



Professor O. O. OJO

FINANCIAL INTERMEDIATION AND GROWTH



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An Inaugural Lecture Delivered at the  
University of Ife on Wednesday, 21st April, 1984.

Inaugural Lecture Series 68

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## INTRODUCTION

It is a great honour for me to stand before this learned audience to deliver an inaugural lecture as part of the University of Ife 1983/84 inaugural lecture series. I do so with all humility. Since the establishment of the Department of Economics in this University, this is the third inaugural lecture from that department. If the number of inaugural lectures emanating from a department is an index of growth and development, then one can rightly say that the Department of Economics in this University has matured as a centre of excellence for the study and propagation of economic science. Relative to the older departments of economics elsewhere, we are certainly young but, without fear of contradiction, I would say that we have tried to justify the hopes and aspirations of our founding fathers who saw, and inculcated in us, the notion of economic science as a catalyst of disciplined ideas for positive social action and economic transformation.

Obsession, it is often said, is an occupational disease of economists. All economists are obsessed with one type of theory or the other and when they explain economic problems, they usually do so with reference to their own pet obsession. In my limited professional career, I have not been spared this disease. My own obsession has been with the concept of money and its role in shaping the growth and fluctuations of an economy. Rarely can I explain an economic problem without reference to monetary theory and the underlying monetary structure of the economy. I am of the opinion, for example, that the present economic problems facing Nigeria are traceable to the consequences of the monetary expansion which accompanied the Udoji salary awards and the oil boom and the subsequent mone-

tary mismanagement on the part of the political leadership. From my various studies in monetary theory and policy, I hold the view that money exerts a powerful influence on the level of economic activity so that its management (or mismanagement) would, among other factors, determine the level and pace of development of an economy.

I would like to address you today on one aspect of my obsession which pertains to the concept of financial intermediation as a catalyst of economic growth. This is a problem that has taxed my research efforts for some time now and if I were not giving it as a lecture today, it would probably have ended up as yet another journal article. The topic deals with the growth of financial assets and debts in a money-using economy and the role of financial intermediaries in the saving-investment process. In short it deals with the financial aspect of economic growth. Students of economic growth (at least before Gurley & Shaw) have traditionally focussed on the real aspects of economic growth, i.e. with issues like the rate of growth of output or the rate of growth of capital formation, to the neglect of the financial aspects of economic growth. Yet a look at economic history shows that no country has successfully developed without an appreciable growth in the financial sector. As put by Gurley and Shaw:

..... development is associated with debt issue at some points in the economic system and corresponding accretions of financial assets elsewhere. It is accompanied, too, by the 'institutionalisation of saving and investment' that diversifies channels for the flow of loanable funds and multiplies varieties of financial claims. Development also implies, as cause or effect, change in market prices of financial claims and in other terms of trading in loanable funds. Development involves finance as well as goods (Gurley & Shaw, 1955, p. 515).

The general objective of this lecture is to highlight the role of financial intermediaries in the process of economic growth and to provide evidence about its impact on Nigeria's economic growth. Firstly, the lecture addresses itself to the following generalised hypotheses:

1. A primitive barter economy is ultimately monetized or transformed into a money-using economy not necessarily because of the awkwardness of barter but because of the attempt on the part of economic agents to reduce uncertainty and transaction costs inherent in a barter system. The transition from a barter to a monetary system is premised therefore on the cost minimization behaviour of economic agents.
2. In a money-using economy, financial inter-dependence will replace financial sufficiency inherent in barter. Once an economy is monetized, the growing complexity of an economy is such that financial sufficiency will give way to financial inter-dependence and direct internal finance will be replaced by indirect external finance. Also the indivisibility of investment projects, the unequal distribution of the opportunity to, and the ability to invest are such that the act of saving will be separated from the concomitant act of investment. An intermediary will therefore develop in the form of a financial institution which will pool savings from surplus units and make them available to deficit units for purposes of investment. By intermediating between savers and investors, financial intermediaries facilitate the migration of funds to the best users.
3. This act of intermediation increases aggregate volume of investment and saving beyond what it would have been in the absence of financial institutions. Also an increase in the marginal rate of return on investment

results as a consequence of more efficient allocation of saving among investors. This way financial intermediaries and their act of intermediation contribute to economic growth. Secondly, using data on Nigeria, we shall test the hypothesis that financial intermediation is not just a barometer of economic growth but also a potent instrument of economic development.

### **From a Barter Economy to a Monetized Economy**

Money, that object with which we all make purchases, has undergone a number of changes both in terms of definitions and structural transformations over the centuries. It is not likely that there is anybody here who can recall the time in this country when the form of exchange was purely barter. Under the barter exchange arrangement, goods were exchanged for goods. For example, a yam farmer who needed clothing would have to look for a cloth seller who wanted yams and vice versa. Exchange by barter has a lot of shortcomings among which the most notable is its reliance on double coincidence of wants as a prerequisite for efficient operation. It is not enough for our yam seller who wanted clothing to find a cloth seller, he must find a cloth seller who also wanted yams. In other words their wants must coincide. If they did not, the yam farmer would probably go naked while the cloth seller would go hungry. Yet another important shortcoming of trade by barter is that it leads to a multiplicity of exchange rates. Consider, as an example, an economy, with 500 goods. Under barter arrangements, each good will exchange in turn for the remaining 499 goods. The number of exchange rates will be calculated as 124, 750. This is definitely too cumbersome for efficiency. On the other hand if there was money, the number of exchanges would be 499, with one of the goods serving as a numeraire in which the prices of

other goods are expressed. The use of money therefore simplifies the process of transactions among economic agents.

Given the awkward and inefficient nature of barter, it is not surprising that in the wake of advancement in civilization, people began to experiment with more efficient systems of exchange. In this country, the transition from barter started with the use of materials such as cowrie shells, brass, copper rods for purposes of exchange and culminated in the use of paper money with which we are all now familiar. In a primitive, albeit, simple economy which barter epitomizes, the whole time path of the economy is effectively determined at the outset with both present and all future markets cleared at known relative prices. The yam farmer (or any transactor for that matter) cannot default on an obligation or purchase goods and services which over the course of time exceed the value of the goods and services he can proffer in return. Everyone knows to whom to send his products and where to pick his own consumables in return. In such a world of certainty, relative prices are fixed at the outset of the system, in period one. From then on all activities (e.g. production, consumption, etc.) proceed along pre-arranged lines. Thus, whenever all market activities can be collapsed in this way into the initial period, there **will** be no need for money and barter exchange would suffice.

What makes the transition from barter to a money-using economy imperative? In an economy with a time dimension, money, or any medium of exchange for that matter, will be desirable because differences in people's tastes and endowments will warrant that exchange, beyond contemporaneous exchange of goods and services known as barter, take place. There will thus be a medium of exchange through which current goods will be exchanged for future claims to payment. The role of money therefore is to meet

and alleviate problems of exchange under conditions of uncertainty.

Uncertainty is a necessary condition for the emergence of money, but it is not a sufficient condition. There is the larger issue of transaction costs. What happens, for example, if some transactors are dishonest? As a trader, one would need to collect information about fellow transactors and information is always obtained at a cost. Besides, costs are involved in learning the demand and supply schedules for tradeable goods of others in the economy and in discovering prices bid and offered. Once a seller has made a sale, he will need information, either on the honesty and worth of the purchaser (should the purchaser offer deferred payment), or on the value and characteristics of the good offered in exchange. If a transactor has no information about the behaviour of another, then the risk that the latter would abscond or default, if he does not pay on the spot, is high. The only way to minimize risk sufficiently to enable a transaction to go forward to the benefit of both, is to exchange physical stores of value in the form of money. As more information becomes available, the need for money would decrease so that at the stage of complete and perfect information, we would have returned to the world of certainty where exchange by barter would suffice (Goodhart, 1976, pp 3-4).

The role of money therefore is that of providing information which is necessary for the consummation of an exchange, and its existence is due to uncertainty and transaction costs. And an economy, by the same reasoning, is said to be monetized when it uses a good (as a medium of exchange) whose transaction cost is lowest, in trading, relative to other goods and services in the economy. The dominance of London in the Eurocurrency market, for example, is not due only to the role of sterling as an

international money, but largely to the comparative advantage of London banks with respect to transaction costs on foreign funds (Nichans, 1978, p. 104). Thus cost minimization and the reduction of uncertainty on the part of economic agents, more than anything else, account for the emergence of money.

### The Role of Finance in a Monetized Economy

Once an economy is monetized, the financial system becomes increasingly complex. At the initial stages, each economic unit would be self-sufficient in the sense that its receipts would be equal to its expenditures. In other words, receipts would suffice to finance not only current consumption but also capital expenditures. Similarly nobody would have excess funds since current consumption and capital expenditures would absorb all receipts. This situation of financial self-sufficiency is referred to as direct internal finance. As the economy becomes more complex, however, indirect external finance would replace direct internal finance. There would be economic units whose receipts exceed their expenditures. Similarly there would be economic units whose expenditures are in excess of their receipts. The differences between receipts and expenditures are called financial surpluses if they are positive, and financial deficits if they are negative.

The existence of financial surpluses and deficits requires the creation of financial instruments to effect the transfer of funds from surplus units to deficit units. The economic agents which affect the transfer of such funds are called financial intermediaries and their role in transferring such funds is called financial intermediation. Examples of financial intermediaries are commercial banks, development banks, merchant banks, insurance companies, credit and cooperative societies, the National Provident Fund,

and investment companies. The means by which they transfer funds is called financial instruments. Examples are treasury bills, treasury certificates, cheques and savings passbooks.

The existence of financial surplus and deficit units is thus a necessary condition for the development of financial intermediaries. But it is not a sufficient condition. It is possible for the transfer of funds to be effected directly between surplus units and deficit units. For example, a government may sell its bonds to households as it happened during the Nigerian civil war when the government instituted the compulsory savings scheme. In this situation, the mode of financing is direct external finance: direct because the transfer occurs directly between surplus and deficit units and external because the deficit unit, in making capital expenditures, uses resources other than its own. Thus financial intermediaries develop when it is found desirable and necessary to substitute indirect for direct external financing. The necessary and sufficient conditions for their growth are the existence of surplus and deficit units and the overriding advantages of indirect external finance over indirect internal finance.

The advantages of indirect external financing which are associated with financial intermediaries can be condensed into the statement that "surplus units want financial instruments that differ from those which deficit units prefer to issue, and deficit units want accommodation on terms differing from those which surplus units are able or willing to grant" (Goldsmith 1969, p.26). The difference may concern the maturity, size, legal character, risk, redeemability, marketability of the financial instrument; or any combination of these factors; or it may concern the convenience and cost of transaction. The thing that is important however is that financial intermediaries make funds available to deficit units (borrowers) in a form diffe-

rent from that in which they receive them from surplus units (lenders). Financial intermediation thus involves a transformation of funds.

The transformation that financial intermediaries effect is that of debtor substitution – the substitution of the intermediary's own liabilities for those of non-financial units. This substitution is attractive to lenders because as a rule, the financial intermediary is better known, more credit worthy and more accessible to the lender than the ultimate borrower is. In addition, the financial instruments of financial intermediaries are, as a rule, more liquid and more easily divisible than those of non-financial issuers. Most instruments (like demand deposits) can be cashed immediately and with little or no cost.

The factors so far discussed are advantages that financial intermediaries enjoy in the attraction of funds from lenders. There are also advantages for borrowers in obtaining the funds that they need from financial intermediaries. Perhaps the most important advantage is the flexibility in borrowing arrangements made with one or a small number of financial intermediaries. Such a flexibility is important not only when the loan is being made (when it permits that the loan be tailored to the needs of the borrower) but also in later periods if changes in the original terms of the loans become desirable. Financial intermediation also confers an advantage to the national economy in terms of allocative efficiency. By pooling financial resources all over the economy and making same available to deficit units, financial intermediaries make the flow of funds in the economy very efficient.

The advantages of indirect placement of funds through financial intermediaries cannot be obtained without a price. Since the financial intermediary that receives, transforms and lends funds, incurs costs of administration, and must

earn a profit for its owners and accumulate some resources, the rate of interest which lenders receive must be lower than the rate which borrowers pay. The difference is the profit of the financial intermediary.

How is financial intermediation to be measured? What factors influence it? Raymond Goldsmith has suggested the use of the financial inter-relationships ratio (FIR) as a good measure of financial intermediation. The financial inter-relationships ratio is the ratio of all financial assets in the economy at a particular time to the value of a country's national wealth. This ratio which has found wide applicability in developed countries, has not been extensively used in developing countries because of the paucity of data particularly on national wealth. This limitation has led to the development of other concepts of financial intermediation. One of such concepts is that of financial ratio which is defined as the ratio of financial assets to the gross national product. As a variant of financial inter-relationships ratio, the financial ratio has not been used extensively also because of data limitations mentioned above and in particular because the banking system widely defined, is for all practical purposes, the financial system.

In this lecture, we have adopted a variable (and its variants) which recognises that in developing countries, the banking system is synonymous with the financial system, and as such, a measure of financial intermediation should have its roots in the banking system.

In the early stages of financial development, financial institutions suffer general distrust. Since, in a practical sense, these institutions constitute money and capital markets, public distrust means that the pool of financial resources subject to intermediation tends to be small. Consequently, the saving-investment transfer mechanism tends to be weak. One product of these characteristics is

that the money stock consists primarily of currency in circulation, and the ratio of currency in circulation to the stock of money tends to be high. Hence, the ratio of currency in circulation to money stock is a good measure of financial intermediation.

Let the money supply be defined broadly as

$$M \equiv C + DD + TD \quad (1)$$

where

C = currency in circulation

DD = demand deposits

TD = time deposits.

As we noted earlier, the ratio of currency in circulation to money stock ( $\frac{C}{M}$ ) suggests the extent of distrust, or lack of availability, of financial institutions; inversely ( $\frac{C}{M}$ ) indicates the extent to which financial resources are pooled, and therefore subject to financial intermediation.

Deriving ( $\frac{C}{M}$ ) from the definition of money stock,

$$\frac{C}{M} = 1 - \frac{DD}{M} - \frac{TD}{M} = Z \quad (2)$$

reveals that ( $\frac{C}{M}$ ) (or Z) is the complement of the money stock components, DD and TD, which directly indicates the extent to which financial resources are pooled. Thus  $[1 - (\frac{DD}{M}) - (\frac{TD}{M})]$  can be substituted for ( $\frac{C}{M}$ ) to provide an alternative measure of financial intermediation.

### Financial Intermediation and Economic Growth

The question that becomes pertinent at this stage is: does the existence of financial intermediaries and their role of intermediation make any difference to the speed and character of economic growth? If one turns to econo-



mic theory, it is not difficult to make a case for the hypothesis that the separation of the functions of saving and investment, which is made possible by the introduction of financial instruments as well as the enlargement of the range of financial assets which follow from the creation of financial institutions, increases the efficiency of investment and raises the ratio of capital formation to national product; and that financial activities through these two channels increase the rate of growth.

Now let us assume that members of an economic community differ in their ability to combine factors of production and to utilize assets acquired by saving or inheritance. Let us assume further that there are economies of scale and externalities in the economy. With these two assumptions, it is possible to increase output, not by increasing the amount of factors of production in use, but by division of work in which some units – those with less entrepreneurial ability and higher degree of risk aversion – save more than they invest, while others invest more than they save, the excess savings being pooled and transferred by financial intermediaries. The creation of a whole gamut of financial instruments frees households and other economic units from the indissoluble tie between their own saving and their investment. In the absence of a financial instrument, each unit's saving is necessarily equal to its own investment but once there are financial instruments, a unit's investment may be larger or smaller than its saving. And any saving not invested within the unit will yield income and provide further incentive to saving in excess of the sterile accumulation of money

But all these still do not guarantee that the introduction of financial instruments will accelerate the process of economic growth. We have to add the assumption of unequal distribution of entrepreneurial opportunities and abilities. The unequal distribution of the opportunity and

ability to invest is reinforced as an engine of growth by the indivisibility of investment projects. Most of the time the volume of saving required for many production processes is beyond the saving of a single economic unit, except perhaps the government. Such investments can only be financed by the pool of savings by financial intermediaries (Goldsmith 1969, p. 393).

Since financial institutions neither save nor invest (and if they invest at all, it is usually small), the growth-inducing effect can only come from two sources (Goldsmith 1969, pp. 394-395):

The first is the increase of the aggregate volume of investment and saving beyond what it would have been in the absence of financial institutions when savers and investors would have been limited to direct financing. The second is the increase in the marginal rate of return on investment that results from a more efficient allocation of saving among potential investments, the reallocation reflecting the operation of financial institutions. As the introduction of primary securities cuts the umbilical cord between a unit's saving and its investment and enables capital expenditures anywhere in the economy to be financed by saving everywhere else, at least theoretically, so the introduction of financial institutions and secondary securities issued by them as well as of financial assets acquired by them severs the direct connection between an individual saver and an individual investor or an individual item of capital expenditure.

The growth-inducing argument given so far can be summarised as follows. Let the savings function be

$$S = f(Y, Z) \quad (3)$$

where

$Y$  = income

$Z$  = measure of financial development

Equation (3) can be rewritten in a linear form as

$$S = [\beta_1 + \beta_2 (Z)] Y \quad (4)$$

so that the savings ratio can be written as

$$\frac{S}{Y} = \beta_1 + \beta_2 (Z) \quad (5)$$

Assume that the rate of capital formation (i.e. investment) is related to the proportion of savings out of income in the following manner:

$$K = I = sY \quad (6)$$

where

$$s = \frac{S}{Y} = \text{savings ratio}$$

$$K = \frac{dk}{dt} = I = \text{rate of change of capital or investment}$$

Then from (5) & (6)

$$I = [\beta_1 + \beta_2 (Z)] Y \quad (7)$$

so that

$$I/Y = \beta_1 + \beta_2 (Z) + e \quad (8)$$

where  $I/Y$  is the ratio of capital formation to gross national product and  $e$  is the error term.

Capital formation plays a dual role in an economy; it expands productive capacity and thereby determines the economy's long-term growth path. It is also essential to the process whereby additions to the labour force are absorbed and it is the channel through which new technology is passed to the rest of the economy. Financial intermediation increases the efficiency of investment and thereby raises the ratio of capital formation to gross national

product. Financial activities, through these two channels therefore increase the rate of growth. This, in fact, is the justification for the use of the ratio of capital formation to gross national product in equation (8).

Financial development is certainly not the only factor that can induce capital formation. The level of income for example, is an important factor for, it is the level of income which will determine the amount of saving that will be subject to intermediation in the first instance. Another variant of equation (8) will therefore include income as an additional explanatory variable, viz:

$$I/Y = \alpha_0 + \alpha_1 Z + \alpha_2 Y + U \quad (9)$$

where all variables are as previously defined and  $U$  is the error term.

Applying ordinary least squares to both equations (8) and (9) and using Nigerian data for the period 1960-1982 we have the following results:

$$I/Y = 0.046 + 0.33 Z \quad (10)$$

(0.061)

$$R^2 = 0.6949,$$

$$D. W. = .30$$

$$I/Y = 0.060 + 0.163 Z + 0.001 Y \quad (11)$$

(0.01) (0.0008)

$$R^2 = 0.7690,$$

$$D.W. = 1.23$$

Equations (10) and (11) show the regression results. The summary statistics indicate that the rate of growth is significantly influenced by the level of financial development and the level of income. A more revealing measure of the influence of financial development is the Beta co-efficient

which measures the relative importance of a particular variable in an equation containing more than one variable. In equation (11), it is calculated that the relative importance of financial development is 62%. This shows that in the equation containing both financial development and income, the relative impact of financial development is 62%. And this is quite substantial. What these results confirm is the theoretical claim of the importance of financial development on the process of economic growth.

The conclusion which we have reached that financial development significantly influences the rate of growth of an economy leads to the next question of the place of finance in the growth process. Here I have in mind the controversy on the "demand - following" and "supply - leading" finance. According to Patrick (Patrick, 1966) "demand - following" finance is the

Phenomenon in which the creation of modern financial institutions, their financial assets and liabilities, and related financial services are in response to the demand for these services by investors and savers in the real economy. In this case, the evolutionary development of the financial system is a continuing sequence of the pervasive, sweeping process of economic development. The emerging financial system is shaped both by changes in the objective opportunities and by changes in subjective responses

In this case, the nature of demand for financial services depends upon the growth of real output, the commercialization and monetization of agriculture. The more rapid the growth of the economy, the greater will be the demand by firms for external funding and therefore financial intermediation, as firms will no longer be able to finance expansion through internal funds and retained profits. In a similar way, if we assume a given aggregate growth rate, the greater the variation in growth rates among indus-

tries, the greater will be the need for financial intermediaries to transfer funds from slow-growing industries to fast-growing industries. The financial system then support and sustains the leading sectors in the process of growth.

Supply-leading finance, on the other hand, is the "creation of financial institutions and the supply of their financial assets, liabilities and related financial services in advance of demand for them, especially the demand of entrepreneurs in the modern growth-inducing sectors". According to Patrick, supply-leading finance has two functions: to transfer resources from traditional sectors to modern sectors and to promote and stimulate an entrepreneurial response in these modern sectors. The access to supply-leading funds itself may have effects on entrepreneurs. It may serve as a big push on their entrepreneurial abilities. Moreover, top management of financial institutions may also serve as entrepreneurs in industrial enterprises.

While supply-leading finance may not be a pre-condition for economic growth, it certainly presents an opportunity to induce real growth by financial means. Consequently, it is more likely to be more important in the early stages of development than later. Furthermore, there is likely to be interaction of demand-following and supply-leading phenomena. Before modern economic growth *a la* Kuznets gets under way, supply-leading finance may be able to induce some growth. But as the economy grows, the importance of supply-leading finance may decrease while demand-following type of finance becomes dormant. Going back to economic history, the case of Japan in the 1870s during the Meiji era represents a good example of the sequence of supply-leading and demand-following finance. In the 1870s a modern banking system was established. Initially the system financed agriculture, commerce and the emergent international trade. By the

mid-1880s however it had become the locus of the promotional and entrepreneurial talent which launched the industrial revolution. The financial system which was created in advance of Japanese industrial revolution provided both funds and entrepreneurial talent on a supply-leading basis and thereby contributed significantly to the initial industrial growth. By the mid-1890s when Japan had achieved some measure of success in industrialization, emphasis shifted from supply-leading to demand-following finance.

Coming back home to the Nigerian situation, there are evidences to show that the financial sector has been supply-leading. In other words, the sector, having been established, has tended to lead the other sectors of the economy. The regression results presented earlier is one type of evidence. Another example is to be found in a different, but related study (Ojo, 1982) in which we established that the growth of financial assets which was estimated to be 12.5% consistently led the growth of the gross domestic product which was 8.2%. This implies that the growth of financial institutions throughout the period significantly mapped out the growth pattern of the economy.

It is recognition of the growth-inducing capability of financial intermediaries which led the Central Bank of Nigeria, upon its establishment, to take measures to develop a sound financial sector. The Bank took the first steps in 1960 when it established financial intermediaries in the form of money and capital markets. Before 1960, a rudimentary form of money market which existed was an integral part of the London money market. This market worked by moving funds from London to Nigeria during the harvest season in order to finance the exports of produce. At the end of the harvest season, the funds were moved back to London, where there was an all-season money-market activity. The role of the Central Bank invol-

ved the repatriation of these 'roving' funds to Nigeria for the country's economic development. In pursuance of this, the Bank issued the first set of treasury bills in 1960. These were in multiples of ₦1,000. Since 1963 these monthly issues were replaced by weekly issues of ₦2,000. That same year, a new money market instrument, (the treasury certificate) was introduced. The maturity ranges from twelve to twenty-four months. Since the maturity is longer than that of the treasury bill (which is 90 days), this new instrument has widened the range of securities in the market. In addition to these instruments, other financial instruments in the money market include the call-money fund, commercial bill finance and the certificate of deposit.

Unlike a money market, which is a market for short-term funds, a capital market is a market for long-term borrowing and lending. The market is divided into two: the primary market and the secondary market. The primary market deals with the selling of new securities and it is dominated by investment banking firms otherwise known as merchant banks. The secondary market on the other hand is a market for the resale of old securities. This market is dominated by the Stock Exchange.

As with the development of the money market, the development of the capital market was at the initiative of the Central Bank. Since 1960 the Bank has been issuing a wide range of development loan stocks and premium bonds. Activities on this market have intensified in recent years because of the attempts of firms to comply with the provisions of the Indigenization Decree. The firms use the capital market to place their shares for sale to the public. This market was further strengthened in 1973 when the Capital Issues Commission was established to regulate the prices of shares and the timing of the issues of shares.

The Central Bank has also cooperated with the Federal Government in establishing financial institutions like the Nigerian Industrial Development Bank, the Nigerian Bank for Commerce and Industry, the Nigerian Agricultural and Cooperative Bank, the Nigerian Mortgage Bank etc. As financial institutions, these bodies pool funds from surplus units and make them available to deficit units for purposes of investment.

The development of commercial banks has taken place at the initiative of individuals and the government, with the latter exerting a powerful influence over the largest banks. The Central Bank realizes however that since commercial banks represent the most important component of the financial sector, their performance or non-performance would determine the extent to which individuals would have confidence in the financial system and therefore the extent to which their funds would be subject to intermediation. In recognition of the need for a sound banking habit, the Central Bank has, in various legislations, tried to control and regulate the activities of the commercial banks. These legislations are designed to ensure sound banking policy with a view to ensuring confidence in the financial system so that the process of financial intermediation can continue unabated.

Finally, as a means of ensuring that the savings in the rural areas of the country are pooled for development purposes, it launched the Rural Banking Scheme in 1977. The scheme, which was divided into two phases, would have increased the number of bank branches in the rural areas by 466 when the scheme ended at the end of 1983. One only hopes that a similar scheme would be extended to the non-bank financial intermediaries so that they too can supplement the activities of the commercial banks. One of the criticisms of the Rural Banking Scheme is that the scheme pools the financial resources of the rural areas

(where there are no viable projects) for investment in the urban areas. In order to alleviate the fears of the rural dwellers and to effectively mobilize these rural dwellers for development, it is necessary to require financial institutions to re-invest a certain proportion of the funds mobilized in the rural areas in such areas. Such a requirement will be similar to the credit and sectoral guidelines of the Central Bank which enjoin commercial banks to allocate a certain percentage of their credit to certain preferred sectors of the economy. Such a prescribed credit policy for the rural branches would serve as added incentive on the part of rural dwellers to save since they know that a certain percentage of that saving would be used for their own development.

## CONCLUSIONS

I have tried, in the last few pages to highlight the role of financial intermediaries in the process of economic growth. Specifically, I showed that:

1. a barter economy ultimately gets monetized because of the attempt on the part of economic agents to reduce transaction costs and uncertainty;
2. as an economy develops, financial autonomy gives way to financial interdependence, the logical outcome of which is the development of financial intermediaries to pool funds from surplus units to deficit units for purposes of capital formation;
3. this act of intermediation increases the efficiency of investment such that a higher rate of growth of the economy results;
4. in the Nigerian case, financial intermediation contributed significantly to the growth of the economy;

5. **given the positive association between financial intermediation and growth**, a case can be made for developing the financial infrastructure ahead of the demand for them. In other words, a case can be made for a supply-leading finance policy. The experience of developed countries (like Japan) appears to support this position.

Finance, is a two-edged sword – it can aid the process of economic growth as has just been demonstrated or it can destroy that process itself, depending upon the policies pursued by the government. McKinnon and Shaw (McKinnon, 1973; Shaw, 1973) in separate studies, have shown that the imposition of controls on the financial system by the government, particularly in less developed countries, tends to lead to financial repression, a situation whereby rather than aid growth, finance leads to distortions in capital formation and tends to retard growth. McKinnon and Shaw and writers of the same view certainly have a point – an element of financial liberalization is essential if finance is to aid the process of growth. But complete liberalization, under whatever kind of theoretical rationalization is not to be advocated for an economy, certainly not for a growing under-developed economy where finance itself is one of the scarce factors of production. Besides, as Professor Ajayi and I have argued in our book on money and banking (Ajayi & Ojo, 1981) both bank and non-bank financial intermediaries are purveyors of credit and to that extent, creators of money. No responsible Central Bank would sit by and allow financial intermediaries to create money in an unlimited fashion. This explains why the Nigerian Central Bank legislates for and controls the commercial banks. But there is a gap in the policy of the Central Bank itself: with the exception of acceptance and discount houses, the non-bank financial intermediaries are still not

subject to the credit control measures of the Central Bank. This is certainly a source of weakness in the conduct of monetary policy by the Bank.

I have taken this long circuitous route to arrive at these results concerning the role of financial intermediation in the economy. Such is the methodology of the social sciences in general and of economics in particular. Starting as it did in the hands of philosophers, moral scientists and theologians, positive economic science is at once devoid of ethical position or value judgment. According to Friedman (Friedman, 1953) its goal is the development of a theory which yields valid and meaningful predictions about events which have not been observed. Such a theory is an intermixture of language and a body of hypotheses. As a language, it has no substantial content, it is but a set of tautologies. Its main function is to serve as a filing system for organizing empirical material and for facilitating our understanding of it. But as a body of hypothesis, a theory is to be judged by its predictive power for the class of events it is designed to explain. Thus the only relevant test of the validity of a hypothesis is the comparison of its predictions with experience. A hypothesis is thus rejected if its predictions are contradicted and it is accepted if they are not contradicted.

The concern of economic science with theorizing, and falsification of hypotheses, had led, over half a century ago, to the use of the tools of science, namely mathematics and statistics. These tools, and the construction of single and large-scale simultaneous models which they make possible have greatly aided the process of falsification of hypotheses and improved economic policy formulation. While, for example, economists do not have laboratories comparable to those of our colleagues in the physical or natural sciences, we too perform experiments on compu-

ters using simulation techniques. Such experiments do aid the formulation and implementation of economic policy.

This lecture has been approached from this angle of scientific tradition. Starting from a body of generalized hypotheses and the subsequent observation of the real world, we were able to establish, through a model, a positive relationship between financial development and economic growth. We were further able to establish the degree of confidence we can place on our results. Pursued further, the results can be simulated for alternative policy options and their consequences. It is thus obvious from the above, that economic science has become a highly technical subject, through the use of mathematics and statistics. But as a language and a method of scientific enquiry, mathematics has its limitations – indeed in any of its applied fields, it is a wonderful servant but a very bad master. While appreciating this limitation of our techniques of research, we, in our Department of Economics here at Ife, shall continue to emphasize the policy and social relevance of our mathematical models as we continue to move economics along these scientific lines in the years ahead.

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