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GOVERNMENT, FINANCIAL MARKETS, AND ECONOMIC DEVELOPMENT

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ABSTRACT

Ideological debates on the role of government in development have focused on two contrasting prescriptions: one calling for large scale government interventions to solve problems of massive market failures, the other for the unfettering of markets, with the dynamic forces of capitalism naturally leading to growth and prosperity. This paper is part of an exploration of a middle road, focusing in particular on the role of government in financial markets. After explaining the importance of, and the limitations on, capital markets, particularly in allocating scarce investment resources, the results are used as a basis of a critique of the two "extreme" approaches. Recognizing the limitations of government intervention as well as of free markets, the "new view" of capital markets provides new insights into a variety of policy issues, which are addressed in the final section of the paper.

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Government, Financial Markets, and Economic Development¹

Joseph E. Stiglitz

For the past several decades, economists have offered developing countries two contrasting prescriptions for success. One school of thought has seen the failure of countries to develop as evidence of a massive market failure, and suggested that what is required is massive government intervention; at the very least, government should take a central role in planning, allocating investment and credit, and controlling international trade.² The second approach sees government more as the problem than as the solution: by unfettering markets, the dynamic forces of capitalism would naturally lead to growth and prosperity.

There is growing disillusionment within the Third World with both of these extreme approaches. Many governments are groping to find an eclectic approach, in which governments play a limited, but vital, role in the development process. Those who advocate such "reasonable" approaches to

¹November 1990 revision of a paper originally presented at a conference at the Vargas Foundation, Rio de Janeiro, August 7-8, 1989. Financial support from the Olin Foundation, the Hoover Institution, and the National Science Foundation is gratefully acknowledged. Conversations with Ron McKinnon were particularly helpful. My work in this area has also benefited greatly from conversations over the years with Mark Gersovitz, Jonathan Eaton, Andrew Weiss, and Bruce Greenwald. An abbreviated version of some parts of the paper appear as "Financial Markets and Development," Oxford Review of Economic Policy, 1989.

²Though the intellectual origins of this perspective undoubtedly go a long way back, in recent decades, this school has attempted to relate the problems observed in less developed countries to the general "market failures approach." This approach begins with the fundamental theorem of welfare economics, which provides a set of assumptions under which market economies are Pareto efficient, and then attempts to interpret observed instances of deficiencies in market economies can be related to the failure of specific assumptions within that model being satisfied.

government policy face a difficulty: the two alternative approaches have a clearly articulated intellectual basis, a framework to which they can appeal for guidance. Never mind that the underlying assumptions are inappropriate or that some of the central predictions of the theories supporting one or the other extreme approaches may be refuted: these are refinements which are of concern to academics. The ideology serves a vital function of providing ready--if not always appropriate--answers to difficult questions.

The purpose of this paper is to present an outline of some of the ingredients of the intellectual foundations of the middle approach of balanced government intervention, focusing in particular on financial markets, and to explain why I believe it is that the two alternative, extreme approaches are so intellectually bankrupt. The two extreme approaches share in common two factors: an appeal to simple prescriptions to solve complex problems, and an explanation of the failures of their prescriptions to work in those instances where they have been tied to the patients' failure to follow the prescribed course of medicine in its entirety.

I focus my attention on the role of government in financial markets. This is partly because of the general consensus concerning the central role of financial markets in economic development, partly because of the extreme divergence in views concerning the appropriate role of government in this sphere.

I begin with two assertions concerning the historical experience of the role of financial markets and government in economic development:

1. Governments have played a central role--whether for good or ill may be debated--in the development of most of those countries which today belong

among the more developed. I am particularly concerned here with the role of government in financial markets. In the United States, the railroads were given huge land grants, which provided them with an important asset facilitating raising capital by issuing bonds. Even today, in the US, more than a quarter of all loans (to private individuals or firms) are made with government guarantees or are intermediated by government lending agencies. In Japan, MITI is believed to have played a central role in determining which industries get credit. High on the agenda of nationalization in most countries is the nationalization of the banking industries.

2. Well functioning equity markets have played a relatively unimportant role in economic development. Even today, in the developed countries, a relatively small fraction of new funds is raised on equity markets.

Most, but not all, of the successful efforts at development have entailed enterprises requiring considerable amounts of capital. There are four principal ways that such agglomerations of capital can be formed: (a) accumulation of capital by families; (b) accumulation within corporate enterprises; (c) voluntary agglomeration of capital via capital markets (including banks); and (d) "forced" agglomeration of capital via government.³ Successful development requires not only the agglomeration of capital, but also the appropriate allocation and management of capital. This entails screening different investment opportunities for those most

³Government policies may, in effect, channel savings to large enterprises within the private sector or be used for large projects within the public sector.

likely to yield high returns and managing the investment opportunities in a way to ensure that they live up to their potentials.

The problems of agglomerating and allocating capital are, of course, closely linked together. When capital is accumulated within families, there is no separation of ownership and control, or to put it in the more fashionable jargon of modern information economics, no principal agent problem. The family has a clear incentive to ensure that the funds are well spent. Of course, if the family has many enterprises to manage, they can only devote part of their energies to each project, and must engage in considerable delegation. Thus, principal-agent problems inevitably arise, but there is at least a clear incentive to ensure that they be handled as well as possible.

The heightened sense of egalitarianism in modern societies has resulted in most governments imposing taxes which inhibit huge family agglomerations.

Some large agglomerations occur within corporations, but, as we are increasingly becoming aware, the interests of those who run the corporations often are distinctly different from those who nominally own the corporation. By now, there is a clear body of evidence suggesting at least that in many instances managers advocate, and undertake, actions which do not maximize the market value of the firm⁴.

Capital markets--providing for voluntary agglomerations--while they are of critical importance, face, as we show in the next section, important limitations arising from imperfect and incomplete information.

⁴The clearest evidence relates to how firms respond to taxes and take-overs. See Stiglitz (1982a) and Shleifer and Vishny (1988).

We have increasingly become aware of the limitations of government within capital markets. Governments compound the standard principal agent problems with what may be called, for want of a better term, political economy problems. Providing loans at interest rates which are below the "actuarially" appropriate rates provides an excellent way for governments to provide hidden subsidies to their friends and supporters: who is to know, until or unless the borrower defaults, that the loan was not one that could be justified on good business grounds; and even if it is attacked on those grounds, one can always appeal to broader social objectives. The potential scope of the abuse of public loan programs and the difficulties of controlling those abuses makes such programs problematical, even if one could justify them on other grounds (a point to which I shall return later.)

From this perspective then, we face a second best problem: none of the methods of providing for the agglomeration of capital are without their deficiencies or difficulties.

This paper is divided into three sections. In the first, I explain both the importance of, and the limitations on, capital markets. In the second, I use these results as the basis of a critique of what I have called the two extreme approaches to development strategies. In the third, I use the analysis of Part I to address several policy issues.

I. Aspects of the Theory of Capital Markets

A. On the Importance of Capital Markets

Capital markets perform several critical roles: they aggregate savings and they allocate funds. In the process of performing these functions, funds must be allocated not only among competing sectors, but also among competing management teams (firms). Within capital markets, banks play a distinct role: having allocated the funds, banks continue to perform an important task in ensuring that the funds are used in the way promised by the borrower, and that the borrower, in responding to new contingencies, takes into account the interests of the providers of capital. At the same time that they provide these services, they reduce the risks facing savers by allowing for diversification.

The funds required for undertaking investments of any scale are, as we have noted, beyond the means of most entrepreneurs. Banks and other financial institutions take the relatively small savings of large numbers of individuals, aggregate them together, and thus make funds available for larger scale enterprises. This is socially desirable because of the importance of scale effects: if each individual was limited to the investments he himself could finance, returns would be correspondingly limited. This would be an important role, even if all individuals were identical, and the bank could, accordingly, allocate the funds simply by randomly choosing one individual to receive the loan.

But individuals are not identical. Some are better managers than others, and some have better ideas. A central function of financial

institutions is to assess which managers and which projects are most likely to yield the highest returns.

Moreover, once the loan has been made, it is important to monitor that the funds are spent in the way promised, and that the project is well managed.

These two functions of financial institutions are referred to as their screening and monitoring roles.⁵

B. Financial Structure

The form in which capital is provided has consequences both for how these screening and monitoring functions are performed and the behavior of borrowers. The three most important forms in which capital is provided are equity, long term loans, and short term loans.

1. Equity

From the perspective of the entrepreneur, equity has two related distinct advantages. Risk is shared with the provider of capital, and there is no fixed obligation for repaying the funds. Thus, if times are bad, payments to the providers of capital are suspended. The firm will not face bankruptcy, and will not be forced to take the extreme measures intended to stave off bankruptcy. From a social point of view, equity has a distinct advantage: because risks are shared between the entrepreneur and the provider of capital, the firm will not normally cut back production as much

⁵See Stiglitz and Weiss (1989).

as it would with debt finance, if there is a downturn in the economy. (See Greenwald and Stiglitz (1988b, 1988c).)

But there are some distinct disadvantages of equity. Because entrepreneurs do not have a fixed commitment (and because they must share the returns to their effort with the other shareholders) incentives are attenuated. Because shareholders only get a fraction of profits, managers have an incentive to divert profits to their own uses (not only managerial perks, but the acquisition of knowledge and skills which improve their market position).⁶ Recent literature has stressed how imperfect information provides theoretical explanations for why take-overs and other markets mechanisms provide only limited discipline on managerial behavior, and consequently, for why managers have considerable autonomy.⁷ These incentive issues have recently received considerable attention, as instance after instance of cash rich oil companies squandering the extraordinary profits they received during the years of high oil profits come to light: Exxon with its half billion dollar loss on Reliance and Mobil with its loss on Montgomery Ward are but two of many instances. Indeed, the increase in value which has been associated with corporate financial restructuring,

⁶ There is, by now, considerable empirical evidence for these views.

Managers not only expend resources to increase their outside market value, but they also take actions which make it more difficult for the firm to replace them. This is referred to as managerial entrenchment. See Shleifer and Vishny (1988).

⁷See Grossman and Hart (1980) and Stiglitz (1982b, 1985). For a precursor of these arguments, see Berle (1925).

increasing firm debt, is often partly attributed to the fact that with high debt, managers are forced to work hard--they have their backs to the wall.⁸⁹

Moreover, those entrepreneurs who are most willing to sell shares in their firms include those who believe, or know, that the market has overvalued their shares. There are, of course, good reasons for issuing equities--risk averse individuals with good investment projects, requiring more capital than they have will also issue shares. But these individuals and firms are mingled together with those who see an opportunity to cash in on the markets' ignorance. And unfortunately, the market cannot easily distinguish among the two. As a result, there is an adverse signal associated with issuing new equities--on average, the value of firms' shares

⁸Robert Hall has, accordingly, referred to this theory of corporate finance as the "backs-to-the-wall" theory of corporate finance. Early studies emphasizing the role of finance in affecting managerial incentives include Jensen and Meckling (1976) and Stiglitz (1974), who pointed out the close analogy between the traditional incentive concerns in the sharecropping literature, and similar problems in modern corporate enterprises. For a more recent survey, see Jensen (1988).

⁹Three other mechanisms for ensuring that those who get funds from others treat the providers of capital in the manner promised should briefly be noted: (a) Reputation may be effective, if firms wish to re-enter the capital market to raise capital again in the future. But reputation mechanisms are only effective if firms wish to raise additional capital, and the adverse signalling effect associated with new equity may make firms particularly reluctant to re-enter the equity market, at least for a considerable period (see Gale and Stiglitz, 1989). Moreover, reputation mechanisms become particularly ineffective as firms face threats of bankruptcy. (See Eaton, Gersovitz and Stiglitz [1986] for a general discussion of these issues.) In LDCs, the absence of an established reputation may put new domestic financial institutions at a disadvantage and serve as a barrier to entry. (b) Fraud and securities laws may impose important constraints on how firms treat their providers of capital. In many LDCs, legal systems are, however, both slow and relatively ineffective. (c) In traditional societies, trust (ethnic ties) may provide an effective enforcement mechanism. In the process of development, however, these ties may be weakened, impairing the efficiency with which capital markets function.

decreases when they issue shares. This serves as an important deterrent to issuing shares.¹⁰

The disadvantages of equity seem, in most cases, to outweigh the advantages, even in more developed economies. Relatively little capital is raised by new equity issues, and even by secondary equity issues (where a principal stockholder shares his shares, either so that he can diversify his portfolio or spend his wealth).

But the more developed countries have several distinct advantages in issuing equities that are not available in most LDCs. The existence of well organized secondary markets for securities makes equities particularly attractive. It increases liquidity and allows easy portfolio diversification.

Moreover, the standard accounting procedures (enforced, in part, by the taxing authorities and by government securities regulators) reduce the problems posed by outright managerial cheating. They make it more difficult for investors to be misled by shady practices, including Ponzi schemes. Managers can still rip off the firm--in one recent take-over episode, they walked off with more than a \$100 million--but typically, the amount they take is but a small fraction of the firm's assets. In the early days of modern capitalist economies, there were numerous instances of stock market scams. Given this history, and the apparent ease with which stockholders can be taken advantage of, it is perhaps remarkable that equities markets work as well as they do.

¹⁰The theoretical arguments are provided in Greenwald, Stiglitz and Weiss (1984), Stiglitz (1982) or Myers and Majluf (1984). For empirical evidence, see e.g., Asquith and Mullins (1986).

Nonetheless, we must bear in mind the quite limited role that they play in raising capital in developed countries. Hopes of raising substantial amounts of capital in this form within LDCs appear to me to be unreasonable.¹¹

¹¹The evidence is summarized in Mayer, 1989: new share issues, during the period 1970-1985, as a percentage of net financing, were negative for Finland, U.K, and the U.S., and only 2.2% for Canada and .6% for Germany.

Critics may point out that at certain selected times, stock markets have raised appreciable amounts of finance. (See, for instance, Taggart (1985), who cites figures as high as high as 19% for the period 1923-39.) Taggart notes that the increase in equity issues, from 2% in the 60's to 3% in the 70's, is largely accounted for by public utility preferred stock issues; preferred stock does not suffer from some of the "enforcement" problems associated with common stock; moreover, utilities, because they are regulated and accordingly heavily monitored, do not suffer from some of the other control problems associated with equities in other industries.

Moreover, the temporary success of a financial instrument in raising capital provides little evidence for its long run viability. It takes time for investors to learn about all the relevant attributes of a security, and it takes managers time to learn about all the ways by which they can manipulate securities. Thus, income bonds looked like they had risk sharing advantages over traditional bonds, without the enforcement problems associated with common stock; yet investors eventually learned that firms could manipulate the value of income, and that they were inadequately protected. The income bonds thus grew out of favor. Junk bonds are an instrument which have recently enjoyed considerable popularity in the United States. They have higher nominal yields than ordinary bonds; the question is, are those yields high enough to compensate for the additional risks? Though experience with these bonds is sufficiently limited that one should be cautious in drawing conclusions, preliminary evidence suggests that default rates on junk bonds that have been outstanding for a number of years are so high that actual returns are no higher than on much safer bonds. A major recession in the United States, with a concomitant high default, would turn investors away from junk bonds. Scandals in the U.K. equity market at the turn of the century contributed to the decline in equity issues there. (See Kennedy, 1987, for an excellent account of these.)

Today, investors in LDCs bring to bear the full experience of how equities have been abused, even in societies with fairly well functioning legal systems. This should make them wary about what would happen in LDCs. See Greenwald and Stiglitz (1989b) for a more extensive discussion of the development of financial markets and its relationship with changes in the legal systems.

2. Short Term Loans

Short term bank loans give the firm much less discretion: firms are on a short leash. They must make interest payments, and the bank can request its funds back at each of the due dates. Thus, while nominally, shareholders control the firm, minority shareholders exercise no effective control, while banks often exercise considerable influence over the firm's actions. Their refusal to renew a loan can have serious adverse effects on the firm, and thus firm's have a strong interest in complying with the demands of the banks.¹² Overseeing loans is, of course, one of the bank's main economic roles--the role of monitoring noted above.

There is an important difference between the contractual arrangements and the true economic nature of the relationship. For the lender can only force the borrower to repay the amount due if the borrower has the funds; if he does not, he can force the borrower into bankruptcy. But there are often significant economic costs of doing so, reducing the amount that the lender will eventually recover. Hence, the borrower can often "coerce" the lender into extending more credit--or at least not forcing the borrower to repay what is due. The borrower knows this, and this may affect his behavior. (This explains why banks are loathe to undercapitalize projects, knowing that they can be "forced" to extend further credit later.) The experience with Third World Debt provides ample evidence to the importance of this

¹²The view that banks may exercise more effective control over capital than minority shareholders is developed in Berle (1926) and Stiglitz (1985).

phenomena.¹³ The possibility of behavior leading to subsequent "forced loans" provides banks with further incentives to monitor borrowers.

Loan markets are distinctly different from the kinds of "auction" markets characterizing other goods and services. Traditional textbook expositions characterized loan markets like the market for chairs or tables, with the price (the interest rate) equilibrating supply and demand. But this view is incorrect. It misses the essential property of loans--they are not contemporaneous trades, but an exchange of funds by one party for a promise of a return in the future. It misses the essential heterogeneity of loan contracts--the differences in the probability of default. And it misses the essential informational problems-- while the lender knows that different borrowers differ in the probability of default, he cannot perfectly ascertain which borrowers have high default probabilities; and while the lender knows that borrowers can undertake actions which affect the likelihood that he gets repaid, he cannot perfectly monitor those actions.¹⁴

Three important consequences follow: first, the process of allocating credit (and monitoring its use) is not simply left to the market, with different borrowers competing for funds by offering to pay higher interest rates. Banks screen loan applicants. Secondly, because of adverse selection and adverse incentive effects associated with increases in the interest rate (that is, as the interest rate charged increases, the "quality" of the mix of applicants changes adversely, and successful

¹³For an early theoretical discussion of these concerns with short term debt, see Hellwig (1977) and Stiglitz and Weiss (1981). For an analysis of third world debt from this perspective, see Eaton, Gersovitz, and Stiglitz (1985).

¹⁴These arguments also apply to equities markets.

applicants undertake riskier projects)¹⁵, banks may not raise interest rates even when there is an excess demand for credit. The interest rate does not perform its market clearing role. Market equilibrium may be--and frequently is--characterized by credit rationing. Thirdly, loan contracts will have a variety of provisions other than interest rates, which will affect both the actions undertaken by borrowers and the mix of loan applicants. While these non-price terms (such as collateral) may affect the extent of credit rationing, they do not eliminate it (See Stiglitz and Weiss (1986, 1990).) Moreover, banks may respond to defaults not by increasing the rate of interest charged on subsequent loans, but by cutting off credit.

Thus, loan markets face different aspects of the three problems of enforcement, selection, and incentives that equity markets face. So long as the firm does not go bankrupt, the "enforcement" problem is not as serious: there is no necessity to having to ascertain what the firm's profits are. The firm has a simple commitment. But as we suggested, there are still enforcement problem: in the event of bankruptcy, the bank must see to it that the borrower does not subvert funds; and, as we have argued, the borrower may attempt to extract more funds from the borrower, under the threat of bankruptcy.

The selection problem in the case of equity focused on firms with low expected returns; in loan markets, there is also a selection problem, now focusing on those with high probabilities of default.

The incentive problem in the case of equity markets focused on the attenuation of managerial incentives. Since borrowers can keep all of what the firm obtains in excess of what they have borrowed, effort incentives

¹⁵See Stiglitz and Weiss (1981).

are good. (And, as we have suggested, these incentives may be reinforced by firms' concerns about bankruptcy.) But there are adverse risk-incentives: firms pay insufficient attention to returns in those contingencies where the firm goes bankrupt.¹⁶ When firms have a high likelihood of default, these incentive distortions can become quite large.

Finally, while in principle, both providers of loans and equity have an incentive to monitor the actions of the borrower, lenders may be in a more effective position for doing so, through their ability to withdraw credit. And while typically there are many equity owners, each firm has only one or in any case a few providers of loans. This means that the "public good" problem associated with monitoring--of ensuring that the borrower takes actions which are in accord with the interests of the lenders--is less for loans than for equity.¹⁷

3. Bonds

Bonds represent a half-way house between short term loans and equity. With a bond, a firm has a fixed commitment. It must pay interest every year, and it must repay the principal at a fixed date. As a result, all the problems we have discussed above with loans arise with bonds.

¹⁶This aspect of the discrepancy between the interests of firms and the providers of capital was noted in Stiglitz (1972).

¹⁷That is, since all those who provide a particular form of capital are treated the same, if any one provider takes actions (e.g. monitoring the actions of the firm) which increases his returns, all other members of the class are benefited equally. This gives rise to a classic public goods problem: Firm management is a public good. See Stiglitz (1985). Shleifer and Vishny present evidence that firms in which equity ownership is concentrated actually do perform more in accord with the interests of shareholders.

Bonds have one significant advantage--and disadvantage. Because the lender cannot recall the funds, even if he is displeased with what the firm is doing, the firm is not on a "short" leash, the way it is with loans. This has the advantage of enabling the firm to pursue long term policies--but has the disadvantage of allowing the firm to pursue policies which adversely affect the interests of bondholders. Bond covenants may provide some restrictions, but these generally only foresee a few of the possible contingencies facing firms. The recent spate of take-overs and corporate financial restructuring have significantly adversely affected bondholders, and yet they had little or no say in the proceedings.

There may be second reason why bonds play a relatively small role in raising capital, even in major industrial countries. There may be an adverse signal associated with a firm expressing an unwillingness to be put on a short leash. A firm which knows that it will be undertaking safe actions, and that its projects are really good will be willing to subject itself to the continued scrutiny of its bankers. Those who do not want such close scrutiny include those who think there is a high likelihood that eventually they will fail to pass muster. Thus, even if there were some economies associated with long term commitments, the market might not provide these commitments.¹⁸

¹⁸At the same time, it must be recognized that the focus on short term performance may have adverse long term effects.

C. Banks versus Markets

In recent years, there has been increasing reliance on markets, as opposed to banks, as a source of capital. What are the causes of this, and what are its consequences? One possible explanation is that transaction costs may be lower. Competition among banks may be limited (partly because of the role that information plays as a barrier to entry), and firms that have high public visibility, with a strong financial position, may be able to raise funds at comparable interest rates, with lower fees, through markets. Turning to markets to raise funds has one further advantage, but a related disadvantage. The firm using the market (e.g. borrowing by issuing commercial paper or bonds) may be less affected by credit crunches imposed by monetary authorities. In such periods, firms that rely on bank credit may find that they either have to do with less credit, or must issue commercial paper; but in doing so, they may be at a disadvantage relative to firms that have done so on a regular basis.¹⁸ On the other hand, firms that rely on long term bonds for much of their financing may find that they can respond less flexibly to changing circumstances. Firms which are in good financial strength may perceive themselves as needing this flexibility less, in which case the willingness to rely on bond finance becomes a positive signal (as opposed to a negative signal, as suggested above.)

¹⁸This would not, of course, be true if credit markets were like auction markets, with the commercial paper of one firm being a perfect substitute for commercial paper from another. Potential lenders have to decide whether a particular firm which is turning to the commercial paper market is doing so because of the general credit crunch, or because his bank knows that his credit worthiness has declined, and has cut off credit.

If market finance is, indeed, less flexible than bank finance, the change could have important consequences for the macroeconomic stability of the economy: Greenwald and Stiglitz (1988b, 1988c), Stiglitz and Weiss (1990) and Bernanke and Gertler (1989) have argued that financial constraints play a central role in the economy's business fluctuations.

D. The Distinction and Links Between Primary and Secondary Capital Markets

Our discussion so far has focused on the role of capital markets in raising new capital. The term "capital markets" (like the term capital) is used in a variety of ways; most of the activities which go under the rubric of capital markets are connected only loosely with the primary function which I have described, of raising and allocating new capital. The markets on which claims to assets are traded are sometimes referred to as secondary capital markets. Indeed, only a small fraction of the resources of the financial industry is directed at raising and allocating capital.

Keynes likened the secondary financial market (the stock market) to a beauty contest, in which the judges were concerned not with judging who was the most beautiful contestant, but who the other judges would think would be judged the most beautiful contestant (or, perhaps more accurately, he should have said, who the other judges would judge the other judges to judge to be the most beautiful contestant....) Others (Stiglitz, 1982) have suggested that the stock market might be thought of as a gambling casino. It is impossible to reconcile behavior in this market with rational, risk averse individuals.

While the ability of individuals to trade on the secondary market undoubtedly makes securities more attractive, Keynes, as well as many more recent authors (such as Hirshleifer, 1971, and Stiglitz, 1971) have suggested that much of the short term speculative activity has zero or negative net social value. While it is true that the stock market may be efficient, reflecting all available information²⁰, that information has little effect on resource allocations. Firms do not and cannot rely on the information (whatever that is) communicated by the stock market for making their production and investment decisions. (See Stiglitz, 1989.) While one individual, by getting the information earlier than the other, may be able to "trick" another individual into buying a share from him, or selling a share to him, these trades only affect who gets society's resources; they do not affect the level of production. They represent, in other words, private rent seeking activities.

I stress this because the two aspects of financial markets are often confused. Much of the recent innovations in financial markets have been concerned with the secondary market. New instruments have been invented. Transactions can be recorded more quickly. But improvements in the secondary markets do not necessarily mean that the economy functions more efficiently. (Indeed, Stiglitz and Weiss (1989) have shown that some of the financial innovations, such as faster recording of transactions, may

²⁰Though if it were truly efficient in that sense, no one would have any incentive to collect information, and thus the only information which would be reflected in the market price would be free (although in this case, that may not mean completely worthless) information. See Grossman and Stiglitz (1976, 1980).

actually be unambiguously welfare reducing.) In particular, the primary financial markets may not perform their roles any better.²¹

These observations are important, because they warn us against thinking that improvements in secondary financial markets--or decreases in government regulations of secondary financial markets-- necessarily, or even normally, will improve the efficiency of the economy.

II. A Critique of the Two Paradigms

A. The Market Paradigm

Allocating capital is thus a much more complicated matter than the simple "supply and demand" paradigm suggests. Unfortunately, much of the simplistic advice given by "free market" economists is based on the hypotheses that markets for capital are just like markets for chairs and tables; that competitive markets--whether for chairs, tables, or capital--ensure Pareto efficient resource allocations; and that policies that move the economy closer to free market solutions are welfare enhancing. All three of these presumptions are incorrect. We have already argued against the first. And there is no intellectual foundations for either of the other two.

The second best theorems of Meade and Lancaster and Lipsey long ago showed that in economies in which there were some distortions, removing one

²¹They even may perform their functions less effectively. Taxing transactions may reduce noise trading, and hence market volatility. Long term investors' expected return may be increased, and their risk may be reduced. See, e.g. Summers and Summers (1989) or Stiglitz (1989).

distortion may not be welfare enhancing. While they did not have in mind the kinds of problems with which we are concerned here, the basic lesson remains valid in this context as well.²²

More fundamentally, Greenwald and Stiglitz (1986, 1988) showed that economies in which markets are incomplete²³ or in which information is imperfect--that is, all economies--are, in general, not constrained Pareto efficient; that is, there almost always exists some forms of quite limited government intervention, e.g. taxes and subsidies, which respect the limitations on markets and information which are Pareto improving.²⁴

I should perhaps distinguish the Greenwald-Stiglitz view from other market failure approaches to government intervention. Since the formulation of the Fundamental Theorems of Welfare Economics, there has been a well-articulated view concerning the role of government intervention, which has been known as the market failures approach. This approach identifies important instances where the assumptions underlying the Fundamental Theorem are not satisfied, and argues for a very selective intervention in the market to correct those well-identified instances of market failure. For instance, the presence of pollution calls for a government pollutant tax.

²²Ron McKinnon (1989) provides a good discussion of how liberalizing financial markets in less developed countries may not have been welfare enhancing.

²³ Several earlier studies showed that economies in which there were an incomplete set of risk markets were not constrained Pareto efficient. See, in particular, Newbery and Stiglitz (1981, 1982, 1984) and Stiglitz (1982b).

²⁴They show that several widely discussed examples in the literature (e.g. the Arrow-Debreu model, or the Diamond (1967) stock market model) represent special cases in which the market is Pareto efficient.

The market failures approaches identifies a role for government in correcting externalities and providing public goods. Beyond that, the absence of markets into the future provides a basis for government investment planning.

By contrast, Greenwald and Stiglitz argue that market failures are pervasive in the economy and that accordingly there is no presumption that the market, left to itself, would be constrained Pareto efficient. They recognize that this in itself does not constitute a recommendation for government intervention: one must be able to identify the Pareto improving intervention and one must argue that government policies will actual be consistent with such Pareto improving interventions.²⁵ The difficulties associated with each of these tasks suggests that government intervention should be selective and aimed at what is likely to be the most significant instances of market failure. The problems that arise in financial markets suggest that market as one such candidate.

B. Government as the Solution

While the precise arguments put forward by Greenwald and Stiglitz in their critique of market solutions may be new, the view that markets do not provide a good basis for raising and allocating capital within LDCs (or, for that matter, in more developed countries) is not. In the absence of a complete set of futures markets, prices cannot perform that central role of coordinating investment decisions that traditional price theory ascribes to

²⁵In their paper, they relate the desirable government interventions to empirically observable parameters.

it. Whether for this or other reasons, many governments have seen the task of allocating capital as being too important to be left to the private sector. The socialist platform typically has the nationalization of banks and other financial institutions high on its agenda.

The central problems which I have discussed are no less problems within the public sector than in the private. Shifting the locus of decision making does not alter the difficulties associated with selection and monitoring. But to make matters worse, the government often does not have the incentives to ensure that it (or its agents) does a good job in selecting and monitoring loans. The deep pocket of the government means that any losses can easily be made up. Moreover, since economic criteria are often supplemented with other criteria (saving jobs, regional development), losses can be blamed not on an inability to make judgments about credit worthiness, but on the non-economic criteria which have been imposed. The absence of the check provided by the market test means that credit can be allocated on the basis of political favoritism: the subsidy associated with charging a lower rate of interest than the riskiness of the loan merits is hidden.²⁶

The results of this and the previous subsection might, at first, seem to be at odds with each other, but they are not. In the previous section, we showed that in economies in which there are an incomplete set of markets or imperfect information (virtually all markets) there exists actions by the government which are Pareto improvements, and which respect the limitations

²⁶Moreover, even in the absence of corruption, if rationing is optimal, the ability to choose among loan applicants gives the government an enormous amount of power.

on the existence of markets and the availability of information. Government is not given any more powers in these respects than the private sector.²⁷ When the central result of economic theory was that no government, no matter how benevolent or how far sighted, could improve upon the workings of the private sector, we had no need to call upon a theory of government to describe what an actual government might do in a particular situation: the upper bound of what it might achieve was no higher than that of the private market. The Greenwald-Stiglitz theorem says that there is a potential scope for welfare improving government activity. Whether government action will actually improve matters is a more delicate question. This subsection of the paper serves to remind us that governments face the same informational problems that the private sector does, and in addition faces some "political economy" problems, difficulties which, in the past, in many (but not all) instances have limited the ability of the government to effect welfare improvements.

But while I am not sanguine about the ability of government to replace markets as a mechanism for raising and allocating capital, our analysis at least suggests the possibility that there may exist government policies which will enhance the efficiency--for the social perspective--with which the market economy raises and allocates capital. Of course, any analysis of government policies towards capital markets needs to take into account the fundamental problems (enforcement, selection, incentives) to which we have called attention. With this view in mind, I want to discuss several

²⁷There are, of course, still distinctions between the government and the private sector. The government, for instance, has the power to tax and to proscribe entry. For a fuller analysis, at a theoretical level, of the differences between government and other economic organizations, see Stiglitz (1989b.)

possible policies. I want to emphasize the tentative nature of this discussion: the central thrust of my paper is that alternative policies need to be evaluated from a perspective which takes into account the central features of capital markets, as I have described them, and the second best nature of the problem.

III. Remarks on Economic Policy

Banks versus securities markets as sources of funds. The first, and most obvious implication of our analysis is that the LDCs must expect that firms within their economies will have to rely heavily on bank lending, rather than securities markets, as sources of funds. While it may do little harm for governments to try to promote the growth of securities markets, both markets for equities and long term bonds, these are likely to provide only a small fraction of the funds firms require. If investors are inadequately protected, by strong securities and fraud laws, and a judiciary which can fairly and effectively enforce such laws, there is a high likelihood of abuses; the resulting loss of investor confidence may have repercussions well beyond the securities directly affected.

Since primarily reliance almost inevitably will be placed on bank lending, it is important for governments to take actions which improve the efficiency of the banking system.

For instance, having well defined property rights (say in land) provides a source of collateral, which facilitates bank lending. A judiciary which can quickly deal with defaults, at low costs, allowing the

lender to seize and dispose of the collateral again enhances the willingness of banks to lend.

Such reforms may seem relatively uncontroversial, compared to the suggestions below.

Foreign investment and banks. Many governments of LDCs have been particularly loath to allow foreign banks to play a major role. I want to suggest that this policy may be misguided, but in any case, needs to be re-examined from the perspectives provided in this paper.

In all countries, the ratio of banks' net worth to their liabilities is usually very small. In a sense, banks can be viewed as highly leveraged firms. Highly leveraged firms are particularly prone to undertaking risks which are not in the interests of their lenders--here those who have deposited funds with them.

In the United States (and many other countries) the government provides depositors with insurance. When the idea of such insurance was first broached to President Roosevelt, he reacted strongly negatively, pointing out (to use our modern terminology) the moral hazard (incentive) problems to which that insurance gives rise. Though he eventually relented, with hindsight, we can see how right he was!²⁸ Banks which undertake greater risk can offer greater interest rates to depositors, who can, with impunity, turn over their funds to the bank. These banks attract funds away from more prudent banks. A kind of Gresham's Law works with a vengeance.

²⁸In the United States, at the present time, not only do a majority of savings and loan institutions have negative net worth (if their assets were valued at current market value), but so do a significant fraction of the major banks. See Brumbaugh, Carron and Litan (1989).

What is at issue is not just corruption (though that plays a role as well)²⁸, but rather judgments about prudent risks. It is evidently extremely difficult for bank regulators to monitor banks effectively. One must largely rely on market forces to ensure that banks take prudent actions. What regulators can do is to try to ensure that the banks have an incentive to take prudent actions. The maintenance of reputation is one such incentive. But the cost of losing one's reputation is obviously larger for a large international bank than for a small local bank. High equity (net worth) also may be effective. Local banks may find it difficult raising the required equity.

These arguments suggest that foreign banks and firms may be more reliable in allocating capital efficiently than domestic banks and firms. To put it another way, establishing a reputation is like any other investment. The process of allocating capital--when due concern is taken for the requisite incentives if it is to be done well--is a capital intensive process, and foreign banks (and other international companies) may have a comparative advantage in that process.

At the same time, there may be an infant industry argument for protection, and, in particular, for limiting external capital flows (which allow foreign institutions to serve the role of intermediation³⁰) and the operation of foreign banks domestically. So long as savers have a choice between domestic and foreign banks, at comparable terms, they will choose

²⁸The corruption itself may, to some extent, be viewed as endogenous; the opportunities to profit by dishonesty attract those with such inclinations.

³⁰ In several LDCs, capital outflows roughly equal capital inflows. It is as if funds went to international banks to be intermediated, and then were returned to the country of origin.

the latter. (Lack of) reputation serves as an effective entry barrier for domestic banks: to compensate for the lack of reputation they cannot pay a higher interest rate, for that (in the by now familiar way) would exacerbate both the moral hazard and adverse selection problems.

Domestic firms are not only at a reputation disadvantage; they are also at a risk disadvantage. International firms can diversify over a wide portfolio. Even if the domestic banks have a portfolio of assets that is widely diversified among domestic risks, the common (country) risks which affect all of them (exchange risks and other macro-economic risks) make their portfolios riskier. Hence, even with the same "reputation" and the same equity base, investors might rationally prefer foreign firms.

While foreign firms may thus have an advantage within the capital market, they may have an informational disadvantage --they may find it more difficult to respond to the particular situations which arise in the country.³¹ That is why there is much to be gained from a country having its own entrepreneurs.³² But entrepreneurship is, in part, learned, and to undertake the learning requires capital. And we have explained why it is that domestic entrepreneurs and banks may find it difficult raising the requisite capital.

Note that a standard argument against the infant industry argument simply doesn't apply in this context: if the idea is a good one, the firm should be willing to sell at a loss, until its costs are down to a level at which it could compete effectively. For to sell at a loss, the firm must

³¹This argument may not be a compelling one against foreign banks located within the LDCs.

³²There are undoubtedly other reasons as well, such as national pride.

borrow or raise equity, and it is precisely the inability of firms to borrow or raise equity which is our concern here.

Moreover, there may be a distinct difference between private and social returns, both to entrepreneurship and to providing capital to new entrepreneurs. Private investors (banks), for instance, are only concerned with that fraction of the total returns which they can appropriate; society, more broadly conceived, is concerned with the total returns to the project which accrue within the country (thus excluding the surplus returns which may accrue to foreign investors.)^{33 34}

More broadly, foreign banks, in allocating capital, will have different objectives than those of domestic banks, so that the disparity between social and private returns may be particularly large. Foreign banks may be particularly concerned with nationalization, and thus may provide capital to sectors which appear relatively immune from nationalization, and in forms (with restrictions) that make nationalization less likely and that make it more likely that, should nationalization occur, they can recover their capital.

While these arguments might suggest a role for government credit markets, the caveats we expressed earlier suggest that other forms of indirect subsidy may be more effective. Restrictions on foreign banks and on capital flows out of the country (impeding the efficiency of the

³³ Stiglitz and Weiss (1981) argued that in their model of credit rationing, there was a distinct disparity between social and private returns.

³⁴ Hoff [1989] argues, for instance, that when an entrepreneur undertakes a new project, it conveys information to other entrepreneurs about the idiosyncratic properties of the country's production technology, returns which that entrepreneur cannot appropriate.

secondary capital market) may be one way of channelling funds to domestic entrepreneurs and of subsidizing domestic banks and corporations. Such broad restrictions provide domestic investors with incentives to allocate funds to the best domestic projects/entrepreneurs, and if there is broad enough competition within the domestic economy--an important caveat--the rents obtained by domestic firms will be limited.

Another caveat is in order: As always, a concern needs to be expressed that restrictions are not used simply to protect domestic monopolies. Thus, if one or two banks dominate the domestic banking industry, restrictions on foreign banks may simply serve to protect those firms' monopoly rents. Those firms may not be particularly efficient allocators of capital, and the disparity between their interests and a broader sense of national interest may be no less than the corresponding disparity for foreign banks. Since in many LDCs, the domestic banking sector is far from competitive, policies aimed at locking out foreign owned banks located within the country may be particularly inadvisable.

In the previous section, I argued that restrictions on the secondary capital markets--on the free flow of funds abroad--may have some advantages in encouraging the development of a domestic financial sector. To economists used to hearing the contention that governments should try to "free up" markets, this argument may seem strange.

One of the important lessons of the theory of the second best, to which I referred earlier, is that when there are some important distortions in the economy, removing one distortion may not be welfare enhancing. In most LDCs, there are many distortions. Indeed, as we argued earlier, in markets

with incomplete risk markets and imperfect information--that is, in all markets--there is no presumption that market allocations will be (constrained) Pareto efficient, and a fortiori, there is no presumption that making one market--the secondary capital market--work more nearly like the "ideal" market is welfare enhancing.

For instance, McKinnon (1988) has argued persuasively that flexible, unmanaged exchange rates have imposed enormous risk burdens on producers engaged in international trade, risks which they cannot divest adequately through futures markets. Our analysis of limited equity markets suggests that these risks may have real--and deleterious--effects. (See, for instance, Newbery and Stiglitz (1981,1984).)

All of this suggests that there are no easy policy answers. In some cases, governments have (perhaps unintentionally) served to exacerbate the problems we have identified rather than reduce them, by subjecting the domestic banking industry to high taxes and arbitrary and capricious regulation. In these cases, "freeing up" the market would seem to make good policy sense.

Multinationals. Many of the same arguments for why foreign banks may be able to perform an important role in allocating capital apply to multinationals. They have one advantage over banks: they typically provide capital in the form of (what is in effect) equity. While equity has distinct advantages over debt--it provides more effective risk sharing, and thus leads firms to act in a less risk averse manner, resulting, in turn, in the economy being less sensitive to a variety of shocks--we have seen that LDCs are likely to face particular problems in establishing well

functioning equity markets. Thus, it may be desirable for governments in LDCs to recognize the important role that multinationals can play in the development process, rather than putting impediments in their way.

Risk sharing by government. For the reasons I have explained, equity markets are unlikely to provide effective risk sharing opportunities. Many governments, by their tax policies, exacerbate the effects of limited equity markets, for the government shares in the profits, but shares in the losses to a much more limited extent. As Domar and Musgrave (1944) and Stiglitz (1969) long ago recognized, if the government fully shares in gains and losses, it can actually encourage risky investment; in effect, the government enters into every investment as a silent partner.³⁵ Though this is not the occasion to provide a detailed technical proposal of how this may be done, I should note that there are several ways in which governments can share risk much more effectively than they do at present.³⁶

Government risk reduction strategies. In addition, there are policies which the government can undertake which reduce the riskiness of the environments in which firms operate, and given the limited opportunities for risk sharing

³⁵More recently, Auerbach and Poterba (1987) have emphasized the importance, within the United States, of the provisions limiting loss deductibility.

³⁶ The important difference between the government acting as a silent equity partner, through the tax system, and the government acting as a source of credit (as described above) needs to be recognized: in the latter case, the government is given discretion; in the former case, the "partnership" arrangement is automatic. While this partnership arrangement obviously affects incentives (attenuating effort incentives, accentuating risk incentives), the question is, on balance, are these incentive effects positive, or, if negative, sufficiently small to outweigh the government's revenue gain?

provided by markets, this can provide a strong stimulus for the economy. In particular, it can increase both the willingness of firms to borrow (since the lower the riskiness of the environment, the more they can borrow while still facing a particular probability of bankruptcy), and the willingness of banks to lend.

These policies can be both micro-economic and macro-economic in nature. Stabilizing the price of export crops will not only have a direct effect on the producers of export crops (assuming that price and quantity are not too negatively correlated), but will also have an indirect effect: the variability of income of the producers of export crops gives rise to variability in the demand for non-traded goods. Stabilizing incomes within the rural sector will thus result in increased production of non-traded goods. (See Newbery-Stiglitz, 1981.)

Conclusions

In the past two decades there has been a major shift in the prevailing economic paradigm, reflected in our views of economic policy in general, and development economics and policy in particular.

Earlier discussions focused on the debate between those who believed in efficient, competitive markets--for developing as well as developed countries--and saw government as a major impediment to the efficient functioning of the economy; and those who saw pervasive market failures requiring government intervention. Among the central market failures which

they cited was the absence of a complete set of futures and risk markets³⁷, and accordingly one of the central responsibilities of the government was to plan and coordinate investment activities. In the years following World War II, governments of newly independent countries set up Ministries of Planning to fulfill their responsibilities and to facilitate the development process.

But the absence of futures and risk markets was not pure happenstance. It reflected more fundamental problems--including problems of imperfect information, imperfect competition and costly contract enforcement--which affected all economies. The recognition of the limitations of the development planning process coincided with the recognition of these limitations of the standard economic paradigm. Within developed countries, it was recognized that labor, capital, and product markets worked--in many instances at least--in a manner markedly different from that depicted by the conventional competitive demand and supply analysis. While this paper has focused on the problems associated with financial markets, leading to credit and equity rationing, similar analyses have been conducted of labor and product markets. These problems are, if anything, more pervasive and more prominent in LDCs than in developed economies.

We have already noted one major implication of this perspective: there is no longer any presumption that market solutions are (constrained) Pareto efficient. But there is another equally important implication: the problems of imperfect information--including imperfect monitoring--is no less present in the public sector than in the private. The fact that

³⁷As noted earlier, the Fundamental Theorem of Welfare Economics, which represented the formalization of Adam Smith's notion of the Invisible Hand, requires that there be a complete set of risk and futures markets. Only under these conditions will competitive markets ensure economic efficiency.

markets do not work as well as their ardent proponents claim does not mean that governments can remedy the problem. The absence or limited scope of financial markets may not be simply because the private sector has failed to recognize a profitable opportunity. There are, as we have seen, good reasons that financial markets look markedly different from the way they are characterized in old-style textbooks. Governments should at least go cautiously where private markets fear to tread.

We now recognize that, particularly for small open economies, the problems of macro-economic coordination stressed in the earlier development planning literature may be far less important than the micro-economic problems of selecting (quite specific) projects and choosing good managers to manage those projects. And we now recognize the difficulty of micro-managing from above--the virtual impossibility of specifying the characteristics (including delivery dates, durability, etc.), and of setting prices for each of the infinity of possible commodities. We have also come to recognize the pervasiveness of decentralized planning in market economies. The old market paradigm was wrong in many more ways than suggested by simply the absence of futures markets.³⁸

One of the functions of the economy's financial institutions is not only to raise capital, but to channel funds to the most profitable opportunities (the selection or screening function), and to ensure that those funds are well used (the monitoring function.) We need to think more about what kinds of institutions can most effectively perform these functions. Centralized government bureaucracies and large public credit institutions may be poorly situated to perform those functions. But there

³⁸For a more extensive discussion of these issues, see Stiglitz (1989).

may be ways in which the government can assist in the development of a variety of institutions which can play an important role.

But much of this paper is predicated on a more pessimistic appraisal of the potential role of financial markets in the development process. It has argued that they play a limited role even within well organized developed countries, and that their role within the LDCs is likely to be even more circumscribed. Hence, government policies should be directed at mitigating the consequences of these inherent--and important--limitations of financial markets and institutions within LDCs. What might be called "second" or "third" best policies have to be developed. Many current government policies fail to recognize these limitations which face both the government and the private sector. I have put forward some quite tentative proposals which suggest some ways in which government policy can be designed to reflect the broad set of concerns which I have raised.

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