the eight countries, in Africa Ghana's Agricultural Development Bank and Morocco's CNCA both report 10 percent, while Uganda's cooperatives report 50 percent. The footnote in Table 1 indicates the difficulties of making comparisons between lending institutions in their various stages of development but the overall average of 14.2 percent administrative costs in relationship to new loans is a reasonable figure for budget planning. However, we must allow for a large standard deviation of 12 percent. At the time of expansion or of start-up operations administrative costs could represent as much as 27 percent of new loan volume in a fiscal year. By comparison efficiently operating banks in developed countries have administrative costs which range from 2.5 to 5 percent of the new loan volume depending on the size of the bank. Following a development period such costs

1/ Food Task Force, University of California, "A Hungry World: The Challenge to Agriculture".

should decline to between 5 and 8 percent. Data for arrears as a percent of the total loan portfolio, a second measure of operating costs, are given in Table 2 along with the arrears rate (equal to 100 minus the repayment rate). The data are reported from 33 countries, 12 in Africa, 13 in Asia, and eight in Latin America. The two measures given in Table 2 have some weaknesses (see footnote). They do not reflect and likely overestimate the actual rate of default which finally must be charged off a bad debt. For arrears to portfolio column (1) in Table 2 the average is 27.14 percent with a standard deviation for the 29 observations of 16.58. Thus, we should not be surprised if arrears to portfolio range from a low of 10 percent to as high as 43 percent. For column (2) arrears rate, the average is 39.45 percent with a standard deviation of 26.15. For this measure it is reasonable to expect a range from a low of 13 to as high as 65 percent. For delinquency as estimated by both measures (column (1) and (2) the high side of the range 44 percent and 66 percent respectively might be expected during the start-up of an agricultural lending program. A decline to the lower end of the range after three to five years of operation could be achieved if a sustained effort and a firm policy for collections if maintained. The present state of knowledge is outlined in the following quotation:

> Data on actual defaults are very scanty. Experience shows, however, that except for a few countries, recuperation of large portions of arrears is usually possible over a number of years, and on Bank financed projects losses resulting from defaults have seldom exceeded five percent of loans outstanding. Nevertheless, loan delinquency is a serious problem for most agricultural lending institutions because it results in waste of manpower, higher cost administration and slower turnover of resources.
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> Projects financed by the World Bank have experienced serious collection problems in recent years in Colombia, Pakistan, Senegal, Tanzania and certain states of India (3).

CAUSES OF OVERDUES AND DEFAULTS

Overdues occur for three general reasons. first, farmers may be ignorant of the economic returns from new practices. Such a situation may lead to their failure to use borrowed funds for productive purposes. Second, bad weather, natural disasters of various kinds, or a fall in farm prices owing to changing economic conditions may bring about adverse outcomes which require renewal or extension of the loan. The third, includes a variety of forces which are not related to an inability but rather to a refusal to pay. Farmers sometimes have the impression that credit is a gift made to ensure their loyalty to a government. In times of political uncertainty governments do little to change this attitude and government lending institutions seldom foreclose on the borrower's land or rights to farm. While denial of new loans is the usual penalty for failure to repay it is often a weak sanction especially on short-term credit.

TABLE 1: ADMINISTRATIVE COSTS FOR SELECTED INSTITUTIONS

Country	Institutions 1/	Cost as a Percent of New Loans	Cost as a Percent of Total Resources
Africa			
Ghana	ADB	10	10
Ivory Coast	CNCA		9
Kenya	*AFC		3
Morocco	*CNCA	10	3
Senegal	BND		3
Uganda	Cooperatives	50	
Asia			
Bangladesh	KTCC	17	10
	BKB		3
India	*LDB		3
Indonesia	BIMAS (improved)	25	
Jordan	*ACC	30	3
Korea, Rep. of	*NACF	6	4
Lebanon	BCAIF		3
Malaysia	BPM	20	
Pakistan	*ADB		3
Philippines	*Rural Banks	5	5
Thailand	BAAC	13	8
Turkey	SCR	5	2
	BAT		6
China, Rep. of (Taiwan)	Farmers Association		2.5
	Coop. Bank		(2.5)
	Land Bank		(1.5)
Latin America			
Brazil	ACAR	10	
Colombia	*INCORA	10	7
Costa Rica	INCR	7	3
Equador	DAPC	4	
El Salvador	ABC	16	11
Mexico	*FONDO	3	1
Peru	ADB		6

* Institutions in Bank Group projects.

1/ Full names are given in Appendix I.

NOTE: Capital and to the extent possible supervisory costs have been excluded from the cost information in this table. However, it was not possible to get comparable figures for different institutions. The very low cost figures reported by such institutions as the KTCC in Bangladesh reflect only the cost of the final lender and not that of the entire agricultural credit system. On the other hand, institutions with very high cost figures are probably providing farmers more services, the cost of which it was not possible to eliminate with the available data. Other reasons for high costs in some institutions are that the programs are new and small size but have already hired the staff that will enable them to expand. The BPM in Malaysia is such an institution.

Source: Agricultural Credit, World Bank Paper - Rural Development Series: August 1974 (3).

TABLE 2: MEASURES OF LOAN DELINQUENCY OF SELECTED INSTITUTIONS
(percentage)

Country	Institutions	Arrears to Portfolio (1)	Arrears* Rate (2)
Africa			
Ethiopia	**Wolamo		3
	**CADU		50
Ghana	ADB		55
Ivory Coast	BNDA		15
Kenya	GMR	25	33
	**AFC	51	36
Malawi	**Lilongwe	--	2
Niger	**CNCA	11	29
Nigeria	WSACC	52	80
	FAID		95
Morocco	SOCAP		50
	**CNCA	13	5
Sudan	COOP		26
	ABS		13
Tanzania	**NDCA	28	50
Tunisia	**BNT	66	50
	Local Credit Unions		
	Co-op Credit Scheme	10	
Asia			
Afghanistan	**ADBA	37	77
Bangladesh	AB	43	76
	IRDP		40
India	PCCS	34	7
	**PLDB	12	20
Iran	ACBI		44
Jordan	**ACC	41	82
Korea, Rep. of	**NAFC	7	15
Malaysia	BPM	6	21
Pakistan	**ADB	36	65
Philippines	**Rural Banks	20	18
Sri Lanka	New Credit Scheme	50	41
Thailand	BAAC		50
Turkey	ABT	29	43
Vietnam, Rep. of	Rural Banks		5

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Table 2 continued

Country	Institutions	Arrears to Portfolio	Arrears* Rate
Latin America			
Bolivia	**Agr. Bank	1	68
Chile	INDAP	16	60
Colombia	**Cag. Agr.	19	
	**INCORA	4	16
Costa Rica	BNCR, BCR	35	
El Salvador	ABC	37	81
Honduras	BNI, Sup. Credit	10	18
Jamaica	ADB	31	10
Peru	Plan Costa	33	
	**BFA	30	

* The arrears rate is equal to 100 minus the repayment rate.
** Institutions involved in Bank Group projects.

NOTE: These measures have various shortcomings. Most agencies consider rescheduled loans as having been rapaid. A low ratio of arrears to portfolio may not mean much when loans are expanding rapidly and not yet due while at the same time the repayment rate on previous loans is poor.

Source: World Bank Paper - Rural Development Series, Agricultural Credit, August 1974 (3).

Landlords and moneylenders fearful of competition from the credit institution sometimes encourage borrowers to cheat the institutions by making suggestions that nothing will happen if they do not pay. Finally, failure to pay sometimes originates within the credit institution itself, when officials are more interested in bribes from the borrowers than in the more difficult and personally less remunerative task of recovering payment on overdue loans.

Unfortunately, large farmers have no better repayment record than small farmers. The political power of large farmers is used to protect themselves from delinquency penalties. They stop repaying past loans on their expectation that a debt adjustment or moratorium on repayment can be negotiated.

In summary, Table 3 gives an estimate of the costs of making small loans to traditional farmers at three stages. The table is based upon $1,000 loaned, columns (2), (3), and (4) provide the high, average, and low costs which could reasonably be expected at the start of or expansion phase first two years of a project; the "average" column costs could be achieved in three to five years and the "low" costs represent the successful operation of the project on a self-supporting or nearly break even basis.

TABLE 3: PROJECTED OPERATING COSTS OF A SMALL LOANS CREDIT PROGRAM IN DEVELOPING COUNTRIES - 1976 (PER $1,000 LOANED)

Loan Terms	Cost Item	Start-up Period (high)	3rd to 5th year (average)	7th year & following (low)
(1)		(2)	(3)	(4)
Loan period 1 year	Administrative	$29′.00	$140.00	$ 50.00
Amount loaned $1,000	Principal arrears & defaults	$437.000	$270.00	$106.00
Interest rate (percent) 14	Interest arrears & defaults	$ 51.18	$ 37.80	$ 14.84
Maximum Possible Collection $1140.00	Total costs	$778.18	$447.80	$170.84
	Gross Collections	$361.82	$692.20	$969.16
Percentage loss or subsidy/ $1,000 loaned		63.8	30.8	3.1

Sources: Derived from World Bank Data, Agricultural Credit, August 1974 (3).

At first glance Table 3 data are most discouraging but initial losses could be regarded as the investment capital to begin a new enterprise whose development period extends for more than five years before income transfer costs. Orchard and plantation crops provide a parallel example. Moreover, the lending program need not begin on a large scale but rather as a prototype in the more stable agricultural areas of the developing country. Such a beginning would keep the inevitable losses within national budget limits and provide a testing period for administrative procedures and new personnel. From the very beginning a firm collections and repayment policy would be essential and stressed at the time of making the loan. Even limited supervision and collection of small loans are administratively costly operations but seem mandatory for success while the credit organization is establishing its reputation for fair and efficient service to borrowers. Finally, while opportunity remains for progressive development of new land and technology in agriculture the best and most easily used land areas are already in production. The development of new agricultural areas will often include high costs in terms of capital, human labor, and the supporting infrastructure of roads, markets, domestic water, schools, health services, etc. Such infrastructure development generally must parallel development of new land and its cost is borne at the national or provincial level as a unit of society rather than by the agricultural community alone. Development of the new infrastructure is a part of a nation's investment in food production capacity for the future to feed a growing population. In the situation as outlined above lending criteria are considered.

LENDING CRITERIA FOR SMALL HOLDERS IN AGRICULTURE

The ability to successfully operate low cost financing is the key element in expanding agricultural credit, particularly in those countries with the lowest incomes and at the earliest stages of development. Small farmers often lack certified titles to their land and tenants have no title at all. Therefore the lending institution must consistently emphasize that the productive capacity of the holding must substitute for security at the essential criterion in loan decisions. Lending only to those with investment opportunities sufficient to produce a significant marketable surplus is one way to reduce the level of arrears and default. Coordination of repayment with marketing of crops which are centrally marketed and processed such as rice, cocoa, cotton, coffee and tea has reduced delinquencies provided the central buying agency pays prices which are competitive with private traders.

Identification of investment opportunities which will produce significant marketable surpluses falls on the lender's local representative. To be effective and competitive with, friends, relatives and local money lenders who currently furnish up to 50 percent of the credit the local representatives must become knowledgeable concerning the farmers, their farms, their special interests and abilities. Information concerning landholdings from, local lenders in a village, and their certification or recommendation may be helpful only at the start of a lending program if the local representative is new. When holdings are too small to justify a loan to one individual it is sometimes possible for two, three, or four operators

in a village to pool their efforts in a joint venture, a partnership or informal cooperative arrangement and achieve the economies of size necessary to qualify for credit. Holders with less than .85 hectare of land may generate too little cash-flow for loan repayment.

How much credit can the small holder use efficiently with a strong likelihood of repayment? Here the general principles of financial management apply regardless of the loan. Such borrowers have no past records of productivity by which to judge their individual production and pending further observation and acquaintance the lender must depend on average crop yields and locally observed input-output relationships. Too, if the tracts of land in the holdings are irregular, farmers often overestimate their area especially if it has never been accurately measured.

To be successful in stimulating the growth of the small holder's equity, the new external credit must be combined with increased earnings from his own assets of land and labor i.e. a rising rate of return on equity. These relationships are best illustrated by a growth model developed by Hopkin (2) using equation I.

$$G=[L(r-i) + r]\ k. \qquad (I)$$

Where:
G = the growth rate: annual percentage change in equity;
L = the leverage or ratio of debt to equity $\frac{D}{E}$;
r = the net rate or return (except for interest and income taxes) on total assets of the firm.
i = the average interest rate paid on debt,
k = (1-t) (1-c) where t = the income tax rate, and c = proprietor withdrawals; family consumption, dividend payments, other off-farm flows,

Small holders have so little income that no income tax liability exists and the (1-t) term can be omitted but the (1-c) term which in the past has virtually been (1-1) = 0 needs (1-.70) = .3 or even (1-.50) = .5. Thus k might equal .3, .4 or if we are optimistic as much as .5. Although our model is linear it illustrates some interesting and useful relationships. Two examples follow:

Example I:

Suppose our small holder is able to earn 20 percent on his equity of land, labor and equipment, whose productivity value the lending representative estimates to be worth $100. To help him achieve a marketable surplus a $200 loan at 14 percent interest is negotiated and $L = \frac{200}{100}$ or 2.0. If family withdrawals use 70 percent of total income then k = (1-.70) or .3.

Substituting these values in equation (I) we have $G = [\ 2(.20-.14) + .20\ ]\ .3 = [\ 2(.06) + .20\ ]\ (.3)\ (100) = 9.6$ percent.

And our smallholder's equity has grown by 9.6 percent for the year.

Example II:

Suppose that with an additional $100 credit our smallholder is able to apply superior management inputs which increase the rate of return on his own equity to 30 percent instead of the 20 used in Example I and that from larger return his family consumption uses only 60 percent of income. What will be the growth of his equity? Substituting in the new values obtain:

$$L = \frac{\$300}{100} = 3$$

$r = .30$
$i = .14$
$k = .40$

then $G = [3\ (.30 - .14) + .30]\ .4 = [(3)\ (.16) + .30]\ (.4)\ (100) =$ 31.2 percent.

Note the 21.6 percent increase in growth rate (31.2 - 9.6) between example I and II. In each example the lender nearly becomes a partner with the smallholder and in effect shares his fortunes. The key to success in Example II was growth in the borrowers' productivity and the increase in his earning rate on owned equity. To illustrate the importance of new technology suppose we return to Example I relationships but increase the loan another $100 then $L = \frac{300}{100} = 3$, r = 20%, i = 14% and k = .3

Now $G = [3\ (.20 - .14) + .20]\ .3 = [3\ (.06) + .20](.3)\ (100) =$ 11.4 percent annual growth, only 1.8 percent above Example I.

Increase in (r) occurs from increased production per ha. or by expanded farm size, or by an increase in the farm market price of production. Perhaps only one borrower in 10 has the opportunity to increase farm size. Each possible source of growth must be examined by the local representative of the lending agency. Too, as the size of the loans increase, in an effort to increase farm size, management efficiency may lag, thus the larger "L" or debt/equity ratio becomes, the closer supervision a loan may require.

The model may also be related to an actual balance sheet. Using the basic data from example II we obtain:

1.	Total assets managed $400 at 30% return	= $120.00
2.	$300 loan at 14% interest	= (-) 42.00
	Net income	= $ 78.00
3.	Consumption ($78) (.6)	= $ 46.80
	Savings or growth in equity of the business	= $ 31.20

The more rigorous concepts of capital budgeting for investment and financing are excellent tools for training loan officers in urban banks but were not considered in this paper. If a smallholder lending program is to successfully compete with traditional moneylenders it must provide: (1) brief, simple loan procedures: (2) on-the-spot decisions on loan amounts and terms, (3) on-the-spot disbursements of certificates redeemable for seed, fertilizer, disease and pest controls, plus a cash advance for living expenses if needed, and finally, (4) a vigorous collections program. Apparently the start-up costs of such a program approach those of the money-lender's charges but decline sharply when established.

ABBREVIATIONS FOR INSTITUTIONS

Africa

CADU (Ethiopia) Chilalo Agricultural Development Unit
ADB (Ghana) Agricultural Development Bank
GMR (Kenya) Guaranteed Minimum Return (program)
AFC (Kenya) Agricultural Finance Corporation
SOCAP (Morocco) Societe de Credit Agricole et de Prevoyance
CNCA (Morocco) Caisse Nationale de Credit Agricole
CLCA (Morocco) Caisse Locale de Credit Agricole
WRFC (Nigeria) West Region Finance Corporation
FAID (Nigeria) Fund for Agricultural and Industrial Development
ABS (Sudan) Agricultural Bank of Sudan
BNT (Tunisia) Banque Nationale de Tunisie
COOP (Uganda) Cooperative Credit System

Asia

ADBA (Afghanistan) Agricultural Development Bank of Afghanistan
ADBB (Bangladesh) Agricultural Development Bank of Bangladesh
ADB (Bangladesh) Agricultural Development Bank
BKB (Bangladesh) Krishi Bank
COOP (Bangladesh) Cooperative Credit System
IRDP (Bangladesh) Integrated Rural Development Program
KTCC (Bangladesh) Kotwali Thana Central Cooperative (association)
PCSS (India) Primary Cooperative Credit Societies
PLDB (India) Primary Land Development Bank
BIMAS (Indonesia) Acronym for "Bimbingan Massal" meaning "Mass Guidance"
ACBI (Iran) Agricultural Cooperative Bank of Iran
ADFI (Iran) Agricultural Development Fund of Iran
ACC (Jordan) Agricultural Credit Corporation
BCAIF (Lebanon) Lebanese Credit Bank for Agricultural and Industrial Development
BAAC (Thailand) Bank of Agriculture and Agricultural Cooperatives
SCP (Turkey) Supervised Credit Program
NACF (Republic of Korea) National Agricultural Cooperative Federation

Latin America

ACAR (Brazil) Associacao de Credito e Assistencia Rural
INDAP (Chile) Instituto de Desarrollo Agropecuario
INCORA (Colombia) Instituto Colombiano de la Reforma Agraria
BCR (Costa Rica) Banco de Costa Rica
BNCR (Costa Rica) Banco Nacional de Costa Rica
DACP (Equador) Directed Agricultural Credit Program
DAPC (Equador) Directed Agricultural Production Credit (program)
ABC (El Salvador) Administration de Bienestar Campesino
BNF (Honduras) Banco National de Fomento
FONDO (Mexico)
Fondo de Garantia y Fomento Para la Agricultura,
Ganaderia y Avicultura
Guarantee and Development Fund for Agriculture,
Livestock and Poultry

NBN Rur. Cred. (Nicaragua) National Bank of Nicaragua Rural Credit (program)
NBN (Nicaragua) National Bank of Nicaragua
ADB (Peru) Agricultural Development Bank

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