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Strengthening Agricultural Banking and Credit Systems in Latin America and the Caribbean

Revised Version
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Table of Contents

Summary

The role of finance in rural development has received increasing attention in Latin America and the Caribbean during the last decade. The acceleration of inflation and of foreign indebtedness, the urban bias of financial development, and the observed deficiencies of traditional agricultural-credit programs explain this increasing concern. Unfortunately, most financial reforms in the Hemisphere have bypassed rural financial markets (RFMs) and have ignored the special problems associated with agricultural finance. Although an improved provision of financial services depends upon the growth and integration of the national market, also policies, institutions, regulations, incentives, and procedures must be revised in order to meet the special problems of rural finance. RFM development presents challenges of institution building, inter-market linkages, and innovation in financial technologies that go beyond policy reform, but these will not be met if the policy environment is repressive.

The most basic indicator of financial progress is a reduction of transaction costs that lowers the total cost of funds for borrowers, increases the net returns to depositors, or both. Except when they are the result of excessive regulation, transaction costs cannot be reduced by decree. In particular, interest-rate ceilings do not usually make credit cheap, given their impact on access to loans and on the non-interest costs of borrowing. Rather, transaction costs will decline with competition and market integration, economies of scale and scope, the

accumulation of information, and financial innovations. The main focus of policies designed to promote RFM development should be changes in financial technologies that reduce transaction costs. Too much stress on lowering interest rates and on loan targeting have reduced emphasis on the urgent need to improve the production functions of financial services.

The special nature of the rural economy in part explains the difficulties of providing rural financial services. Producers are very heterogeneous and geographically dispersed, their financial transactions are numerous and very small, and risks are high. The limited scope of the specialized agricultural-credit agencies explains part of the problem. Most of these institutions are incomplete intermediaries, extremely specialized in the disbursement of loans, on concessionary terms, for narrowly defined target populations. While neglecting deposit mobilization, they lack financial viability, experience high default rates, and impose high transaction costs on borrowers. The policies that repress rural incomes and increase their variability further aggravate the situation. Low profits constrain the capacity to save, to place liquid reserves with financial institutions, to borrow, and to pay back loans. Rigid and misdirected financial policies accentuate the problems, by reducing the flexibility and profitability of the intermediaries that serve the rural areas, by imposing on them impossible tasks, or by forcing them to evade regulations by withdrawing from the countryside. The common difficulties experienced by all types of intermediaries suggest that the economic environment and the financial and non-financial policies are powerful determinants of the performance of any intermediary.

In order to reach the rural population with financial services it will not be sufficient to promote a particular type of institution. Assumptions, policies, and regulations must be changed. Deposit services represent an attractive focus for these new policies and actions. This dimension of the intermediation process presents considerable scope for innovation, because many more firms and households can be served through deposit facilities than through credit, while informal intermediaries possess a comparative disadvantage in deposit mobilization. Deposits, however, provide the rural population with an entry point into formal finance largely under their control and contribute to the establishment of their creditworthiness. The resulting "bank-customer relationship" reduces transaction costs for both borrowers and lenders.

Rural deposit mobilization is not easy, as recent experiments with agricultural development banks and credit unions have confirmed. While some of the development banks possess a large network of branches, due to their earlier expansion on the basis of "cheap" public or foreign funds, they did not accumulate the expertise required for deposit mobilization, and are finding it difficult to compete for funds in financial markets that are shrinking. The supply of the new deposit services, moreover, usually requires a long process of preparation and major organizational changes.

Institutional understanding and political support for the reforms must be obtained. Policies and procedures need to be revised. Innovations must be introduced in order to reduce the transaction costs and the risks for depositors and increase their net returns. New dilemmas about institutional structure and strategy must be faced and "second-generation" problems need to be dealt with. Experiments, policy revisions, procedure changes, and learning processes are expensive and risky. Subsidies and public intervention may be needed to accelerate the innovation process, while external technical assistance can play a key role in promoting the changes and in financing some of the learning costs.

Traditional approaches to agricultural finance have relied on special credit projects for the disbursement of targeted loans in concessionary terms. This partial approach has not been successful. What is needed is a system-wide perspective that stresses market development, where different institutional and informal intermediaries play a role according to their comparative advantages, and where all are linked through financial flows that integrate them into a single large national financial market network.

The provision of rural financial services is a difficult and expensive task. The obstacles presented by the special nature of the rural economy can only be overcome with a major effort of policy reform, institution building, and technological change. Although much has been learned during recent experiments in RFM development, the task ahead is complex and demanding.

First, an appropriate policy and regulatory environment has to be created. If this environment is not hospitable, rural financial intermediaries will not grow. Positive real rates of interest on deposits and loans, less of the special and differentiated rediscounting programs and isolated lines of credit, and more limited targeting must be among the major goals of financial policy reform. Development strategies to promote growth of rural incomes are also crucial.

Appropriate policies, however, are not a sufficient condition for the expansion of RFMs. Given the magnitude and dispersion of transaction costs, which exclude many potential rural depositors and borrowers from access to financial services, new production functions of financial services are required. Only low-cost technologies for deposit mobilization and loan disbursement will make rural financial intermediaries viable and will increase rural access to finance. Very little effort has been devoted to financial innovation, perhaps because the payoffs were limited under financial repression. As financial policy reforms provide the appropriate incentives, however, new technologies will be needed. Viable, complete, low-cost institutions will have to be developed, to adcpt and expand the use of the new technologies and provide the market linkages that guarantee the smooth operation of the whole system.

STRENGTHENING AGRICULTURAL BANKING AND CREDIT SYSTEMS IN LATIN AMERICA AND THE CARIBBEAN

Introduction

The role of the financial system and the nature of its contributions to economic development have received increasing attention in Latin America and the Caribbean during the last decade, both in theory and in practice.1/ Inflation, the internationalization of financial markets, and the burden of foreign indebtedness explain renewed interest in financial development, from the macroeconomic perspective.2/ The lack of financial viability of many specialized development-credit institutions, high arrears rates, the low quality of the financial services offered, and other observed deficiencies of traditional credit projects, including those designed for the agricultural sector, explain an increasing concern, from the microeconomic perspective.3/ At the conceptual level, the pioneering work of Shaw, McKinnon, and their followers incorporated money, finance, and the operations of the banking system into models of growth and development in new ways, more appropriate for policy making.4/ Greater interest in the financial system and a better understanding of its behavior and incidence have influenced policy decisions in many Latin American countries.

Before the mid-1970s, inflation as a chronic problem was limited to a few countries, particularly those of the Southern Cone. During the last decade, inflation and the resulting negative interest rates, in real terms, have affected most of the Latin American countries, including those in which prices had earlier been relatively stable, as in Central America and the Caribbean. In many countries, sustained inflation has been a consequence of the too rapid expansion of domestic credit, in nominal terms, in an attempt to finance public-sector deficits.[5] As a tax on the operations of the financial system, inflation has made domestic financial assets less attractive to hold, thereby aggravating the problem of financing investment and working capital. The resulting distortion and eventual destruction of some financial systems has attracted attention toward the importance of an efficient provision of financial services. Furthermore, attempts to overcome these difficulties and to stabilize the economy have produced their own problems, including too high real rates of interest in some countries, adding to the new concern about the performance of the financial system.[6]

During the 1970s, world financial markets supplied increasing volumes of funds to the Latin American and Caribbean countries. When foreign funds became less readily available and more expensive, however, these countries were forced to emphasize domestic resource mobilization. Given the burden of their external debt, several countries perceived that domestic funds mobilization could help reduce their dependence on foreign financing. Also, many learned that when domestic financial assets offer less favorable returns than those available abroad, international markets attract funds from resident households and firms and that the domestic financial system shrinks with the resulting capital flight.[7] Thus, several governments have sought to enhance the mobilization of private, voluntary savings through the financial system.

In a few countries (notably Argentina, Chile, and Uruguay), increased attention to the role of finance accompanied major attempts to liberalize the economy, through reforms aimed at augmenting the role of the market mechanism and at reducing existing barriers to international trade and capital movements. There is no agreement among experts on the reasons for the lack of complete success of some of these efforts, but the experiences suggest that overcoming acute financial repression may be a difficult task and that important questions of implementation (timing, speed, and order of the policy reforms) must still be resolved.[8/]

Attention to the performance of rural financial markets (RFMs) and the financing of agriculture has increased in parallel with the renewed interest in finance and development.[9/] Governments and donors have become increasingly concerned about the failure of traditional agricultural-credit programs to stimulate production and to reach a substantial proportion of the rural population. High transaction costs have reduced the viability of many intermediaries and have excluded many potential rural depositors and borrowers from access to institutional financial services. Transaction costs, incorrect pricing policies for financial services, and high default rates have bankrupt many agricultural-credit agencies. Research conducted by The Ohio State University's RFMs Project has shown that traditional agricultural-credit policies have resulted in increasing income concentration, misallocation of resources, and greater market fragmentation in many countries.[10/]

Increased recognition of the importance of finance and of the negative consequences of policies that repress financial markets has encouraged aggregate financial reforms in several Latin American countries. There has been, in addition, a growing consensus that agricultural-credit policies and procedures need substantial changes, but reform has shown a tendency to bypass RFMs and to ignore the special problems of agricultural finance. This paper recognizes that a permanently improved provision of rural financial services in part depends upon sustained progress and integration of a national financial market. It urges policymakers not to neglect RFMs during their liberalization attempts, but it also claims that RFM development presents specific challenges that go beyond policy reform. The additional ingredients (institution building, inter-market linkages, and innovations in financial technologies), however, will not be successfully developed unless the policy environment becomes hospitable and encouraging. That is, unless policies, regulations, incentives, and procedures are modified, and more viable institutions and cost-efficient financial technologies, appropriate for the provision of rural financial services in Latin America and the Caribbean, are designed and implemented, the contributions of finance to agricultural development, more food for all, and higher standards of living for the rural population will not be fully achieved.

economy reduces the costs of conducting transactions in commodity and factor markets, increasing the flow of trade and enlarging market size, and improving the productivity of resources through specialization and the division of labor, greater competition, the exploitation of economies of scale, and the use of modern technologies.

Second, the financial system provides services of intermediation between surplus (savings) and deficit (investment) units.12/ In the absence of finance, some producers are condemned to take advantage of opportunities only to the extent allowed by their own resources, while others are forced to invest their marginal resources poorly, in "inferior" opportunities. There is no reason to expect that, at the same moment, those with the capacity to save are necessarily those with the best investment opportunities. By making the division of labor between savers and investors possible, the financial system helps allocate resources more efficiently, channelling them from producers and regions of limited growth potential to those where more rapid expansion is possible.

Intermediaries offer depositors new assets (e.g. bank deposits) that may be more attractive forms of holding wealth than marginal uses within the firm-household. This eliminates inferior uses of resources and increases the income of savers. In turn, claims on resources are transferred to borrowers, who possess productive opportunities that otherwise would be unexploited. From this perspective, the financial system offers valuable services and income-increasing opportunities not only to borrowers, who possess better options, but also to depositors, who at the margin only possess poor alternative uses for their funds.

Third, the financial system facilitates risk, reserve, and liquidity management. Most households accumulate stores of value for emergencies or to take advantage of future investment opportunities. Reserves in the form of inventories of crops or inputs, livestock, land, precious metals and jewelry may yield low returns and impose high costs and risks. The financial system can reduce these costs and risks by offering attractive deposit opportunities for safe accumulation and lines of credit to cope with emergencies. Finally, the financial system also provides services of fiscal support for the public sector and contributes to the management of foreign exchange. Correct financial policies must achieve an optimum balance in the provision of all of these financial services.

Economic development both depends on and contributes to the growth and diversification of the financial system. Financial deepening and the provision of financial services matter, since they integrate markets, provide incentives for savings and investment, encourage savers to hold a larger proportion of their wealth in the form of domestic financial assets, rather than unproductive inflation hedges, foreign assets, and other money substitutes, and channel resources toward better alternative uses. Financial progress, however, results only from the reduction of risk and transaction costs, through the exploitation of economies of scale and of scope, professional portfolio management and diversification, the accumulation of information, and the establishment of bank-client relationships. Incorrect policies and regulations, on the other hand, repress financial development. The original fragmentation and distortions, combined with inappropriate policies, have curtailed the provision of financial services in the rural areas of Latin America and the Caribbean.

Urban Bias of Financial Development

The disparities between rural and urban growth and welfare observed in many Latin American and Caribbean countries persist because only a small proportion of investment goes to agriculture. The proportion of human capital and public services allocated to the rural sector is lower still. Rural-urban disparities have been accentuated by the deterioration of the terms-of-trade of agriculture and the encouragement for rural savings to flow to industrial investment, when the value of manufacturing output has been artificially boosted.13/ The urban bias of financial development reflects and contributes to this concentration of economic activity in the cities.

The network of bank branches is concentrated in the urban areas. By far, the largest proportion of the funds and loans are mobilized and granted in the main cities.14/ Only a small proportion of the rural population has access to formal credit, from institutions that are prepared to offer loans, but no other type of financial services. Most of the funds disbursed by agricultural-development banks and a few other institutions with some presence in the rural areas come from governments, central banks, and international donors. Few rural producers have access to deposit facilities. The consequence is limited intermediation between local savers and investors, resulting in large discrepancies among marginal rates of return on rural investments and in missed opportunities for improved resource allocation. On the other hand, incomplete financial institutions, that do not mobilize deposits, lack financial viability and offer a poor service.[15/]

The special nature of the rural economy explains part of these results. Producers are widely dispersed and often less accessible, their financial transactions are numerous and very small, and they face higher risks and greater unexpected variations in prices and yields than producers in other sectors. The reduced scope of specialized agricultural-credit agencies and programs explains another part. Limited opportunities to diversify their assets increase the risk of their portfolios, the sources of their funds sharply restrict their flexibility and profitability, and in the absence of deposit mobilization they give up important information about their clientele. Rigid and misdirected financial policies, that reduce the degrees of freedom of financial institutions, impose on them impossible tasks, or severely constrain their profits, also explain part of the difficulties. Regulations of financial activity, prejudices against informal lenders, and restrictions to entry into institutional financial markets contribute to the bias. Non-financial policies that repress agricultural incomes further accentuate these problems.

Design of Agricultural-Credit Programs

The volume of agricultural credit granted in the Latin American and Caribbean countries continued to grow during most of the 1970s but, when measured in real terms, it declined in several countries during the financial crisis of the early 1980s. Although it cannot be claimed that all of the funds loaned for agricultural purposes have actually financed additional activities in the sector, their volume has been substantial.16/ A large portion of these resources has come from international donors, since credit projects have continued to offer relatively expedient conduits for the disbursement of large sums, but domestic financial intermediaries have contributed increasing shares. In some countries, agricultural credit still represents the most important tool of strategies for rural development.

The traditional design of these agricultural-credit programs has contributed to the urban bias of financial development. Multiple and often inconsistent objectives characterize many of them. The promotion of output expansion, modern input adoption, and on-farm investment has been combined with attempts to help small producers and to attack rural poverty or to compensate farmers for the negative impact of other policies that repress agricultural profits and rural incomes. It has been felt that the credit tool may be used to solve many problems and to achieve many different allocative and distributional objectives.

However, a better understanding of the nature of finance suggests that credit may not be an efficient mechanism for many of these traditional tasks and that attempts to use it as a cure-all medicine actually reduce its efficacy in achieving its main purpose: the intermediation of funds between surplus and deficit units.17/

If objectives are not clearly stated and the tasks assigned are incompatible, it is not surprising that many agricultural-credit programs show serious deficiencies. Although very little is known (and very little can actually be discovered) about the impact of credit, in many instances loans have not increased output or yields significantly (at least in the activities to which they were formally directed). Most of the specialized agricultural-credit institutions lack financial viability, as the policies for pricing their services do not allowed them to protect their assets from inflation or to cover their costs. Both lender and borrower transaction costs are too high. The implicit losses, combined with the eroding impact of inflation, have decapitalized many institutions, while others have experienced serious loan-recovery problems.18/

Moreover, despite the growth of lending, institutional credit markets continue to be characterized by limited access to financial services and high portfolio concentration.19/ Only a small proportion of farmers has access to loans from formal financial intermediaries. There is reason to believe that the proportion of the rural producers of Latin America that receives institutional loans has not increased beyond 15 to 20 percent. At most, this proportion has reached 40 percent in a few countries; in several others it has not even surpassed 5 percent.[20/] In any case, the proportion of farmers who have access to institutional credit in a continuous, reliable, stable, and permanent fashion is much lower still.

Among those priviledged enough to have access to institutional loans, a small proportion of their number receives a very large proportion of the funds disbursed. Typically, less than 10 percent of the number of borrowers captures over 80 percent of the amounts loaned. This high degree of portfolio concentration implies, in turn, a high degree of concentration of the incidence of the credit subsidy that usually characterizes agricultural-credit programs, with undesirable income-distribution consequences. The combination of these three features (limited access, high concentration, and substantial subsidies) implies that about two percent of the agricultural producers of Latin America and the Caribbean have been the beneficiaries of at least 80 percent of the substantial volumes of credit granted and of a similar proportion of the large implicit subsidy.[21/] Although several of these deficiencies characterize financial institutions and credit programs in general, they are particularly acute in the case of agricultural-lending agencies and projects.

The Need for Viable Institutions

The provision of rural financial services has been entrusted to traditional institutions (e.g., commercial banks) and to agencies and intermediaries created after World War II (e.g., development banks, specialized credit projects, or credit unions). Although a wide variety of private and public institutions have been harnessed for these purposes, agricultural-credit projects throughout Latin America and the Caribbean encounter many common problems. To some extent, these commonalities reflect attempts to reproduce arrangements apparently successful elsewhere; they also reflect the unifying influence of donors. In part, they result from a generalized acceptance of unsatisfactoy *a priori* assumptions about the behavior of depositors, borrowers, and intermediaries. The fact that very different classes of intermediary have experienced similar problems suggests that the economic environment as well as the financial and non-financial policies discussed below have been more influential determinants of success than particular institutional forms.

To reach the rural population with financial services it will not be sufficient, therefore, to choose or to promote particular kinds of institution. Viable, self-sustaining rural financial institutions have not yet emerged, in spite of all of the funds, subsidies, and technical assistance provided during the past decades to the Latin American agricultural development banks, federations of credit unions, and other private and public intermediaries.[22/] Rather, what is needed is a better recognition of the factors that make RFMs (a network of interrelated formal and informal intermediaries) work.

Importance of Non-Financial Policies

The economic environment and the policies that influence the level and variability of rural profits and the farmers' debt-repayment capacity are crucially important to the performance of RFMs.23/ The strength and growth potential of agricultural-credit institutions depends upon the solvency and dynamism of their clientele. Farmers who receive low output prices, pay high input prices, obtain poor or unstable yields, and have limited access to markets and to public services cannot become good bank clients. Low incomes and repressed profits constrain the farmers' capacity to save and to place their reserves and surplus funds with financial institutions, diminish their willingness to borrow and their opportunities to profitably allocate funds to their enterprises, and reduce their ability and desire to repay loans. Rural financial institutions have a better chance when agricultural yields are high, rural incomes are growing, and economic policies do not discriminate against farmers.24/

Many Latin American and Caribbean countries adopted protectionist, import-substitution-industrialization strategies of development that repressed rural incomes.25/ Tariff barriers, tax incentives, foreign-exchange regimes, price controls, and subsidized food imports redirected private investment toward urban-based manufacturing activities and away from agriculture. These policies did not create an economic environment favorable to the development of RFMs. Nevertheless, declining output growth, due to the penalization of agriculture and of exports, and an increasing recognition of the extent and nature of the distortions and of the costs resulting from the protectionist strategy have led to policy reforms in several Latin American and Caribbean countries. A few are presently undergoing major structural adjustments, which place greater emphasis on appropriate incentives for agricultural development. These policy changes are crucial for the sustainable provision of rural financial services.

The experience of the past decades shows that credit measures cannot correct for the negative impact of these repressive non-financial policies and cannot compensate for the lack of profitability of rural investment. Subsidized credit is neither an efficient nor an equitable instrument to compensate farmers for the urban bias of public-sector investment and of pricing policies. While all farmers suffer the negative impact of these policies, only a few have access to the compensation implicit in the underpriced loans.[26] Frequently, these privileged borrowers are large producers, who possess additional investments in the favored non-agricultural sectors and need the compensation the least.

Moreover, those who receive the credit subsidy may not necessarily modify their investment decisions. At the margin, the low profitability of agricultural endeavors will continue to justify the investment of resources elsewhere. Through internal substitution of funds, given their fungibility, producers with multiple sources of finance and diversified investment options will use the increased liquidity, resulting from their access to credit, for more attractive marginal purposes, different from those explicitly stated in loan contracts.27/

In summary, underpriced loans do not make unprofitable investments profitable. Credit, subsidized or not, cannot eliminate existing restrictions on profits. Credit does not make required inputs, that are not reliably supplied, available. Credit does not build the roads needed to take produce to the markets. Credit does not induce a market demand for crops that are not desired. Credit does not reduce the risks associated with variable-yield technologies; rather, it increases these risks. Underpriced loans merely grant an income transfer to a few, while the activities financed remain unprofitable. Instead of attempting to compensate farmers with cheap credit, governments should devote their attention to the role of technology and of infrastructure development, in order to increase yields, and to the role of appropriate price incentives, in order to stimulate rural investment.28/

Impact of Financial Policies

In most Latin American and Caribbean countries, financial markets are still comparatively small and the range of rural financial services supplied is still fairly narrow. Poor resources, limited education, the isolation of economic agents, and lack of market integration stand in the way of financial development, particularly in the poorer and smaller countries. High transaction costs and risks make deposit and loan contracts with formal institutions too expensive for many rural producers. In most of these countries, moreover, financial repression has been substantially accentuated by government policies.

The techniques of financial repression are numerous and widely practiced. They include high, variable, and unpredictable rates of inflation, that levy a tax on the holders of domestic financial assets and subsidize borrowers. Exchange-rate policies that overvalue domestic currencies make foreign financial assets look inexpensive and favor capital flight. Ceilings and other restrictions on the level and structure of interest rates and on the pricing of financial services reduce the ability of formal institutions to mobilize domestic resources and require non-price credit rationing. Too high and unnecessarily differentiated reserve requirements tax away funds mobilized and increase the margins between deposit and loan rates of interest. Selective credit controls and administrative allocations of funds reduce the efficiency of financial intermediaries and increase transaction costs, while restrictions to entry to financial markets and constraints on portfolio management reduce competition and diminish the quality of services provided. Rediscounting schemes, foreign financial assistance, and access to other artificially cheap sources of funds discourage the mobilization of deposits from the public.

Financial repression makes the returns on domestic financial assets unattractive. Rather than rewarding savers for their sacrifice of present consumption and inducing them to place their surplus funds with financial institutions, negative interest rates, in real terms, penalize them. Depositors not only do not receive attractive returns, but are implicitly asked to pay (a tax) to keep their savings in financial form. On the other hand, borrowers are implicitly paid (a subsidy) to take their loans away, to the extent that real loan rates of interest do not reflect the full value of the claims on resources transferred.

Preferential rates for agricultural loans result in inverted interest-rate structures. The rate differentials do not reflect the costs and risks of lending to different borrower classes. Designed to favor marginal clients, these preferential rates force institutional lenders to charge the lowest rates precisely to those borrower classes they would have preferred to charge the highest possible rates, in view of costs and risks. Despite the good intentions behind these policies, the induced distortions in interest-rate structures eventually restrict the availability of credit for the borrower classes they are designed to favor.29/ Moreover, financial reform in several Latin American countries, allowing most interest rates to keep up with inflation, has maintained interest rates on agricultural loans at their original preferential levels and has further increased rate differentials and accentuated the resulting distortions. This is one of the reasons why it is important that reform does not bypass rural finance.

The policies that repress the financial sector accentuate the urban bias of its development. Underequilibrium interest rates generate excess demands for loans that necessitate rationing in order to clear the market. Rationing criteria frequently prefer the value of collateral over the project's profitability. In several countries rural land is frequently not titled and often subject to risks of invasion or expropriation, reducing its value as collateral. Small farmers, in particular, are excluded from rationing processes based on mortgages, while urban-based agricultural firms receive the lion's share in the allocation of scarce funds for agriculture.

Constrained by the imposition of ceilings on the rates of interest they are allowed to charge, institutional lenders find it difficult to cover the costs and the risks of mobilizing deposits in the rural areas and of granting credit to marginal clientele. Cost-conscious institutions react by reducing the size of the loans they are willing to grant, by restricting the non-interest terms and conditions of the loan contracts, or both, thus excluding potential borrowers from access to loan portfolios. Rationing mechanisms frequently rely on transfering transaction costs from lenders to borrowers. Moreover, as financial repression increases, usually with the acceleration of inflation, the shares of loan portfolios received by poor, small, new, and riskier clients and by other borrower classes more costly to serve diminish, as predicted by the "iron law of interest rate restrictions."30/ These consequences of policy repression have been accentuated by the recent financial crisis experienced in several Latin American countries. As the real size of loan portfolios has shrunk with the crisis, rural clientele and, in particular, small farmers have been excluded from institutional credit more rapidly than urban clientele.

Transaction Costs and Financial Progress

The existence of a financial system can only be justified by the presence of costs in economic transactions. If economic activities were frictionless, if everybody had perfect foresight and if information was free, if transactions did not require time and effort to be completed, there would be no reason for money and financial activities to exist.31/ The monetary system is a response to the costs associated with conducting transactions in product and factor markets. Financial intermediation is an answer to the transaction costs associated with the direct contact between surplus and deficit units, the management of reserves, and the reduction of risk. The provision of financial services reduces overall transaction costs in the economy, but it does not completely eliminate them, while the process of intermediation itself introduces new costs. Financial progress is essentially a process of further reduction of transaction costs.

What matters for productive and investment decisions and as an incentive for economic activity is the total cost of the funds to borrowers. What matters for savings behavior is the net return to depositors. The total cost of funds to borrowers includes, in addition to interest payments, explicit and implicit non-interest costs, such as lawyer, document, and registration fees, commissions, forced purchases of other lender services, taxes, transportation and lodging expenses, the opportunity cost of the time spent in conducting the credit transaction and in preparing investment plans, the costs of entertainment, and bribes. Compensating balances required from borrowers, delays in disbursing funds and insufficient financing that results in lower yields also increase borrower costs. Net returns to depositors are reduced by taxes, penalties for early withdrawal, transportation and lodging expenses, and the opportunity cost of the time spent in depositing and withdrawing funds. In turn, margins must cover the intermediary's mobilization and lending costs and generate a profit. Mobilization costs, in addition to the rates paid on deposits, include the administrative expenses associated with the accounts, promotion costs, and the impact of reserve requirements. Lending costs include the costs of handling loans (documentation, record-keeping, disbursement of funds and acceptance of payment), the costs of reducing the risk of default (loan evaluation, monitoring, supervision, and collection), and the losses due to lack of payment.

All components of the total transaction costs of rural financial activity in Latin America and the Caribbean are very high. For agricultural loans, in the case of the Nationalized Banking System of Costa Rica, during 1983 on the average non-interest borrowing costs represented 11.5 percent per year, in addition to an average interest rate of 13.6 percent per year. While interest rates charged ranged between 8.0 and 26.5 per cent, non-interest borrowing costs ranged between 0.2 and 117.5 per cent.[32/] This enormous dispersion of transaction costs across borrowers signals major market fragmentation. Non-interest costs of up to 12.0 percent of the loan amount, on the average, were also measured for IDB-sponsored loans in three different countries.[33/] Since transaction costs per peso are negatively related to both loan and farm size, their incidence is highly regressive. Lending costs also tend to be very high. These costs amounted to up to 24.0 percent in the case of the IDB-sponsored credit projects mentioned above. In Honduras, these costs averaged 18.8 percent in the case of an agricultural development bank and 8.4 percent in the case of agricultural loans from a private commercial bank.[34/] A substantial portion of borrowing and lending costs results from the loan targeting usually required by donors and reflects the screening, documentation, supervision, and extensive reporting requirements associated with a multitude of separate special lines of credit.

Nature of the Rural Economy, Transaction Costs, and Credit Policies

The provision of rural financial services is difficult and expensive even when financial and non-financial policies, program assumptions, and institutional design are adequate. The special nature of the rural economy explains this. Markets are fragmented and information is expensive. Potential depositors and borrowers are very heterogeneous and geographically dispersed. Their financial transactions are numerous and small and they encounter substantial uncertainty and risks. Transaction costs are higher for rural than for urban agents due to limited education and lack of infrastructure.

High transaction costs reduce both the demand and supply of financial services. Non-interest borrowing costs make the total cost of the funds very high. Similar depositor costs make the net return to financial savings very low. Lenders perceive that the costs of managing numerous and small savings accounts and of determining the creditworthiness of small and diverse borrowers are very high. As a result, the size of RFMs is small and the variety of financial services provided is limited. An expansion of RFM activity is crucially dependent, therefore, upon a reduction of these transaction costs; then the costs of lending and of borrowing will decline and incentives to depositors will improve.

If what matters is the total cost of funds to borrowers and the net return to depositors, the emphasis of regulatory activity on interest rates is misplaced. The traditional goal of "cheap credit" is obviously correct. Interest-rate ceilings, however, do not necessarily make credit cheap.[35/] Interest-rate levels and transaction costs are not independent. Ceilings on loan rates of interest, that make it more difficult for formal intermediaries to service their rural clinetele, are frequently associated with more than proportional increases in non-interest borrowing costs and, therefore, with higher total costs of the funds.[36/] Lenders faced with interest-rate ceilings clear the market by reducing the size of some loans granted, by charging implicit prices, and by restricting the terms and conditions of other loan contracts. All of these responses result in higher non-interest borrowing costs and restrict access to credit in a nonuniform fashion.37/

Transaction costs cannot be reduced by decree. Credit cannot be made cheaper merely by setting interest-rate ceilings. Transaction costs will only decline with greater market integration and competition, economies of scale, division of labor and specialization, better utilization of existing capacity, and portfolio diversification. Aggregate financial development leading to deeper financial markets will reduce transaction costs. These costs will also decline with economies of scope and the joint production of several financial services. Deposit-mobilization activities and the development of "bank-customer" relationships will reduce the costs of lending and of borrowing. Transaction costs will particularly decline with technological change: innovations such as electronic banking and the use of microcomputers, mobile branches, group lending, lending without collateral, and open lines of credit.38/ The expansion of the branch network and better hours of attention will also reduce these costs. Transaction costs will decline with the elimination of unnecessary regulatory constraints, the abandonment of loan targeting, the decentralization of bank management, and the simplification of procedures.

The extent and location of the branch network and the degree of decentralization of loan approvals are key determinants of the level of transaction costs. For this reason, in a few countries governments have promoted rural banks or the expansion of the network of rural branches of national intermediaries.39/

Although the extension of the branch network does increase access to financial services for the rural population it has been feared, however, that the funds mobilized may be channelled towards urban investments, further decapitalizing the countryside. The solution to this dilemma requires policy reforms based on a better understanding of the nature and role of the financial system. Some intermediaries (e.g., credit unions) show a greater propensity to lend in the same area where they mobilize funds, but the aggregate flow of funds will depend on the incentives provided by financial and non-financial policies.

Importance of Deposit Mobilization

This paper claims that the role of financial institutions as intermediaries between savers and investors is crucial for economic growth. Intermediaries offer both credit services to deficit units and deposit facilities to surplus units. Both types of service are equally important, from the perspective both of income-increasing opportunities for private asset-holders and of aggregate economic efficiency and equity. Combined, deposit and loan services enhance the accumulation of capital and improve the allocation of resources. Traditional approaches to rural finance, however, have emphasized the demand for loans, while neglecting the demand for deposit facilities, despite numerous recommendations to the contrary.40/ The provision of deposit services, nevertheless, is a very attractive potential focus for new policies and actions aimed at expanding the degree of access of the rural population of Latin America and the Caribbean to all financial services.41/

This facet of the intermediation process presents considerable scope for innovation because usually many more households and firms can be served through deposit facilities than through credit. Especially among those with relatively modest means or with stationary productive operations (in Schultzian equilibrium), the demand for financial services is primarily a demand for a safe and convenient means to manage liquid funds. Deposit services are used continuously and provide rural firm-households with an entry point into formal finance largely under their control. Small, short-term loans, on the other hand, are generally provided by informal credit sources at lower transaction costs for both borrower and lender, while institutional loans are demanded in response to special situations and opportunities and require creditworthiness. Informal intermediaries, however, offer none or only very limited deposit opportunities for the rural population.

The deposit connection with the intermediary eventually facilitates access to loans.42/ Savings activities contribute to the establishment of creditworthiness by providing information concerning financial flows that could be tapped for loan repayment, by creating a basis for confidence between lender and borrower, and by reducing the costs and risks of accumulating the minimum equity (downpayment) required for loan eligibility. The provision of deposit services is an strategically attractive way of expanding the range of interaction of formal intermediaries with their existing clientele and of attracting new customers, thus promoting financial deepening in the rural areas.

Several Latin American countries, notably Brazil, Colombia, and Mexico, possess large institutional agricultural-credit systems, while others provide very limited rural financial services. The typical institutions are public specialized development banks and credit unions and cooperatives, created and financed with substantial donor assistance. Although development banks have been established in an attempt to bypass domestic financial repression, they have contributed little to its alleviation, while in many cases they have actually increased market fragmentation and transaction costs. Extremely dependent on outside funds, they have not sought deposits from the public, even when authorized to accept them. Credit unions have been more successful in some countries, but many have suffered decapitalization, high levels of loan delinquency, and limited operating efficiency. Borrower-dominated, credit unions have not attracted savers as net depositors.[43/]

Most rural financial institutions neither offer attractive deposit facilities nor provide money-transfer services, store valuables for safekeeping, or serve as fiduciaries. Rather, they are "lending windows," retailers of loan funds received from donors and central banks on concessionary terms. They are incomplete financial institutions, specialized in processing loan applications and disbursing funds in conditions especially favorable to borrowers. In their structure and behavior they are borrower-dominated agencies.[44/] Given their access to underpriced resources, available to fulfill predetermined lending targets, these institutions face little compulsion and have little incentive to attract voluntary savings from rural firms and households.45/

This reliance on public funds makes these institutions vulnerable and dependent, as has become evident during the recent financial crisis. Given the growing claims of the public sector on domestic credit and the limits to each country's foreign debt capacity, access to "easy money" has turned illusory and several of these institutions have been forced to seriously consider the mobilization of domestic financial savings.46/ Dependence upon the national treasury and foreign donors also limits institutional access to market information and prevents the development of "bank-customer relationships," crucial for efficient portfolio management. This may also result in the alienation of the agency from its clientele and in the borrowers' view of the credit programs as a benevolent intrusion to be exploited, leading to severe default problems.47/ Because attention is concentrated on a narrow range of credit dimensions, opportunities for portfolio diversification are extremely limited, further increasing the risk of default.

Obstacles to Deposit Mobilization

While several of the financial institutions that serve the rural areas of Latin America and the Caribbean have been forced by the recent crisis to look for alternative sources of funds, they have discovered that deposit mobilization is not easy and cannot be improvised. Unfortunately, during their earlier expansion on the basis of outside funds, these agencies did not accumulate the required experience and expertise in deposit mobilization, when resources were more plentiful and competition less keen. Their present financial structure and the pricing policies for their services sharply limit their ability to compete for funds now, in financial markets that are shrinking. In this respect, their extreme reliance on foreign or government funds may have weakened their ability to survive during periods of financial stress.

In recent years, agricultural development banks and credit unions in several Latin American and Caribbean countries have initiated or expanded deposit-mobilization activities with relative success. Among the best known examples are those sponsored and recorded by The Ohio State University in Peru, Honduras, and the Dominican Republic.48/ Credit unions in other countries (e.g., Costa Rica) have also successfully improved their mobilization record by following similar policies. These closely monitored experiments have allowed a detailed identification of obstacles and preconditions for mobilization as well as the testing of incentives, procedures, and policies for successfully attracting rural deposits.

High transaction costs make financial savings unattractive for rural depositors. Long distances to bank branches, inconvenient hours of bank services, long lines and delays, and the small size of transactions related to savings accounts increase these costs and reduce the net returns on deposits. The success of deposit mobilization activities among small rural savers, therefore, will crucially depend on the intermediary's ability to reduce these costs and/or to increase yields sufficiently to compensate depositors for their efforts. Security and liquidity are characteristics of deposit accounts highly valued among the rural population.49/

Although there has been a substantial increase in the number of bank branches in several Latin American and Caribbean countries, this has predominantly been an urban phenomenon.50/ The spacial diffusion of bank offices into the rural areas observed in a few countries, moreover, has been mainly associated with the public development banks. Other non-bank intermediaries, such as the credit unions, have also penetrated the countryside, and their role is discussed below. Since bank rural branches have usually offered only loans but not deposit facilities, the existing banking infrastructure has been implicitly operated with an unutilized excess capacity. When this has been the case, the development banks should be in a position to offer deposit services at relatively low additional administrative costs. This has been the situation of Banco Agricola in the Dominican Republic, where during the last year deposits were mobilized for the first time at 29 branches, with the addition of only three employees to the total of the bank's staff.51/ Where such a network of branches does not exist, deposit mobilization in the rural areas may seem too costly in the absence of innovative techniques.52/

Given their presence in the rural areas through a network of branches and their links to an existing clientele, the agricultural development banks have become major candidates for experiments in rural deposit mobilization. While the observed deficiencies of these institutions raise serious doubts about the success and sustainability of the mobilization efforts, this new dimension may contribute to the correction of several of these problems. The experiments sponsored by OSU have shown that, although several preconditions are necessary for success, performance substantially improves after deposit mobilization.

The operation of deposit facilities by an agricultural development bank that has not offered these services must usually be preceded by a long gestation period of complex preparation.[53/] An effective mobilization will not be accomplished unless the authorities, management, and staff of the institution are convinced that the efforts are desirable and feasible. Several methods may be used to bring about this institutional understanding of the need for and benefits of deposit mobilization. The myth that the rural population does not possess assets that may be transformed into deposits and does not have a margin over consumption for further accumulation needs to be questioned. Evidence has to be provided in order to show that potential depositors do respond to higher returns, lower transaction costs, greater security and liquidity, and other economic incentives. The bank's management must understand the problems associated with subsidized credit, high default rates, and dependence on outside financing if internal opposition is to be effectively dealt with.[54/]

Similarly, political support for institutional and policy reforms must be obtained both from the domestic authorities and major donors. This is particularly crucial with respect to central banks, which will usually be requested to authorize the mobilization efforts and to set interest-rate structures, reserve requirements, and other determinants of the profitability of deposits. Technical assistance may play an important role in initiating thinking about the benefits of deposit mobilization, but local involvement in this process is crucial. In the case of the Dominican Republic, a combination of public discussion over several years, research by Dominican investigators, in-depth policy dialogue, and operational innovations on a pilot basis, supported and encouraged by flexible technical assistance, proved to be a powerful model for change.[55/] The policy tensions associated with donor dissatisfaction with the performance of traditional credit projects and borrower resistance to raising interest rates created a climate propitious for this dialogue. The rapidly deteriorating financial situation of the 1980s forced the authorities to deal with these issues in more than academic terms. The harsh reality of more restrictive access to the traditional sources of funds created the required economic incentives for the new activities. This has in general motivated development banks to become more receptive to the proposed changes.

Policy and procedure reforms, experiments, and learning processes are expensive. Although there are important direct benefits to the development banks from deposit mobilization, costs may be too high. While available data from several countries supports the claim that poor rural households are capable of utilizing financial assets as reserves and sources of liquidity, the small size of the majority of the accounts itself raises operating costs substantially. Moreover, the intermediary may perceive the risks associated with a mobilization scheme as being too high, if its traditional clientele consists of wealthier agents or if it can still obtain funds at lower costs from the central bank and other external source.[56/] If these risks are due to information gaps and bureaucratic rigidities and inertias, there may be a case for public intervention in order to accelerate the innovation process.[57/] In any case, social returns to an expanded network of banking services in the rural areas seem to be usually higher than private returns to the intermediary, thus justifying a subsidy to the initial mobilization activities, until an optimum is reached. External assistance may play a key role, not only in inducing the changes, but also in helping to finance set up costs, including training, some promotional expenses, and the costs associated with changes in institutional structure and procedures.

Deposit mobilization usually forces agricultural development banks and other intermediaries to face new dilemmas about strategy and organization as well as additional institutional changes; that is, it becomes necessary to deal with a set of "second-generation" problems.[58/] The need to keep records and to calculate interest on the savings accounts frequently places additional burdens on the personnel and may overload existing information systems, possibly bringing to light its deficiencies and inducing a modernization. Experiments with microcomputers, to reduce data management costs, may be tried.[59/] Branch managers must quickly convert mobilized funds into loans, but must also find clients with a high probability of repayment, since it would not be acceptable to lose one's neighbor's savings. Given their previous experience with very high delinquency, the managers of the public development banks have to learn to make lending decisions quickly, while still being very selective among borrowers. As a result, the institution is faced with a revision of its portfolio management techniques. With a new awareness about profitability, the intermediary also recognizes the need to reduce the costs associated with deposit and loan operations and with delinquency as well as to incre se revenues from interest. All of this brings about new changes in institutional structure, policies, and procedures, and may sometimes raise fundamental questions about national financial policies and regulations.

In general, the introduction of deposit mobilization activities creates imbalances and brings to light deficiencies that necessitate correction. If successful, the experiment will lead to a global evaluation and restructuring of the intermediary and to a revision of financial policies, thus increasing institutional viability and improving the quality of the financial services provided in the rural areas. The institutional tensions created will usually require changes in information and data-management systems, the degree of operational decentralization, portfolio management and delinquency control, and standards of administrative efficiency. In addition, all of this will require a reconsideration of the institution's human resources strategy and considerable amounts of training. Change within the institution must take place rapidly and on many fronts, further adding to the fragility of the experiment. Technical assistance can play a key role in facilitating a major training effort and the consolidation of the reforms.

The development of rural financial markets is a complex and expensive exercise that requires several public interventions. Although in the past central banks have shown little interest in rural finance, they can play a key role in initiating desired reforms and sponsoring useful experiments.[60/] Their major contribution, of course, will result from sound aggregate financial policies, that control inflation and minimize policy-induced distortions. Effective supervision and inspection of institutional intermediaries, that increase depositor confidence, are also a necessary task. This may be complemented by well-designed deposit-insurance mechanisms. Central banks may also become a major force behind the expansion of a viable branch network, promoting and overseeing their operations. Central banks frequently possess a strong research capability that is seldom addressed toward RFM issues. With donor support and technical assistance they may accept a leading role in the investigation of these questions and the promotion of pilot projects and other experiments, as has been the case in the Dominican Republic.

Role of Credit Unions

Credit unions possess many features that could allow them to become, if appropriate policies were adopted, an important mechanism to improve the access of the rural population to financial services. They are local intermediaries of funds, that can successfully solve the information problem that limits the operations of most financial institutions: their board of directors possesses substantial "inside knowledge" about the creditworthiness of potential borrowers. The proximity of their operations and the employment of volunteer labor allow them to offer small, short-term loans at relatively low transaction costs for both borrowers and lender.[61] These features provide credit unions with substantial comparative advantages to initiate the supply of financial services in the rural areas. As they grow, however, professional management is required and some of the informational advantages are lost. Credit unions become more like a small bank and transaction costs may increase, but they still retain the advantages of local intermediation. By serving the financial needs of different productive sectors, they also find some opportunities for portfolio diversification.

Credit unions thus have many attractive features, but their financial policies and organization frequently make it difficult for them to meet the expectations placed on them.[62] Although they were originally designed as complete intermediaries, first to mobilize local savings and then to provide loans to local borrowers, in practice they have been borrower-dominated institutions. In particular, access to external subsidized funds has biased their internal structure of incentives, resulting in little mobilization of deposits from net savers and in high delinquency rates.[63]

In several Latin American countries there is a core of well-run, self-capitalized rural credit unions, that have mobilized significant amounts of funds, as well as a multitude of "problem" institutions. The instruments used for the mobilization of local funds, however, have been almost exclusively the traditional share accounts. Since the returns on these shares are not attractive, the only incentive to deposit in the credit union has been the expectation to obtain a loan. This brings to light the basic problem with the design of these credit unions and the potential conflict of interests in their operations. If members deposit only to obtain a loan, the extent to which this service can be provided by the credit unions depends on their degree of access to external funds. This is why the credit union's credit policy always limits the maximum amount of a loan to be granted as a proportion of the share holdings. If these loans were three times the amount of shares, the credit union would need to obtain 75 percent of its funds from external sources. Thus, rather than net savings, the shares represent a compensatory balance to qualify for the loans and significantly increase the effective interest rates paid by the borrowers.

For example, if the loan-to-shares ratio is 2:1 and the nominal interest rate is 15 percent, the effective rate is 25 percent.

Expansion of these credit unions in Latin America thus has had to rely on considerable donor support in order to fulfill the expectations of members to obtain loans larger than their share holdings. Eventually, however, external assistance has been mostly phased out, while there has been little recuperation of funds previously disbursed. Rather than increasing interest rates explicitly in order to ration credit, the credit unions have reduced the loan-to-shares ratio accordingly, thus implicitly increasing the effective cost of the funds. This has reduced the quality of their service and many members have decided to withdraw by requesting "automatic" loans for the amount of their shares. Thus, much of the existing "capital" of these credit unions would have to be compensated for the defaulted loans, in order to ascertain the net volume of local funds mobilization.

Deposit mobilization by the credit unions, beyond these shares, has been jeopardized by the way the conflict of interests among the members (borrowers versus savers) has been handled. All gains from participation have been allocated through the low interest rates charged on loans (and loose collection of loans), while depositors have not received attractive rewards. What is needed are new instruments to attract deposits as well as incentives for some members to become net depositors. That is, credit unions need to become less borrower-dominated and to incorporate depositors in their administration. The OSU experiments show that changes in the composition of the membership induced by a different interest-rate structure sharply increase loan collection and improve performance in general. This transformation, however, is not easy and it requires large doses of political persuasion, training, institutional reforms and procedure and policy changes similar to those needed by the agricultural development banks. Fortunately, this can be usually accomplished by transformation from within, since credit unions are subject to less regulatory intrusions than the banking system.

Institutional and Informal Intermediaries

RFMs consist both of formal intermediaries and informal agents. Each one of these market participants provides services that are legitimate and appropriate for different types of client. Each one possesses specific comparative advantages that are reflected in the magnitude of the resulting transaction costs. Non-financial agents (processing, marketing, exporting firms) also provide useful financial services. Financial policies and strategies must promote the development of all types of intermediary as well as an efficient division of labor among them.

Very little is known about informal financial markets in Latin America and the Caribbean.64/ Borrowing and lending within and across family units is common in the rural economy, while moneylending is frequently linked to the roles of landlord and trader. The landlord-moneylenders usually provide seeds and other working capital to tenants and receive interest in kind. The merchant-moneylenders extend advances to small farmers and purchase their crop. More complex informal savings and credit associations and local bankers appear to be comparatively less important in Latin America than in Asia or Africa.65/ Pawnbrokers are found in several countries, but savings clubs are of minor importance. Most important are financial arrangements associated with major marketing channels: tobacco, coffee, cacao, and sugar cane processors and fresh fruit and vegetable exporters, as well as truckers, grocery stores, and input suppliers. These agencies, like credit unions, represent efficient retailers of funds, but are in turn very dependent upon their links to other institutions specialized in the wholesaling of fu.' since their own resources are limited and subject to seasonal demands. Marketing-cum-credit intermediaries do not mobilize deposits and flourish only if they have access to a pyramidal network linking them to major sources of funds. Because of their operations, however, they can provide some financial services at low transaction costs and can control loan delinquency. As a result, their relationships with formal intermediaries are at the same time competitive and complementary.

With financial development, however, institutional intermediaries grow faster than informal markets. Increased competition lowers interest rates on loans and increases returns to depositors. Complementarity results from the pyramiding of financial relationships: borrowers from institutional intermediaries may be in a good position to, in turn, informally lend to others, more costly to serve for the formal agency. Interactions between formal and informal agents further reduce fragmentation and integrate financial markets. Such dynamic connection lowers transaction costs and increases access to financial services. In the past, government intervention has been directed toward the elimination of the informal sector, ignoring the importance of its services. The close regulation of the formal sector, moreover has reduced its ability to compete with the moneylender. This strategy has not been satisfactory. A new policy approach must recognize and promote the intricate and wide-ranging relationships among several kinds of financial agents in a closely integrated market.

Conclusion

The provision of rural financial services is a difficult and expensive task. The obstacles presented by the special nature of the rural economy can only be overcome with a major effort of policy reform, institution building, and technological change. Although much has been learned during recent experiments in RFM development, the task ahead is complex and demanding.

First, an appropriate policy and regulatory environment has to be created. If this environment is not hospitable, rural financial intermediaries will not grow. Positive real rates of interest on deposits and loans, less of the special and differentiated rediscounting programs and isolated lines of credit, and more limited targeting must be among the major goals of financial policy reform. Development strategies that promote growth of rural incomes are also crucial.

Appropriate policies, however, are not a sufficient condition for the expansion of RFMs. Given the magnitude and dispersion of transaction costs, which exclude many potential rural depositors and borrowers from access to financial services, new production functions of financial services are required. Only low-cost technologies for deposit mobilization and loan disbursement will make rural financial intermediaries viable and will increase rural access to finance. Very little effort has been devoted to financial innovation, perhaps because the payoffs were limited under financial repression. As financial policy reforms provide the appropriate incentives, however, new technologies will be needed. Viable, complete, low-cost institutions will have to be developed, to adopt and expand the use of the new technologies and provide the market linkages that guarantee the smooth operation of the whole system.

Notes

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