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Obstacles to Investment in Africa: Explaining the Lucas Paradox

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Several years ago Robert Lucas posed a question that has continued to intrigue economists ever since: why doesn't capital flow from rich to poor countries?¹ This is a conundrum because poor countries are labor-abundant and capital-scarce relative to rich countries, and under the assumptions of the standard two-factor neoclassical growth model, this suggests that the marginal product of capital should be higher in poor countries than in rich ones. If so, the standard economist's arbitrage story would suggest that capital should flow from where its returns are relatively low to where they are relatively high – that is, from rich to poor countries. Yet, this is not observed to happen to a significant extent – indeed, it appears to be happening to a smaller extent in today's supposedly “globalized” world than it did at the turn of the 19th century.² This puzzle has come to be referred to as the “Lucas paradox.”

Africa provides the quintessential example of the Lucas paradox. Not only does the continent contain a disproportionately large number of the world's poorest countries, but the effects on capital's marginal productivity of the continent's high labor-to-capital ratio should if anything be magnified by its rich endowment of natural resources. That is, relative to the rich countries of the world, Africa is both labor- and resource-abundant. Both factors should contribute to a relatively high marginal product of capital in Africa, and thus should make the continent a particularly attractive destination for international capital flows.

¹ Lucas (1989).

² As Lucas pointed out, with the disparities in rates of return suggested by differences in factor endowments, *all* new investment should take place in poor countries. On the comparison between net capital flows at the end of the 19th century and today, see Obstfeld and Taylor (2002). They note that, while *gross* capital flows have been high during recent years, *net* flows, as captured in current account balances, have been small compared to those at the end of the 19th century. Thus in recent years capital flows have produced more diversification than financing of development.

Developing countries as a group have indeed witnessed two major capital-inflow episodes over the past three decades, concentrated during the years 1974-81 and 1988-97. These episodes shared a common feature – not only were they short-lived and aborted by a wave of financial crises in the developing countries that had received large capital inflows, but in both cases the capital inflows were highly concentrated geographically, with a small number of relatively advanced developing countries receiving the vast majority of the flows, both in absolute numbers as well as relative to the sizes of the recipient economies.³ And in both instances, African countries were not among the major inflow recipients. Judged by the conceptual measure that most closely corresponds to the predictions of the neoclassical model – the economy’s net investment position – countries on the African continent have received disproportionately small amounts of net capital inflows on average compared to countries in other regions.⁴

This paper reflects on the question of why African countries have been relatively unsuccessful at attracting foreign capital, despite the predictions of the neoclassical model. More generally, it considers a range of possible factors that may have discouraged either domestic residents or foreigners from investing in Africa. The paper is a reflection on the issue rather than an attempt to resolve it, because its objective is to provide a conceptual framework that allows us to think systematically about possible explanations, rather than a defense of any single explanation. My purpose is to identify a set of

³ See World Bank (1997).

⁴ Thus, of the 16 African countries in the 76-country sample in a recent IMF study of the effects of financial integration (Prasad et. al. (2003)), 15 were classified as “less financially integrated” on the basis of their international net investment position. South Africa was the exception.

potential obstacles that African countries may face in attracting investment and to evaluate their plausibility, rather than to provide sharp tests of competing explanations.

The structure of the paper is the following. I begin by reconsidering in Section 1 the basic premise of the neoclassical growth model: that investment opportunities with high social returns should be available on the African continent. I then turn to a consideration of structural factors that may prevent such opportunities, where they are present, from being funded. Section 2 considers the role of information frictions, while Sections 3 and 4 focus on the characteristics of potential borrowers in Africa, distinguishing between governments (Section 3) and private (Section 4) firms. Since the alternative to investment by domestic governments and firms in Africa is investment by foreign firms, Section 5 considers potential obstacles to flows of foreign direct investment into Africa. After examination of these structural factors, the role of short-run macroeconomic policies is explored in Section 6. The final section summarizes the paper's findings and concludes.

1. Are there projects in Africa with high social returns?

As indicated above, the standard neoclassical growth paradigm, featuring internationally uniform aggregate neoclassical production functions, would suggest that high-return projects should be abundant in Africa. The continent's relatively low endowment of physical capital, coupled with relatively abundant labor and natural

resources, suggest that physical capital should have a high marginal product in Africa.

However, this is not necessarily the case, for two reasons:

- a. The assumption of a shared common technology may not be appropriate. To the extent that the technology available to firms in Africa is less productive than that available in creditor countries, rates of return to investments in physical capital in Africa may not be exceptionally high relative to those countries.

- b. Labor and natural resources comprise only a subset of the factors of production that are complementary to physical capital. If the continent's relative endowment of other complementary factors is less favorable than that of labor and natural resources, this may also depress the rate of return to physical capital in Africa. Prime candidates for the role of factors of production with which Africa may be relatively less well endowed are human capital, infrastructure, and "institutional" capital.

i. Technology

If we think of technology as ideas or blueprints, then it clearly has a public good character, in the sense that it is nonrivalrous. This may suggest that once a new idea has been added to the world technological frontier, it should immediately be available to all, casting doubt on the proposition that firms in Africa may be technologically disadvantaged simply because the research and development that tends to generate new technology does not typically take place there. However, while technology may be

nonrivalrous, it is not necessarily nonexcludable – that is, firms that generate new technologies may be able to prevent others from using it. To the extent that this is so, most new technologies will be owned by non-African firms, which have acquired the capacity to conduct research and development.

In a frictionless world, however, the role of excludability would not in and of itself condemn African countries to technological backwardness, since the market would create incentives for the owners of the new technologies to transfer them to Africa, if that is where least-cost production could take place. The firms that innovate the new technologies could achieve this transfer by licensing such technologies to African firms or by simply locating their production facilities in Africa. Unfortunately, there are several reasons why this may not happen:

First, the new technologies may primarily be useful in producing products for which the markets are located in industrial countries. If so, transportation costs may induce firms to locate production closer to market, even if production costs would be lower in Africa. Deficiencies in port facilities and the internal transportation infrastructure may raise transportation costs sufficiently as to make it noneconomical to undertake production for industrial country markets in Africa, particularly in landlocked countries.

Second, even for goods that could potentially be sold within Africa itself, highly productive new technologies may require a large scale of operation. In that case, the

small size of the continent's economies, the persistence of trade barriers among them, and the infrastructural deficiencies mentioned above, all have the potential to restrict the scale of the market, and thus preclude production at an efficient scale.

Third, the adoption of new technologies may be inhibited in Africa by the scarcity of factors of production in which such technologies are intensive – specifically, of highly technologically skilled labor. For example, in recent years a skill bias in technological innovation has been interpreted as the cause of sharply rising skill premia and a deterioration of the distribution of income in the United States. Those same technological advancements, however, have been credited with a rapid increase in total factor productivity in that country over the past decade. The scarcity of labor possessing the requisite skills in Africa would discourage the adoption of such technologies on the continent, which would result in the foregoing of the associated productivity gains.

In short, even if new and more productive technologies are nonrivalrous – in fact, even if they were nonexcludable by nature -- the roles of transportation costs, the small size of African economies, and the limited supply of technological skills on the continent may all conspire to restrict the adoption of such technologies on the continent. Since this would mean that the production techniques actually employed in Africa would not benefit from the productivity enhancements that such technologies bring, aggregate production functions on the continent would tend to be less productive than those in countries where new technologies have been adopted. It is not unreasonable to suspect, therefore, that technological differences may help to account for lower returns to physical capital

investment in Africa than might be expected on the basis of a simple neoclassical growth model.

ii. Endowments

But even if aggregate production functions in African countries were identical to those of richer countries, it does not follow that the continent's relatively generous endowment of labor and natural resources would result in an exceptionally high return to investment in physical capital in Africa. The reason is that endowments of other factors matter as well. In particular, endowments of human capital in the form of the health and educational levels of the labor force, of public capital in the form of infrastructure, and of what one might refer to as "institutional" capital, comprising the entire apparatus of governance, all are likely to affect the returns on investment in physical capital.

As already indicated, a country's skill endowment may play an important role in its ability to adapt and implement new and more productive technologies. But the productivity of capital using existing technologies may also depend on the skills of the labor force broadly understood – i.e., involving not just literacy and other aspects of formal education, but also industrial experience. On-the-job training imparts both the skills to operate physical capital as well as a broader industrial discipline that affects factors such as the effectiveness of teamwork, rates of turnover, absenteeism, tardiness, and other aspects of job performance. On-the-job training and the acquisition of industrial experience has indeed been cited as an important rationale for the "flying geese" paradigm of industrialization in East Asia, which involves countries transitioning

through progressively more sophisticated types of industrial production as the skills of their labor forces improve with experience.⁵

Aside from the formal training and experience of the labor force, its health also affects the productivity of capital. Healthy workers are obviously more productive workers, as are workers who are not forced to split their time between formal employment and caring for sick family members. Moreover, specific ailments, such as HIV-AIDS, which disproportionately affect the mortality of workers in their most productive years, can also adversely affect the demographic composition of the labor force.⁶

The availability of public capital in the form of infrastructure can also have important effects on the productivity of physical capital. One way to see this is to consider the role of services such as transportation, power supply, and security in producing and delivering goods to market. In the absence of public provision of these services, or if these services as provided by the public sector are expensive or unreliable, they would have to be provided by the firms themselves. The resources devoted by firms to provide these services for themselves act as a tax on the return to capital, and thus lower those returns below what they would otherwise be.

Finally, the same can be said of governance. If the institutional structure governing the enforcement of property rights, of commercial contracts, and of the legal

⁵ See Rowthorn (1996).

⁶ For an estimate of the impact of the HIV virus on the productivity of the labor force in Kenya, see Thirumurthy et. al. (2006).

framework for economic activity more broadly is weak, or if corruption is important, not only are the costs of doing business magnified, but the risks associated with capital investment are increased. Both outcomes contribute to lowering the risk-adjusted return to capital.

The upshot is that favorable endowments of labor and natural resources are not enough to generate a high return to investment in physical capital. Because the endowments of human, public, and institutional capital may not be as abundant in Africa as those of labor and natural resources, opportunities for investment in physical capital that yield a high social return may not be as abundant as the simple neoclassical growth model might lead us to expect. Deficiencies in these areas represent potential obstacles to investment in Africa that may help explain the application of the Lucas paradox to the continent.

However, there is another way to read this analysis. While it suggests that investments in physical capital on the continent would tend to yield a lower return than the simple neoclassical story might lead one to expect, *conditional on relatively unfavorable endowments of human, public, and institutional capital*, if physical capital investment indeed flows readily to where its prospective returns are highest, then the analysis suggests that social returns may be very high from investments in the types of capital that Africa currently lacks—i.e., from investments in human, public, and institutional capital – because if deficiencies in endowments of these types of capital can be eliminated, then physical capital will follow. In other words, the analysis suggests that

if governments in Africa can provide healthy and well-trained labor forces, good infrastructure, and high-quality governance, then markets will provide the physical capital that will allow an increase in living standards.

But is that necessarily the case? One can ask, for example, why, if investment in these types of capital promise such high social productivity, private domestic or external savings have not already been available to finance them. The next two sections of the paper turn to this question.

2. Information imperfections as obstacles to investment

The simple neoclassical growth paradigm on which the Lucas paradox is based assumes not just a common international technology and a relatively limited set of inputs into the aggregate production function, but also the absence of informational frictions as obstacles to investment. Asymmetric information, however, in combination with opportunistic behavior, is well known to create significant obstacles to financial transactions by increasing the costs of such transactions.⁷ Indeed, the modern theory of financial intermediation is largely based on the role of such frictions. Thus, even if investment projects with high social returns of the type considered in the last section exist in Africa, securing financing for them requires overcoming informational frictions. Put simply, it is not sufficient that socially productive investment opportunities exist on the

⁷ Section 4 discusses these issues at greater length.

continent. It is also necessary that potential external creditors be aware of such opportunities.⁸

The role of informational frictions has recently received substantial attention in the literature on international capital flows. In two important papers, Portes and Rey (see Portes, Rey, and Oh (2001) and Portes and Rey (2005)) have argued that such frictions are the most important variables explaining the geographic distribution of cross-border equity flows, for example. Their empirical work finds that information-related variables explain a large share of the variance in the allocation of cross-border equity flows, with countries from which information flows freely receiving larger flows than those that are relatively more opaque. They link the availability of information to variables such as the volume of telephone traffic between the source and recipient country and the presence of multinational banks in the recipient country.

Informational frictions also play a prominent role in the literature on home bias in the allocation of financial portfolios, as well as in the analysis of herding and contagion in international capital markets. Information asymmetries have been cited as a possible explanation for why investors tend to keep a much larger share of their assets in domestic securities than standard portfolio theory would predict. Information costs have also been cited to help explain why investors holding highly diversified international portfolios tend to react aggressively to “news” in the form of market rumors (Calvo and Mendoza (1996)), as well as why less-informed investors may mimic the behavior of individuals

⁸ I use the word “necessary” advisedly in this context. That such opportunities be known to exist is also not sufficient for investment [in](#) Africa, as I will argue in subsequent sections.

whom they believe to be better informed about prospective returns in borrowing countries, resulting in “information cascades” and herding.

Finally, informational frictions may help to explain why international lending by banks tends to have a regional bias – i.e., American banks lend most heavily in Latin America, while Japanese banks lend most heavily in East and Southeast Asia (Kaminsky and Reinhart (2000)). Banks are by their very nature institutions that have evolved to conduct financial intermediation in the context of imperfect information, and the regional bias in their international lending suggests that geography and cultural affinities play important roles in the transmission of the information that is relevant for international lending.

The upshot of all of these observations is that information costs may represent an independent obstacle to investment in Africa. Informational frictions may be particularly severe in the case of Africa because of distance, isolation, and poverty. The effects of distance and isolation are self-evident. Poverty breeds unfamiliarity, because Africans are less able to travel abroad, foreigners tend to visit Africa less frequently, and the infrastructure of communications is less effective. The role of banks in conducting information-intensive lending, for example, and the observed regional bias in international bank lending would lead one to expect that European banks would be heavily involved in Africa. High information costs in Africa provide one explanation for why European banks have traditionally been less regionally biased in their lending than American and Japanese banks have been, and why the traditional regional bias has begun

to appear in recent years for such banks in the form of lending to transition economies in Eastern Europe and Central Asia, rather than to countries in Africa.

3. African public sectors as borrowers

But information frictions are only one explanation, and not necessarily the most convincing one, for why projects with high social returns in Africa may have difficulty securing funding. Even if projects with high social returns exist in Africa, and if informational frictions could be overcome, it is not clear that private investment in Africa would occur on the scale that one might predict from the simple neoclassical growth model. The reason is that what is required to attract private capital is not the prospective existence of projects with high social rates of return, but rather the existence of projects that promise to yield high returns to creditors. These are not the same thing. The distinction depends on the qualities of the borrower. This issue is taken up in this section and the next, treating African public sectors and private firms separately.

It is notable that the areas identified in Section 1 as containing potentially high social return projects in the African context – i.e., health and education, infrastructure, and improvements in governance – are among those traditionally undertaken by the public sector. Thus the question becomes whether the existence of such opportunities implies the availability of high-return investments for creditors in the form of lending to African public sectors in order to finance such projects. Unfortunately, the answer

is...not necessarily. The transformation of high-social-return projects in the public sector into high-return investments for creditors requires several conditions:

First, the public sector must possess the capacity to implement the project effectively. The capacity to implement such projects on the part of the public sector is one component of an economy's "absorptive capacity." This requires at a minimum the presence of a competent, honest, and highly motivated civil service. Inefficiencies in the public sector arising from low levels of skills in the civil service, featherbedding driven by political imperatives, and corruption, may make it very difficult for the public sector to implement these projects in ways that actually permit them to yield the high social returns that they potentially offer. Limitations in the implementation capacity of the public sector can sometimes be circumvented by private sector involvement, especially in health, education, and infrastructure, but the principal-agent problems involved in this form of delegation make private sector involvement no sure panacea.

Second, even if the public sector can implement the project effectively, to attract external funds it must still be able to generate the capacity to repay the loans that it incurs to finance it. The problem is, of course, that projects yielding high social returns do not necessarily yield high *financial* returns, either directly or indirectly. Financial returns are produced directly when projects themselves yield net revenues for the public sector, and indirectly when they result in higher incomes in the economy, which then yield additional revenues through the tax system. Securing private financing for such projects requires a government that can repay its loans, so when the project is not self-financing (i.e., when

it does not yield enough direct revenue to service the debt incurred in financing it), the government must possess the capability to raise the means to repay out of its conventional budgetary resources.

This runs into several problems in the African context. First, government budgets may be vulnerable to civil strife in neighboring countries, to natural disasters such as droughts, and to disruptions in world commodity markets (including those caused by commercial policies in industrial countries). Second, political economy constraints on the expenditure side of the budget and inefficient tax systems on the revenue side may both constrain governments' borrowing capacity even during normal times, by generating a persistent deficit bias. Finally, even if the public sector has the capability to effectively implement high-return projects and the means to service the debts incurred in doing so, being able to attract those loans requires a demonstrated *willingness* to repay. This cannot be taken for granted. Political instability, for example, may generate short horizons for the fiscal authorities, and thus cause them to place relatively more weight on the short-run benefits of nonpayment relative to its longer-run costs.

All of these factors generate sovereign risk, and sovereign risk may represent an important obstacle to high-social-return projects that are primarily available to African public sectors. Indeed, Reinhart, Rogoff, and Savastano (2003) argue that sovereign risk provides the explanation for the Lucas paradox not just in Africa, but in other developing regions as well. The relatively large number of HIPC countries on the African continent

suggests that debt-servicing difficulties in the public sector are not foreign to the continent and may indeed represent an important obstacle to investment in Africa.

These considerations suggest strongly that, among the potentially high-return activities listed previously, improvements in governance, in budgetary processes, and in revenue systems may offer the highest rewards of all, since they make possible the attraction of resources to undertake other vital public sector investments.

4. African private firms as borrowers

Up to this point, I have argued that, because of unproductive technologies and deficient endowments of certain factors, investments with high social rates of return may not be as plentiful in Africa as the simple neoclassical growth model would suggest, that informational frictions may be particularly important in hampering the flow of investment in Africa, and that public sector investments that hold the promise of yielding high social returns on the continent may be short of private finance because of characteristics of African governments as borrowers. But these conditions are obviously not general within the continent, and African countries that are relatively better endowed with human, public, and institutional capital may indeed provide opportunities for private-sector investments by African firms that offer high potential social rates of return. What obstacles exist to the financing of investment in this context?

What is at issue in addressing this question is the relationship between private creditors and private borrowers within Africa. Private creditors, whether domestic or external, could provide financing to private borrowers in Africa indirectly, by acquiring claims on financial intermediaries in Africa that would in turn lend to African firms. Obstacles to the flow of funds from private creditors to African private borrowers are largely those that generally arise in the process of financial intermediation. Thus, to analyze these obstacles it is useful to step back and consider the process of financial intermediation more generally.

In an idealized Arrow-Debreu world, financial intermediation would be a costless activity that could be undertaken by individuals. However, in a more realistic environment -- one characterized by asymmetric information between borrowers and lenders and opportunistic behavior on the part of borrowers -- the situation is quite different. In this more realistic context, financial intermediation -- the transformation of saving into investment and allocation of risk -- requires the expenditure of resources and thus becomes a form of production. The costs incurred in this activity take several forms:

a. Brokerage costs.

These refer to the search costs incurred by borrowers and lenders in the process of finding each other.

b. Loan evaluation costs.

These costs arise because of adverse selection problems. Adverse selection problems require lenders to incur loan evaluation costs in order to obtain information about the characteristics of borrowers. These costs are larger the more “opaque” a borrower is, something which depends not just on characteristics of the borrower (i.e., type of economic activity, previous track record), but also on the environment in which the loan is transacted – e.g., on prevailing accounting and disclosure standards in the economy.

c. Agency costs.

Moral hazard problems associated with the principal-agent relationship between lender and borrower create the need for costly measures (known as agency costs) to safeguard the interests of the lender during the term of the loan. The use of collateral can mitigate such costs.

c. Contract enforcement costs.

Finally, since opportunistic behavior means that contracts are not self-enforcing, lenders may have to be prepared to enforce them through the legal system, causing them to incur contract enforcement costs.

All of these costs create a wedge between the gross return paid by a borrower on a loan and the net return received by a lender. This wedge is referred to as the “external

finance premium.”⁹ When the external finance premium is high, lenders have to receive a very high gross return for the use of their funds, to compensate them for these costs of intermediation. The effect is to shift the supply of funds curve facing private borrowers to the left. The resulting high costs of obtaining external funds deter the flow of funds to private firms and thus the aggregate level of investment.

Financial intermediaries are a market response to this situation. They are essentially specialized agents that take advantage of economies of scale and scope to reduce the costs of financial intermediation. Banks, for example, are firms that issue liquid liabilities with attractive features (security, return) to fund information-intensive loans. Their main activities consist of identifying potential borrowers, gathering information about them, monitoring their loans, and enforcing the payment of loan contracts. In performing these functions, banks enhance the efficiency of intermediation and thus reduce the external finance premium. But banks are best suited for making short-term loans that are individually small relative to the size of their portfolio. For larger, longer-term loans, securities markets (i.e., bond and equity markets) may be more effective in reducing the external finance premium, if the conditions for their development exist.

The efficiency of financial intermediation – and thus the size of the external finance premium – thus depends on characteristics of the economic environment that affect the magnitude of the costs described above, as well as on the efficiency of the

⁹ The term “external” here refers to financing that is external to the firm – i.e., financing not provided from the firm’s own resources.

financial institutions that arise as a market response to these costs. Both factors are affected by public policies. These can be classified into three types: enabling policies, policies directed at the development of financial market infrastructure, and policies designed to deal with special problems of the financial sector.

Enabling policies are policies that improve the environment in which financial intermediaries operate, without necessarily being directed at the financial sector itself. They include policies that facilitate information gathering and contract enforcement as well as policies that reduce risks and financial institutions' ability to monitor it. They also include avoiding the imposition of handicaps on the financial sector through excessive taxation of financial intermediaries or their customers. Enabling policies have both institutional and macroeconomic dimensions. The former refers to policies that reduce information costs and costs of contract enforcement through the imposition of an appropriate legal framework, including well-established property rights, adequate accounting and disclosure standards, corporate and bankruptcy laws to protect shareholders and creditors respectively, and an efficient judicial system to enforce contracts and punish fraud. The quality of macroeconomic management, in turn, affects the degree of uncertainty that characterizes the domestic economic environment, and thus the magnitude of loan evaluation and monitoring costs.

Proactive policies directed at the financial sector concern the provision of a regulatory and supervisory framework that promotes competition in the financial sector (preventing collusion) and avoids excessive risk-taking due to moral hazard problems.

This involves implementing and enforcing bank licensing standards and prudential regulations, developing market infrastructure for capital (bond and stock) markets, and implementing and enforcing antitrust policies directed at the banking and securities industries.

Finally, policies are also required to deal with special problems to which the financial sector is vulnerable, especially banking crises. The disruption of bank credit in the context of a crisis affects the real economy through a variety of channels, and governments have consequently sought to avoid banking crises by implementing a variety of financial safety nets, such as the creation of a lender of last resort or the implementation of a system of deposit insurance. The lender of last resort function protects individual banks from liquidity risk, while deposit insurance functions provide systemic protection against liquidity crises.

The requirements for a well-functioning financial system, and thus a low external finance premium, are therefore rather strict, and unfortunately many African countries have had difficulty meeting them. By and large the formal financial sectors in African economies tend to be dominated by a small number of commercial banks, and nonbank intermediaries tend to be small and few in number. Stock exchanges exist in some countries, but they do not account for a significant share of financing of business enterprises. In the commercial banking sector, deposits tend to be concentrated in the few largest banks, and public ownership of the most important banks is common. The regulatory structure is not always well developed and is sometimes splintered, with banks

and nonbanks subject to very different regulatory environments. Directed credit is common, and the quality of bank portfolios is often poor. Banks in some countries appear to hold substantial amounts of excess reserves.

The upshot is that most African countries do not possess a well-developed domestic financial system that can intermediate effectively between either domestic or foreign private creditors, on the one hand, and domestic private firms, on the other. Limited domestic financial development implies a large external finance premium. The high costs of financial intermediation in Africa thus potentially represent an important obstacle to the flow of private funds to finance investment by domestic private firms.

5. Foreign direct investment

However, a large external finance premium need not necessarily be an insurmountable obstacle to the flow of resources to finance real investment in Africa, because this flow could take the form of foreign direct investment (FDI). Foreign firms that face low external finance premiums in their own countries, or that have access to their own internally-generated funds, would not be as hampered in securing funds by the inefficiency of domestic financial systems in Africa as would African firms. Indeed, the inefficiencies of domestic financial systems all over the developing world help to explain why the wave of capital inflows that these countries experienced during 1974-81 was dominated by syndicated bank loans to sovereigns and FDI, while portfolio investment became important only during the second inflow episode of 1988-97, when financial

reform had been implemented in several developing countries, which then disproportionately became the destination of those portfolio flows. In recent years, as financial development has lagged improvements in macroeconomic stability in many developing countries, FDI flows have become the single largest source of external funds.

Adopting the premise of the last section, suppose, then, that private projects with potentially high social returns are indeed available on the African continent. Given that African firms may be hampered in securing the funds to undertake such projects by the state of domestic financial systems, what obstacles stand in the way of such projects being undertaken by foreign firms in the form of FDI?

The key challenge would seem to be the issue of appropriability – that is, the potential existence of a substantial gap between social and private rates of return. Unless foreign firms expect to be able to appropriate a large enough share of the social rates of return that their projects generate, the private rates of return that they perceive may not be sufficiently large to induce them to undertake socially productive investment projects. And even if the expected private rate of return is high, uncertainty about appropriability, if sufficiently severe, may itself be enough to deter investment.

Doubts about appropriability can arise in many ways. Deficiencies in the institutional environment regarding the rule of law, property rights, and enforceability of contracts, for example, can render the appropriability of the returns that private investment generates highly uncertain. This applies, of course, to domestic as well as

foreign firms. But the domestic political economy may render foreign firms particularly vulnerable. There is substantial evidence that domestic institutional quality can deter capital inflows. Alfaro, Kalemli-Ozcan, and Volosovych (2005), for example, find that institutional quality was an important determinant of capital flows. They measured institutional quality as a composite political safety index, with components consisting of government stability, internal conflict, external conflict, no-corruption, militarized politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucratic quality. All of these factors can be expected to affect appropriability. Both Wei (2000) and Wei and Wu (2002), find that corruption reduces the volume of FDI flows toward developing countries. Moreover, the effect of corruption, which affects appropriability directly, tends to be particularly important in the case of FDI, since an increase in the incidence of corruption tends to increase the loan-to-FDI ratio in developing countries.

Given the level of institutional quality, appropriability is also affected by actual and prospective taxation. High taxes of corporate profits of multinational firms, and other forms of explicit or implicit taxation (such as restrictions on remitting earnings, regulations affecting hiring practices, etc.) will increase the gap between social and private returns of return on FDI. Perhaps even more detrimental is an uncertain prospect of very high future taxes. This can arise in a “debt overhang” situation in which the government faces prospective insolvency, as is the case for many heavily-indebted (HIPC) countries in Africa. In this situation foreign firms are faced with the prospect that the government’s fiscal difficulties will cause it to levy very high taxes on them in the

future. Because these future policy changes are highly uncertain, the disincentive effects on FDI are magnified.

Finally, FDI flows are likely to be discouraged by government regulations that restrict the range of activities in which foreigners can engage, or that impose substantial amount of red tape in carrying out those activities. Such regulations effectively act as capital controls, by creating hurdles that foreign firms must overcome in order to invest in the domestic economy. Ironically, one of the industries that is most widely affected by such restrictions is the domestic financial sector, where prohibitions on the entry of foreign banks are common in Africa. Given the strategic role of efficient financial intermediation in reducing the external finance premium and thus increasing the access of domestic firms to foreign funds, the obstacles to external investment created by this restriction may far exceed in severity their impacts on the flow of FDI into the domestic financial sector.

5. The role of short-run macroeconomic policies

All of the potential obstacles to investment finance that I have discussed so far are structural in nature – that is, they are related to the medium- and longer-run characteristics of the economies in question. But it is also worth noting that short-run macroeconomic management can also have strong effects on investment – both on firms' willingness to undertake it as well as on the availability of funds to finance it. The literature on this is vast. In a series of papers, for example, Fischer (1991, 1993a, and

1993b) has documented that the harmful effects of macroeconomic instability on growth operate in part by reducing domestic investment. As Rodrik (1991), has shown, this effect in turn arises partly from reduced investment demand on the part of firms.

While the evidence on the effects of macroeconomic instability on domestic saving is ambiguous, the evidence on its effects on the allocation of that saving between domestic and foreign investments is not: macroeconomic instability is an important determinant of capital flight – i.e., domestic macroeconomic instability causes domestic savers to allocate their funds abroad (see Collier, Hoeffler, and Pattillo (1998)).

It also discourages capital inflows. The most recent wave of capital inflows to developing countries triggered a concern among economists with the sustainability of those flows, and thus with the factors driving them. These factors were classified into two types: “push” factors related to developments in creditor countries (such as easy monetary policies) that induced capital to leave to seek higher returns elsewhere, and “pull” factors, related to improved macroeconomic performance in the recipient countries. This literature concluded that, while “push” factors may have been dominant initially, both the geographic distribution of early capital flows, as well as later their absolute magnitudes, were heavily influenced by “pull” factors associated with improved macroeconomic performance in developing countries (see, for example, World Bank (1997)). The more recent evidence is consistent with these findings. Alfaro, Kalemli-Ozcan, and Volosovych (2005), for example, find that, even after controlling for institutional quality, macroeconomic policies have a separate effect on capital flows. In

particular, both macroeconomic distortions as well as short-run macroeconomic instability can act as severe deterrents to capital inflows.

Shortcomings in short-run macroeconomic performance have not been absent from the African context. These have featured both stop-go macroeconomic policies as a source of instability, as well as a lack of resilience of macroeconomic policies in the face of exogenous shocks. Commodity price shocks, for example, have often triggered episodes of macroeconomic instability in countries such as Nigeria (oil) and Zambia (copper) with heavily specialized export sectors. Moreover, distortions in the form of overvalued real exchange rates, trade restrictions, and/or differentially heavy taxation, may have discouraged the entry of foreign firms into the traded goods sectors of African economies, where production for external markets could permit the achievement of efficient scales of production.

6. Summary and conclusions

The Lucas paradox provides a useful starting point for considering why Africa has performed relatively poorly at attracting funds to finance investment on the continent. This paper has argued that there is no shortage of such explanations. Indeed, the challenge for both researchers and policymakers on the continent is that there are too many possible explanations.

One set of explanations is based on the view that investment projects with high economic rates of return are not as plentiful in Africa as the simple neoclassical growth paradigm would seem to imply. One argument is that for a variety of reasons, aggregate production functions may be characterized by lower levels of productivity in Africa than in creditor countries. An alternative or complementary story is based on generalizing the aggregate production function to include roles for human capital, public capital, and institutional capital. Deficiencies in relative endowments of these factors in the African context could also account for a reduced marginal product of capital. These effects raise questions about the abundance of investment opportunities yielding high economic rates of returns in Africa at the present time. To the extent that these factors depress the marginal product of capital in Africa, they would discourage the arbitrage flows that the simplest neoclassical growth theory suggests would otherwise occur.

A second set of explanations takes an agnostic view as to whether such opportunities exist, but argues that even if they do, flows of capital to finance them would tend to be hampered by a variety of factors. These include information frictions, the poor financial condition of government balance sheets, the low levels of domestic financial development, and problems with the private appropriability of social returns. All of these factors are “structural” -- not in the sense that they are permanent, but rather that they are difficult to change in short order. Superimposed on these is short-run macroeconomic instability, which is in part induced by these underlying factors, but which, as experience both in Africa and elsewhere has shown, is more susceptible to change in the short run.

The promise that mobile capital offers, however, is that removing these obstacles to investment in Africa is likely to be rewarded rather quickly with capital flows seeking to finance profitable investment opportunities, holding the promise of raising living standards on the continent. The challenge facing policymakers is how to achieve this result. In particular, given limited resources, what is required most urgently from a policy perspective is a sense of priorities – i.e., of where among the obstacles identified above the efforts of Africans and of the international community should be focused most intensely.

Though this is beyond the scope of this paper, in my opinion it is hard to argue with the view that, from the perspective of enhancing human welfare in the short run, improvements in health conditions and reductions in civil strife are likely to have the largest direct payoffs in Africa, in addition to the indirect payoffs that this paper has argued that they would offer in attracting more financing for investments in Africa. From a purely instrumental perspective, however – i.e., to remove the obstacles to investment in Africa – the critical target of reform would seem to be in the area of public-sector governance. An appropriate domestic institutional environment and a well-functioning and efficient public sector are crucial to attracting the resources that the continent will require to undertake the investments in human capital and infrastructure that it requires, as well as to remove the other obstacles to investment in Africa discussed in this paper. Unfortunately, these reforms are likely to require resources, and private funds to finance the activities required to achieve improvements in governance are unlikely to be forthcoming as long as governance remains poor. The conclusion seems inescapable that

in this crucial area the direct involvement of the international official community will be indispensable.

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