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Agricultural Credit in Latin America: A Critical Review of External Funding Policy*

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During the 1960's aid agencies channelled over one billion dollars to agricultural credit systems in Latin America. This plus local funds boosted the real value of rural credit by 12 percent per year. A number of assumptions underlying past credit policy are critically examined. It is argued that currently credit shortage is not the most pressing issue. Rather, emphasis should be placed on realistic pricing of rural credit and mobilizing rural savings for credit use through interest incentives.

DURING THE 1960's resources for credit made up a large part of externally funded agricultural programs in Latin America. In the ten years 1960 to 1969 the Agency for International Development (AID), the Inter-American Development Bank (IDB), and the World Bank Group (IBRD) provided dollar assistance for agricultural credit worth approximately \$915 million in Latin America.¹ IDB made the largest contribution with \$439 million, IBRD was next with \$255 million, and AID followed with \$221 million. Over half of AID's total direct assistance to agriculture in Latin America has gone into credit activities. In addition to this direct assistance, AID has helped channel to agricultural credit institutions several hundred million dollars worth of "counterpart funds" and "local currencies" resulting from program loans and Public Law 480 sales [26]. This has been especially important in Brazil, Colombia, and Chile.

The bulk of the assistance to agricultural credit systems provided by AID and IBRD has gone to Latin America. During the 60's this included all but 10 percent of AID's loans

and grants for this purpose and approximately three-quarters of IBRD's loans.

Most countries in Latin America have received substantial credit assistance. Mexico leads with 177 million dollars; Brazil, Colombia, and Argentina follow with 122, 114, and 101 million dollars, respectively. Several of the smaller countries have also received large amounts of external assistance for this purpose: Costa Rica (\$30 million), Nicaragua (\$45 million), and Paraguay (\$37 million). Most AID and IDB loans for agricultural credit have given the borrowing country concessional arrangements: low interest rates, grace periods, and long intervals for repayment.

Despite the emphasis on credit in Latin America, little attention has been focused on the economics of these activities; and very little careful evaluation of these programs has been done. The main intent of the following discussion, therefore, is to evaluate several of the major assumptions that underlie current agricultural credit policy. I tentatively question some of these assumptions in the hope of stimulating further analysis of this topic and suggest several changes which might improve the overall performance of these programs.

Policy Assumptions

Although generalization is somewhat difficult, several common assumptions can be noted in the agricultural credit programs in Latin America:

(1) Credit shortage is one of the major bottlenecks causing low land and labor productivity in traditional agriculture. Not only does a current shortage of production credit exist, but the future transformation of less-developed agriculture will also require major credit infusions.

(2) Concessional lending arrangements for farm credit are justified because: (a) farmers have been exploited by lenders who charge ex-

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¹ This information was drawn from AID's "Annual Reports on Capital Assistance and Technica' Assistance Projects" (W-253), for June 1969; from various unpublished worksheets of AID's Latin American Bureau; and from various annual reports of the Inter-American Development Bank, International Bank for Reconstruction and Development, and the International Development Association.

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orbitant rates of interest; (b) most traditional farmers need special inducement to use highly productive inputs for which credit is necessary; (c) low interest rates are further justified as an income transfer mechanism and/or to offset fiscal or pricing policy that adversely affects farmers.

(3) Little savings capacity exists in rural areas, and marginal propensities to save are low. Almost all funds for credit, therefore, must come from outside the agricultural sector.

Given the emphasis placed on agricultural credit programs, it is disturbing to find very little evidence to confirm these vital policy assumptions. Several of these assertions are questionable, and alternative suppositions should be seriously explored. Unfortunately, with the existing lack of economic research on credit in Latin America, a discussion of this subject must be more suggestive than conclusive.

Agricultural Credit Shortage?

Several different types of information have been used to suggest that a serious shortage of agricultural credit exists in Latin America [30]. The most prominent of these have been: (1) the fact that large amounts of external funds have recently been absorbed by the agricultural credit systems; (2) comparative data showing that countries in Latin America have substantially less agricultural credit than developed countries; (3) the impression that high interest rates in the informal credit market indicate a shortage of credit; (4) the apparent insatiable demand at the farm level for agricultural credit; and (5) the knowledge that technological change in agriculture, which is occurring in parts of Latin America, has a high credit propensity.

Credit absorption

Institutional agricultural credit in the 18 countries analyzed has expanded in real terms rather rapidly, averaging an increase of 12 percent per year over the period 1960 to 1967-68 (see Appendix).² Since inflation in some countries has eroded a significant part of the real value of credit funds, this growth is even more remarkable [12]. In 1967-1968, about 4.7 billion dollars worth of agricultural credit was in force in these countries.³ Parenthetically, this

² It will be argued later that noninstitutional or informal agricultural credit in Latin America is relatively unimportant.

³ Care must be used in interpreting absolute values of agricultural credit funds in Latin America. The choice of deflators and exchange rates is very important. Also, in

was approximately the amount of farm credit in force in the U. S. Lake States of Michigan, Wisconsin, and Minnesota at the close of 1967 [57].

Even with this sharp increase in availability of credit, institutional funds in almost all countries have not covered total loan requests, and in this sense agricultural credit is clearly still short. Since rather low rates of interest are often charged on these loans, it is unclear whether rates of interest closer to the marginal efficiency of capital would still result in excess demand.

Comparative data

Some evidence on the relative availability of credit in Latin America is shown by comparing the value of institutional agricultural credit with the value of agricultural output (GDP). Ratios for these values are presented in the Appendix (column 4). For comparison purposes, several similar ratios for the United States and Taiwan may be useful. In the United States, for example, total credit for agriculture amounted to over \$53 billion at the beginning of 1969 [57]. Since very little institutional credit is available in Latin America for land purchases, it is probably more relevant to remove real estate credit from this figure and use only the amount loaned for rural production and/or consumption—\$25.3 billion. Comparing this figure with total gross value of agricultural output in the United States in 1968—\$47.6 billion—results in a ratio of .53 [58]. In Taiwan total institutional agricultural credit amounted to about 15.6 billion new Taiwanese dollars in 1969.⁴ The gross value of agricultural production in the same year was 39.5 billion new Taiwanese dollars.⁵ The ratio of total credit to product was therefore .39.

Agricultural credit in 18 Latin American countries in 1967-1968 was equal to a little over one-third of the aggregate value of total agricultural production in the region (see Appendix). Chile, Costa Rica, Mexico, Nicaragua, and Venezuela all had agricultural credit equal to or greater than half their value of agricultural production. Bolivia, Ecuador, Guatemala, Honduras, Panama, and Uruguay, on

some countries funds used for financing exports of agricultural goods, intermediate market sales of goods, and non-agricultural activities may be classified as agricultural credit. In addition, in several countries loans in default may be a significant part of the total portfolio, e.g., Peru and Venezuela.

⁴ Unpublished data from the Farmers' Bank of China.

⁵ Unpublished data from the Department of Agriculture and Forestry, Provincial Government of Taiwan.

the other hand, had ratios of credit to output of .15 or less in 1967 or 1968. One might argue that low ratios in a number of these countries are economically justified because subsistence agriculture makes up a large part of the agricultural sector, e.g., Bolivia, Ecuador, Guatemala, Honduras, and possibly Panama. At best, these credit-to-output ratios present a mixed case for agricultural credit shortage in Latin America.

Column 3 in the Appendix presents ratios of agricultural credit to total domestic credit. Bolivia, Brazil, the Dominican Republic, Ecuador, Honduras, and Mexico have substantially increased the share of total credit received by agriculture over the 1960 to 1967-68 period. Colombia, El Salvador, Guatemala, Nicaragua, and Uruguay, on the other hand, have decreased agriculture's credit share. Costa Rica, Mexico, and Nicaragua have very high ratios in this regard; Ecuador, Guatemala, Panama, and Uruguay have surprisingly low ratios. As in the case of the credit-to-output ratios, these agricultural credit-to-total-domestic-credit ratios do not give conclusive evidence on the credit shortage issue. They do indicate, however, that Latin America may not be too badly off with almost one-third of total credit allotted to agriculture.

Interestingly, tests of significance on rank-order and product-moment correlation coefficients relating average annual rates of growth in institutional credit and average annual rates of growth in gross domestic product from agriculture suggest no dependency. The lack of relationship between growth in agricultural credit and agricultural output may be due to time-lag questions or to leakage of credit funds away from agricultural production purposes.

Characteristics of informal credit market

Characteristics of the informal credit system are occasionally cited as supporting the agricultural credit shortage claim.⁶ Evidence appears to be rather inconclusive, however, with regard to Latin America. A review of studies on informal credit systems shows that most of the wisdom on this topic stems from experience in Asia [59, 62]. It has been usually held, for example, that private individuals, money lenders, merchants, etc., provide a large part of total rural credit in less-developed areas. In India, for example, studies have shown that less than

⁶ "Informal credit system" is here used to mean credit provided outside the banking system and officially sponsored development or cooperative programs.

20 percent of total rural credit is furnished by the formal credit system [42]. In Thailand only 5 percent of the agricultural credit was reported coming from institutional lenders [53].

Less comprehensive data on several Latin American countries suggest a much smaller role for informal credit. In Ecuador, Stitzlein found only about 10 percent of the total credit used by about 1,000 farmers was supplied by noninstitutional sources [49]. Two-thirds of the farms in his sample had less than 20 hectares, and only about half of the farmers surveyed used credit. Erven found even less noninstitutional credit in southern Brazil [17]. He surveyed 233 commercial crop and hay farms and found that only 3 percent of their total agricultural credit came from noninstitutional sources. In the same general area of Brazil, but among small farm operators, Rask and Rao found only one-third of total farm credit used by 200 small farmers came from noninstitutional sources [41]. Nisbet's study of informal rural credit in Chile showed that noninstitutional credit made up only a little over one-tenth of total credit among the farmers he surveyed [35, p. 170]. Tinnermeier also found that noninstitutional farm credit was not significant among almost 200 farmers in a colonization area of Colombia [54]. Montero likewise found noninstitutional credit to be insignificant for 239 farmers he interviewed in a major agricultural region of Colombia [31]. Although noninstitutional loans made up about one-quarter of the number of loans held by these farmers over a four-year period, they equalled less than 4 percent of total funds borrowed. Anthropological studies by Nash and Tax of Indian communities in Central America showed that institutional credit was almost totally lacking, but they also found that only very modest amounts of noninstitutional credit were used [33, 50]. Likewise, a study in Costa Rica of 320 farms in 1964-1965 showed that only 20 percent of total credit used by these farms was provided by the informal credit system [13].

If these studies are representative, they suggest that the amount of noninstitutional credit in rural areas of Latin America is not very sizable. If there is a large segment of economically justified demand for agricultural credit, the noninstitutional money markets apparently have not exploited the opportunity. One could ask, "Does the lack of a sizable informal credit system indicate a deficiency in effective demand?"

High interest rates in the informal credit

market also have been cited as indicating credit shortage. That is, demand pressures face a small pool of loanable funds embodied in a highly inelastic supply schedule. It is therefore concluded that competition for these funds has driven interest rates up and resulted in monopoly profits for owners of loanable funds [59, p. 80].

Again, a review of various studies of interest rates charged in the informal credit markets in rural Latin America strongly suggests that interest rates at best are weak indicators of production credit shortage. It may be that the importance of extremely high rates of interest in the informal credit markets in Latin America has been greatly overstated. For example, Nisbet showed that in Chile a majority of the loans made within the informal credit system which he studied were lent at zero or negative real rates of interest [34]. Stitzlein showed that an average annual nominal rate of interest of less than 20 percent was charged on noninstitutional loans among the farmers he studied in Ecuador, and over 40 percent of the noninstitutional loans in his study carried no interest charge [49].⁷

Another aspect of this question is that relatively high rates of interest may be justified on loans in the informal credit market. The bulk of these loans are small, short-term, unsecured, and mostly for consumption, and lenders' administrative costs are therefore high [4]. Similar loans in developed countries also carry relatively high rates of interest. Moreover, these rates may be justified because of the high opportunity cost of capital in developing countries, lenders' risks, and the substantial rates of inflation that are common in a number of Latin American countries [5, 6]. There is very little evidence available to substantiate extensive monopoly profits in the informal credit market [3, 48].

In conclusion, an analysis of informal credit in Latin America does not present firm proof that a significant shortage of production credit exists in the rural areas. It may well be that these informal credit markets are not large because of the lack of demand for their services and strong institutional competition. It is also apparent that the high-interest-rate problem has been oversold and that current interest

⁷ Lending by merchants for specific purchases may mask the real charges associated with the lending. Purchase price adjustments may substitute for interest as payment for use of capital. None of the studies available on Latin America explored this in any great detail, however.

rates charged in this market may be rather modest, considering the nature of the services rendered. It may well be that current noninstitutional credit is supplying a market that is largely unrelated to the market for productive agricultural inputs. Thus, marginal costs for credit in this market may be of little or no value in determining the marginal productivity of capital used for agricultural inputs.

Strong demand for institutional credit

Throughout Latin America agricultural credit requests often substantially exceed available funds. From this it has been concluded that a good many economically justified loans are not made because of credit shortage. But, as already suggested, it has also been common to grant credit to farmers at concessional rates of interest. In Colombia, for example, most institutional agricultural credit has been loaned at rates of interest within the range of 7 to 13 percent. Borrowers of capital in the nonagricultural sector, however, pay from 18 to 25 percent for their funds. Hardly a country in Latin America does not have similar arrangements. If the marginal opportunity costs of capital in the country are in the general range of the charges on credit that nonagriculturalists are willing to pay, it is not surprising that agricultural credit is so popular.

Inflation is a further reason for the strong demand for institutional agricultural credit. During the period 1961-1968, six of the Latin American countries experienced average rates of inflation in excess of 10 percent per year—Argentina, Brazil, Chile, Colombia, Peru, and Uruguay. These countries, in turn, extended almost 60 percent of the agricultural credit in Latin America during 1967-1968. During the 1960's a major portion of the institutional agricultural credit in these countries was lent at real rates of interest that were negative; that is, nominal rates of interest were less than monetary depreciation. It is little wonder, then, that borrowers have clamored for negatively priced agricultural credit. Without an adjustment to efficiency prices, it is difficult to determine the economic effectiveness of this strong demand for credit.

On-farm capital formation and new technology requires credit

Again, it has been rather widely held that large doses of credit are necessary to facilitate rapid on-farm capital formation and technological change in agriculture. This view has

been challenge that development must proceed in a system and that the propensity [21] nological barriers situations, under be the leading policy. Rao has ample, that a heterogeneous situations are often of farms in southern sized livestock proximately the ment but that on the units which [40, p. 82]. His particular group played a leading stock to crop indicate rather A number of small are blocked from such as fertilizer at the margin, it is absorbed by large

An evaluation in Colombia of small farmers. This program extended loans of dium-term credit holdings [1]. The crease over the had previously inary results of substantial technological on many of the have shifted to sources; the value up sharply; near the farms; and worth have grown

Several recent suggest that an increase when n. Additional fertilization systems associated with u

⁸ Don Bostwick, the Institute of INCORA has some 600 loans included in the portfolio managed by INCORA

been challenged recently by some who argue that development of appropriate new technology must precede expansion of the credit system and that technology may have a low credit propensity [21]. While it is apparent that technological barriers are important in a number of situations, under some circumstances credit can be the leading edge of technological-change policy. Rao has correctly pointed out, for example, that agricultural problems tend to be heterogeneous and that uniform policy prescriptions are often not appropriate [40]. In a study of farms in southern Brazil he found that similar-sized livestock ranches and crop farms had approximately the same amount of capital investment but that credit use was 50 times larger on the units which had switched to crop farming [40, p. 82]. His study suggests that among this particular group of farms, large doses of credit played a leading role in the change from livestock to crop farming. In addition, his data indicate rather serious credit rationing problems. A number of small operators in southern Brazil are blocked from using available technologies such as fertilizer, which are highly productive at the margin, because most institutional credit is absorbed by large operators.

An evaluation of a supervised credit program in Colombia further suggests that a number of small farmers can profitably absorb more credit.⁸ This program was begun in 1963 and has extended loans of up to \$2,000 per farm in medium-term credit to farmers with modest land holdings [1]. These loans were a substantial increase over the \$200 maximum which farmers had previously been able to borrow. Preliminary results of the evaluation indicate that substantial technological change is occurring on many of the participating farms. Borrowers have shifted to more intensive use of their resources; the value of purchased inputs has gone up sharply; much more labor is being used on the farms; and livestock inventories and net worth have grown substantially.

Several recent studies in India also strongly suggest that credit requirements dramatically increase when new technology is used [37, 47]. Additional fertilizer purchases, changes in irrigation systems, and more employed labor associated with use of new seed varieties may

require a two- to four-fold increase in cash costs.

While data are inconclusive with regard to widespread agricultural credit shortage in Latin America, these studies suggest that credit bottlenecks may be occurring where the modernization process is most intense and especially among small farmers.

Concessional Interest Rates

Implications for farmers

As already suggested, alleged high interest rates in the informal credit market have been cited as a justification for concessional rates in the formal system. An additional defense for low rates has been that they provide the special inducement necessary to convince farmers to adopt productive inputs. But do farmers need to be bribed to do something that is supposedly profitable? A rather large amount of recent research has shown that farmers profitably allocate the resources at their disposal, including credit.⁹ The recent rapid adoption of new cereal varieties in Asia also strongly suggests that farmers in LDC's will adopt very rapidly new technology if it is profitable [9]. A low-interest-rate bribe may simply induce farmers to make expenditures that would not be practical at rates charged for nonagricultural purposes.

Low interest rates for farmers have also been justified as an income transfer mechanism. That is, farmers are given a break on credit because they are presumed poor; or farmers are given concessional interest rates to partially offset national pricing or fiscal policy that adversely affects farm income.

Most of the institutional credit in Latin America is currently lent to relatively large landowners who often have other occupations. Since the income subsidy is tied to credit access, few of the benefits from concessional interest rates are filtering down to the rural poor. It is also an unanswered question as to how much of this fungible credit is leaking out of the agricultural sector through multiple occupational structures. Aside from the political and administrative advantages associated with the "invisible income transfers" through concessional interest rates, the practice has little in its favor. Direct cash payments, development of new technology, subsidizing the price of specific inputs, or adjusting pricing or taxing policies would seem to be a more efficient means of easing farm income problems.

⁸ Don Bostwick, James Schwinden, and personnel from Instituto Colombiano de la Reforma Agraria (INCORA) began this evaluation in 1970. A sample of some 600 borrowers from a total of about 35 thousand was included in the analysis. The credit program is administered by INCORA and partially funded by AID.

⁹ No single review article draws together this research. Those wanting additional information on this point might review the discussion stirred by Schultz's book [44].

Implication for credit agencies

Low nominal interest rates combined with high rates of inflation erode the real value of credit portfolios. For example, if the rate of inflation in a country is averaging 25 percent per year and farmers are charged a nominal interest rate of 10 percent, a negative real rate of interest of 15 percent per year is implied. Under these conditions and without principal replacement, the real value of a credit portfolio is reduced to half its original value in a little over four years.¹⁰ As suggested earlier, the high rates of inflation in Argentina, Brazil, Chile, Colombia, Peru, and Uruguay have resulted in negative real rates of interest having been charged on a large part of institutional agricultural credit during the 1960's. In Brazil a subsidy of \$100 to \$200 million per year has moved through institutional lending agencies to agricultural credit borrowers via these negative interest rates. Given this, it is even more remarkable that most high-inflation countries, with the exception of Uruguay, have been able to increase substantially the real value of their credit portfolios. Because of the capital wash-out, a much larger amount of capital has been transferred into agricultural credit systems than is indicated in the Appendix by the difference between dollar values of credit in 1960 and 1968.

This capital erosion has obvious adverse effects on lending agencies. It tends to decrease the real value of the loan portfolio and forces the agency to look to external assistance for funds to increase its real size of portfolio. Under conditions of positive real rates of interest, lending agencies can build their portfolios by generating some internal profits. Because of low-interest-rate policy throughout most of Latin America, internal profits have been negligible. In addition, abstracting from the capital erosion problem, interest rates are often too low to pay out-of-pocket expenses. This is especially true where intensive supervision is tied to credit and overhead costs may run as high as 10 to 25 percent of the loan portfolio per year [1, 2, 11, 15, 19, 24, 29, 32, 36, 43, 55, 61]. Since overhead costs cannot be covered under these conditions, administrators are not "under-the-gun" to watch closely other administrative costs. Flabby administration can result.

It could also be argued that by holding the

¹⁰ This can be calculated by using $i = 1 - 1/(1 - R)^n$, and $V = 1/(1 + i)^n$, where R = negative interest rate, i = a conversion factor, n = number of years, and V = half value in year n .

interest rates down governments have kept the private banking system and the informal credit market from providing substantial amounts of credit to agriculture. Governments thus are forced to try to legislate, usually unsuccessfully, the granting of agricultural credit by private banks [52].

In summary, there appears to be no strong set of reasons for granting concessional rates of interest to agriculture in Latin America.

Rural Savings Capacity

Little attention has been paid in the literature to capital formation and savings capacity in agriculture. Nurkse, Lewis, Ranis and Fei et al. effectively directed developers' attention away from this issue by stressing the use of "surplus" rural labor to form capital in urban settings. Because rural people were often poor, it was widely held that savings capacity in agriculture was very low and that little capital formation was taking place. It has also been assumed that these rural residents have low marginal propensities to save [28, p. 289]. Several important conclusions followed from these assumptions: (1) Little investment takes place on farms in less developed countries; (2) most investment that does take place must be financed by credit provided from sources outside of agriculture; (3) mobilization of capital from the agricultural sector must be largely done on an involuntary basis; and (4) since little savings capacity exists, institutions and incentives to save are not necessary in rural areas. Under these assumptions it is not surprising that international lending agencies have not encouraged countries to mobilize rural savings by offering favorable rates of interest as well as institutional forms.

A review of data on time deposits in savings institutions in Latin America shows that voluntary savings are relatively insignificant when compared to figures on domestic credit claims on private sector [22, 27]. This is especially true in Brazil with a ratio of savings to credit of only .13 in 1968. Bolivia, Chile, Colombia, Costa Rica, Ecuador, Nicaragua, Panama, Paraguay, and Uruguay had ratios of less than .40. The 18-country totals for Latin America show a ratio of only .42 in 1967 or 1968. Only Mexico has roughly as much voluntary institutional savings as domestic credit, a pattern that is general in developed countries.

Monetary depreciation, coupled with fixed low interest rates on savings, has provided little incentive for people to institutionalize savings.

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In Colombia, for example, the Agricultural Bank, which handles about one-half of the country's savings, pays only a 4 percent rate of interest; i.e., a rather healthy negative real rate of interest during the 1960's.

Unfortunately, very little information is available on how responsive rural people in Latin America might be to increases in the rates of interest paid on savings. Recent experience in Korea, however, suggests that the supply of savings may be rather elastic with respect to interest rates. In the last part of 1965 Korea approximately doubled the rate of interest that could be paid on time deposits [8]. Since this interest rate reform, the amount of time and savings deposits has doubled each year and an eightfold increase in number of savings accounts has been experienced. Unfortunately, there is no information available on how much of this dramatic increase in savings came from the rural area. There is little reason to think, however, that rural people did not participate in this in a major way.

In the early 1950's Taiwan was also quite successful in mobilizing voluntary savings by raising interest rates [10, 23]. Less well-documented cases of recent substantial increases in institutional savings resulting from interest incentives have also occurred in Indonesia and Turkey.

It may be that if rural people in Latin America had adequate economic incentives and access to a savings institution, substantial amounts of local capital could be mobilized to significantly complement external funds for credit, especially where income is increasing. Currently, rural people must hold savings in land investments or in livestock. The growth in credit unions during the past five years in Latin America shows that some additional capital can be mobilized if institutional forms are simply available [20]. Between 1963 and 1968, funds in credit unions in Latin America increased from less than 8 million dollars worth to about 57 million dollars [14, 25]. Approximately 30 to 40 percent of this has been raised in rural areas.

Present policy in Latin America results in large subsidies to credit users and yet almost completely discourages institutional savings. Does a significant amount of potential savings exist in rural areas of Latin America? Evidence from studies in Bolivia, Brazil, and Colombia suggests that rural savings capacity does exist [16, 18, 46, 60]. Could mobilization of these savings, especially in areas where rapid tech-

nological change is occurring—southern Brazil, Central Venezuela, and the Cauca Valley of Colombia, for example—provide a substantial portion of the agricultural credit needs? The possibilities look favorable enough to warrant focusing some policy attention on this area.

Conclusion

During the 1960's agricultural credit in Latin America was sharply increased. While still larger amounts will be needed during the 1970's and 1980's to facilitate further development, I would argue that policy priority ought now to be shifted away from simply increasing amounts. Emphasis should rather be placed on creating firm financial and economic foundations for rural credit systems.

In brief, I would suggest the following three issues for emphasis:

(1) Where interest rates on agricultural credit do not reflect opportunity costs of capital, high priority should be given to raising rates.¹¹ Market forces should have more sway in the allocation of these funds. Higher rates would likely enable small farmers to get and use more credit as large operators back away from credit with higher costs. Increased rates would also allow credit institutions to protect the real value of their loan portfolios and make them less dependent on external funding. More realistic interest rates would also encourage the growth in nongovernmental credit. Private banks, merchants, and other informal sources of credit would find it more profitable to participate in this activity.

(2) Far too little of the agricultural loan portfolio in Latin America is currently supplied by rural savings. An important increase in savings capacity is resulting from the expansion in rural income streams in a number of areas in Latin America. I feel that higher interest rates on institutional savings could help mobilize a significant part of this savings potential and that these voluntary savings could provide a major portion of future rural credit needs.

(3) More realistic prices on agricultural credit would bring into sharper focus the major constraints that are slowing agricultural development. Credit policies in a number of countries are currently obscuring these constraints. It is difficult, for example, to tell if input or product prices are seriously out of line. The economics of new technology, land tenure restraints, the

¹¹ Value linkage or principal readjustment should be explored in cases of very high rates of inflation [36].

importance of marketing and transportation costs, and the role of educational inputs are masked in many cases by current credit policy.

In a number of Latin American countries higher prices on agricultural credit and rural savings will entail major changes in farm pricing policy, fiscal programs, and monetary policy. In order to encourage general movement in this direction, aid agencies will need to face Latin American countries with a united front. One agency's loan program that requires higher interest rates to be paid by farmers will not float in a sea of heavily subsidized credit.¹²

In order to convince countries to alter current policies, aid agencies must be well briefed on what their credit programs are achieving. Unfortunately, aside from a couple of cases of evaluation by AID and a few brief visits by IDB and IBRD officials, the economic results of the aid agencies' "billion dollar agricultural credit program" during the 1960's has been undisturbed by systematic research.

Appendix. Agricultural credit, rates of change, ratios to total credit, and gross domestic product from agriculture for 18 Latin American countries, 1960 to 1968

Country and year	Institutional agricultural credit year-end balances ^a			
	Agri-cultural credit ^b	Average annual rate of growth	Ratio to total credit ^c	Ratio to GDP from agri-culture ^d
	(1)	(2)	(3)	(4)
	<i>million dollars</i>	<i>percent</i>		
18-country totals				
1960	2,430		.22	.23
1967 or 1968	4,730	12	.31	.36
Argentina				
1960	393		.17	.19
1968	555	2	.20	.28
Bolivia				
1960	2		.25	.02
1968	15	81	.47	.13
Brazil				
1960	606		.17	.18
1968	1,417	17	.33	.34
Chile ^e				
1960	127		.31	.57*
1968	213	7	.35	.77*
Colombia				
1960	231		.36	.19
1968	386**	8	.35	.26
Costa Rica				
1960	68		.60	.62
1968	101	7	.73	.67

¹² The difficulties recently experienced by the World Bank in Brazil on a livestock loan which was value-linked is a case in point.

Country and year	Institutional agricultural credit year-end balances ^a			
	Agri-cultural credit ^d	Average annual rate of growth	Ratio to total credit ^c	Ratio to GDP from agri-culture ^d
	(1)	(2)	(3)	(4)
	<i>million dollars</i>	<i>percent</i>		
Dominican Republic				
1960	21		.20	.10
1968	57	21	.33	.23
Ecuador				
1960	20***		.13	.07
1968	48***	18	.21	.13
El Salvador				
1960	40		.29	.22
1968	44**	1	.23	.19
Guatemala				
1960	39**		.41	.12
1968	52	4	.24	.13
Honduras				
1960	7		.20	.04
1968	31	44	.41	.16
Mexico				
1960	472		.41	.39
1968	1,065	16	.57	.68
Nicaragua				
1960	32		.62	.28
1968	85	21	.60	.53
Panama				
1960	6		.06	.06
1967	23	40	.10	.15
Paraguay				
1960	10		.36	.08
1968	33	29	.40	.22
Peru				
1960	116		.34	.22
1967	160	5	.36	.25
Uruguay				
1960	59		.14	.27
1967	18	-10	.06	.07
Venezuela				
1960	190		.16	.38
1968	448	17	.21	.50

* Net domestic product figures are used here rather than gross domestic product.

** Includes some data estimated by the author.

*** Data is for new loans made during the year, rather than year-end balances.

^a Figures on agricultural credit represent institutional lending and were taken mostly from annual or monthly reports of each country's central bank. In several cases, annual reports of individual banks were used, and in one or two cases, unpublished Agency for International Development reports were used.

^b Local currency values in each case, except that some data for Mexico (see footnote^d) and Chile (see footnote^e) were adjusted by the yearly consumer price index figures, with base in 1963, published by the International Monetary Fund [22]. The 1963 exchange rate of local currency for dollars was then used to convert to an "adjusted dollar value." The figures in the table, with the exceptions noted, therefore show the 1963 purchasing power of local currency in credit funds expressed in dollars.

^c Agricultural credit (col. 1) divided by the corresponding domestic-credit-claims-on-private-sector figure, taken from International Monetary Fund [22]. The adjustments explained in footnote ^b were also made in the domestic credit claims on private sector figures.

(Appendix footnotes cont. on next page)

^d Agricultural credit (col. 1) divided by the corresponding gross domestic product from agriculture for 1967, taken from United Nations [56]. For Brazil, 1968 GDP figures were used; for Bolivia, only 1966 figures were available. The adjustments explained in footnote ^b were also made in the gross domestic product from agriculture figures, except for Mexico. Mexican data were expressed in 1950 market

prices and converted to dollars using the 1950 exchange rate of 11.57 pesos per dollar.

^e Local currency values in Chile were adjusted by a yearly price index with base in 1965. The 1965 exchange rate of escudos was then used to convert each year to an adjusted dollar value. The figures for Chile therefore show 1965 purchasing power of escudos expressed in dollars.

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