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# Agricultural credit to small farmers in developing countries

Donnetta Walker  
Iowa State University

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Agricultural credit to small farmers in  
developing countries

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Donnetta Walker

A Thesis Submitted to the  
Graduate Faculty in Partial Fulfillment of the  
Requirements for the Degree of  
MASTER OF SCIENCE  
Major: Economics

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Signatures have been redacted for privacy

Iowa State University  
Ames, Iowa

1980

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## CHAPTER I. INTRODUCTION

Developing countries are characterized by levels of living that are very low for the majority of people. Low levels of living are manifested in the form of low per capita income, inadequate housing, poor health, limited education, high infant mortality and a low life and work expectancy. Failure to achieve a minimum level of income above the poverty line has kept approximately forty percent of the people of developing countries in absolute poverty.

Developing countries are also characterized by low levels of agricultural productivity which may be explained by the absence or lack of complementary factor inputs - capital or entrepreneurship - in relation to the availability of fixed amounts of other goods.

Concern for these conditions has prompted officials of developing countries to develop and implement various policies aimed at alleviating them. Several international development agencies have contributed greatly to this effort.

Development strategies adopted have emphasized industrialization and import substitution while neglecting the agricultural sector. Industrialization has been viewed as a superior way of life. Rich countries are largely industrial, poor countries are largely primary

producing or agricultural countries. Many developing countries have concentrated much of their economic activity on the industrial sector in an attempt to achieve a standard of living comparable to that enjoyed by many industrialized nations.

Weaknesses in industrialization policies have increasingly been recognized during past decades. If development and growth are to take place, foundations must be in both industrial and agricultural areas. The vast majority of a developing country's poor people live in rural areas and engage in subsistence level agricultural production. The basic concern of these people is for daily survival. Whatever progress may have been attained through industrialization policies have not significantly affected their lives.

#### Problem

Efforts to raise the level of agricultural output and to improve the welfare of farmers have led to increasingly large volumes of credit directed to the agricultural sector.

The rural sector of a developing country is comprised largely of small farmers with low output levels. These farmers must compete with large farmers for any available financial resources. Any attempts to increase agricultural



output must first concentrate on the small farmer population who receive a small share of institutional credit. Attempts to direct resources to the small farmer include various interest rate policies and the development of new public institutions.

Interest rate policies and new institutions have not resulted in larger shares of credit to small farmers. This phenomenon can only be explained by institutional behavior and factors which affect a farmer's use of credit.

#### Scope

This study analyzes the different development strategies and the effect of each on a country's agricultural sector. The role of credit in determining the agricultural development strategy is also discussed.

Financial intermediaries play a vital role in determining who will be granted loans. As such, they directly affect the efficiency or inefficiencies which may occur in agricultural production. Production inefficiencies must be corrected. The correction of these inefficiencies first requires that institutional behavior be altered. Financial institutions must respond to the operating constraints placed on them. Any changes in institutional behavior must be preceded by policies directly affecting the institution itself.

### Methodology

Available literature in the area of agricultural credit is extensive. However, an attempt has been made to identify the most crucial and problematic areas of credit to small farmers. Having delimited the area of study, a more detailed examination will be conducted on the chosen areas. The method used in the examination of each area will be that of a literature survey. A competitive industry production model will be presented and evaluated. Comparative statistics analysis of this model will be presented and interpreted.

### Economic Growth and Development - Why?

Two-thirds of the world's population - people of Africa, Asia and Latin America live in poverty. This poverty transcends all boundaries affecting inhabitants of both rural and urban areas.

Living conditions for these people are unacceptably deficient. There is a lack of material welfare which is astounding, especially for people with the lowest incomes [18]. Poverty in all its harsh realities prevail. Visible companions of mass poverty are continuous - hunger, disease, early death and illiteracy.

The extent of these destitute living conditions en-

compasses a wide range. Within and between nations it is a common occurrence to observe an entire family surviving a subsistence level existence. All that is required for survival at such a level is both produced and consumed by the family unit. It is also possible to observe family units who are somehow able to produce beyond that which is required for personal consumption, enabling them to participate in market activities.

The possibilities for human progress lie beyond a subsistence existence. An exemplification of these possibilities may be found in the structure of coexistence between the wealthy and the poor of developing countries. Though it is hazardous to generalize, it can safely be stated that in all countries which make up the developing world, an elite class of people exist who are not doomed to live a life characterized by squalor and poverty [18].

Such patterns of life have existed for hundreds of years. Many factors have contributed to perpetuate such a state. These factors must be identified and alleviated to insure a state of growth, development and equity. We must begin to ask questions concerning these conditions. How is it possible that obvious affluence can coexist with such dire poverty within the same confinement and the same city? How can traditional, low productivity, subsistence

societies be transformed into modern, high productivity, high income nations? We must attempt to discover answers to these questions. Though the answers are not obvious or simple, they do exist. Proof of their existence lies in the existence of the developed world.

## CHAPTER II. AGRICULTURE AND DEVELOPMENT

The Role of Agriculture in Economic  
Development

The role of agriculture in economic growth and development may be viewed through the impact the green revolution has had on agriculture and subsequent sectors of the developing economy.

The green revolution can be viewed as the application of science and technology to traditional agriculture which has caused rapid expansion of certain food grains in the developing world [38]. The initial stage of the green revolution began in Southeast Asia during the latter part of the 1960s. Many economists now feel a special effort must be made to help the rural poor take advantage of the potential provided by the green revolution.

There are two popular interpretations of the green revolution. Both of these interpretations have been examined by Clifton R. Wharton [38] and Gerald M. Meier [20]. Meier [20] and others believe that the race between food and population is now over. Many other observers believe that the very success of the green revolution will produce a number of problems. These problems will be more subtle and difficult than those faced during the development of the new technology. Despite these problems the green revolution offers an unparalleled opportunity to break the

chains of rural poverty in many parts of the world. Success of the green revolution will depend upon how well the opportunity is handled and how alert we are to the inherent consequences.

Wharton [38] believes it will not be easy to achieve the potential increased production offered by this new technology. Problems of this achievement are complicated by the fact that millions of diverse farms and farmers are scattered over the countryside. Increased production will automatically produce a whole new set of second-generation problems which must be faced if development is to be sustained and accelerated. Wharton [38] suggests that two considerations must be borne in mind. First, experience has shown that the further spread of new varieties will not be as fast as early successes might suggest. Second, the new problems arising from the spread of the new technology need to be foreseen and acted upon now.

Both Wharton [38] and Meier [20] agree upon the reasons for believing that the new technology will not spread as widely or rapidly as supposed. One such reason is the shortage of available irrigated land. This shortage imposes a short-run limit to the spread of the new high-yield varieties. Most of these varieties require irrigation and careful water control throughout the growing cycle. The

speed with which additional land can be converted to the new technology depends upon the rapidity with which new irrigation facilities can be constructed. High factor costs are likely to be a retarding factor here [38].

Significant additional cost is involved in converting existing irrigation systems to the requirements of modern agriculture. Many of the old gravity irrigation systems were not designed to provide sophisticated water controls demanded by the new varieties. Meier [20], suggests that the green revolution will require heavy government investment in irrigation facilities. He further suggests that radical changes in cropping and harvesting patterns must occur to meet the cost of irrigation works.

The rapidity with which the new technology will be adopted is likely to be much slower where the crop is a basic food staple, grown by a farmer for family consumption. Such farmers are reluctant to experiment with the survival of their families. Spectacular results have been achieved primarily among the large commercial farmers. Farmers must learn new farming skills and develop a greater expertise than required in traditional methods of cultivation. The new agronomic requirements are quite different in respect to planting dates and planting depths; insecticide, pesticide, and fungicide applications. Unless appropriate extension measures are taken to educate

farmers regarding the new farming complexities, the higher yields will not be obtained [38]. The rate at which the new technology will be adopted is also affected by multiple cropping patterns. Many of the new varieties are non-photosensitive and the shorter term will allow two or three crops per year instead of one. Multiple cropping is good. However, many problems may occur as a result. Difficulties may arise if new harvests come during rainy seasons without provision having been made for mechanical drying of the crop to replace the traditional sun drying. Meier [20] also suggests that the problem of multiple cropping is complicated by a transportation bottleneck. This term is used to identify the problem of transporting grains from the agricultural sector to various destinations.

From the problems discussed above, it may be deduced that the early adopters of the new technology will be in regions which are more advanced, literate, responsive and progressive. These areas may also have better soil, better water management and close access to roads and markets. Early adopters will be the wealthier, more modern farmers [38]. There are less economically rational reasons why bigger farms may do better. Bigger farms may be better placed to obtain subsidized loans or scarce foreign exchange to buy capital equipment. The larger farms may



also be able to use their influence to get a larger share of any available public services. An effect commonly observed is that larger farmers are encouraged to use excessively mechanized methods of farming which waste scarce capital resources and result in too low employment [20].

If it is assumed that the new varieties will continue to live up to expectations and spread rapidly, the increased production will lead to a new set of difficulties. Large tracts of land planted in one of the new varieties may be susceptible to disease infestation which could result in massive losses. Prior to the green revolution, reliance upon seed selected by individual farmers meant that neighboring farms growing the same crops usually planted two or more different varieties or strains. Such homogeneity provided a built-in protection against widespread plant diseases, since not all varieties are equally susceptible. But when a single variety is produced, covering large areas, the dangers of pathologic susceptibility are multiplied [38]. Wharton [38] suggests that two steps are necessary to avoid these dangers. First, a diversified breeding program which can continually produce new varieties is needed. There should also be an able and well-organized plant protection service which can quickly identify dangerous outbreaks and initiate steps to combat them.

Second, it is also important to expand the entire complex of services and industries required to achieve the higher production. Some related industries which must develop if the green revolution is to succeed are seed industries, agricultural chemical plants and storage firms.

Equally important are the increased farm services which are required, particularly agricultural credit. Although yields may increase substantially as a result of the green revolution, the farmer must have access to substantially greater credit to finance his operations. This is particularly true for the poor farmer with low cash reserves who may want to adopt the new varieties. The village moneylender and merchant will not be adequate unless they have access to additional funds. The green revolution must be accompanied by an increase in the amount of credit available and by the expansion and modernization of credit institutions [38].

The green revolution requires large amounts of new investment from both private and public sectors. Its momentum is only maintained by policies which increase the total amount of capital allocated to investment. These resources may be supplied by domestic or external sources. Policies providing loanable funds at low rates of interest may not be the best method of providing cheap loans to farmers. This policy has been tried in various countries

with bad results. Farmers able to obtain loans were tempted to employ capital-intensive methods of production using too little labor. By keeping the interest rate below the level which equates demand and supply, excess demand for credit is generated. Thus, the government must take a greater role in rationing loans among borrowers.

Domestic financing of the green revolution is more effective by keeping real rate of interest at levels which equate demand and supply for loans. Freebairn [12] has observed that two important factors are at work which tend to limit the expansion of credit for small farmers. The first is the cost of the credit. Increased administration costs per dollar loaned and the increased risks associated with small loans make the costs of supplying credit to small farmers higher than to larger farmers. Since interest rates for institutional lenders are either fixed by law or custom, the extra costs bite into profits. Because the total amount of funds available for lending is always specified, managers operate more profitably selecting larger farmers who can both borrow in larger units and who offer lower risks of losses. The second factor centers on the structure of credit institutions. Commercial banks, cooperative credit societies, and public agricultural banks are linked to that segment of the rural society that has access to the networks of

technical knowledge and physical resources [12].

There are also doubts about the ability of existing markets to handle the increased product resulting from the green revolution. More attention must be devoted to marketing the increased output. Where there has been semi-subsistence agriculture, the impact of the new technology upon the marketed product is even greater than on total production. The impact of this increased production upon the traditional marketing network can be disastrous [38].

For organizational efficiency within the marketing network, traders and middlemen should be allowed to freely perform their functions to the fullest extent. This idea has been strengthened by the agri-business experiments. There have, however, been difficulties in utilizing agri-business organizations. Most notably, local traders perform retail distribution of inputs to farmers more cheaply than large foreign companies.

#### Agricultural Development Strategies: Bimodal vs. Unimodal

Agricultural development may be achieved through a variety of strategies, each having different objectives and goals. However, it is desirable to implement agricultural strategies which are efficient in terms of a number of objectives. It is useful to assess the total efficiency

of alternative agricultural strategies in terms of their relative success in achieving the following objectives [20].

1. Contributing to the rate of economic growth and the process of structural transformation.
2. Achieving a satisfactory rate of increase in farm output at a minimum cost.
3. Achieving a broadly based improvement in the welfare of the rural population.
4. Facilitating the process of social modernization.

The most fundamental issue of agricultural strategy faced by the late developing countries is to choose between a bimodal strategy or a unimodal strategy. Implementation of the bimodal strategy would seem to imply that the agricultural sector would develop disproportionately. Alternatively, a unimodal strategy seeks to encourage a more progressive development and a wider diffusion of technical innovations adapted to the factor proportions of the agricultural sector as a whole.

The essential distinction between the two approaches is that the unimodal strategy emphasizes sequences of innovations that are highly divisible and neutral of scale. Unimodal strategies may be used efficiently by small-scale farmers and adopted progressively. This approach does not imply that all farmers or agricultural regions will adopt innovations and expand output at uniform rates. It does mean that the type of innovations emphasized

are appropriate to a progressive pattern of adoption in a two-fold sense. There will be progressive diffusion of innovations within particular areas. These will also be an extension of the benefits of technical change to new areas as changes in environmental conditions or improved market opportunities enable farmers in new areas to participate in the process of modernization. Although a bimodal strategy entails a more rapid adoption of a wider range of modern technologies, this is necessarily confined to a small fraction of farm units. Such confinement is due to the structure of economies in which commercial demand is small in relation to a farm's labor source [20].

Meier [20] suggests that under a bimodal strategy, firms which have high capital to labor ratios would account for the bulk of commercial production. They would have the cash income required to make extensive use of purchased inputs. A concentration of resources within a sub-sector of agriculture implies a reduction in the ability of farm households outside that sub-sector to adopt new purchased inputs and technology.

Under the bimodal strategy, the divergence between factor intensities and the technical efficiency of many firms may become progressively greater as agricultural transformation takes place. Both the initial and subsequent divergences between the technologies used in the

two sectors may be accentuated because factor prices faced by the modern sector in developing countries typically diverge from the social opportunity cost. This divergence is obvious when subsidized credit is made available on a rationed basis to large farmers and when equipment can be imported with a low tariff at an overvalued official exchange rate.

Under the unimodal strategy, most firms in the agrarian sector display the same factor intensities. Inter-farm differences in performance will be larger. This is especially true during transitional periods as farmers are learning how to use new inputs efficiently. The differences reflected will be in output per unit of input rather than major differences in factor proportions.

It is apparent that the two strategies will have different impacts on many dimensions of economic and social change. Meier [20] suggests that the most obvious differences will be in the nature of demand for farm inputs. The structure of rural demand for consumer goods will be different under a unimodal strategy as compared to a bimodal strategy. A major difference in income distribution is to be expected due to the likelihood that under a bimodal strategy the difficult problem of absorbing a rapidly growing labor force into productive employment would be made more severe. Under a unimodal strategy, there is a

good prospect that the rate of increase in demand for labor would be more rapid than the growth of the labor force. Under-employment and unemployment would be reduced as a result of wider participation of the rural population in improved income-earning opportunities.

Because of their differential effects on the sequence of innovations and on rural income distribution, a bimodal and a unimodal strategy will differ greatly in their aggregate capital and foreign exchange requirements. The more capital-intensive bimodal strategy emphasizes rapid adoption of mechanical innovations, such as tractors along with chemical fertilizers and other inputs essential for increasing crop yields. Even if such equipment is manufactured locally, the foreign exchange requirements for capital equipment and its components are high. Production processes also require a high level of technical sophistication, large plants and capital-intensive technologies [20].

When the strategies have been implemented, the unimodal strategy which emphasizes mechanical innovations of lower technical sophistication and foreign exchange content, appears to offer greater promise for the development of local manufacturing. This is less demanding in its technical requirements and is characterized by lower capital-labor ratios and lower foreign exchange content. On the basis of the Japan-Taiwan experience and an analysis of the nature of the



supply response to the two patterns of demand, it is apparent that a unimodal strategy will have a more favorable impact on the growth of output. This is particularly true for the growth of employment in local manufacturing and service industries.

The factor largely determining whether agricultural development will follow a unimodal or bimodal pattern is that of relative emphasis. If emphasis is placed upon yield increasing innovations, a unimodal strategy will be used. Conversely, if emphasis is placed upon labor-saving innovations a bimodal strategy will be utilized. The thrust of a unimodal strategy will be to encourage general diffusion of yield-increasing innovations and such mechanical innovations as are complementary with the new seed fertilizer technology. The bimodal strategy emphasizes simultaneous adoption of innovations that increase the amount of land which individual cultivators can efficiently work, in addition to the yield-increasing innovations emphasized in the unimodal approach. Meier points out that for these reasons it is not possible for developing countries to pursue the unimodal and bimodal options simultaneously.

The unimodal strategy of agricultural development has these important characteristics that the bimodal strategy does not:

1. Agricultural output can be increased within the unchanged framework of the existing small scale farming system.
2. The bulk of a nation's farmers may be involved in increases in agricultural productivity associated with the use of improved varieties of seeds, fertilizers and other inputs.
3. Agricultural and industrial development may move forward together in a process of simultaneous growth.

The unimodal strategy appears to be the most viable alternative as a base for widespread agricultural development [20].

#### The Role of Credit in Agricultural Development

Credit has been a prominent feature of strategies implemented for the development of the agricultural sector of developing countries in recent years. It has been included among required ingredients of most strategies. Such ingredients have included technical assistance, land reform and the provision of input and output markets [6].

Some authors have viewed credit as the only means by which agricultural development can be achieved. Alternatively, others see credit as a precondition for agricultural development which will be greatly enhanced when combined with other preconditions [6].

Agricultural credit will make its contribution to economic development by increasing output in farming and its

related occupations. Credit will, therefore, support other elements in overall development plans. Credit must receive support from other areas relating to agriculture from other sectors of the developing economy.

Isolated improvements in agricultural credit will have very limited results. Credit alone is not the answer; at best it is a necessary key which must be used to open doors leading to a better economic future [6].

Credit provision means that the control of resources belonging to someone else is transferred to the borrower at a cost. The resources may have been made available by savings, taxation or some other means. Credit creation implies that an agency other than the borrower provides the funds.

Credit alone cannot create necessary resources. If allocated under proper conditions credit may lead to increased productive powers which provide the means for future economic growth. Such a process implies that the borrower puts the funds to better use in increasing production than the lender could have, and that the borrower begins a savings process which can aid in the creation of more capital [6].

Major determinants of economic growth and development are an increase in the rate of capital formation, qualitative improvements in the use of capital/labor and increases in the

effective supply of labor. The major problem is to initiate a breakthrough such that there is more income to provide capital necessary to begin this process. Not only does this process require an increase in the amount of capital, but it also requires that an increasing proportion of a growing national income be used for capital [6].

Capital refers to real goods such as irrigation systems, infrastructure, fertilizers, or financial resources. An increase in the national production of these goods requires more financial savings directed to capital formation. Agricultural credit systems must be designed to help by increasing money savings among rural people and by using them effectively.

Agricultural credit has, at best, been static in the majority of developing countries. At the end of a given credit period, the farmer has realized no net increase in output, income or assets. Static credit must be converted into dynamic credit which improves a farmer's output, income and his assets [6].

Increases in the quantity of credit will not achieve these objectives. Credit is a necessary condition. It is not a sufficient one. Credit must be designed to give strong incentives to improve farm techniques, institutions and changes in attitudes.

Credit is necessary for the development and improvement of the agricultural sector. More specifically, priority should

be given to small farmers in the agricultural sectors of developing countries. Concentration on small farmers is inevitable since they constitute the largest body of producers and have the highest percentage of underemployed labor to be mobilized. Furthermore, a focus on the small farmer is more productive in countries where land is becoming a scarce resource and labor more abundant.

A country's overall strategy for agricultural development is a composite of substrategies of which credit is a vital element. Equitable distribution of credit among both small and large farmers would promote a development strategy which places emphasis on highly divisible, scale-neutral innovations, the unimodal strategy as such. Such a strategy would ensure a more efficient utilization of labor and capital resources. More farmers will be able to expand use of fertilizer, seeds and other divisible inputs. The diffusion of innovations, greatly enhanced by credit availability, will be more broadly based.

Credit rationing to a small percentage of large farm owners concentrate resources and their benefits in the hands of a few people. Such concentration severely limits the ability of other households to take advantage of technological innovations. The bimodal strategy of agricultural development is greatly facilitated by credit rationing. Under such a strategy, a small percentage of

farms become highly modernized, capital-intensive units. Thus, modernization of the entire agricultural sector is severely hampered.

## CHAPTER III. RURAL FINANCIAL MARKETS

## INTERMEDIATORS

## Financial Intermediation

The financial sector of an economy, which includes all intermediators, does matter in economic development. It can assist in the breakaway from the repetition of repressed economic performance to an accelerated growth [26].

Financial intermediation includes all functions performed by both monetary and nonmonetary financial institutions. These functions may include saving, investing, financial advising, etc. The primary function of the financial intermediary is to purchase primary securities from ultimate borrowers and to issue indirect debt for the portfolio of ultimate lenders [13]. Savings mobilization, subsequent investment via lending and the extension of credit are other functions performed by financial intermediaries in developing countries.

The financial intermediary sector may be categorized into two main groups: (a) the monetary system, and (b) the nonmonetary system which attracts the savings of surplus sectors. The monetary system functions as an intermediary by purchasing primary securities and creating money. The nonmonetary intermediaries perform only intermediary roles of purchasing securities and creating nonmonetary claims on

themselves in the form of saving deposits, shares, equities, etc. [7].

The product of intermediation is an indirect financial asset coined from underlying primary securities. The award of financial intermediation arises from differences between the rate of return on primary securities held by intermediaries and the interest or dividend rate paid on indirect debts.

Interest of economists in financial structures and development evolves from beneficial causal relations which are believed to exist between financial development and economic growth.

Two rationalizations exist which correlate financial development to economic growth [11]. They are:

- (a) financial development will improve the mobilization of savings; and
- (b) financial development will improve the allocations of investment resources.

The contributions of financial intermediation to economic growth and development in terms of the above stated hypothesis, may be observed at two levels. Financial intermediation occurs at both macro and micro levels.



Financial intermediation - macro level

Commercial banks, cooperatives and development banks comprise complex and sophisticated financial systems that extend the range of choices and alternatives available to suppliers and demanders of loanable funds. Through increasing the number and variety of savings or uses of funds and the techniques and means of raising funds, financial systems facilitate the transfer of real resources from lenders to borrowers [14].

The saving-investment process is facilitated by numerous institutions that offer savers a variety of substitutes for real capital or money, which encourage the flow and diversification of saving, and methods of providing borrowers with funds to meet their requirements, thus promoting investment spending.

Production may occur as a result of a self-financing process or a completely financed process via intermediation. Self-financed production occurs when part of the net output is consumed and part is saved. The portion saved is placed back into the production process by the producers. The portion of output placed back into production constitutes net additions to the capital stock. Through self-financed production, wealth owners directly utilize capital in the production process and earn the capital's marginal product [19].

Completely financed production occurs when savings are placed in a financial intermediary that invests it with deficit units. The financial system achieves a separation of the ownership and use of capital. Financial intermediaries allocate capital resources to earn an average yield higher than under self-finance. Financial intermediaries raise the marginal productivity of capital.

Through the efforts of financial intermediaries, small farmer savings may be directed from "nonproductive" assets, i.e., gold holdings, money hoarding at home, etc. and channeled to more productive activities. Financial intermediaries may gather the available small farmer assets or surpluses. Institutional savings are increased through this process. As institutional savings increase, investments in the economy will subsequently increase, assuming the Keynesian macro-economic relationship of Savings = Investment. Given this occurrence we may expect increases in GNP and national income.

The transfer of real resources is made possible by a flow of funds from lenders through financial intermediaries to borrowing or deficit units [4]. The financial system can influence capital intensity and output by achieving an allocation of capital resources that places any productive resources with the most efficient producers. This process will alter the aggregate production function of the economy [19].

In summary, an efficient financial system will produce financial services at low unit financial costs and will tend to raise capital intensity. An efficient financial system will result in:

1. a better allocation of investment resources;
2. an increased desire to hold financial wealth per unit of output; and
3. a separation of the rate of return on capital earned by the firm and the rate of deposit earned by holders of financial assets.

Financial institutions simultaneously accommodate both deficit and surplus sectors.

#### Financial intermediation - micro level

Financial intermediaries play a vital role in the survival of the farm-cum-household at the micro level. Financial constraints are regarded as an important reason for small farmers' low income [11]. Lack of credit has made it impossible for small farmers to take advantage of technological achievements. Financial intermediaries enable poorer farmers to have access to higher yielding investments that were previously dominated by the wealthy.

Priority attention should be given to small farmers with growth potential. Additional resources are greatly needed by this target group. Financial credit is the most flexible transferable form of economic resource. With cash obtained

through credit, small farmers are able to purchase equipment necessary to improve efficiency, thus increasing agricultural output.

The normal flows of credit through banks and related institutions have been subject to a number of constraints that have effectively excluded most small farmers. Formal financial institutions can be a very powerful force in developmental growth, however, they have concentrated their resources in trade, industry, and large scale agriculture [10]. The volume of credit directed away from small farmers cause many inefficiencies in their productive activity. Figure 1 illustrates the effect of credit shortage on agricultural production.

$$\begin{array}{ll}
 \text{Production function: } Q = (K,L) & \text{Assumptions: } L = L \\
 Q_i > 0, i = K,L & K = \bar{K} \\
 Q_{ii} < 0 \text{ for } K \neq L & K < \bar{K}
 \end{array} \quad (1)$$

The small farmer does not have fixed capital requirements. Capital requirements are quite variable depending upon the number of household members and productive capacity during the previous period. The most essential capital requirement is replacement of simple farming utensils. This capital requirement equals the credit amount needed at the onset of each production period. Formal institutions often do not extend the full amount of credit requested. The farmer is,

therefore, forced to begin production with actual capital being less than required capital, i.e., a capital constraint. The objective for the small farmer then becomes:

Case 1: Constrained capital

maximize

$$PF(K,L) - TC \quad \text{s.t.} \quad K = \bar{K} \quad (2)$$

$$M = PF(K,L) - WL - rK + \lambda [K - \bar{K}] \quad (3)$$

Taking the derivative for each variable, we find:

$$K: PF_K - r + \lambda \quad (4)$$

$$L: PF_L - W \quad (5)$$

illustrated by,

$$\frac{PF_K}{PF_L} = \frac{r + \lambda}{W} ; \quad MRTS = \frac{r + \lambda}{W} \quad (6)$$

The MRTS is not equal to the price ratios; as a result, the cost minimizing criteria is not satisfied. In this instance the farmer is forced to produce inefficiently as a result of the capital constraint. Production inefficiency may be illustrated via the cost minimization expansion path, Figure 1.

Assuming the farmer wishes to expand his productive capacity to five units given the capital constraint, the farmer must increase units of labor. An increase in labor units will have the effect of increasing rather than minimizing costs. The farmer will be forced to operate

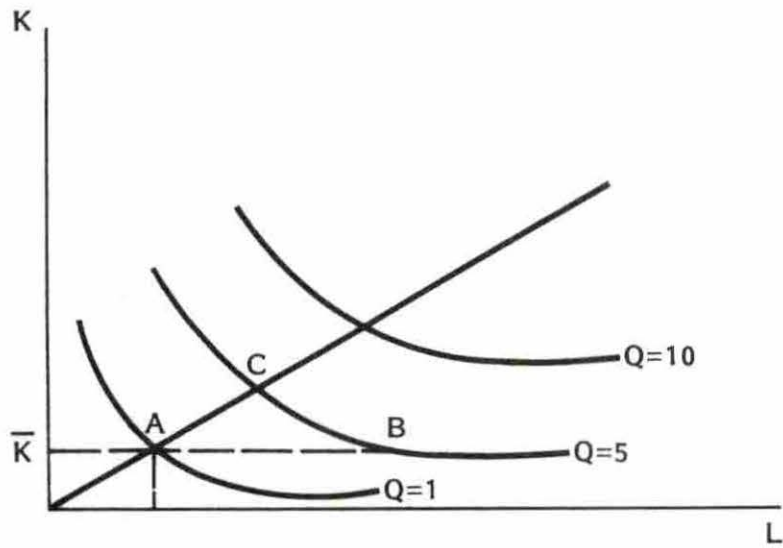


Figure 1. Expansion path: Case 1

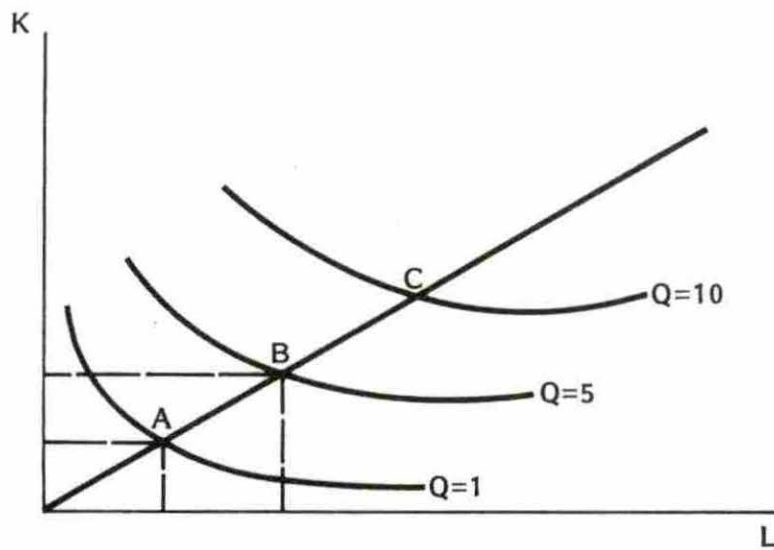


Figure 2. Expansion path: Case 2

inefficiently at a point not on the given expansion path. Small farmers must have access to a greater amount of capital, in cash or kind, to facilitate efficient production.

Alternatively, if capital is not a constraint to production, the farmer will be able to expand output efficiently. The cost minimization criteria will be fulfilled, Figure 2.

Case 2: Unconstrained capital

$$K: PF_k - r \quad (7)$$

$$L: PF_l - w \quad (8)$$

$$\frac{F_k}{F_l} = \frac{r}{w}; \quad MRTS = \frac{r}{w} \quad (9)$$

Financial intermediation should have more important effects on resource allocation rather than on the generation of savings at the micro level [9]. Limited funds available in rural areas must be supplemented by those available in other areas. It is necessary that additional funds be directed to the agricultural sector. Equally important, however, is efficient allocation of available resources. Inefficient allocation of financial resources within the agricultural sector may be illustrated via the Edgeworth Box, Figure 3.

The efficient factor allocations, i.e., those which result in output levels on the production frontier are those

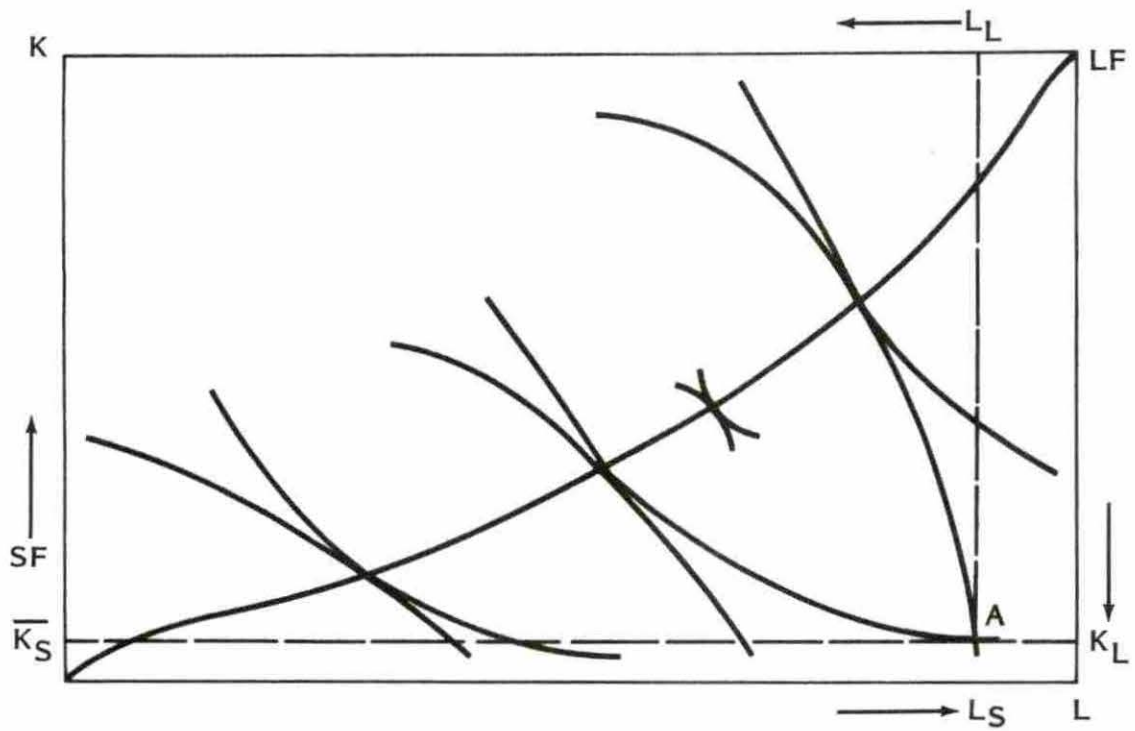


Figure 3. Edgeworth's box: Factor allocation



input combinations at which the slopes of the isoquants are equal, where Equations 10 and 11 are satisfied. At such points, each industry values

$$\frac{f_1^S}{f_k^S} = \frac{w}{r} = \frac{f_1^L}{f_k^L} \quad (10)$$

$$\frac{f_1^S}{f_k^S} = \frac{f_1^L}{f_k^L} \quad (11)$$

the inputs identically. Point A is representative of inefficient allocation of resources between large and small farmers. From the above illustration we may deduce that large farmer production is capital-intensive whereas small farmer production is labor-intensive. We see from this analysis that small farmers in developing countries indeed operate with a capital constraint as presented in Case 1.

Only through exchange will factors be allocated such that each group of farmers will produce on the contract curve. Movement to this efficient locus must be accomplished through the redistribution of capital to small farmers and more labor units to the large farmer. Through such movement, the production level of each group will increase. The capital constraint for the small farmer of Case 1 will be eliminated as  $\bar{K}$  tends to  $K$  - the desired level of capital.

Production facilitation is the most crucial role

financial intermediaries can play. Nevertheless, however important this role may be, it is not the only function of financial intermediaries. Financial intermediaries may strongly influence asset ownership and income distribution. Only borrowers can receive the productive benefits from loan use, or realize any benefits associated with loan default. If formal loans are concentrated in the hands of a few people, benefits will be similarly concentrated [1].

Financial intermediaries may also play a role in influencing household activities not directly related to agricultural production. For example, many households use the additional liquidity provided by loans to stabilize cash flows and household consumption. Economic activities in the borrowing household may be augmented through additional liquidity. Such activities include consumption, farm investment, nonfarm investment, purchase of consumer durables and informal lending [36].

#### Problems of Rural Financial Markets

Rural financial markets are complex and subject to misunderstanding. However, several problems associated with RFMs in developing countries have been identified.

Unclear role of credit: Financial services and credit supplies are often created in advance of the demand for them.

This approach to credit availability is known as the "supply-leading" approach. Alternatively, the "demand-leading" approach allows for the creation of financial institutions and related services in response to demand by savers and investors. Institutions may then be developed or modified as demand necessitates [24].

Credit provision to farmers does not insure rapid adoption of technology. Other factors tend to be as important as credit availability. Such factors include riskiness and profitability. In situations where technology meets these conditions, credit may facilitate its rapid adoption [31].

It has been suggested that credit programs should not finance other than productive activities. Extension of credit for consumption purposes would, therefore, be excluded. Small farmers are characterized by a subsistence quality. Consequently, it is difficult to distinguish between credit demand for consumption or production purposes. There may exist a very serious dichotomy for the role of credit as viewed by the borrower and the lender [31].

Institutional credit programs often result in a substitution for the farmers' own income or for credit from other sources [10].

**Limited coverage:** A small percentage of the rural population have access to formal financial institutions.

Limited coverage of the rural poor may be directly linked to RFM policies. Preferential rates of interest clearly illustrate this point. Low rates of interest have resulted in little credit reaching small farmers. Concentrations of income and asset ownership among large farmers have resulted. Low rates of interest have not been sufficient to cover loan administration costs which results in a tendency for institutions to make fewer and larger loans [10, 31].

One method of alleviating this problem would be to allow market or competitive rates of interest to prevail [10, 31]. "Rising rates of interest will not automatically result in greater small farmer access to agricultural credit" [31, p. 8]. Before greater small farmer access to agricultural credit can be achieved, many other institution rigidities must be overcome.

**Fragmented financial markets:** Financial markets are fragmented when firms and/or households experience different prices for land, labor and capital. Fragmentation also occurs when firms and/or households face different prices for commodities produced.

Rural financial markets are heavily fragmented in relation to formal and informal credit markets. Within these two capital markets there exist sub-markets with differential rates of interest for credit and savings [31].

Necessary changes must occur as a result of integrated

capital markets which mobilize rural savings and integrates RFMs with national markets. Such integration will allow for movement of funds into and out of the rural sector. Not only must financial markets be integrated, but financial institutions must be designed to ensure small farmer access to credit [31].

#### Obstacles to Financial Reform

International lending agencies are becoming increasingly aware that many projects they support, have been less than successful. However, any attempts at financial reformation meet firm opposition in developing countries [32]. Arguments against financial reform are outlined below.

Officials of developing countries fear that financial reform will ultimately lead to bankruptcy of many financial institutions. The key element to financial reform is to raise interest rates to levels comparable to those determined in a competitive market [10, 31, 37]. Most financial institutions function as issuers of short-term liabilities such as demand and savings deposits. If interest rates are to be raised substantially, such financial institutions will encounter serious difficulties. They will be forced to pay higher rates of interest on short-term liabilities while being unable to charge higher rates on long term loans. Thus,

financial institutions face substantial losses [37].

Possible solutions to this problem include a program of government loans which would yield aid to financial institutions facing bankruptcy. Alternatively, a tax-subsidy program would transfer resources from various other sectors of the economy to such financial institutions. Particularly interesting, is a tax program which allows for the raising of interest rates on outstanding loans [37].

A low rate of interest is only one of many distortions present in the economy of developing countries. Distortions in other markets may be as serious as that of interest rates in the financial market. A possible, though improbable, solution would be to enact a reform program covering all aspects of the economy [37].

Lender Characteristics:  
Informal/Formal

The availability of credit to small farmers in developing countries is a major determinant of the rate of development of the agricultural sector. There exist two financial markets which supply credit to farmers in developing countries. One such financial market is comprised of all institutional or formal lenders. Formal lending institutions may include development banks, cooperatives, and commercial banks. The informal financial market is composed of traders,

relatives, indigenous banks, money lenders, shopkeepers and landlords.

Each financial market performs valuable functions and has associated with it advantages and disadvantages.

#### Informal Financial Markets

The informal financial market is characterized by localized transactions of money and real goods and services. These transactions are conducted between friends, neighbors, relatives, landlords and commercial money lenders. Generally, conventional collateral will not be required to obtain a loan. However, the lender may hold an informal mortgage on the borrower's land, or there may exist an agreement that the borrower's crop will be sold to the lender.

Informal credit supplies operate in a static, low productivity economy. These markets are often small in geographical scale and are located in rural areas of developing countries. Through such operations, informal lenders reveal entrepreneurship in their willingness to undertake crucial risks of credit business.

The informal lender will supply credit for use in production, consumption or social ceremonies. All loans are granted on a short term basis for a period of one year or less. During this period, interest rates may vary between 20 percent and 100 percent annually [10].

High interest rate causes

Many explanations have been offered for the high rates of interest which prevail in the informal market. One theory is that interest rates are high because they have been determined by custom and have always been high [16]. The theory of the "customary interest rate" is not a satisfactory theory. It does not explain how or why the high interest rate developed. The true explanation must then be found in socio-economic conditions of developing countries which cause the demand for loanable funds to be large in relation to the supply of such funds.

Some theories explain high interest rates in terms of demand factors while others emphasize supply factors. Demand for funds/capital may be large because the average borrower in the informal market has a very low income which results in no surplus available to finance future business operations. On the supply side, there is a general shortage of capital in developing countries resulting from an inadequate level of domestic savings. The small amount of savings, which does exist, is not channeled effectively into the informal market because of the absence of proper financial and credit institutions.

High rates of interest are often justified on the basis of loan size. Loans in the informal market are usually small in size and cause fixed handling charges to be



relatively high.

The disproportionately large demand for loanable funds coupled with an inelastic and limited supply of funds may be another cause of high interest rates.

Several causes of limited capital supply are suggested. The primary source of capital is the commercial money-lender who will only lend at rates comparable with what could be earned by employing capital in alternative uses. These moneylenders do not have the facilities necessary for mobilizing liquid funds, therefore supply tends to be inflexible. Because the informal market is not closely connected with the formal market, there is little possibility of increasing the supply of loanable funds beyond the savings of the lending sector of the informal market.

#### Divisions of the informal market

Several divisions of the informal market in developing countries may be observed. One division observed is where the supply of capital is dominated by indigenous bankers and other institutions. Demand is dominated by rural traders and medium-sized landlords.

Demand may also originate primarily from small agriculturalists with good credit ratings whose capital needs are fulfilled by moneylenders, traders, and landlords at high but reasonable rates of interest.

Alternatively, demand may originate from borrowers who are not good credit risks and who do not have suitable collateral. Such borrowers are only granted loans by informal lenders under conditions which attach exorbitant rates of interest.

#### Advantages vs. disadvantages of informal lending

Though the rates of interest in informal markets are quite high, the availability of informal credit has associated with it many advantages that cannot be disregarded.

The availability of informal credit eliminates many hidden costs associated with obtaining institutional credit. Formal lending institutions are generally located in urban centers. In an attempt to obtain institutional credit, the farmer must incur expenses associated with travel from rural to urban centers.

During the period he is applying for institutional credit, the farmer must allocate time away from farming activities. In situations where the farmer must continuously travel to the location of credit institutions, the production level of the farm may decrease significantly. The opportunity cost of obtaining institutional credit under such conditions is too great for many small farmers to incur.

In addition, the farmer must bear the entire cost of all

paperwork associated with processing the loan. The farmer will incur these costs regardless of whether he acquires the loan or not. In the event the farmer does not acquire the loan, he has suffered great expense without gaining any benefit. In most instances rural financial markets are not well-developed and a great deal of red tape exists in processing loans. Costs associated with all paperwork may be quite high.

The existence of hidden costs primarily affects the owners of small farms whose level of productivity is low. In many instances, small farmers will forego any attempt to acquire institutional credit due to the existence of these costs.

Commercial informal credit suppliers may also provide additional services that are vital to the survival of small farmers. Shopkeepers often provide farmers with a marketing network for any produce their farm may yield. Commercial informal lenders also make available necessary inputs of production.

Informal credit suppliers are able to adjust the terms of their loans to reflect the costs and risks peculiar to the loan situation [10]. In countries where usury laws exist, informal lenders manage to freely adjust interest rates charged on different loans. Farmers who borrow from moneylenders lack alternative sources of funds

(there are usually several moneylenders per geographical area). This situation represents a segmented informal supply market. The lack of information from the demand aspect tends to create and maintain differential rates of interest among informal lenders and for the same lender [10].

The informal lending market provides valuable services to small farmers in developing countries. However, due to the nature of informal market characteristics, there are many disadvantages associated with the acquisition of informal credit.

"Once credit is granted, there is usually no further contact between the informal lender and borrower until time of repayment [10, p. 87]. The use of funds by the farmer is completely unsupervised. The farmer receives no technical assistance. There exist no development goals which attempt to achieve the economic improvement of the farmer.

It is possible for a farmer to lose ownership of his farm to a commercial moneylender. This occurrence is the end result of a process of continuous extension of loans, higher interest rates and continuous purchases of consumption and production goods from the shopkeeper-cum-moneylender.

The most common disadvantages cited are the monopoly

elements possessed by the moneylender. Unusually high rates of interest on small loans are an exemplification of these monopoly elements. Interest rates may vary from 20 percent to one hundred percent annually [9, 10]. A number of economist suggest the moneylender is extracting unjustifiably large profits from poor farmers by his monopolistic powers. Alternatively, others believe that the moneylender's income is justified by the costs and risks of lending, and that monopoly elements do not exist [10].

Interest rates charged by commercial moneylenders do suggest a prevalence of monopoly profit in informal lending. It is unreasonable to suggest that the costs of administering informal loans justify these high rates of interest. Informal lenders enjoy many cost advantages in administering loans. However, consideration must be given to the impact of default and risk elements involved in each loan granted. "Some economists emphasize the hazards of weather and prices for agricultural incomes, and the resulting risks faced by moneylenders whose incomes are closely tied to those of their small farmer clients" [10, p. 89].

### Regulation of moneylenders

If monopoly profit does exist, it is considered undesirable. Many developing countries have attempted to eradicate high interest rates charged by commercial moneylenders. Several countries have implemented usury laws setting maximum interest rates. The effectiveness of usury laws has been minimal. Usury laws have been unenforceable in many rural financial markets due to the dichotomous nature of the markets. Moneylenders are adept at circumventing usury laws because of the existence of imperfect knowledge both from the demand and supply side.

It has been suggested that moneylenders be regulated using the following guidelines: [5]

1. registration and licensing,
2. maintenance of accounts in a prescribed form,
3. interest rate control,
4. periodic statement of accounts to debtors, and
5. issue of receipts to debtors.

The regulation of commercial moneylenders according to the above guidelines is good in theory. It must be recognized that moneylenders are generally illiterate and cannot successfully fulfill many of the guidelines. Regulation of moneylenders may also be ineffective as a result of borrower behavior. The borrower will not assert his rights through the courts for fear of deprivation of future

credit. These factors make the regulation of money lenders highly improbable [5].

An alternative approach to the reduction of money-lender interest rates is the integration of existing capital markets [5, 10]. An institution designed to provide credit while taking advantage of moneylender services would be of great value to small farmers. Such an organization would not only provide credit but also marketing, supervision, and information to the farmer.

Programs designed for reducing high interest rates must be guided by the principal that interest rates can be lowered only by reducing the demand for loanable funds as well as by increasing the supply of such funds [10].

The demand for loanable funds for consumer expenditures can be reduced by changing social habits and concepts of well-being. Reduction in borrowing for productive purposes is not desirable. Such borrowing can only be reduced in the long run through savings increases resulting from higher agricultural output and income.

Alternatively, an increase in the supply of loanable funds may be effective in the reduction of interest rates. Capital supplies should be increased such that legitimate credit needs are met at cheaper rates of interest.

Lender/mobilizer

Informal sources of credit are not limited to the local moneylender. In many developing countries informal credit-savings associations exist. These rotating savings and credit associations (ROSCA) provide valuable services to rural households and enterprises. ROSCA are informal, indigenous savings and credit societies which are common in developing countries and have a high participation rate among rural people [4]. In its simplest form, a group of people meet regularly to make fixed contributions of money or goods. The total collected at each meeting is distributed to one of the members. Eventually, all members get their turn to receive the meeting's collection. Recipients may be selected by drawing lots, or making competitive bids based on the value to them of getting the money at once rather than waiting.

It is possible for a rotating credit society to transform itself into a more conventional credit agency, in principle, if the member's contributions were not fully distributed to members or managers. Contributions may be allowed to accumulate for a period of time and then used for loans or for community investments.

The popularity of ROSCA is attributed to five favorable features: accessibility, simple procedures, flexibility,



adaptability, and the provision of financial as well as social and economic services. The ROSCA appear to satisfy financial needs which formal lenders are not satisfying.

ROSCA play a useful role in the provision of credit by providing participants large sums of money needed to meet household or farm needs. The rotating credit society is a device which can mobilize traditional social relationships to fulfill nontraditional economic functions. It is an intermediate institution which aids in harmonizing the agrarian social structure with modernist commercial patterns of behavior [10].

#### Formal Financial Markets

While informal sources of credit have played a vital role in the survival of small farm owners, formal sources have contributed much less. The minor contributions of formal institutions to the small farm owner are a result of institutional policies and behavior.

The dissemination of credit on a wide scale basis, to rural inhabitants, has been the objective of agricultural credit programs. Such programs have attempted to achieve this objective through previously established institutions such as private and state commercial banks. The success of such programs has been minimal.

Characteristics of formal financial market

Financial institutions in rural financial markets share similar characteristics and banking practices. Many of those characteristics and banking practices dissuade small farmers from attempts to acquire institutional credit.

Application forms: Small farmers regard application forms with some degree of hostility. The majority of small farmers are illiterate and cannot be sure what is being said in writing. The relationship of the small farmer with the village moneylender does not exist and cannot be transferred to larger credit institutions. The loan officer must attempt to acquire vital information that can be checked from records. Credit agencies must also collect information regarding a farmer's operations to determine what is appropriate for his needs [10].

A major reason for the elaboration of informational requirement is the effort to judge credit worthiness of loan applicants. It is understandable that institutions would be anxious regarding loan default. However, basic questions must be answered. Are repayment probabilities related to the kinds of data farmers must supply? Are farmers with bank accounts more reliable in repayment than those who have none? Each of these issues must be closely

examined to determine the necessity of extensive loan application forms. If an institution has mixed clientele of borrowers, it may be appropriate to use long forms for large borrowers and a more simplified form for small borrowers [10].

Security requirements: It is a common practice to require farmers to own property in order to qualify for a loan. The kind of property which is pertinent is usually land. Land may be involved in the loan procedure as a form of collateral. A borrower's possession of useful collateral insures the lending institution will receive some return on extended credit should default occur. Some agencies do not make collateral an explicit condition for lending. However, it may have a formal or informal requirement that borrowers be property owners and that they be able to prove it.

Collateral provides insurance for urban banks against failure to collect debts. A merchant may assign some portion of his inventory as collateral. In the event the merchant does not repay the loan, the bank may take possession of the allotted inventory and sell it to merchants in a similar business. Financial assets such as bonds or notes may be taken over by banks in a similar manner. The asset that rural borrowers usually possess is land. The value of agricultural land to banking

institutions is questionable. Developing countries do not have an active market in the sale of rural land. Banks may acquire land they cannot easily dispose of. Even though a plot of land may be a good agricultural asset, it may be a poor bank asset [10].

#### Common problems of formal financial institutions

Financial institutions in rural financial markets (RFMs) tend to encounter similar problems. This phenomenon occurs because many countries have built their rural financial markets on similar assumptions. Problems encountered by rural financial markets may be termed "management and training difficulties" and "unsatisfactory performance of RFMs".

Management and training difficulties occur due to a shortage of trained personnel to fill available positions in financial institutions. Examples of problems attributed to management and training difficulties are high cost lending operations, data processing problems, and slowness in making loan decisions. As financial markets continue to develop, these problems are eliminated [1].

The second group of problems, unsatisfactory performance of RFMs, are relatively more important and more difficult to alleviate. Features of the unsatisfactory performance of RFMs are outlined below [1].

- A. Government difficulty in maintaining purchasing power of formal agricultural credit portfolio.
- B. Major loan repayment problems.
- C. Shortage of funds made available for agricultural loans.
- D. Insufficient amounts of medium- and long-term loans.
- E. Ineffectiveness in mobilizing voluntary savings.
- F. Excessive fragmentation of RFMs.
- G. Adverse effect on income distribution and asset ownership.

#### Institutional suppliers of agricultural credit

Commercial banks      Commercial banks are among the important sources of institutional credit for agricultural production. The provision of short-term and intermediate credit defines the usefulness of commercial banking to agricultural production. The terms and conditions on which credit for production is advanced may vary greatly. The rates of interest charged are directly related to the tangibility of security offerings and the cost of making loans.

Commercial banks are financial intermediaries. As such, commercial banks may be viewed in the same manner as a marketing firm whose primary function is to accumulate the funds of savers and distribute loans to borrowers at a maximum profit.

Commercial banks possess many advantages, most particularly in the provision of short-term credit to agriculture. They are able to efficiently collect a large volume of investible funds that vary greatly in amount and duration, and are able to make available a flow of resources to be used in production. They may advance loans in a variety of ways such that the needs of borrowers may be fulfilled while not being constrained by the requirements of individual lenders [7].

Commercial banks may be chartered by the government or a group of individuals. It is most common to find commercial banks that have been chartered by the government in developing countries. As such, they are subject to strict government regulation.

Many attempts have been made to direct credit to small farm owners in developing countries. Dominant among these attempts is the policy of preferential interest rates on agricultural loans. Preferential rates of interest or concessional interest rates are rates of interest that have been artificially set below the market determined rate [35].

Market rates of interest are low because they have been artificially maintained at approximately the same rates as those charged in countries that have an adequate supply of capital. The rates of interest charged have not

reflected the opportunity cost of capital in developing countries. Supply and demand for formal loans have not been equated, resulting in excess demand which requires nonprice rationing. Bank interest rates are lower than those charged by informal lenders and have failed to cover the cost of administering the loan. Bank interest rates have prevented formal lenders servicing marginal clients. In many developing countries specialized financial institutions have emerged whose primary function is to service marginal clients. However, these institutions cannot function independently. They must be subsidized by domestic governments and contributions from developed countries to remain viable [35].

The experience of extending credit to small farmers via commercial banks has not been successful. Reasons for this outcome are outlined below [23].

1. It has not been profitable for commercial banks to lend to small farmers. The marginal cost of making a loan to a small farmer will be higher than on large or medium-sized loans. The small farmer will generally not be a client of the bank which means the bank must gather information at a cost.
2. Commercial farmers have an ingrained bias against lending to small farmers.
3. It is difficult to attract small farmer's to commercial banks. Banking is foreign to most rural people in developing countries. Rural people prefer to deal with moneylenders who understand the small farmer and his particular set of problems.

Specialized public financial institutions

Cooperatives "A cooperative society is a form of business organization whose membership is restricted to those who do business with it. Control is vested in the co-operators who derive benefits in proportion to the amount of business they transact with the society. A cooperative may or may not have share capital, which may be subscribed either by non-members, but control does not depend on the ownership of capital" [7, p. 217].

A cooperative credit organization may begin as a simple coalition of farmers within rural areas. These organizations may evolve into a unit that is more complex in structure and function. Small farmers may be helpless as individuals but as a group they have the potential to become strong and viable. Cooperative credit organizations may also be formed via government promotion.

Generation of credit for small farmers at reasonable rates is the primary goal of any credit cooperative. All members of the cooperative must deposit an agreed upon amount of money that will earn a low interest rate. Borrowers of money are charged a somewhat higher interest rate. Farmers who borrow money must repay it. To become effective and maintain its viability, a cooperative must have good business management [28].

Credit cooperatives that have been established by



domestic governments may have a two-tiered or three-tiered structure. At the base of every cooperative organization, regardless of structure, is a primary society whose function is the provision of credit. Credit may be provided exclusively or in conjunction with other services. At the apex of the structure there is usually a cooperative bank or similar financing institution. In countries where the two-tiered cooperative structure predominates, the primary society have direct business links with a branch of the apex bank. Alternatively, in countries that have a three-tiered cooperative structure, a cooperative banking institution is established at the district level. Credit unions that function between the primary societies and the apex banks are found in some countries. The main function of these credit unions relates to scrutiny of loan applications and assistance in the disbursement of loans and collection of payments [27].

Experience in the promotion of rural cooperatives in developing countries has been mixed. There have been few successes on a national scale although a number of pilot projects have been successful. Many cooperatives continue to exist but produce much less than was expected of them. Many other cooperatives have clearly failed and ceased to operate. Efforts to promote cooperatives throughout the world have ended in partial success or complete

failure in terms of fulfilling the objectives of their formulation [10].

Agricultural credit cooperatives have failed to meet their objectives for various reasons. The failure of credit cooperatives to maintain their viability may be linked to reasons underlying formulation of the organization.

Cooperatives may be formed for politically oriented purposes. Governments may attempt to mobilize national strength via modernization of a backward society. Though economic development may be enhanced under these conditions, it is not the central objective. Cooperatives could easily drift into an acceptance of political handouts of money without constant concern for maintenance of economic viability and agricultural contributions. It is possible for cooperatives to become completely subsidized by government. Such an event would produce conditions where loan repayment obligations were not met and loans would be allocated with little regard to productive performance.

Cooperative groups may be formed to serve as "an uplift of backward groups" [10, p. 193]. Cooperatives formed for this purpose are given special privileges of low interest loans and allocation of loans to favored groups.

An organization structured for such purposes would create activities that would otherwise not exist, nevertheless, they have a tendency to be inefficient and unable to expand outside of its designated sphere [10].

Nonpolitical obstacles exist as impediments to the progress and success of credit cooperatives. Proper management of cooperatives require skills that are foreign to small farmers. Farmers must develop bookkeeping skills, accounting methods, technical knowledge and the ability to judge the credit worthiness of applicants.

Lack of credit is the most severe constraint small farmers encounter. It is not the only one, however. Ideally, cooperatives should be able to provide extension services, supply, and marketing networks to farmers. Such a multipurpose organization would be able to successfully handle the problems of small farmers in an integrated manner [10].

Development banks      A development bank may function as an international or global institution, as a regional institution, or as an indigenous institution designed specifically to aid development in a particular country.

The purpose for which development banks exist is to increase the speed and facilitate the process of economic development. The development bank is intended to help

stimulate the emergence of missing ingredients necessary for development. These ingredients include capital, entrepreneurship, technological and managerial capabilities and availability of foreign exchange [17].

The World Bank Group is an example of a global institution. Such institutions have played an important role in the industrial development of many developing countries. Most of their lending has been to banks which have relented for industrial projects. As a result, there has been a tendency to associate development banking with industrial project financing [15]. This image of development banking is being dispelled as development banks increase lending for agricultural purposes.

Regional development banks constitute close alternatives to the World Bank Group as sources of multi-lateral international development finance for the developing countries which are members of them. Regional development banks have been designed to give developing countries a greater voice in the control of international development finance. Developing countries are, thus, provided with institutions more responsive to their own aspirations through the existence of regional development banks [39].

"A regional development bank is one in which the demand to serve particular interests is expressed in the form of a restriction which explicitly confines operations

or eligibility for membership, or which attributes a special status within the membership to countries within a limited and defined geographical area"[39, p. 19]. Regional multilateral agencies may be distinguished from global multi-lateral agencies in the nature of the demand they exist to serve.

The African Development Bank, the Asian Development Bank and the Inter-American Development Bank are examples of regional development banks. These banks have at least two purposes which are common to them all. These are:

- (a) the mobilization of additional external resources and,
- (b) the financing of projects which will contribute to the development of individual member countries and to the integrated development of the region as a whole [39].

There is no universal model to which indigenous development banks conform. Each bank is a unique institution structured with the political and socio-economic fabric of the country in mind. A common dimension of all indigenous development banks is their function as a financial intermediary supplying medium- and long-term loans to economic development projects [17]. Such an institution may make funds available for industrial projects and agricultural projects. Development banks must also attempt to eliminate certain bottlenecks to economic development by providing related supportive services.

### Sources of institutional funds

The main sources of commercial bank funds are its own equity capital, deposits, and loans from other financial and nonfinancial institutions and issues of bonds.

In the case of commercial banks, deposits from the public are the most important source of bank funds. The main classes of deposits are: [36]

1. current or checking accounts which usually earn no interest,
2. savings accounts, and
3. types of term accounts.

Low nominal rates of interest are usually paid on savings and on term accounts. Many developing countries experience high rates of inflation. In such instances, the real rate paid on savings and term accounts may be negative. The real rate of interest is computed using the following formula:

$$I_r = I_n - \delta$$

where

$I_r$  = real interest rate

$\delta$  = inflation rate

$I_n$  = nominal interest rate

As noted earlier, agricultural credit cooperatives may have a two tiered structure or a three-tiered structure consisting of primary societies, secondary or district

banks and apex banks.

The main sources of funds available to apex banks are share capital reserves, deposits and borrowings from the control bank or government [27]. Share capital is the bank's main source of capital in the early years.

Secondary-level or district banks accept current and fixed-term deposits from member organizations and from public bodies. District banks may also acquire resources through borrowings.

The working capital of a primary society comprises owned funds, deposits and borrowings from financial institutions or governments.

Global development banks acquire their funds through the contributions of various governments of developed countries throughout the world. Aid given to developing countries through such an institution is termed multilateral aid. Multilateral aid is a transfer of resources where both the collection and the distribution are determined by the collective decisions of the group of countries involved. The group of countries must include more than one such provider of resources and more than one net recipient of resources.

Capital resources of regional development banks include funds raised by borrowings and funds received in repayment of loans and funds given as contributions from

the developed world.

Indigenous development banks are quite diverse in nature, however, the general characteristics of their resource structures are similar. They obtain funds from three sources: their own governments, private domestic sources and international sources. Although the proportion from each source varies from bank to bank, for the group as a whole, government is a net creditor.

#### Costs of financial intermediation

Financial intermediation is not costless. Human and material resources are employed in granting and in managing loans. Costs of intermediation are social because the resources used for credit could have been utilized to increase output elsewhere. The costs are private because lenders must compete for these resources in the market [35].

The costs to the lender include the opportunity cost of the funds, costs of administration and losses due to default [34]. Administration costs may be divided into handling costs and risk-reducing costs. Handling costs include cost of paperwork associated with processing the loan and costs of loan disbursement. Risk-reducing costs are costs directed at reducing the probability of loan default.

Risk-reducing costs are the largest component of



administration costs. More resources can be utilized in the evaluation and supervision of every borrower and every loan. This process enables the bank to select its clients more efficiently and reduce its losses from default [36]. Risk-reducing activities are expensive and tend to experience diminishing marginal returns.

Credit is not a homogeneous product. There are several dimensions of credit; short-term and long-term, large and small borrowers. Each of these dimensions is a separate product with its own cost function. The costs of lending per unit loaned are inversely related to the size of the loan. As a result, institutions may be forced to reduce the proportion of the portfolio devoted to small farmers.

The costs of lending are high in the case of agriculture due to a lack of expertise of urban financial institutions. Costs of lending are particularly high in the case of small farmers. Small farmers lack expertise in the use of bank services and the costs of collecting from them are high. "Also, they usually lack collateral and own resources of lower quality" [32, p. 10].

Lender costs for institutions extending credit to small farmers may be reduced. Credit extension to farmers is composed of several stages. Each stage has associated with it a cost.

The loan application stage includes costs of notifying

farmers of credit availability, explanations of the program and eligibility requirements. Other costs of the stage include farmer selection and the supplying and completion of forms. The largest cost may be decreased by simplifying forms and procedures [30].

Loan evaluation costs include the screening of applicants and conducting appraisal studies. Appraisal studies include reviewing farm plans and financial and income statements. Ascertaining repayment capacity of the borrower and scheduling loan payments constitute portions of cost related to loan evaluation. Credit institutions generally use forms and procedures for small loans which have been applied to medium and large size loans. Such practices are inappropriate for small loans. Elimination of appraisal study procedures would aid in reducing evaluation costs [30].

Loan collection costs may be extremely high if farmers fail to repay their loans. Where the loan default rate is quite high, an institution will experience high administration costs in attempts to locate and collect from delinquent borrowers [30].

### Institutional behavior

Institutions providing formal financial services are quite diverse in structure. However, most of the organizations behave very much alike in many respects. Both public and private institutions place high priority on maintaining viability and self-sustaining capacity. As a result, financial institutions are inherent risk averters.

Financial institutions automatically encounter a number of risks unique to the economy it must operate in. Not only must the institution bear these risks, but in granting loans, it indirectly assumes the risks of its clients. The risks associated with small farmers in a static, low income economy are great. Small farm owners in developing countries must contend with very unstable conditions. Farm owners lack technical expertise, adequate equipment, and of course financial assistance. Thus, they are more subject to crop losses and failure.

There are many steps institutions may take to lessen the probability of loan default by small farmers. Financial institutions will generally organize their portfolio in such a manner as to direct loans away from the small farm owner. It is not uncommon for a financial institution to obtain a risky asset if the expected returns on that asset exceeds the expected return on a nonrisky asset. In the case of small farm owners, the expected returns on a

loan will be much less than if the loan were directed elsewhere. Low expected returns on small farmer loans are the result of interest rate restrictions enforced by domestic governments. Lenders minimize the costs and risks of lending by directing most of their loan funds to large experienced borrowers [2].

In an attempt to circumvent problems associated with lack of technical assistance, institutions may be required to provide extension services for farmers. Institutions where lenders are required to provide such services costs are increased substantially. Lenders are, thus, discouraged from servicing target groups who require supervision.

Financial institutions may also lessen risk through collective security methods. Collective security methods serve to assign the responsibility of loan repayment to more than one person. Methods assuring collective security include requiring cosigners for loans, group lending and extending loans to small farmers indirectly through cooperative societies.

#### Regulation of institutional behavior

Developing countries have formulated and implemented many policies in an attempt to increase the supply of funds available to small farmers. The basic notion behind supply

increase techniques is that if sufficient funds are injected into rural financial markets, some of it will eventually filter down to target groups. Many of these policies may, in fact, serve to decrease the flow of funds to small farmers. We have shown that this result can occur in the case of preferential interest rates.

Some countries have nationalized part or all of their formal rural markets. Attempts have been made to influence their performance more directly. Nationalization of financial markets does not necessarily have the desired effect on lender behavior. It is an easy matter to develop regulations for a financial system, but it is difficult to enforce these regulations where decision-makers are adversely affected by these policies [1].

A number of countries have experimented with loan guarantees or crop insurance as a method to alter lender behavior. Loan guarantees transfer part of the risks of lending to another agency. Crop insurance similarly transfers a portion of the risks of farm production to another agency. Loan guarantees make lending to small farmers more attractive for lenders [29].

A few countries have used differential reserve requirements as a way to influence the behavior of lenders. Reserve requirements may be lowered when a lender behaves in a certain manner. Lowering of reserve requirements has

the effect of increasing lenders' revenues [1].

### Supervised Credit

It has been suggested that a substantial need for new credit institutions and expansion of credit is unnecessary within the bounds of traditional agriculture. Technological change which encourages modernization of agricultural production cannot easily replace traditional methods of production. Agricultural credit should, therefore, accompany agricultural modernization techniques. Such techniques may be made available via extension services or supervised credit programs (SCP) [34].

The purpose of the SCP is to encourage agricultural development and production, as well as to increase the income of farmers. SCPs have often been regarded as a development tool for small agricultural producers. The clientele of SCPs are generally agricultural producers who are unable to obtain credit from other sources [21].

Several stages precede approval of a loan application. The farmer and credit supervisor must make a farm and home plan inclusive of crops and livestock to be raised, input and credit requirements, expected income and a schedule for repayment. Loans may be extended to finance purchases of operating capital, equipment and machinery, housing improvement, livestock and subsistence [21].

Control and direction of production activities are exercised through individual credit plans. Cultivation of certain crops may be encouraged while others are not promoted; loans for certain purposes may be disapproved or rejected. Technical assistance regarding new technology is provided while loans for various inputs (e.g. seeds, fertilizers) may be provided in kind. A farmer is required to maintain records and make reports on the progress of his operation [21].

Supervised credit programs have attempted to attain their objectives through improved productivity and crop changes. Several advantages are associated with the use of SCPs. Credit is provided with the assurance that technology required to provide necessary increases in income is available. Also, new technology is sure to be accompanied by adequate credit.

Supervised credit programs make available many vital services to the rural poor. There are, however, disadvantages in tying credit to other services. SCPs tend to concentrate extension services on those farmers who require additional credit. This group of farmers is characterized by low educational levels, inability to bear risk, and less suitability for innovation.

Loss of supervising credit may be quite high when

related to the volume of loans outstanding. This is particularly true when priority is given to small farmers.

Given the disadvantages and potential problems associated with SCPs, they do provide necessary services to the rural poor and may still remain viable projects through careful administration.



## CHAPTER IV. DEMAND FOR AGRICULTURAL CREDIT

Credit shortages have traditionally been viewed as the greatest deterrent to the growth and development of agricultural sectors of developing countries. In recent years a pronounced effort has been made to increase credit availability to small farmers. A significant increase in available credit has resulted from the efforts of both domestic governments and international development agencies. The increased credit supplies have aided in increasing agricultural output. However, the proportion of this new credit actually reaching the small farmers, who experiences the greatest need, is substantially low. We may attribute this phenomenon to many factors, not least among them being institutional behavior. We must, however, consider the small farmer and his behavior when actually demanding additional credit.

Factors Affecting Demand  
for Credit

An increase in credit availability does not automatically ensure demand by the rural poor. Many factors affect the farmer's demand for credit.

Farm size and output: Farms are generally small, in terms of both acreage and output. Agricultural production on a small farm is typically labor-intensive, creating a

situation in which the value of output per head is small. Small farmers have not sought to implement technologically advanced methods of farming because they feel such methods would be less appropriate than traditional methods. Small farms yield very little scope for mechanized farming. As a result, the rural poor require little credit while using traditional production methods [6].

Nature of farm enterprise: Developing countries are characterized by farms that are more of a socio-economic unit and less of a business as compared to developed countries. A considerable proportion of production is allocated for subsistence level existence, which leaves a small proportion available for marketing activities. Small farms are usually a family enterprise with little or no hired labor. Development requires that an increasing proportion of production be sold on the market as a means of increasing cash incomes of small farmers. It has been suggested that the introduction of a cash crop and an adequate marketing network would achieve such an objective [6].

Seasonal rhythm effects: Farmer's incomes are constrained by the seasonal nature of farming. Small income surpluses result in a low level of cash savings which necessitates borrowing to finance consumption. Given a case of adequate income throughout the year, farmers will demand

medium or long-term credit to provide fixed and semi-fixed capital inputs. Credit could be used to introduce additional crops to increase labor utilization and promote growth and continuity of income and to encourage cash savings [6].

Acceptance of new agricultural factors: Profitability determines whether farmers will accept a new agricultural factor of production. Profitability must exist not only in terms of market transactions but also realized increases in the yield of a major subsistence crop. Possibilities of profit increases are more restricted for "self-sufficient" farmers than for commercial farmers.

Determinants of profitability are: [25]

1. Price of the factor: Factor prices will be relatively high for rural communities. Companies supplying seed, fertilizer and simple machinery find costs of entry high relative to the size of the market.
2. Factor yield in rural community: New factors of production may be subject to adverse weather conditions, insects, etc. Supplies must be successful in developing and adapting the new factor to the agricultural requirements of the community. Risk and uncertainty are inherent in the prospective yield of new factors. The true yield of a factor may be extremely variable when subjected to harsh conditions.
3. Farm tenure arrangements: Farm tenure arrangements affect the profitability of a new factor to the actual farmer. Costs and returns are shared between the land owner and the farmer. The actual farmer carries the entire burden of additional costs while receiving only a part of the additional yield.

All of these explanations are at least partially valid in many developing countries. However, an even more important factor affecting farmers' demand for credit may be the differences in borrowing costs among formal borrowers. Differential borrowing costs affect the willingness of small farmers to seek loans from formal lenders. Costs associated with borrowing may be expected to be negatively related to the demand for credit.

The price of a loan has been generally related to the nominal rate of interest charged on a loan. A more realistic "price of credit is the real net costs incurred by the borrower in acquiring the loan" [2, p. 166]. Borrowing costs may include nominal interest payments made to the lender, additional loan transaction costs incurred by the borrower and changes in the purchasing power of money [2].

Individuals who do not have prior borrowing experience or borrowers of small amounts may incur large transaction costs. The types of borrower costs an individual may incur are: (1) loan charges paid to the lender such as application fees, service fees or bribes. (2) Small farmers may be required to negotiate with someone outside the lending agency before an application is reviewed, e.g., a cosigner, or extension agent. (3) The most important transaction costs often are the borrowers' time and travel

expenses [2].

Variables which affect the demand for credit are defined below: [22]

Household consumption: Total household expenses on food, housing and clothing. Expenditures on education, current debt payments, interest on loans and ceremonies are included.

Cash-on-hand: Cash and near cash at the beginning and end of the year.

Household income: The adjusted net household income. Farm income, business income and total receipts from other sources are included.

Investment expenses: All funds spent for the purchasing of farm assets. Such expenses include fixed asset purchases and liquid asset purchases.

Assets: The total value of farm assets at the end of the year. Land value, changes in the value of land, value of buildings, value of machines and value of animals are included.

Hired labor: Total man days of labor hired for agricultural production man days of labor hired for nonagricultural activities are also included.

Farm output: Total value of agricultural output produced on the farm.

Total revenue: The revenue from all sources for the household. Total revenue includes total agricultural receipts, and receipts from side businesses and other sources.

Interest payments: The total interest payment on outstanding debt.

Cash at the beginning of the year: The amount of cash and near cash at the beginning of the year. It may be used as a proxy for liquidity.

Operating expenses: Total agricultural expenses. It includes total wages paid, rent expenses, and livestock expenses.

Debt load: The outstanding value of loans from all sources at the beginning of the year.

Loan demand may also be influenced by the farm-household's time preference between present and future consumption. Low income farm-households will tend to have stronger preferences for present consumption. Consequently, demand for loans will be higher such that present consumption may be financed. Time preference may depend on a variety of factors, such as real income and expected pattern of income flows [8].

A common problem encountered by all developing countries is estimation of the demand for credit to be utilized

for productive-investment and/or consumption purposes. Determination of credit needs is a necessity to the formulation of national development plans and budget requirements.

Factors which affect the demand for credit may be identified through various methods. A general survey of farmers in a particular area may indicate what criteria farmers use in determining whether or not to apply for institutional credit. Cristina David and Richard Meyer [8] utilize a conceptual model relating time preference of consumption and investment to the existence of perfect capital markets. Single equation loan demand models based on cross-sectional data are typically used in developing countries. Studies conducted by Hesser and Schuh, Pani, 1966, Pong and Neynin, 1978, as cited in [22] suggest several variables have an impact on the demand for credit. The variables and their relationship to the demand for credit by farmers in developing countries are outlined below.

$D_c$  = Credit demand

$S_c$  = Credit supply

1. Household consumption  $\uparrow \rightarrow$  cash-on-hand  $\downarrow \rightarrow D_c \uparrow$
2. Household income  $\uparrow \rightarrow$  cash-on-hand  $\uparrow \rightarrow$  investment expenses  $\uparrow \rightarrow S_c \uparrow \rightarrow D_c \uparrow$
3. Assets  $\uparrow \rightarrow$  investment expenses  $\uparrow \rightarrow S_c \uparrow \rightarrow D_c \uparrow$

4. Investment expenses  $\uparrow \rightarrow S_c \uparrow \rightarrow D_c \uparrow$
5. Hired labor  $\uparrow \rightarrow D_c \uparrow$
6. Farm output  $\uparrow \rightarrow$  cash-on-hand  $\uparrow \rightarrow$  assets  $\uparrow \rightarrow S_c \uparrow \rightarrow D_c \uparrow$
7. Total revenue  $\uparrow \rightarrow$  cash-on-hand  $\uparrow \rightarrow$  assets  $\uparrow \rightarrow S_c \uparrow \rightarrow D_c \uparrow$
8. Interest payments  $\uparrow \rightarrow D_c \downarrow$
9. Cash at the beginning of year  $\uparrow \rightarrow$  cash-on-hand  $\uparrow \rightarrow S_c \uparrow \rightarrow D_c \downarrow$
10. Operating expenses  $\uparrow \rightarrow$  cash-on-hand  $\downarrow \rightarrow D_c \uparrow$
11. Debt load  $\uparrow \rightarrow D_c \uparrow$

The following relationship may therefore be assumed:

$$D_c = f[C, HI, A, IE, HL, FO, TR, IP, CY, OE, DL]$$

Table 1 summarizes the studies conducted by Hesser and Schuh, and Pani; and outlines their results [22, p. 85].

Variables which have the most significant impact on the demand for credit were identified as:

$$D_c = f[DL, IE, CY] \quad (\text{see Table 1})$$

Loan demand relationships may differ significantly between low and high income farmers. Variables which have a significant impact on demand for credit have been identified as:

$$D_{c1} = f[TR, DL, C, OE, CY, PU] \quad [22]$$

Factors which affect the demand for credit by high income



Table 1. Empirical results of selected estimates of linear demand functions for loans based on simultaneous equation models [22]

	Hesser & Schuh (1921-59)	Lins (1947-69)			
		Land bank	Commercial bank	Insurance	Others
Interest Rate	-0.90 (-1.80) <sup>a</sup>	-3.53 (-0.06)	3.35 (0.05)	-337.23 (-4.68)	-17.37 (-0.12)
Internal funds:					
Farm income	-1.99 (-2.62)				
Money balance/gross Farm expenses		-17.01 (-2.54)	-4.75 (-0.73)	-36.93 (-5.20)	-20.00 (-1.61)
Investment opportunities:					
Technology	-3.36 (-2.90)				
Wage rate	0.91 (3.07)				
Net capital appreciation		5.05 (0.72)	7.14 (1.32)	3.99 (0.68)	20.45 (2.11)
Net farm & nonfarm income		19.84 (2.00)	11.29 (1.34)	22.28 (2.45)	16.09 (0.99)
Others: Lagged credit	0.86 (3.66)				
R <sup>2</sup>	0.66	0.83	0.64	0.71	0.82
Interest elasticity	-2.29	- <sup>b</sup>	- <sup>b</sup>	-8.37	-

<sup>a</sup>Values in parentheses are t-values.

<sup>b</sup>Elasticities were not computed because the coefficients were not significantly different from zero.

farmers have been identified as:

$$D_{ch} = f[DL, IE, CY, FU] \quad [22]$$

where

FU = fertilizer used in production.

## CHAPTER V. INTEREST RATE POLICIES

## Concessional Rates of Interest

In the institutional markets most loans require that the borrower sign a promissory note that often demands a co-signer. Many such loans also require a mortgage or other real collateral; collateral values may exceed the amount loaned. Nominal interest rates, normally subject to law or official regulation, may vary from 4 up to about 25 percent annually, depending in part on the rate of inflation in the country. The largest concentration is in the 6-12 percentage range. Rates on agricultural loans are usually somewhat below the bank rates charged in other sectors, and are sometimes less than the annual rise in the consumer price index. Most loans are short term but some medium and long-term loans up to about eight years can be found. Application procedures vary among lenders but some form of commercial bank procedure predominates. The borrower goes to an office and answers questions submitted by secretaries; he is then filtered through various white collar employees and ultimately talks to a loan officer or the manager. The borrower must present a series of forms, all properly stamped. These forms will vary depending on whether this is the first loan he is requesting from the institution, whether he is a large or

small farmer, and whether he has friends and/or influence in the lending institution. In many cases, the borrower is asked to come back at a later date to learn the preliminary decisions on the loan application. The farm may be subjected to inspection by bank employees to evaluate the property and potential production.

Many development economists have accepted that the performance of rural financial markets (RFMs) in low-income countries (LIC) has been poor. This poor performance may be explained by looking carefully at the behavior of formal financial institutions. In most cases, governments adjust financial market policies in order to do something for, or to, the ultimate uses of financial services [1]. Generally, little attention is given to how financial institutions react to these policies; it is assumed they simply meet the letter of the law [1]. It is also common for governments to force financial institutions to carry out activities they are not equipped to handle.

Well-intended policies such as concessional interest rates on loans to small farmers may, in fact, force lenders to direct loans away from the desired target group. Lenders are forced to direct concessionally priced loans away from the small borrowers because expected revenues and costs from making these types of loans provide little profit incentive to the lender.

As previously suggested, low interest rates on agricultural credit are often justified on the basis of what they do for, or to, the rural poor. Policy-makers often overlook the effects which these concessional interest rates have on the activities of formal lenders. This is surprising once it is recognized that many of the problems caused by concessional interest rate policies occur in the distortions it causes in lender behavior [1].

#### Costs of loaning and borrowing

Lenders incur four types of costs in making loans. These are: (1) the expense of acquiring the funds which are lent, (2) the transaction costs of making and administering the loan, (3) the losses incurred when some loans are not repaid, and (4) profits or economic surpluses needed to pay owners of the financial institutions [1]. When small loans are involved, the loan transaction costs are a very important part of the lender's total cost considerations. For most formal lenders the transaction costs per unit of money lent varies inversely with the size of the loan. Lenders do, however, experience substantial differences in loan transaction costs between loans to customers of long standing and new borrowers. It is often costly for a lender to assemble sufficient information to assign a reliable repayment probability to a

new borrower. Thus, other things being equal, individual loans to the new small borrowers are doubly undesirable for most formal lenders [1].

Despite the diversity found among the institutions providing formal financial services, it appears that most of these organizations behave very much alike. Any institution, public, or private, places high priority on maintaining its viability and self-sustaining capacity. Over time, it must do this by maintaining a good deal of political support, and exercising some independence. It is difficult for a credit agency to do this if it must return year after year to central governments for funds to cover operating costs. Even nationalized banks must generate economic surpluses. It is for this reason that most formal lenders in market economies pay close attention to costs and returns from their operation. As suggested earlier, most governments closely regulate the interest rates which formal lenders may apply to agricultural loans. Noninterest charges which lenders can impose on borrowers are also regulated in most cases. Thus, as long as these rates are binding, formal lenders have little latitude on the revenue side to generate economic surpluses [3]. As long as the lender keeps his money lent, and expands as rapidly as possible the amount of money that can be lent, gross revenues are maximized. Lenders must focus on the cost

side to influence their profits.

Where contractual interest rates are kept low and inflation is a serious problem, it is not difficult for formal lenders to lend their money. Under these circumstances, contractual rates of interest may be less than rates of inflation and result in negative real rates of interest. For those borrowers who have relatively small loan transaction costs, this may result in negative real borrowing costs. The effect of these borrowing costs on loan demand by small and large borrowers is illustrated in Figure 4. As can be noted, negative real borrowing costs for large borrowers induce them to operate on a portion of their loan demand schedule which is highly elastic with respect to borrowing costs (and interest rates). If borrowing costs are low enough, the demand among large borrowers may be essentially infinite. Under these conditions, borrowing costs stimulate, rather than discourage loan demand. Large borrowers receive an implied income transfer through the loan transaction.

Because of the relatively large loan transaction costs, these negative real rates of interest have much less effect on loan demand among small and new borrowers. These loan transaction costs result in annualized borrowing costs which are quite high, and force small and new borrowers to

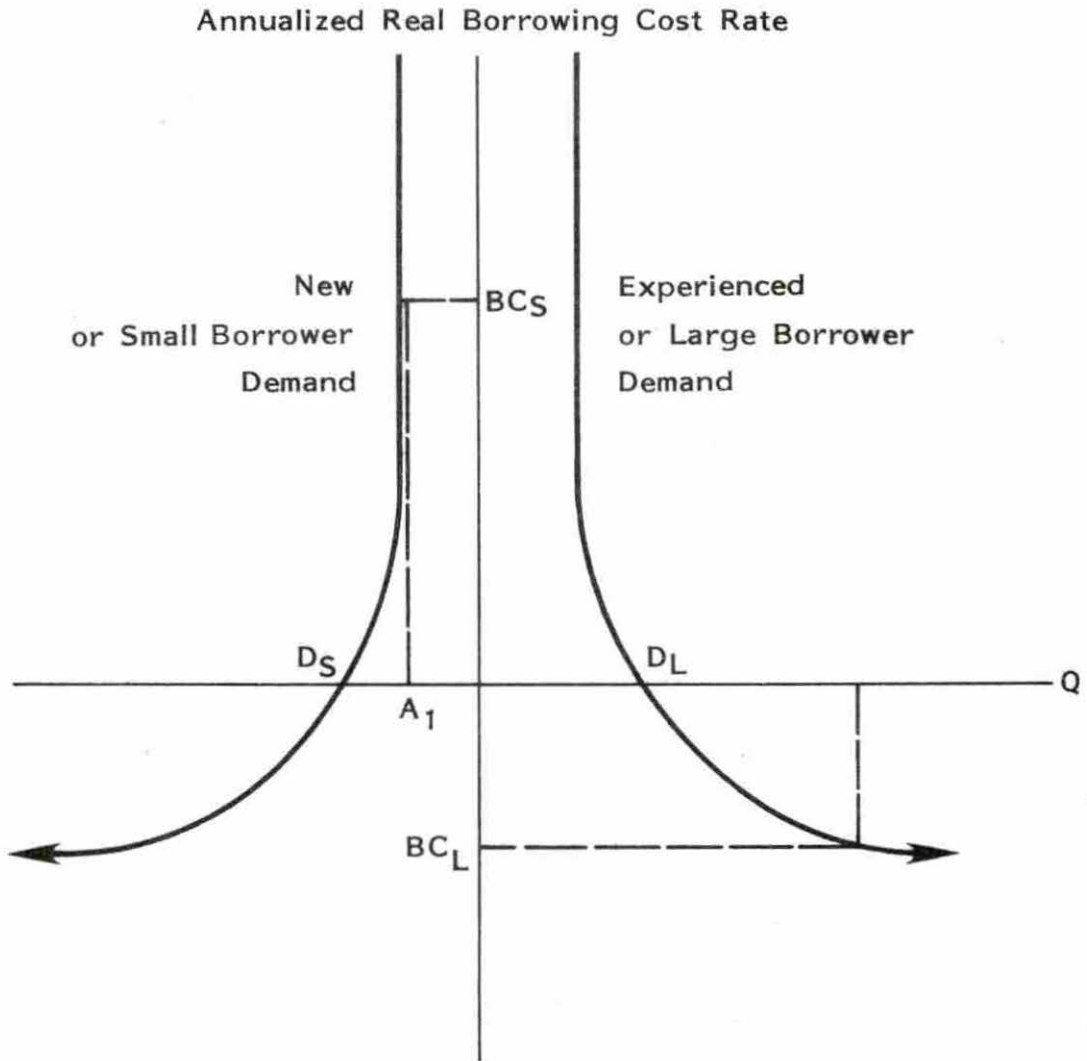


Figure 4. Loan demand by new or small and experienced or large borrowers [1]



operate on inelastic positions of their loan demand schedules. Part of these loan transaction costs may be imposed on borrowers by formal lenders as a way of discouraging them from requesting loans. Under these circumstances, small and new borrowers are tepid to indifferent about acquiring formal loans while large and experienced borrowers are highly enthusiastic. Formal lenders have little difficulty in placing most of their loans in the hands of large borrowers who have well-established credit ratings [1].

In directing most of their loan funds to large experienced borrowers, a lender minimizes the costs of lending. Other things being equal, the costs per unit of money lent for making a large loan are less expensive for a lender to loan a given amount of money to individuals who have borrowed previously from the lender, than it is to deal with new borrowers. Reliable information on the credit-worthiness of an individual is costly to assemble.

The differences in the marginal costs for lenders to extend large versus small loans are illustrated in Figure 5. As shown there, a formal lender may be able to extend 0Q1 amounts of loans to large borrowers at marginal costs lower than it can make any loan to small borrowers. Only when loanable funds exceed 0Q1 will the lender choose to extend some loans to small borrowers. If A1Q2 loanable

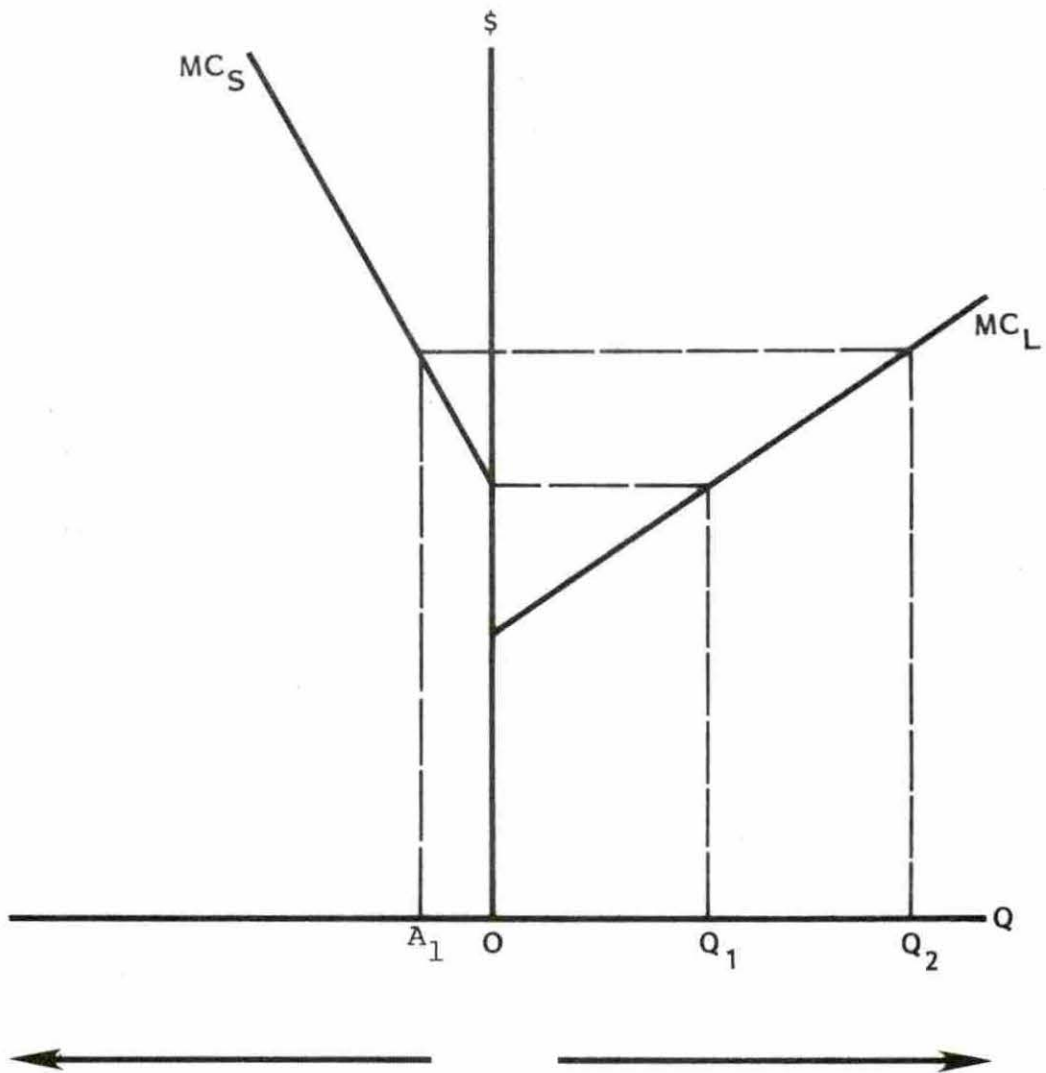


Figure 5. Marginal costs of making loans to small and large borrowers [1]

funds are available, only A10 will be directed to small borrowers, while 0Q2 will go to large borrowers. In some cases, the  $MC_L$  scheduled may be almost flat and the lender will find that costs can be minimized for almost any amount of funds by restricting lending to large, experienced borrowers. If borrowing costs are low enough, because of negative real rates of interest, borrowers of large amounts will be willing to absorb essentially all of these loans.

#### Additional costs to lenders

In many cases, formal lenders are required to provide other services in rural areas besides credit and savings deposits. Loan supervision, education extension, or technical assistance for farmers may be among these services. Where the lender is required to provide these to borrowers, lender's costs are substantially increased. Costs of providing intensively supervised credit, for example, may run to 25 percent or more of the loan value. These educational costs, when the lender is not reimbursed, further discourage lenders from servicing target groups who require supervision. In a number of countries, governments attempt to tie extension programs to formal lending activities in order to provide educational services to borrowers. This may yield very mixed results. In all cases, it is difficult to coordinate credit with supervision

when two or more agencies are involved. If the extension agents become heavily involved in the loan process, it may be unclear who is responsible for following up on repayment. An extension agent may help to approve loans and then have little incentive to encourage repayment. Government subsidies for lenders to cover their supervision costs, or special incentives for extension agents to act aggressively and properly in the loan approval and recovery process are partial resolutions to this dilemma.

#### Share of credit to small farmers

Low rates of interest reduce the propensity of formal lenders to service small farmers. All lenders, sooner or later, no matter what their objectives, are forced to find some kind of balance between revenues and costs. Interest payments constitute the main source of revenues for a credit agency. Low rates of interest generate low revenues, which are often not sufficient to cover all the costs of delivering credit to small farmers. Given strong pressures on an institution to keep its costs in line with revenues, and given the shape of the cost functions involved, the agency is forced to reduce the proportion of its portfolio devoted to small farmers. By increasing the average size of loan, the institution can bring down average costs. Where the potential for government subsidies

is limited or uncertain, such a cost reduction may be a necessity for survival [10].

If the rates of interest that are allowed to charge do not cover their average costs, it is not surprising to find that profit-maximizing institutions like commercial banks are reluctant to serve the rural areas. Losses are also a hazard for public institutions, even though they may attempt to rationalize them in terms of "social" objectives. Public lending institutions cannot be sure that they will permanently receive ample funds from their governments, or from international donors. In any case, the continuous receipt of such outside funds subjects the institution to an undesirable dependency on the political-administrative process of allocating public funds, and leaves it highly vulnerable to political pressures. It is not realistic to assume that small farmers will always have enough political power to maintain a substantial allocation of funds in their favor.

Lack of sufficient and timely appropriations can severely impair the efficient functioning of any subsidy-dependent institution that serves small farmers. The continuity of the program itself, the possibility of achieving its goals, not to speak of the possibility of expanding the program to reach more of the target population, are all threatened by continuing losses [10]. The

prospect of a disappearance of its capital due to high and persistent operational losses, leads either to the elimination of the program or to its reorganization away from the service of the small farmer.

#### Credit rationing

Another influence working against small farmers is that the low rates of interest charged tend to generate an excess demand for institutional funds. At the rate of interest set, there are more potential clients willing to borrow than those who could be satisfied with the institutional resources available, so that some nonprice mechanism for rationing becomes necessary. The lending institution must select the beneficiaries of the credit program, rejecting other potential users of its funds. The lower the rate of interest, the more extensive is the excess demand generated, and the greater will be the reliance of lenders on rationing devices for allocation of their limited funds. The lower the rate of interest and the higher the implied subsidy, then the greater will be the motivation of borrowers to exert social and political power in order to capture it. The lower the rate of interest and the greater the potential losses for credit institutions, the more likely it will be to succumb to such political pressures.

The nonprice rationing to allocate scarce funds emerges

in three basic forms; the first is to allocate fixed loan quotas on the basis of how much land a borrower has in a particular enterprise. This might be expressed in money terms such as one thousand pesos per hectare of rice, in physical terms like 600 pounds of chemical fertilizer per hectare of rice, or some combination of money and physical inputs [10].

The second technique of allocating concessionally priced credit is for the lender to place heavy emphasis on collateral or the borrowers credit rating. This results in the lender extending loans mainly to large landowners and to borrowers with whom the lender has previous lending experiences. New borrowers and persons with small amounts of collateral are generally denied formal loans under these criteria.

The third manner in which lenders ration credit is more subtle and less obvious to the casual observer of RFMs. This rationing is done by imposing different loan transaction costs on various classes of borrowers. If the borrower already has a satisfactory track record with the lender, borrows large amounts, and provides the lender with ample collateral, the borrower's loan transaction costs often make up a very small proportion of total borrowing costs. The borrower may be able to negotiate a new loan

through a simple telephone call to the lender. In this case, the borrowing costs are made up almost entirely by the interest payments made on the loans.



## CHAPTER VI. ANALYTICAL MODEL

Demand and supply of credit in the agricultural sector of a developing country may theoretically be analyzed utilizing a production model of a competitive industry [33].

This production model, Figure 6, consists of the output market and two resource markets - the institutional credit market and the informal credit market. Three equations of this model are specified a priori. They include the supply of institutional credit, the supply of informal credit and the demand for final output. Endogenously determined equations are demand for institutional credit, demand for informal credit and supply of agricultural output.

It is assumed that farmers utilize two factors of production and that costs of production are minimized. Factors of production are circulating capital ( $X_2$ ), which includes all variable inputs such as fertilizer, pesticides, etc., and fixed capital ( $X_1$ ) which includes land, labor, etc. The type of capital required will determine the market in which a farmer will demand credit. If a farmer wishes to increase use of a variable factor of production, he will demand credit from the informal lender who has a limited supply of credit, but who would be willing to make available small amounts of credit at relatively high

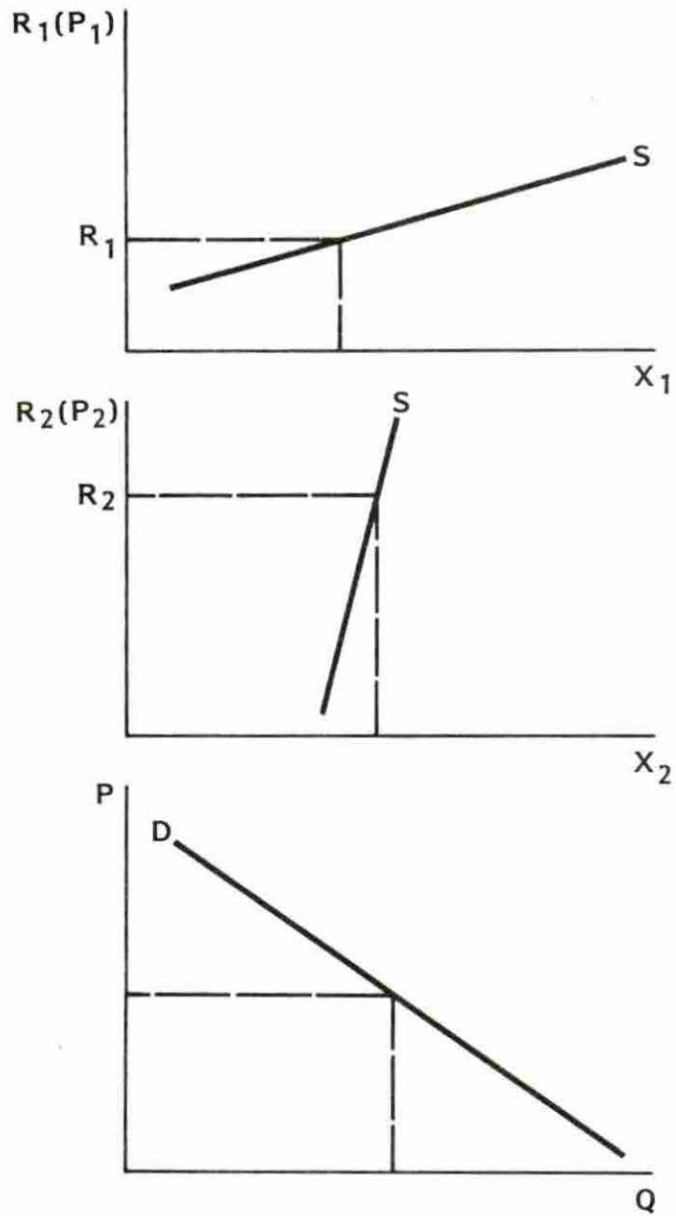


Figure 6. Production model

rates of interest. If a farmer requires additional fixed inputs, he will demand credit from institutional sources who have a greater supply of credit at reduced rates of interest.

Furthermore, it is assumed that the demand for fixed and circulating capital are inter-related and that the price of each good is exogenously determined.

Given these assumptions, the farms' production function is:

$$Q = f(X_1, X_2) \quad (12)$$

Assuming given factor prices,  $P_1$  and  $P_2$ , and a given product price,  $P$ , the cost of production can be minimized subject to the output level.

$$C = P_1 X_1 + P_2 X_2 \quad \text{cost function} \quad (13)$$

$$L = P_1 X_1 + P_2 X_2 + \lambda [Q - f(X_1, X_2)] \quad \text{constrained minimization} \quad (14)$$

$$L_1 = P_1 - \lambda f_1 = 0 \quad (15)$$

$$L_2 = P_2 - \lambda f_2 = 0 \quad (16)$$

$$L\lambda = Q - f(X_1, X_2) = 0 \quad (17)$$

Equations 15, 16 and 17 represent first order conditions for minimizing costs of production, assuming second order conditions are met. These equations may be solved for  $X_1$ ,  $X_2$  and  $\lambda$  in terms of the parameters  $P_1$ ,  $P_2$  and  $Q$ .

$$X_1 = g_1(P_1, P_2, Q) \quad (18)$$

$$X_2 = g_2(P_1, P_2, Q) \quad (19)$$

$$\lambda = g^\lambda(P_1, P_2, Q) \quad (20)$$

Equations 18 and 19 are explicit expressions for the factor demand curves when output is held constant. Equation 20 represents the marginal cost of output.

Four rules on which the elasticity of derived demand depends are: [33]

- I. "The demand for anything is likely to be more elastic the more readily substitutes for that thing can be obtained".
- II. "The demand for anything is likely to be less elastic, the less important is the part played by the cost of that thing in the total cost of some other thing, in the production of which it is employed."
- III. "The demand for anything is likely to be more elastic, the more elastic is the supply of cooperant agents of production."
- IV. "The demand for anything is likely to be more elastic, the more elastic is the demand for any further thing which it contributes to produce."

Given these guidelines, we may arrive at several conclusions regarding the shape of demand curves for institutional as well as informal sources of credit. Informal lenders provide small amounts of credit at relatively high rates of interest. Substitutes for informal credit are not readily available to the small borrower. Consequently, farmers will continue to demand credit from informal sources at high interest rates. Changes in the

interest rate will not result in significant changes in the demand for informal credit. We may conclude that the demand for credit from informal sources ( $X_2$ ) is price inelastic. This demand curve is illustrated in Figure 7, panel 2.

In comparison, institutional sources provide larger amounts of credit at lower rates of interest. In many instances, the informal lender may easily replace institutional credit. Large farmers will generally be responsive to changes in institutional rates of interest. The demand for institutional credit ( $X_1$ ) is price elastic. The demand curve is illustrated in Figure 7, panel 1.

The long-run industry supply curve, Figure 7, panel 3, is a horizontal summation of individual firm long-run supply curves assuming there are no externalities.

It is useful to determine the response of a cost-minimizing farm to changes in the parameters they face. More specifically, how does such a farm owner react to an increase or decrease in a factor price? We may wish to determine whether more or less of an input will be used when its own or some other input's price increases.

In conducting comparative statics analysis, it is necessary to first substitute the solutions (7-9) into the first order equations (4-6) from which they were solved. This yields the identities:

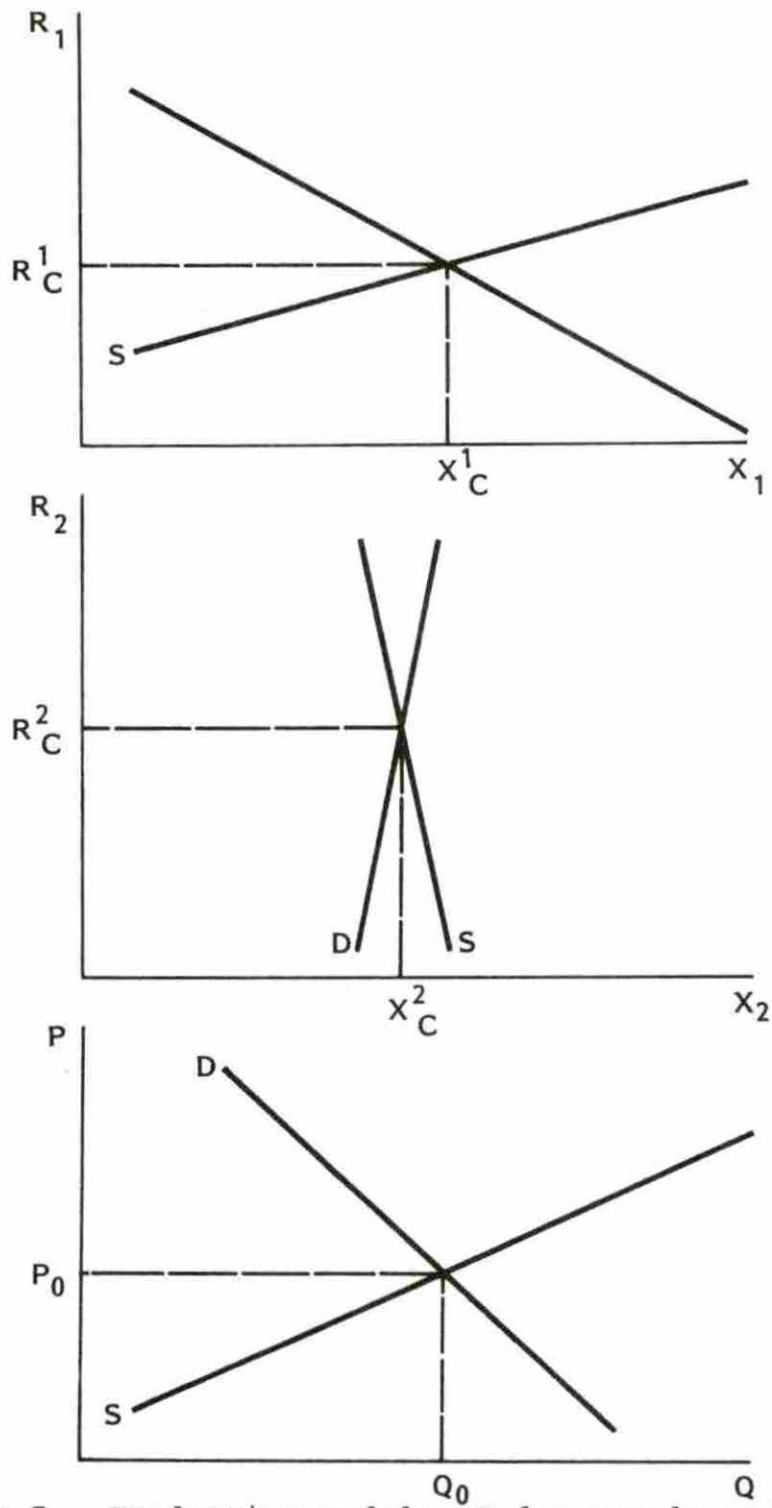


Figure 7. Production model: Endogenously and exogenously determined equations

$$P_1 - \lambda(P_1, P_2, Q) f_1[X_1(P_1, P_2, Q), X_2(P_1, P_2, Q)] \equiv 0 \quad (21)$$

$$P_2 - \lambda(P_1, P_2, Q) f_2[X_1(P_1, P_2, Q), X_2(P_1, P_2, Q)] \equiv 0 \quad (22)$$

$$Q - f[X_1(P_1, P_2, Q), X_2(P_1, P_2, Q)] \equiv 0 \quad (23)$$

The economic significance of this step is that it is now being asserted that whatever the factor prices and output level may be, the firm will always instantaneously adjust the factor inputs to those levels which will minimize the total cost of that output level. Given this assertion, the parameters of this model may be altered to determine resulting changes in the factors of production.

We may begin the analysis by observing the cost-minimizing reaction to a change in  $P_1$ , the rate of interest on institutional credit. The identities (21-23) must be differentiated with respect to the parameter  $P_1$ .

$$1 - \lambda f_{11} \frac{\partial X_1}{\partial P_1} - \lambda f_{12} \frac{\partial X_2}{\partial P_1} - f_1 \frac{\partial \lambda}{\partial P_1} \equiv 0 \quad (24)$$

$$-\lambda f_{21} \frac{\partial X_1}{\partial P_1} - \lambda f_{22} \frac{\partial X_2}{\partial P_1} - f_2 \frac{\partial \lambda}{\partial P_1} \equiv 0 \quad (25)$$

$$-f_1 \frac{\partial X_1}{\partial P_1} - f_2 \frac{\partial X_2}{\partial P_1} \equiv 0 \quad (26)$$

These relations may be summarized using matrix notation.

$$A = \begin{bmatrix} -\lambda f_{11} & -\lambda f_{12} & -f_1 \\ -\lambda f_{21} & -\lambda f_{22} & -f_2 \\ -f_1 & -f_2 & 0 \end{bmatrix} \begin{bmatrix} \partial X_1 / \partial P_1 \\ \partial X_2 / \partial P_1 \\ \partial \lambda / \partial P_1 \end{bmatrix} = \begin{bmatrix} -1 \\ 0 \\ 0 \end{bmatrix} \quad (27)$$

using Cramer's rule:

$$\frac{\partial X_1}{\partial P_1} = \frac{\begin{vmatrix} -1 & -\lambda f_{12} & -f_1 \\ 0 & -\lambda f_{22} & -f_2 \\ 0 & -f_2 & 0 \end{vmatrix}}{\Delta} = -\frac{\Delta_{11}}{\Delta} < 0 \quad (28)$$

where  $\Delta$  is the determinant of matrix A.

$$\begin{aligned} \Delta &= -\lambda f_1 f_{12} f_2 + \lambda f_1^2 f_{22} + \lambda f_{11} f_2^2 - \lambda f_{21} f_1 f_2 < 0 \\ &= +\lambda [f_{11} f_2^2 - 2f_1 f_2 f_{12} + f_{22} f_1^2] \end{aligned}$$

$\Delta < 0$  if SOC hold

$$\Delta_{11} = -f_2^2$$

Again, using Cramer's rule:

$$\frac{\partial X_2}{\partial P_1} = \frac{\begin{vmatrix} -\lambda f_{11} & -1 & -f_1 \\ -\lambda f_{21} & 0 & -f_2 \\ -f_1 & 0 & 0 \end{vmatrix}}{\Delta} = \frac{\Delta_{21}}{\Delta} > 0 \quad (29)$$

where

$$\Delta_{21} = -f_2^1$$



Generally,  $\Delta_{21}$  will not be known, therefore the sign of  $\frac{\partial X_2}{\partial P_1}$  will be indeterminate. However, for the two variable case, one factor must be substituted for the other to maintain output at a constant level.

The above results, Equations 28 and 29, are represented graphically in Figure 8.

Similar relations may be derived for input responses to a change in  $P_2$ , moneylender rates of interest.

$$B = \begin{bmatrix} -\lambda f_{11} & -\lambda f_{12} & -f_1 \\ -\lambda f_{21} & -\lambda f_{22} & -f_2 \\ -f_1 & -f_2 & 0 \end{bmatrix} \begin{bmatrix} \partial X_1 / \partial P_2 \\ \partial X_2 / \partial P_2 \\ \partial \lambda / \partial P_2 \end{bmatrix} = \begin{bmatrix} 0 \\ -1 \\ 0 \end{bmatrix} \quad (30)$$

again solving by Cramer's rule:

$$\frac{\partial X_2}{\partial P_2} = \frac{\begin{vmatrix} -\lambda f_{11} & 0 & -f_1 \\ -\lambda f_{21} & -1 & -f_2 \\ -f_1 & 0 & 0 \end{vmatrix}}{\Delta} = \frac{\Delta_{22}}{\Delta} < 0 \quad (31)$$

where  $\Delta_{22} = -f_1^2$

$$\frac{\partial X_1}{\partial P_2} = \frac{\begin{vmatrix} 0 & -f_{12} & -f_1 \\ -1 & -f_{22} & -f_2 \\ 0 & -f_2 & 0 \end{vmatrix}}{\Delta} = \frac{\Delta_{12}}{\Delta} > 0 \quad (32)$$

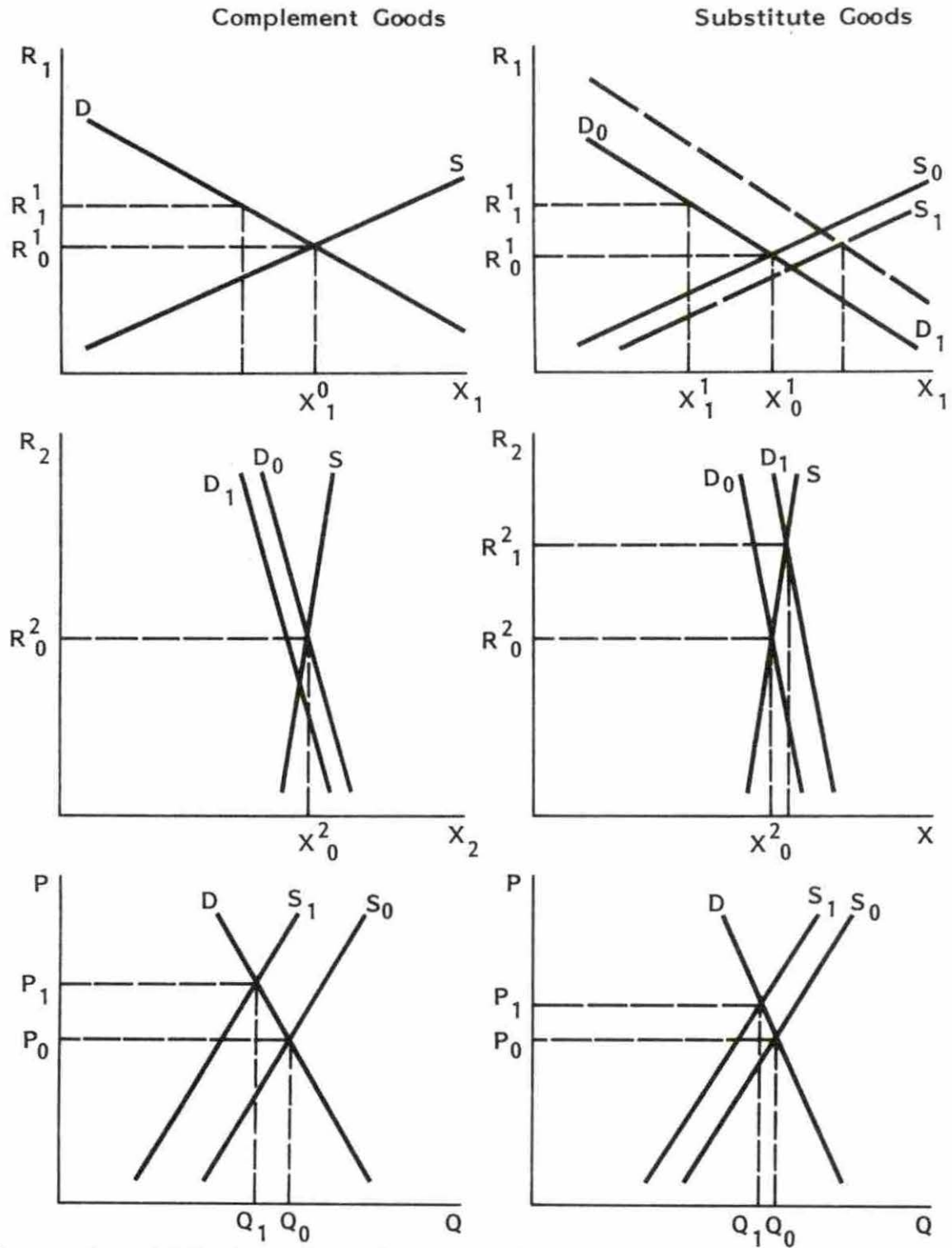


Figure 8. Effects of an increase in the factor price  $R_1$  on the equilibrium of the one output - two factors of production model

where

$$\Delta_{12} = f_2^2$$

Generally,  $\Delta_{22}$  will not be known, therefore the sign of  $\partial X_1 / \partial P_2$  will be indeterminate. However, for the two variable case, one factor must act as a substitute for the other such that output remains constant.

The above partials may be empirically tested by specifying regression equations of the form:

$$X_i = \partial_{i1} + \partial_{i2}P_1 + \partial_{i3}P_2 + \partial_{i4}Q \quad i = 1,2$$

Equations 22 and 23 are represented graphically in Figure 9.

Formal financial institutions are primarily utilized by the large farmer. Thus, a change in the interest rate on institutional loans ( $R_1$ ) will have its greatest initial impact on the large farmer. As  $R_1$  increases, the large farmer will demand less credit from banks and other financial institutions. The short-run alternative to institutional credit is the village moneylender who supplies credit at relatively high rates of interest. Large farmers will not demand credit from the moneylender at such rates. As a result, a substantial number of large farmers will drop out of the credit market. Industry output will subsequently decrease. While we see the demand

effects, supply of credit is also affected by the rising interest rates. At higher rates of interest, institutions will be willing to make more credit available and also more willing to grant an increased number of loans. We see from Figure 3 that as institutions expand their loan portfolio, they will be more willing to grant loans to small farmers. An increasing number of small farmers will turn to institutional sources. Demand for credit in the informal market will decrease temporarily. However, there are many small farmers in the informal market who go completely unserved by the moneylender. As the moneylender has more money available he will grant loans to those he formerly considered to be risky prospects.

The increase in number of small farmers who are now able to produce more will not be able to produce an amount equal to that of the large farmer who has dropped out of the institutional market. As a result, industry output will decrease.

This analysis must be considered in context of the relationship of the two factors of production. If  $X_1$  and  $X_2$  are substitutes the above analysis holds true. Alternatively, if  $X_1$  and  $X_2$  are complements, as the use of  $X_1$  decreases,  $X_2$  will decrease also, causing a substantial decrease in industry output.

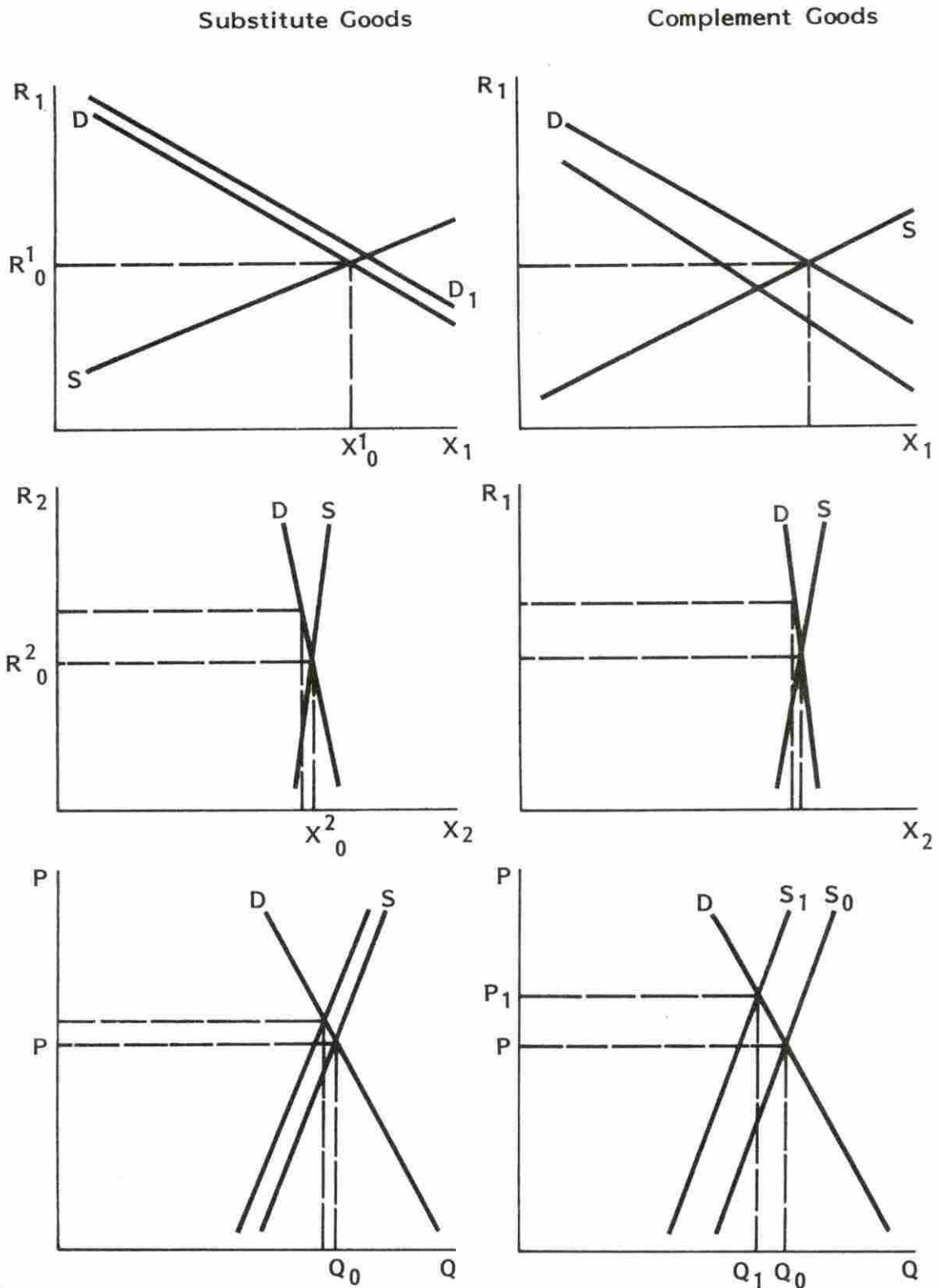


Figure 9. Effects of an increase in the factor price  $R_2$  on the equilibrium of the one output - two factors of production model.

Village moneylenders are primarily utilized by the small farmer. Thus, a change in the interest rate on informal loans ( $R_2$ ) will have its greatest impact on the small farmer. Demand for informal credit is relatively inelastic. Consequently, changes in the interest rate will not cause significant changes in demand. Small farmers do not have immediate alternatives to the village moneylender. As a result, credit demand is virtually unresponsive to price changes. Given any price change, a fraction of consumers will be priced out of the market. Demand for informal credit will, therefore, decrease slightly. Those farmers who were previously serviced by the village moneylender will turn to institutional sources of credit. Such action will cause a slight increase in demand for institutional credit. The increased demand pressure on the institutional market would normally cause interest rates to rise. However, under government regulations, interest rates on agricultural loans will remain unchanged. Agricultural output will decrease slightly as small farmers must decrease production.

This analysis must be considered in context of the relationship of the two factors of production. If  $X_1$  and  $X_2$  are substitutes, the above analysis holds true. Alternatively, if  $X_1$  and  $X_2$  are complements, as  $X_1$  decrease,  $X_2$  will consequently decrease, causing a substantial decrease in output.

## CHAPTER VII. SUMMARY AND CONCLUSIONS

## Summary

The general objective of this study has been to evaluate the role of credit in the development of small farm households in developing countries. The specific objectives were: 1) to evaluate inefficiencies resulting from credit rationing, 2) to evaluate the role of informal moneylenders in the existence of small farm households, 3) to evaluate the role of formal financial institutions in the existence of small farm households, 4) to evaluate institutional behavior when confronted with artificial operating constraints, 5) to specify factors affecting the farmers' use of credit, and 6) to evaluate the effects that concessionally priced loans may have on lender, as well as borrower behavior.

Objectives one through six were accomplished by conducting a literature survey of relevant material on each subject area. Empirical results of all studies were compared and contrasted.

## Conclusions

The micro level role of financial intermediation encompasses the most significant function of intermediaries. That function is the granting of loans to individual

farmers. Capital supply affects final output and the size of any economic surpluses realized, which affects the savings capacity of the agricultural sector.

Inefficient allocation of financial resources by formal institutions is the most severe problem a developing country's agricultural sector may encounter. Such allocations result in output and production distortions. Village moneylenders have aided in correcting those distortions. By granting loans to marginal customers and assuming great risk, the village moneylender has become the primary supplier of financial resources for the small farmer. The moneylender provides other valuable services to the small farm household. It is for these reasons that his services should not be eliminated, but rather augmented, as well as, duplicated by formal institutions.

Formal financial institutions typically behave as profit maximizers and risk averters. As such, large agricultural borrowers constitute a high percentage of the proportion of an institution's portfolio allocated to agricultural loans.

The economic behavior of specialized public institutions will ultimately resemble that of other institutions. Specialized institutions cannot bear continuous default and nonrepayment. In an attempt to maintain their viability they too, decrease their volume of loans to small farmers.



Concessionally priced loans are the root cause of resource allocation distortions. Reduced interest rates on agricultural loans encourage financial institutions to direct their good to the consumer who represents the least amount of risk. This behavior leads to capital-intensive production by large farmers, labor-intensive production by small farmers and reduced agricultural production. Raising the contractual rate of interest on agricultural loans will ultimately redistribute credit in such a manner as to allocate a more equitable share of capital to small farmers.

#### Policy Recommendations

This study is a composite of research conducted on many developing countries throughout the world. As such, any policy recommendations must be viewed in context of the socio-economic conditions which prevail in a country. However, certain implications of this study might be relevant for most developing countries given that rural financial market policies are quite similar across developing countries.

Many inefficiencies have been generated by various rural financial market policies. Small farmer production has suffered greatly as a result of capital constraints

levied by formal financial institutions. Financial resources have been allocated such that large farmers have an excess of funds and small farmers experience severe shortages. It is essential that such inefficiencies be corrected if the agricultural sector is to experience the necessary growth and development.

Several developing countries have implemented concessional interest rate policies in an attempt to make financial resources available to the agricultural sector at reduced costs. Such interest rate policies typically affect the nominal rates of interest. Interest rate policies can have very severe negative affects on a country's economy. The effects of interest rate policies on the agricultural sector are more pronounced and more severe. The reallocations of financial resources resulting from concessional interest rate policies has caused many distortions in the agricultural sector. Raising the nominal rate or contractual rate of interest will aid in correcting many of these distortions. Increasing the nominal rate of interest will ultimately lead to a decrease in demand for institutional credit by large borrowers. Financial institutions will also be willing to grant a larger volume of loans to small farmers. Any additional capital small farmers receive will have a greater impact on his final output than if that same capital were given to a large

farmer.

There have been many criticisms of the informal moneylender in developing countries. It has been suggested that moneylenders extract monopoly profits, do not provide legitimate economic services and charge exorbitant rates of interest. This study has revealed that informal lenders provide a major portion of credit to small farmers and rural households in general. Given the moneylenders importance in the rural economy, attempts should be made to strengthen them and to aid in their delivery of financial resources to the small farmer. Not only is the village moneylender more familiar to the small farmer, but he also has greater insight into the problems, customs, and needs of the rural poor.

While institutions may be able to provide essential financial services to the rural poor, a farmer's needs do not stop there. Rather, farmers must have available input markets, output markets and effective marketing facilities. The village moneylender, who is often a shopkeeper, is able to provide such valuable services to the farmer. Institutions are also averse to granting loans for consumption purposes. The moneylender is willing to grant loans to aid in stabilization of consumption activities. Capital requirements for consumption and production purposes are not easily separable for the small farmer. His

level of production is often strongly correlated to his consumption activities.

The village moneylender provides many valuable services to the rural poor. If the agricultural sector is to experience an adequate rate of growth, financial institutions must begin to provide services similar to those of the moneylenders.

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