

Financial Intermediation and Economic Development: A Conceptual Framework

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I. Introduction

Financial Intermediation in developing economies has received scant attention from theoretical economists and although there exists considerable output among descriptive and institutionalist economists, policy makers pay only lip service to the benefits of intermediation, and there is no observable pattern of policies as there exist for international trade, industrialization, or balance of payments. The reason may be because the causal nature of the relationship between financial intermediation and economic growth has not been clearly established in the literature. Empirical studies have failed mainly because they have lacked a theoretical framework. Although recent studies have attempted to solve this issue by treating financial intermediation as a form of technological progress in neo-classical models of economic growth, their studies, though theoretically enlightening, are impractical for the policy maker.¹

If, Financial Intermediation is assumed not to be just one form of technological but a technological process (i.e.,; a set of technological innovations) is itself, then one can draw from the literature on technology, practical theoretical models and hopeful-

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¹ Impractical because no account is made about the form of financial intermediation; i.e.; is it financial instruments, institutions, or financial markets?.

ly policy makers can draw a set of policies that will benefit, in particular, the Less Developed Countries (LDC's). For example, Sagafi-nejad (1980) has developed a conceptual framework to study the effects of technology transfer on economic growth and his model can be used to study the impact of technology-in general-on economic development. The objective of this paper is to apply Sagafi-nejad's framework to financial intermediation, to identify the technological process in the evolution of financial intermediation and the variables that affect this technological process.

Literature Topics

In essence, most economic studies indicate that the effects of financial intermediation are threefold (Patrick, 1966: 177-8). First, it increases the growth of saving (particularly that of households); second, financial institutions create financial claims over capital goods, which as forms to hold wealth are more socially productive, less risky, and of higher liquidity; third, financial institutions allocate these savings and mobilize them toward more profitable forms of investment and (by lowering the overall risk) toward socially productive investments that would not otherwise take place.

Recent studies look at financial intermediation as a technological parameter. Spellman and Gonzalez Vega (1976) argue that an increase in the steady equilibrium level of the output-capital ratio occurs if financial intermediation is Hicksian labor-saving technological change. Galbis (1977), using a two sector neoclassical model, shows that it is sufficient for financial intermediation to be capital augmenting to cause higher levels of output. He argues that by improving the "quality" of the capital stock of the traditional sector, saving is increased even if saving is insensitive to real rates of interest.

The empirical work is highly descriptive and lacks a formal theoretical model. These studies² have not been able to establish unequivocally that financial intermediation is significantly important for economic growth. Other factors, such as taxation (or fiscal

² The underlying hypothesis is that progress in the financial intermediation process is a precondition on economic growth. Chandavarkar (1971), Wai (1972), Christian and Pagoulatos (1973), Bhatia and Khatkhate (1975), Vogel (1976) have attempted to measure the effects of financial intermediation on economic development.

policies for forced savings), social and political conditions, technology and management, administrative capabilities are significantly more powerful for growth than "financial intermediation" measured as the ratio of financial assets to Gross National Product (GNP). They ignore the technological process involved in financial intermediation whose effects go beyond increases in the financial asset to income ratio. Furthermore, the complexities of financial intermediation may be such that one cannot group variables into one, called "financial intermediation", but the only practical way to deal with the problem is through case studies.

In fact, financial intermediation should be considered among the "technological innovations" of mankind. That is, it does not affect only the "quality" of the capital stock nor is it only "labor-saving" but as a set of innovations it has consequences leading to changes in institutions and organizations; it has legal, social, and political implications. The application of knowledge impacts on the economy by what has been called the technological linkage/multiplier (TL/M)³. In reference to financial intermediation this TL/M can be defined as the observed consequences of the utilization of new financial markets, institutions, and instruments toward the creation of services (output) beyond the normal range for which the original innovation was initially employed.

The technological linkage/multiplier of the financial sector; that is, the technological process through which financial intermediation affects economic development is discussed in Section 2. The variables and factors that may enhance, hinder, or have any significant influence on this process is discussed in Section 3.

II. Financial Intermediation as a Technological Process

The impact on society of a technological innovation follows a sequential process that involves INTRODUCTION, DIFFUSION, and INSTITUTIONALIZATION of the innovation. This process conveys the notion that the contribution of an innovation is defin-

³ The Technological Linkage/Multiplier concept embodies the effects of an innovation for improvements on inputs (backward linkages), on outputs (forward linkages) to other firms, and a multiplier effect toward functionally competitive activities. In the financial intermediation process the first two effects can be described by the traditional views on intermediation. The multiplier response has been ignored altogether.

ed not only in terms of the initial application (introduction) of the new technique, knowledge, or institution but in that brings about other uses (diffusion) beyond its original application and how well it becomes integrated (institutionalized), improved upon, or aborted to generate other technological innovations; that is, these three phases constitute the basis to study the developmental impact of financial intermediation as a technological process.

1. Introduction of Financial Intermediation

The introduction phase can be defined as the productive application of the innovation. Innovations are adopted if there are benefits to be accrued. The introduction of money for transactions purposes is a clear example. However, the application of an innovation by a business firm depends upon the marginal benefit-marginal cost decision process. That is, even when there are social benefits (external economics) a business firm may not be willing to apply the new knowledge if the marginal costs of such introduction exceeds the marginal benefits. Morency (1972) shows that in the case of money, for example, a business firm is willing to pay for the use of it because money releases labor and capital for productive purposes; thus, a higher output is obtained as well as higher profits.

It is in this context that the literature treats financial intermediation. That is, the *introduction* of financial intermediation is viewed as technological progress. Spellman, Gonzalez-Vega, and Galbis, and other theoretical work, refer to the impact on society of the reduction in social costs or on higher output (using the same "quantity" of inputs) brought about by financial intermediation. The social benefits are clearly conspicuous in Developed Countries. However, the LDC's have not used these innovations, apparently because at the business firm level the marginal benefits are lower than the marginal costs and consequently financial innovations fail to take hold.⁴ The reasons why LDC's have not used extensively the existing financial institutions, much less develop new ones, can be found in the failure of the technological process itself.

2. Diffusion of the Financial Intermediation Process

⁴ Porter (1966) presents powerful arguments to show that even the social marginal benefits may not exceed the social marginal costs.

The spread of an innovation beyond its original use or user is called technological diffusion. However, if an innovation fails to take hold (rejection) it does not necessarily imply that such rejections have negative implications for society.

Historically, the diffusion phase of financial intermediation involves *essentially* the reduction of risk. For example, the establishment of a bank (an innovation as a form of a financial institution) reduces risk by the specialization of credit, by pooling and spreading risk among borrowers. The first banks in Europe came about from the ability of the goldsmiths to accept deposits and then lend the gold to traders.⁵ As banks realized that risks could be reduced by pooling and spreading loans to different customers, they proceeded to create departments within the bank in order to grant different types of loans. Thus, the first innovation-commercial credit-diffused to other types of operations within the bank and toward the establishment of other institutions with specialized lines of credit.

In the diffusion phase there exists the possibility of rejection; that is, when the innovation is discarded as useless or unsatisfactory. However, this may not have necessarily a negative impact on society. It very well may trigger other technological changes which are more appropriate and beneficial. The original use of shells or wampoon or other commodities as money, led to the eventual use of gold as the most satisfactory form of commodity money.

Failure of financial intermediaries to take hold in a country may occur because of excessive government regulation (McKinnon, 1973; Shaw, 1973), lack of entrepreneurial skills, lack of sufficiently large markets to sustain the needed economies of scale, or corruption (Bhatia and Khatkhate, 1975). Rejection in some of these cases may have negative implications for the diffusion of financial innovations. Nevertheless, the rejection of an inefficient financial institution may provoke self-financing and the effect can be, at worst, ambiguous.⁶ Once a technological innovation becomes an integrated part of society, other innovations will continue to occur; when that happens the third phase of the process has been reached.

⁵ For the historical role of Banking see Cameron (1967).

⁶ Leff (1976) shows that in LDC's there are forms of intermediation (Groups) that do not follow the patterns of intermediation that exist in Developed Areas.

3. The Institutionalization of Financial Intermediation

The institutionalization phase involves the dissemination, integration, or absorption of the technological innovation, resulting in the development of self-sustained technological growth. In the Developed Countries, financial intermediation has reached this phase and becomes difficult to separate the diffusion phase from the institutionalization phase. In the last decade, the establishment of electronic transfers, money market mutual funds, and credit unions are all examples of how widespread use of financial intermediation can almost effortlessly develop new instruments, markets, or institutions which maintain the financial sector in continuous technological evolution. On the other hand, many LDC's have not managed to integrate financial intermediation in their economies and other financial innovations come along at a very slow pace. Nevertheless, this is the phase that the LDC's should strive for. In fact, it is at this stage that the fragmentation of the market disappears. The reduction in risks, which was the essential motive in the diffusion phase, is accompanied new by a reduction in transaction costs, and the development of an information and communication system; in short, the development of a financial network takes place in this phase.

This sequence, from the introduction, to the diffusion, to the institutionalization can and is affected by a great number of variables. At each stage of the process there are contributing as well as obstructing factors. The identification and effects of such variables is the subject of the next section.

III. Variables that Influence the Process of Financial Evolution

The factors that influence the process above described can be classified into four categories. First, innate variables are those which depend upon the nature of the innovation itself. Some forms of financial intermediation are more easily adopted and diffused than others, such as a commercial bank vs. a security exchange market. Second, organizational variables which depend upon the internal structure of the business firm itself. Third, market variables are those which depend upon the market conditions and

structures under which the business firm adopting the innovation will have to operate. Fourth, societal variables are those which depend upon the economic, social, legal, and political conditions of the country in which the technology is introduced.

1. Innate Variables

These refer to the characteristics, attributes (normative and functional) and nature of the financial innovation. These variables help to differentiate between various innovations. They can be classified as innovations in financial instruments, financial institutions, and financial markets.

- Financial instruments are the tools by which savers (or surplus spending units) transfer funds to investors (or deficit spending units). E.g. money, deposits of all classes, bonds, stocks, etc.

- Financial institutions refer to the participants in the investment-saving process such as banks, savings institutions, life insurance companies, social security systems, cooperative savings, etc.

- Financial markets is where financial institutions trade financial instruments. E.g. security exchange houses, stock markets, etc.

This division of characteristics is important because they have a paramount influence on the introductory phase. For example, a new type of deposit will have to be introduced in a different form than a security market. Perhaps this is the main reason why in the literature it is not clear how financial intermediation affects the economy and it is simply because there are very many different forms of financial intermediation.

2. Organizational Variables

These refer to the business firms that will be using the financial innovation. They differ from the innate variables, because a bank-innovation itself may now be developing a new financial instrument. Among these variables are

- The location and size of the business firm relative to the market.

- The type of ownership: privately, government or mixed owner.

- Management and labor characteristics of the business firm:

skills, entrepreneurial abilities, degree of risk aversion, etc.

— The directions of the operations with respect to savers (depositors) and investors (borrowers): size and scope of the financial instruments used in the operations of the firm.

The innate and organizational variables have their greatest influence on the Introductory Phase. It is at this level that the marginal benefit-marginal cost analysis plays its role in determining whether an innovation will be introduced at all. Indeed, if there are social benefits the state should internalize these benefits by subsidizing the business firm. It may not have to be a permanent subsidy but it can exist until the Diffusion Phase is reached.

The importance of these variables can be found in the Lead bank (Bhatt, 1972) concept developed in India in the late 60's. The Lead bank is a mechanism by which financial innovations can be introduced in areas where financial intermediation is needed. The Lead bank in India introduced credit instruments (loans appropriate to the area), deposit schemes attractive to the local people, branch expansion which brought banking services to large rural areas, identified potential development projects, profitable investment opportunities, and bottlenecks. The Lead bank, however, cannot function in isolation and its performance will be affected by market as well as national conditions.

3. Market Variables

These refer to the structure and conditions under which the business firms adopting the innovation will have to operate. Among them

— The location of the market: rural, urban, or semirural area.

— The size and characteristics of the market participants: the number, level of wealth or income, and degree of risk aversion of savers and investors. The degree of self-finance, entrepreneurial skills, level of industrial technology, etc.

— The characteristics of other forms of financial intermediation such as substitutes or competing operations (other banks, other saving institutions, alternative forms of financing, variety of financial instruments available in the community) and/or complementary operations such as Central Bank services, Clearing House, etc.

— The degree of competition in the area: a one industry area

or a highly commercialized one. The degree of political control by a group or by a family is an important variable in the operation of the business firm in Less Developed Countries.

The market variables exert their influence primarily on the Diffusion Phase. Any reduction in costs, which is the essential characteristic for the success of the diffusion phase can only occur if the market is sufficiently large so that economies of scale can be realized. The possibilities of rejection are diminished if savers and investors can lower their degree of risk aversion, or if there is a high level of competition within the financial sector or among business firms in general. Obviously, the characteristics and structures of markets are influenced to a great extent by the socio-economic-political conditions of the country.

4. *Societal Variables*

These are the macroeconomic and environmental variables which define the capabilities of the society to receive the innovations.

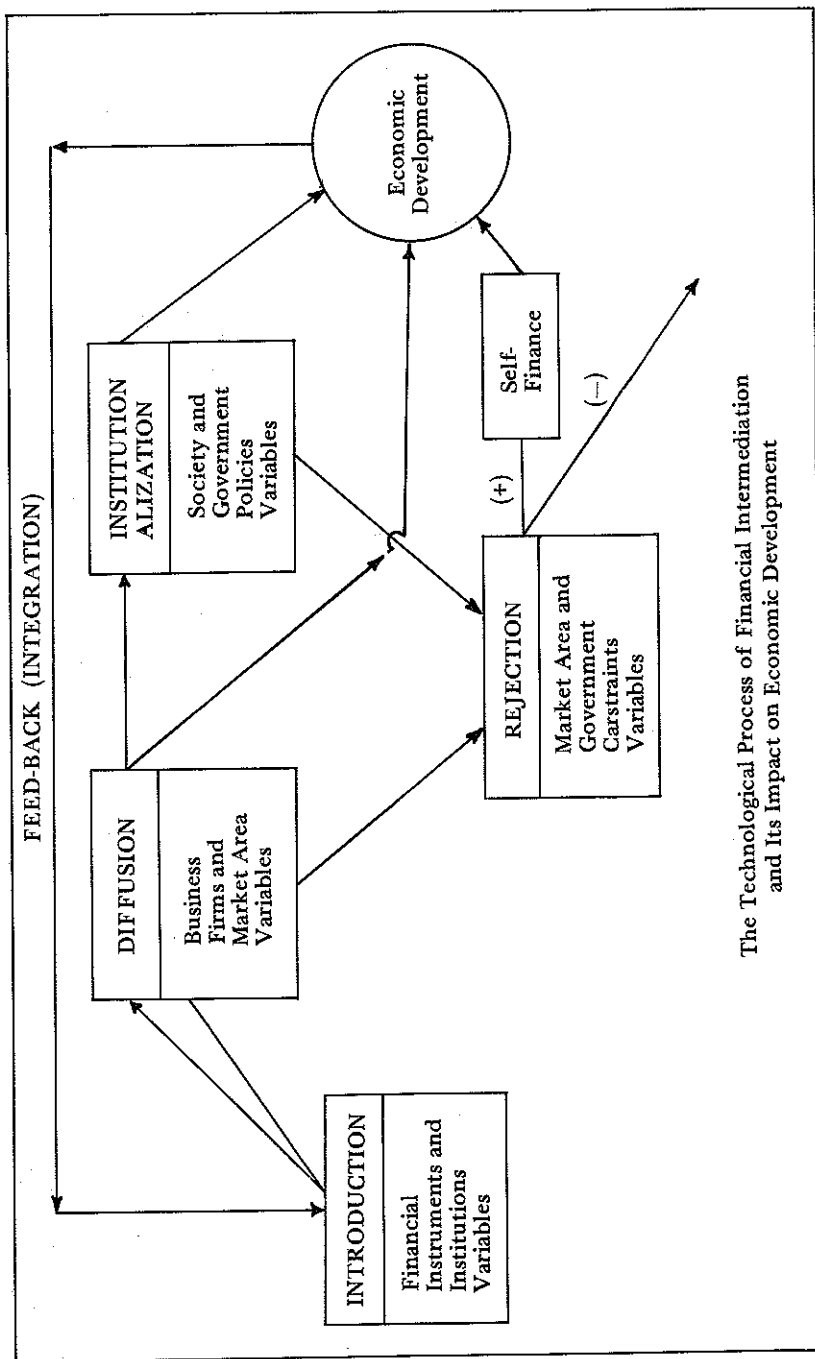
- Economic: the size and rate of growth of GNP. The level of income per capita; the size and education of the labor force, the price mechanism. The degree of technological duality and the degree of urbanization.

- Cultural: the propensity and attitudes toward innovations. Religious and cultural attitudes toward usury and credit.

- Political: the political system and the political inclinations of the Government. The degree of Oligarchy (political control by few).

- Administrative and Legal: explicit Laws and Regulations toward financial intermediation. The performance of the Judicial System in general.

These societal variables have their greatest influence on the Institutionalization Phase. The development of a financial network depends heavily upon the environment in which it has to operate. The constraining effects of regulations and the pervasive intervention of the government has been discussed at length in the literature. Nevertheless, only by identifying first and then changing these variables the process of financial intermediation can reach the institutionalization phase.



The Technological Process of Financial Intermediation and Its Impact on Economic Development

IV. Conclusions and Recommendations

The framework presented in this paper shows that an innovation in the financial sector affects the economy through a sequential process involving the Introduction, Diffusion (or Rejection), and Institutionalization of the innovation. These effects are determined by four sets of variables, namely innate variables (the nature and form of the innovation itself); organizational variables (the attributes and characteristics of the business firm adopting the innovation); market variables (the conditions and structure of the market); and societal variables (environmental and macro-economic conditions).

These four sets of variables, collectively or individually, exercise their influence over the rate and direction of the financial intermediation process. Some variables have greater influence over some phases of the process than others. The following figure illustrates where these variables exert their influence on the Technological Linkage/Multiplier (TL/M) process.

In conclusion, if the objective of the academician or the policy maker is to determine the developmental impact of financial intermediation, the TL/M process must be studied and the variables that affect this process must be identified and whenever possible quantified.

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