



The climate for enterprise

Sustained growth requires more than a high rate of capital formation. It requires using that capital productively, which in turn requires the right market incentives, the right institutions, and the right supportive investments—three key ingredients of productivity.

Above all, appropriate market incentives are necessary. Getting price signals right, and creating a climate which allows businesses to respond to them, can raise the rate of return on investments by half—even double it, where distortions had been particularly large (as indicated by the statistical analysis later in this chapter). That difference in the productivity of investments can make a difference of 1 to 2 percentage points in the annual growth rate of GNP per capita. It can help to transform a stagnating economy into a vigorously expanding one.

But market incentives are not enough on their own. If farms and firms are to respond to appropriate signals, they need access to information and markets, and the ability to transact at acceptable costs. Often these conditions are not met, sometimes because of misguided government interventions. But inappropriate interventions are not always the culprit; the absence of public institutions and investments frequently perpetuates market failure. Markets for goods, inputs, labor, and capital need to be better integrated; from the farm to the town, from the city to the market abroad. And information is often poorly transmitted, even when there is appropriate pricing. Entrepreneurs need access to appropriate infrastructure and to research and extension services; these foster the integration of markets and help to spread new technology. Businesses also need a legal and con-

tractual framework for their activities—one that protects property rights, facilitates transactions, allows competitive market forces to determine prices and wages, and lets firms enter and exit.

The public sector can play a crucial role in lowering the transaction costs to farms and firms by supporting them with investments and institutions. When this happens, the economic rate of return of projects is higher. Public investments and institutions are needed to foster competition. To that end, there is also scope for promoting more private sector provision of goods and services that are usually publicly provided: power and telecommunications, small-scale and rural credit, research and development, and agricultural extension. Good government policies, institutions, and investments are vital. But the key to rapid development is the entrepreneur. Governments need to serve enterprise, large and small, not supplant it.

Entrepreneurs unleashed

Irene Dufu, a Ghanaian nurse turned business woman, shows what access to resources in a more and more competitive economy can do to spark the entrepreneurial spirit. She registered her fishing company—Cactus Enterprise Ltd.—in Tema, Ghana, in 1978, having started operations informally two years earlier. She began with a small wooden vessel and a crew of twelve. Today she employs sixty-five fishermen on three boats. Her turnover in 1989 was more than \$1.2 million.

What was Mrs. Dufu's route to success? While serving as a nursing officer at the Accra military hospital, she was approached by a group of artisan fishermen from a village where her father had served as regent. These fishermen were seeking a loan to buy new canoes. They

were illiterate and lacked collateral, so the banks had turned them down. Mrs. Dufu received a loan on their behalf, using her house as security. The fishermen repaid it in six months. This started Mrs. Dufu thinking about a career switch. Salaries in the army and public enterprises were not keeping pace with the rapidly rising cost of living, and she had three children to educate. Many successful trading businesses and bus transport companies in Ghana are owned by women. Why not go into fishing and marketing on her own? With an end-of-service gratuity from the army, she bought a truck, which she then used as collateral for a loan to purchase a secondhand wooden fishing boat. Then she recruited a captain with a nose for tracking down shoal movements and a crew willing to spend weeks at sea.

She found she could compete with the state-owned fishing company, selling cheaper yet still enjoying good margins. She then bought and repaired an inexpensive tuna ship which allowed her to break into the market for canned tuna, supplying a U.S. company. Since the liberalization of Ghana's foreign exchange market in 1987, Mrs. Dufu has been able to keep a foreign exchange account, making it easier to raise the money to buy and repair the two secondhand vessels. Refitting the engine in one boat will need to wait, however. Ghanaian banks give priority to government borrowing: only 10 percent of overall credit was allocated to the private sector in 1989. Despite the credit constraints, Mrs. Dufu is contributing to Ghana's economic resurgence.

Yoon Soo Chu shows what a modest start, hard work, and several doses of learning-by-failing can do in an enabling policy and institutional environment. In 1977 Chu and his small team of engineers were given 15 square feet in the corner of an old lab in the electronics division of a conglomerate in the Republic of Korea. It seemed absurd that a tiny and spartan laboratory in Korea could challenge giant U.S. and Japanese corporations. But Chu also knew that his senior managers wanted to produce microwave ovens. Soon he had gathered the world's top oven models and was choosing the best parts of each for his prototype. After a year Chu was ready to test a prototype. He pushed the "on" button: the plastic in the cavity melted. So Chu spent many more eighty-hour weeks to come up with a new design. This time, the stir shaft melted. The Japanese and Americans were selling more than 4 million microwave ovens a year, and Chu did not have a working prototype.

By June 1978 he was ready with a new version. Nothing melted. Chu's managers at the conglomerate approved a makeshift production line. Soon three ovens a day were being produced. Four years later microwave production topped 200,000 units a year. By the late 1980s, production exceeded 1 million units. Among U.S. buyers nowadays, the odds are more than one in

five that their microwave was designed by Mr. Chu and produced on that assembly line. The conglomerate's emphasis on quality control and its in-depth knowledge of the market account for this startling success. Chu and other engineers often travel abroad to understand design and marketing better. And as elsewhere in Korea, everybody works hard: eleven hours a day, twenty-seven days a month, managers and workers alike.

The Patels of Tanzania started Afro Cooling to manufacture car radiators. They bought the technology from an Indian firm that had been making radiators for twenty-five years and had adapted the technology to Indian needs. Production started in 1979 with the help of twelve expatriate experts—who had left by 1983. Afro Cooling's production increased steadily thereafter, when trade reforms began. The firm is efficient. It uses labor-intensive techniques and simple equipment, but it emphasizes strict quality control. Its managers and skilled workers have assimilated the technology of a labor-intensive engineering product, and adapted it. They marketed their products aggressively at home and overseas—even during times of economic decline and unhelpful economic policies. Despite the recent import liberalization, they continue to dominate the local market for radiators. They have diversified into industrial coolers and heat exchangers. They export nearly half of their production.

In varied settings and circumstances, Dufu, Chu, and Patel illustrate the power of entrepreneurship: the ability to seize new and often risky opportunities and to adapt, innovate, and expand. Countless other cases are less encouraging.

The Morogoro Shoe Company, a parastatal in Tanzania, started business in 1980 with World Bank financing. It was to be one of the largest shoe factories in the world, and to export more than 80 percent of its production. But the factory was badly designed and built; problems have plagued it from the beginning. Capacity use has averaged less than 4 percent. It has not exported a single pair of shoes. The company has had inadequate management, bad product design, and nonexistent quality control. It produces negative value added at world prices. It cost the economy half a million dollars a year in the mid-1980s to keep the firm in business—not counting the interest and principal on \$40 million of capital costs.

The conditions for success and failure can be seen in these contrasting examples. Although they are only illustrative (and need to be complemented by the analysis given below), these cases are suggestive: success requires an appropriate set of signals to provide entrepreneurs with the incentives to embark on productive and profitable activities. Then entrepreneurs must be able to respond to these signals. For this, they need skills—which is

why education is so important. But they also need access to information and markets; knowledge about appropriate technological choices and best practices; and access to credit, inputs, and outlets for their products.

Morogoro Shoe is not alone—anything but. It is possible to find “value subtracting” firms in all continents; they range from Polish shipyards to Chinese car plants. They can be found in the public as well as private sectors. For Morogoro Shoe, access to potential markets and investment finance was not a problem. But the other conditions for success were not met. Heavily restricted trade, a distorted pricing regime, and an overvalued exchange rate destroyed the incentive to export and hence to be competitive. The result is an extreme case, but not an uncommon one. As reviewed in Chapter 2, the aggregate cross-country evidence mirrors the lessons from these individual cases. Respectable levels of investment per se have not automatically ensured high GDP growth; investment also needs to be productive.

Enterprise in agriculture

A clear lesson of experience is that high productivity in agriculture is especially important for industrialization and growth—and is feasible. As industrialization gets under way, manufacturing firms depend heavily on rural demand for their products, on agricultural products as inputs for processing, and on agricultural exports to generate foreign exchange. An explicit push for industrialization at the expense of agriculture has often undermined agricultural incentives, largely via the indirect and direct taxation of the agricultural sector. This was often justified by mistakenly viewing agriculture as having low potential for productivity growth and technological progress, in contrast with industry. Coupled with agricultural export pessimism, these meant that the establishment of appropriate incentives and institutions in agriculture was neglected.

The effects of inappropriate exchange rate, trade, and pricing policies have been devastating for agriculture: market signals become so distorted that farmers receive only a fraction of the value (or border price) of the commodities they produce (often between 25 and 50 percent), while the inputs and goods they consume become scarcer and more expensive.

Policies outside agriculture—such as those affecting trade and industry—have often imposed a “tax” on the farmer and hampered agricultural growth at least as much as sector-specific price and

tax policies have done. Import restrictions and high tariffs to protect industry reduce the availability of agricultural inputs and increase their prices. They also push up the prices of urban-produced and of imported goods consumed in the rural areas. And an overvalued exchange rate, which reduces producer prices for agricultural exports, usually coexists with restrictive trade policies. Excessive government spending (often including subsidies to industry) further contributes to the currency overvaluation, imposes an inflation tax on rural incomes, and crowds out resources from agriculture. Worse still, direct agricultural policies, such as low producer prices (to channel subsidized food to urban consumers) often compound the negative incentives originating in nonagricultural sectors.

What does all this mean for the beleaguered farmer? A recent study of eighteen developing countries reveals the extent of the biases against agriculture and their adverse effects on agricultural performance. The largest agricultural losses—measured by the difference between the actual and the potential rate of agricultural growth—are found for the “extreme discriminators” in the sample: Côte d’Ivoire, Ghana, and Zambia. Government policies implicitly taxed the farmer by more than 50 percent, resulting in the lowering of their crop prices by more than half in twenty-five years. Ten other countries, classified “representative discriminators,” set an average implicit “tax” of more than 35 percent on agriculture. These, too, incurred large losses in agricultural value added. By contrast, agricultural losses were small or nonexistent for the countries that discriminated mildly or not at all: Brazil, Chile, the Republic of Korea, Malaysia, and Portugal.

An extensive empirical literature confirms that farmers respond very significantly to government policies: when the prospects for farm profits are good, they innovate, adapt technologies, improve existing practices, and increase production. But in assessing the farmer’s response to policy conditions, all factors affecting farm profits need to be considered, not just pricing. And the effects of policies on individual crops need to be distinguished from their effects on aggregate agricultural output.

The crop-specific supply response to improved pricing incentives can be very large, even in the short term. For milk for instance, the response to better prices to farmers can be almost instantaneous: it can involve no more than changing the feed mix. For annual crops the response can be especially strong: Tanzania’s cotton production

doubled within a year when producer prices were substantially increased in 1986/87. Agricultural export crops can also react quickly to changes in prices and exchange rates very significantly in the short term, much like individual crops. Agricultural export response to incentives has in fact been estimated to be even higher than the response for all exports.

When policy conditions have been very bad, leaving factors of production substantially underutilized, even the aggregate agricultural supply response to improved prices can be impressive in the short term. In Ghana, before the reforms in the early 1980s, cocoa prices paid to farmers were so low that crops were left to rot; improved pricing resulted in large production increases that boosted overall agricultural output.

However, where excess capacity is not so large the aggregate supply response to reform, though positive, is often limited in the very short term—in contrast to the crop-specific response. Aggregate output can grow only if inefficiencies are reduced, more resources are devoted to agriculture, or technology changes. But it takes time to improve established practices, adopt new techniques, and to overcome constraints of labor, capital, and land. With time, laborers migrate, and also farmers can adjust the mix of crops, use additional factors of production, and improve techniques. Five to ten years after a one-time increase in agricultural prices, overall farm production can increase significantly—often by a percentage similar to, or even larger than, the price increase itself.

Implementing an integrated package of reforms in the exchange rate, agricultural pricing, and public expenditure policies can result in a substantial production response for the overall sector. When comparing the performance of Sub-Saharan African countries that implemented reforms with those that did not, a slight difference between the two groups began to emerge in the early 1980s, when the reforms were initiated. The differences between the two groups increased over time; by the late 1980s the agricultural growth rate was more than 2.5 percentage points higher for the reforming group—suggesting the responsiveness of Africa's agriculture to policy changes.

To strengthen and sustain the farmers' response to changed incentives, complementary institutions and investments are essential. Farmers require knowledge about improved practices to minimize waste and better utilize the resources at their disposal. They also need to learn about new technologies and to get access to markets, storage facilities, credit, and inputs. Further, farming is inherently a

risky business because of weather, pests, disease, and volatility in input supplies and prices. Governments can help by providing research and extension services, secure land-tenure arrangements, better education, and physical infrastructure such as roads and irrigation.

These complementary factors are not fully independent of economic policies. Appropriate pricing promotes institutional change and investment, both public and private. When pricing is right and agroclimatic conditions are appropriate, farmers demand additional infrastructure, extension, and credit services; research institutions intensify efforts to develop and adapt varieties highly beneficial to farmers; and private traders and moneylenders proliferate. Some of the demand for these services is met by farmer groups themselves and by other private enterprises, and some by policymakers approving public programs where supply response is expected to be particularly high. But when the public sector plays a fuller complementary part and anticipates the demand for public services, the eventual supply response can be greater and can come sooner.

China's experience shows the power of the interaction between price incentives and a supportive institutional setting. Extensive crop-breeding work had been done since the 1950s; the number of extension-service stations increased from a few hundred to more than 17,000 in 1979. But output only accelerated after 1979, when prices were raised substantially and the "household responsibility system" was introduced. This gave households control over the land they occupied and let them keep their net income. Output growth accelerated from about 3 percent a year during the period 1965–80 to more than 6 percent during 1980–88.

Investing in research and extension

Agricultural research and extension have a substantial public good component: as a result, the government's role in their promotion has long been recognized. Research resulting in a new pattern of crop rotation, for instance, can be used by one farmer without reducing its availability to others (it is thus a "nonrival" or public good); it would also be difficult and costly for the private sector to exclude farmers that do not pay for such research from using the new information. It is therefore hard for private researchers to appropriate enough of the rewards to make their investment worthwhile. And once new techniques are developed and available, farmers need to be ac-

quainted with the technologies, and shown how to get the most out of them. That is the role of extension services. Experience shows that both these forms of agricultural investment can pay.

RESEARCH. A combination of international and indigenous agricultural research is crucial for the development and adaptation of new techniques and varieties suitable to the crops and agroclimatic systems of the developing world. The returns on investing in research and development (R&D) in agriculture can be very high—often between 30 and 60 percent, according to many crop-specific studies. Examples include research on maize in Peru, rubber in Malaysia, and wheat in Chile and Pakistan. Such high returns suggest that too little is still being invested in these activities—despite the substantial increase in spending and scientific effort during the past thirty years.

Private R&D has grown in recent years, but it rarely exceeds 10 percent of national spending on agricultural research. This is not just because it is difficult to capture the returns. Governments often restrict and regulate private R&D. Pakistan, for instance, did not allow private companies to do research on plant breeding in the past. Restrictions on buying plant and animal germplasm, equipment, and scientific expertise from abroad have further hampered private efforts in some countries. India restricted imports of grandparent stock of commercial poultry to encourage local breeding and production of chicks; the Philippines, in contrast, encouraged technology transfers by private companies through tax incentives for R&D. As a

result, feed-efficient hybrid poultry has been adopted more rapidly in the Philippines than in India.

In some applied areas, there are incentives to do private research when the results can be embodied in naturally protected or patented proprietary products. But private incentives are weak in basic biological and physical research, and in generic and applied research when results cannot be patented, or protected by intellectual property laws.

Innovative farmers, both wealthy and poor, experiment with new techniques and often allocate a small portion of their plot for informal trials of new technology. But they rarely conduct formal research because the farm is generally too small to capture more than a small share of the potential benefits from the farmers' own research. Even a private firm in the technology-supply industry (for example, a seed company) may be too small to appropriate a significant share of the benefits from its own research. It will rely instead on improved varieties from public research, whether domestically or internationally funded (Box 4.1).

Biotechnology research has barely begun in the developing countries. It promises to improve the tolerance of crops and animals to stresses and pests; increase the efficiency with which plants and livestock use nutrients; and relieve the present biological constraints on higher yields. Equally important, it may reduce the need for agricultural chemicals, which would be beneficial for the environment. Although the scope of the green revolution was limited (it focused on just a few crops, which responded to irrigation), the biorevolution

Box 4.1 A different sort of enterprise: Gurdev Khush breeds super rice at the International Rice Research Institute

In Asia rice is the main source of calories for 2.7 billion people. A crucial achievement of the green revolution has been to increase rice production in the past twenty-five years faster than Asia's population has grown. During this time, the real price of rice has been halved, and the disastrous famines predicted by so many people never happened. The first high-yielding variety of rice for the tropics, IR8, was made available in 1966 by the International Rice Research Institute, based in the Philippines. A cross between a dwarf Chinese rice and an Indonesian variety, IR8 changed the architecture of the rice plant. Improved varieties, such as IR36, have been developed since then, permitting up to three crops a year. It is now the most widely grown crop variety in the world. Gurdev Khush, IRRI's chief plant breeder and the creator of IR36, believes that existing

techniques could be used to increase rice production by 25–30 percent during the next decade.

But to meet the growing demands for the next century, Khush and his colleagues is breeding a new super rice, capable of feeding many more mouths from less land. It will look very different from existing varieties: sturdier stems, dark green leaves, more vigorous roots, and genetic resistance to a multitude of diseases and insects. Farmers will be able to get a higher yield from seeding it directly, rather than by transplanting seedlings, which is what makes rice farming so laborious now. It is expected to produce 13–15 tons per hectare from each crop, compared with a maximum output of current varieties of 8–9 tons. Biotechnology may hold the key to developing this new variety.

Box 4.2 Extension and the African agricultural services initiative

Food production in Africa will have to grow by at least 4 percent a year from 1990 to 2020 to meet the growing demands of the region's people. In 1988 the World Bank launched an African Agricultural Services Initiative to improve agricultural performance by helping to develop and disseminate new technology, and by encouraging the better use of the technology that already exists—suited to the prevailing farming conditions. For instance, dissemination of a technology requiring extensive weeding would only be advocated in settings where labor constraints are not prevalent.

The initiative concentrates on establishing national T&V-type extension services, and on strengthening re-

search, infrastructure, and supplies of credit and inputs. Improvement of economic policy is a vital component. The initiative provides resources, including the stationing of technical staff in nonexecutive positions in Africa. It differs from earlier programs because it encompasses all agricultural services and because the services provided will be managed by local staff, not expatriates. Accordingly, great emphasis is placed on training managers and on working with farmers. Further, the initiative envisages expanding the role of farmers' groups and of the private sector in the management and provision of extension and other support services.

can reach the entire rural population. Thus it holds promise for all continents.

It is possible, however, that as a result of biotechnological advances some commodities produced for export in developing countries may be displaced by new products from industrial countries and that very different patterns of agricultural production and trade may emerge. Yet the benefits of biotechnology research for the developing world may still outweigh the costs, particularly if domestic response to changing circumstances is flexible, and the new techniques developed in industrial countries are shared with developing countries. In low-income economies such as those in Africa, improved indigenous scientific education and agricultural training programs will be needed to help adapt and spread the new technologies. It will be some time, though, before new varieties to suit the developing countries are ready: up to five years for potato and rice (Box 4.1); five to ten years for banana, cassava, and coffee; and ten or more years for coconut, oil palm, and wheat.

EXTENSION. Publicly provided extension services can be successful. A review of almost fifty public sector extension programs in the developing world showed a significantly positive effect in most of them. But public programs have also failed. Success usually requires an appropriate set of complementary agricultural policies—not to mention having new technologies and better practices to extend. Often extension systems have failed to offer new techniques or have extended technologies without taking account of the specific agroclimatic and resource constraints facing differ-

ent farm systems or areas—so, for instance, costly fertilizer and labor-saving technologies are extended in labor-abundant, low-yield areas.

Just as important for successful extension is the presence of a political, managerial, and budgetary commitment. Budgetary crises too often leave extension workers on the payroll but without funds for daily subsistence and fuel while on the road. The quality of rural infrastructure matters. So do the skills and experience of extension staff, who frequently know less than farmers about appropriate practices.

Farmer participation, particularly in program development and feedback, significantly improves the chances that an extension program will succeed. Interaction with farmers is part of the training and visit (T&V) approach to extension. This attempts to strike a balance between delivery (focusing on the professionalism of staff, who work full time on extension services under a single line of command) and feedback (through regular visits to the farmers, with the extension worker spending a large part of the day in the farmer's field). Success has not been universal, in part because the farmer's feedback has been insufficiently emphasized, yet the T&V system appears to have raised production in a variety of settings. In some African countries, T&V, though not without its problems, has brought better management and discipline where once there was duplication of effort and lack of direction. External agencies such as the World Bank have become more and more committed to the support of this structured approach (Box 4.2).

The private sector is too little used as an avenue for providing extension services. The experiences

of coffee growers in Colombia and cattle ranchers in Argentina show that in commercial agriculture regional or crop-specific associations can function effectively, spreading the costs and benefits of extension among their members. In Kenya, veterinary services are provided through a mixture of public and private farmer support. Traders, seed suppliers, and agroprocessors often provide extension services. In Thailand, a diversified commercial agricultural enterprise improved the quality and quantity of the crops it procured for processing by establishing its own extension services to farmers. It began by recruiting extension agents from the graduates of agricultural extension schools. After this approach failed, the company hired farmers instead, who were paid to provide part-time extension to other farmers. The program is now successful. A large food-product multinational has set up its own extension service in Costa Rica; this has successfully disseminated better techniques for growing pineapples. Such examples illustrate that, as restrictions on private initiative in trading, marketing, and production are removed, and as the commercialization of agriculture widens, the private sector can play a larger role in extension services.

Credit and marketing

The private sector can also be a provider of agricultural credit.

Banco del Desarrollo in Santiago, Chile, is a hybrid between a profit-oriented credit union and a church-supported nongovernmental organization (NGO). It traditionally offers consumer and small-scale manufacturing and agricultural credit to low-income families. Since late 1989, microenterprise credits, averaging \$50 each, have been offered on a pilot basis for food production, textiles, and services. The interest rates are based on the cost of funds. The recipients of these credits are normally considered uncreditworthy, but Banco del Desarrollo gets around this by lending to members of a group of four or five borrowers who unconditionally guarantee each other's promissory notes. The group thus provides implicit appraisal and supervision. After one year of operations, only 3.5 percent of loans were nonperforming.

Banco del Desarrollo is not the only institution to combine credit to the poor with financial discipline. Before it was nationalized in 1969, the Syndicate Bank in India was a pioneer in lending to very small operators, such as roadside sellers of vegetables. Nowadays Grameen Bank in Bangladesh, ADEMI in the Dominican Republic, and

BKK and Kupedes in Indonesia are successfully reaching farmers and other small-scale operators while maintaining financial viability. But such institutions are rare.

Formal banking institutions usually require collateral, such as equipment, land, or even livestock. But because poor households usually lack such assets, they generally have no access to formal credit. The cost of informal credit from moneylenders can be high; real interest rates often exceed 80 percent. Loans are scarce or expensive when lenders lack information about borrowers and face difficulties in enforcing repayment. Gathering information on borrowers can be costly. In rural Pakistan moneylenders devote an average of one day per applicant to obtaining information, and reject one applicant in two.

Informal finance for the poor farmer can also come from a range of other sources: family, friends, traders, and loan associations. Rotating fund associations are common in rural areas; they are a main source of credit in Asia and Africa, where powerful social sanctions, including rejection by the community, help to enforce repayment. In northern Nigeria and in many areas of China, there are active loan markets that do not require collateral. Information and enforcement rely on kinship and village sanctions. But because lenders operate within a limited geographical area and the demand for credit is seasonal, such arrangements can break down. Local credit markets collapsed in Thailand during a regional drought.

These private credit institutions are evidently partial and imperfect. This may justify intervention: the government, it is argued, can overcome market failure because it has the power to enforce repayment. This may be so in principle, but rarely in practice. Governments often find it politically impossible to enforce lending terms. In India, politicians compete with each other by promising, if elected, to have such debts forgiven. And there have been many other problems. Governments have proved far less skillful in collecting and assessing information than lenders who know the community well. Cheap public credit in rural areas has largely failed to reach poor farmers. Public credit programs have often run into financial difficulties early on; frequently they have collapsed or become a drain on the government budget.

What then is the role for public policy? To begin with, a stable macroeconomy and a nondistorting regulatory framework are preconditions for developing the financial sector. The emergence of an independent, solvent, and competitive banking

sector, which is free to set market-clearing interest rates, and not unduly influenced by pressures to lend from the public sector or politicians, improves the mobilization and allocation of credit. It can often improve allocation by shifting resources from some large, unproductive state-owned enterprises to efficient private activities, including farms.

But even a healthy financial sector will not always ensure an adequate supply of credit to the small farmer. To increase the supply, governments can foster the development of credit institutions and markets. For instance, modifications to the law of contract can make it easier for traders to extend credit, by allowing them to deduct repayments from the value of the crop. Improving the security of land tenure creates collateral in some settings. Public spending on rural infrastructure promotes competition in credit (and other) markets. Improving the literacy and numeracy of the poor makes them more creditworthy.

This illustrates an important point: an efficient intervention in one market often helps another market to work better as well. Policy toward risk in agriculture is another example. Public crop-insurance and price-stabilization programs have not been very effective in reducing risks or reaching the poor, and have proven costly. A better way for the government to lessen the risks faced by farmers is to let markets work and to facilitate the emergence of private programs, both domestically and externally, such as improving access to international commodity futures markets for private traders, millers, and farm associations. Equally important in order to lower risk is to invest in infrastructure, including public utilities, storage facilities and irrigation. In India, for instance, erratic electricity supplies for irrigation have often hurt farm productivity. If the public sector's electricity producers could be made more efficient, one source of risk for farmers would be removed.

Access to wider markets is essential if farmers are to adopt new technology and raise their productivity. Government has a role here, too. Infrastructure is again critical, as is a policy and regulatory environment that allows the private sector to flourish. But as in the case of credit and insurance, direct public involvement has often failed in marketing. State monopolies in agriculture have often paid farmers too little and too late, in order to finance their own inefficient operations and subsidize urban consumers. The consequences for the government's budget, for farmers' incomes, and for agricultural production have often been disastrous (Box 4.3).

Empowering the manufacturer

In coping with their economic environment, industrial firms have many advantages over farms. They tend to be larger, fewer in number, and less dispersed, so their transactions costs are not so great. They are less subject to uncontrollable risks, such as the weather. And they often have more assets, making credit easier to get. All this means that firms are better placed than farms to embark on investments in information and technology and to reap their benefits. In other ways, however, factories and farms have much in common. Factories also need infrastructure (roads, ports, water, and electricity). Very small enterprises may find it difficult to borrow. Above all, firms are just as vulnerable to harmful regulatory policies.

In 1978, a major expansion of India's Sindri Fertilizer Company was designed to produce 2,000 tons of ammonia and urea a day. Regulations required the firm to buy a high proportion of locally made equipment for the new complex, including turbo-compressors never previously manufactured domestically. The equipment did not work and had to be rebuilt; then it kept breaking down. Utility companies with exclusive licenses for local distribution could not provide reliable supplies of electricity. When problems with the railway system reduced the plant's petroleum supplies, the government refused to authorize fuel imports to meet its requirements. Converting to other fuels more than doubled production costs. Union pressures led to chronic overstaffing. Of the plant's 8,000 workers, only 4,400 were directly productive. In its first eighteen months, the new facility operated at 33 percent of capacity for eight and was closed for ten. Its rate of return was negative.

In contrast, a competitive domestic environment allowed Tomás Gómez in Chile to thrive. He started a very small business in the late 1970s, producing leather shoes in two rooms in Santiago. Competition in the domestic industry was fierce, so the company had to be efficient to survive; but an overvalued exchange rate and high tariffs on competing imports discouraged exports. Following the external trade liberalization of the early 1980s, potential importers visited Chile and placed orders with the company. Mr. Gómez devoted 20 percent of his production to exports. Today he exports 80 percent of his production, worth \$2.5 million a year, or almost one-tenth of the country's exports of shoes. He employs 350 workers in a large and modern factory.

Industrial regulation

A good rationale exists for various industrial regulations. Rules on health standards, environmental

Box 4.3 Parastatal marketing institutions and producer prices: impairing competition and incentives to farmers

State enterprises in agriculture were created in many countries during colonial times to regulate small growers and protect European farmers against competition. They have expanded over the past three decades and now monopolize many markets for agricultural inputs, outputs, services, and trade. Agricultural prices are commonly set either by the parastatals themselves or by legislation much below their international levels. Often one price is set throughout the country and throughout the year. Maintaining the same prices year round, irrespective of the proximity of the harvest or the state of stocks, discourages the private sector from holding supplies in reserve and building private storage facilities. Year-round uniform pricing encourages consumption and discourages production off-season, when the full cost of providing the product (growing it plus storing it for a long period) is highest. And when producers are paid the same price throughout the country, production close to consumption or shipment centers is usually discouraged.

Agricultural marketing institutions have also been plagued by corruption: funds are "lost" and supplies "leak" to the parallel market. Poor forecasting of crops, excessive accumulation of stocks, and selling at the wrong times have often destabilized the very markets the institutions are intended to stabilize. And political constraints have led to overstaffing and waste.

All these defects have made the agricultural parastatals a heavy drain on public sector finances (Box table 4.3).

Box table 4.3 Losses from the marketing of parastatal agricultural products, selected countries and periods

Country and period	Products	Transfers as percentage of current government expenditure	Transfers and credit as percentage of GNP
China, 1988	Grains	10.5	2.0
India, 1984-85	Grains	4.6	0.5
Gambia, 1982-87	Groundnuts	10.8	2.8
Mali, 1982-85	Grains	8.8	1.3
Mexico, 1982-85	Milk, grains, oilseeds	3.5	..
Tanzania, 1980-81	All crops	12.4	1.7
Zambia, 1980-86	Maize, fertilizer, cotton	4.0	3.2
Zimbabwe, 1983-87	All crops	5.6	4.6

Source: Knudsen and others 1991.

protection, worker safety, as well as rules to protect consumers and producers from restrictive or monopolistic practices, are part of the legal and institutional framework that any economy needs. All too often, however, governments in developing countries have failed to provide or enforce such rules. Instead, they have regulated purely economic aspects of firms' behavior, hampering competition and often causing high costs in lost output and income.

The main "anticompetitive" weapons in the domestic regulatory arsenal have included (a) entry barriers, such as establishment and capacity licensing, exclusivity arrangements, and other market reservation policies often used to promote state enterprises or protect powerful interests; (b) exit barriers, such as weak enforcement or a lack of appropriate laws; (c) price controls, ostensibly to protect consumers; (d) canalization or confinement policies, which give only specific firms the right to buy and sell certain goods according to centralized guidelines and priorities; and (e) ad-

ministratively regulated allocation of key resources, such as credit and even physical inputs.

Barriers to entry and exit can do enormous harm. In Argentina, large subsidies that favored well entrenched firms discouraged new entrants. Industrial concentration has risen while smaller firms have lost market share. Exit barriers such as the inability to take firms to court or to liquidate them—the norm for parastatals in Africa, China, and Eastern Europe—encourage unprofitable and inefficient firms and, again, discourage new entrants. This also hampers the introduction of new technologies, because inefficient production lines and obsolete plants can stay in business.

Large and expanding firms are not always beneficiaries of government policies. The emergence of large, efficient private corporations, which are important conduits for technology transfer and industrial modernization in countries such as Brazil and the Republic of Korea, has been obstructed in other developing countries by regulatory restrictions. Where the government has allocated indus-

trial capacity, reserved subsectors to state enterprises, and decided on plant locations, firms have failed to expand and thus to benefit from scale economies and greater specialization (Box 4.4). In Pakistan, capacity licensing prevents producers from reaching an efficient scale of production. In the cotton-spinning industry, licensing requirements keep mills to an average size of 15,000 spindles; the most efficient scale is almost twice that.

More difficult to quantify, yet equally damaging, are the extra transactions costs caused by a regulatory maze. For large firms the constraints of restrictive regulatory and domestic trade policies is not so much the explicit exclusion from access to resources, as it is the waste of effort associated with manipulating the rationing and licensing system. Further, under restrictive trade practices benefits accrue to large firms from manipulation of the system itself, rather than from the innovation, adoption of new technologies, and efficient production that would be demanded from the rigor of competitive markets—at home and abroad.

Internal and external restrictions often exist side by side, compounding each other's adverse effects

on technological progress and industrial productivity. However, the neglect of internal regulatory reform in many countries—which often entails reforming institutions—has meant that domestic deregulation has not always proceeded apace with external trade openness. As a result, anticompetitive regulatory policies can be present in economies that are open to foreign trade, as in some African countries. Their external liberalization programs still left elaborate licensing, internal trade restrictions, and regulatory systems in place; this hampers competition and dampens the response to liberalization. Despite increased openness to external trade in Malawi, investment response has been limited: regulatory barriers continue to block entry in key industries, such as textiles.

Labor-market regulation

The goal of government regulation of labor markets usually is to protect individual welfare, not to influence the pattern of industrial development. Restrictions on child labor, working hours, and health and safety risks at work all fit this goal.

Box 4.4 The payoffs from regulatory reform: India and Indonesia

India's strategy for industrialization has been based on import substitution and an unusually comprehensive and restrictive regime of regulation in domestic markets. In eleven subsectors that produce about 50 percent of Indian manufacturing output, the main results of this strategy have been that: (a) A few large firms dominate, while medium-size producers are "squeezed out." (b) Average plant sizes are below economic scales of production for most products. (c) Protected firms have captive markets and thus garner high rents: net pretax profits in India's manufacturing sector were on average 20.8 percent of value added in 1982, compared with 3.5 percent in the Republic of Korea in 1981. (d) Technological innovation is slow. Total factor productivity in these industries fell by more than 1 percent a year between 1966 and 1980.

Unsurprisingly, India's international competitiveness has suffered. Its manufactured exports as a share of developing countries' manufactured exports has declined, and its share of manufacturing in GDP has not increased since 1978. Other results are harder to quantify: transaction costs are high; and resources are diverted by excessive administration, by unproductive rent-seeking, and by uncertainty and delays.

In Indonesia, the private sector has also been hindered by regulation. Until 1988, domestic and foreign

investment was restricted to certain areas; there were capacity limits and ceilings on the number of permitted projects. Before starting operations, even approved indigenous firms had to obtain import and export licenses, a domestic trading license, land rights, a permanent operating license, and storage and location permits. All this often took two years. Total factor productivity fell by 2.5 percent in the mid-1980s.

In India, recent partial reforms proved successful. Industrial licensing has been eased since the mid 1980s, as have some import controls on some raw materials and intermediate goods. These changes, though modest, have nonetheless had a positive effect. Competition has squeezed the profits of large firms (the top 100 firms reported a drop of about 24.3 percent in 1986–87 despite a 9 percent rise in sales), and many new, smaller firms have been created.

In Indonesia reform has been more comprehensive: foreign investors are now able to acquire firms in priority areas as long as 20 percent of the equity is domestically owned; rules on domestic investment have been significantly relaxed. Private investment grew in 1989; the growth of total factor productivity has been positive in recent years; and the average rate of return on investment increased from 13 percent in the period 1982–85 to 22 percent in 1986–88.

With the same goal in view, however, many governments also regulate wages and job security—and these policies, although well-intentioned, often have the perverse effect of reducing incomes and employment.

Minimum-wages rules and wage indexation increase the cost of hiring workers. This leads firms to adopt an input mix that employs fewer people and more capital. This can result in unemployed or underemployed labor. Meanwhile the unwarranted shift toward capital intensity will make the economy less productive.

The precise effects vary. Some countries in Africa and Asia rarely enforce their labor regulations, often because it would be too costly to do so. Only the more visible firms—those employing a large number of workers—may have to comply, because small and medium-size enterprises find it easy and advantageous to evade the regulations. In contrast, labor regulations in much of Latin America (for example, in Uruguay and, until recently, Chile and Colombia) appear to have directly influenced resource allocation and employment, because the modern sector consists mainly of large and visible enterprises. In Chile in the early 1980s, low aggregate demand combined with labor market rigidities, such as minimum wages and lack of wage flexibility in the protected formal sector, accounted for an open unemployment rate that exceeded 20 percent.

Most economies have a mandatory minimum wage. But during the 1980s it fell significantly in real terms in many developing countries. Only when labor in the protected formal sector wields significant power, distortions and inequities in the wage structure are likely to remain. In Brazil, wage indexation has been used to maintain real wages in the formal sector, interfering with structural adjustment and resource allocation, and contributing to income disparities.

Employment regulations, such as job-security laws, can undermine the link between pay and performance and also lead employers to hire fewer permanent workers. In Senegal, tight rules on dismissals virtually guarantee employment; unsurprisingly, many workers are poorly motivated, and firms are wary of increasing employment. In China, employment regulations have fulfilled social objectives by maintaining high levels of urban employment, but the economic costs have been high. Although overall reform has helped, workers are still not allowed to move freely and seek out jobs in which their skills are most needed and rewarded. Overemployment in state enter-

prises is substantial, and inefficient enterprises are not liquidated because bankruptcy laws are not enforced. This impairs labor allocation still further. Ultimately, the expansion of productive employment opportunities is slowed as a result of employment regulations that were originally intended to help workers.

The minimal use of labor regulations in the Republic of Korea and other East Asian economies has not impeded rapid growth in employment and real wages. Working hours in Korean manufacturing, including overtime, which is often mandatory, are the longest in the world. But since the mid-1960s growth in manufacturing wages and employment has exceeded 8 percent a year—faster than in any other economy (Table 4.1).

A government's policies toward its own public employees can have a big effect on the economy, partly because of the sheer size of the public sector in many developing countries, partly because of the importance of the services that public workers provide. In Ghana, government employment grew by 15 percent a year between 1975 and 1982, even though real GNP per capita was falling, reducing resources available for maintaining real wage levels and for financing other recurrent costs. Indeed, governments have tried to protect public employment in the face of economic and financial hardships in many African and some Asian and Latin American countries. The result has generally been a steep decline in the real wage of public workers. Financial stringency has led governments to use fewer highly skilled staff and to economize on inputs. Hence agricultural extension workers without fuel for their vehicles; hence corridors crowded with idle messengers and tea servers; and so on. Low wages have led to wide-

Table 4.1 Annual percentage growth rates of real earnings, employment, and labor productivity in manufacturing, selected economies and periods

<i>Economy and period</i>	<i>Earnings</i>	<i>Employment</i>	<i>Productivity</i>
Brazil, 1965–85	1.7	4.6	4.7
Colombia, 1966–84	0.8	3.1	2.1
Japan, 1950–70	5.4	4.6	6.9
Korea, Rep. of, 1966–84	8.1	8.2	7.3
Portugal, 1966–84	0.7	2.1	0.9
Turkey, 1966–84	3.0	5.0	2.1
Yugoslavia, 1965–85	1.3	4.2	1.9
Taiwan, China, 1966–85	6.4	6.7	7.0

Source: Lindauer 1989.

Box 4.5 Tax reform

Taxes provide revenues to finance public spending and influence savings, investment allocations, and the structure of production. The level of revenue collection helps to determine whether a country can finance public sector capital formation, maintain its infrastructure, and provide for an adequate level of health and education services. In general, income taxes, taxes on foreign trade, and taxes on goods and services (sales and excise taxes) each account for about one-third of revenues. Although tax patterns differ across countries, tax-to-GDP ratios in developing countries are in the 10–20 percent range, about half of the levels of the industrial countries, whereas expenditure levels are in the 20–30 percent range—much closer to the levels of industrial countries. Many tax systems in developing countries do a poor job of collecting revenue and introduce large distortions into the economy. Weak tax administration leads to widespread tax evasion, which also fosters income inequality.

The objective of tax reforms is to raise revenue and reduce the costs of tax-induced distortions. Recent reforms have emphasized revenue adequacy, horizontal equity, simplicity and neutrality, and compatibility be-

tween the tax system and administrative capacity. A main objective has been to broaden the tax base so that the tax structure can be simplified and the tax rates lowered, thereby reducing tax-induced distortions and evasion. For taxes on goods and services, base broadening implies a shift from trade taxes to consumption taxes, such as a value added tax—setting the central rate in the range of 10–20 percent. For income taxes, this can be achieved by reducing exemptions and lowering the top marginal rates to between 30 and 50 percent. Further, selective excise taxes on luxuries and nonessentials can simultaneously enhance revenues and increase the progressivity of the tax system—without significant efficiency losses.

Comprehensive tax reform can work. In Jamaica, Malawi, and Mexico, tax reforms have limited the use of selective tax breaks and have also raised revenues by widening the tax base rather than by increasing the tax rate. In countries such as Indonesia, a value added tax has been effective in raising revenue and reducing distortions. By replacing cascading sales taxes, it has removed the burden of double taxation on final goods and of indirect taxation on exports and investment.

spread absenteeism, petty corruption, moonlighting, and a general breakdown in morale and discipline. All this goes on to reduce the productivity of the private sector, too, because the quality of the social and physical infrastructure and other public services deteriorates.

Taxation and productivity

Governments need to tax households and business to finance their spending. But taxes have an economic cost. Taxes on commodities or expenditures (such as a sales tax) lower incentives to work; tax exemptions or taxes that vary across categories also distort the incentives to invest and produce particular goods. High taxation of the final product of an enterprise significantly reduces the private return to the investor; the investor will often choose a different project or decide not to invest at all.

It is difficult to estimate the economywide efficiency loss caused by the overall rate of domestic taxation. But it is clear that highly unequal and discretionary tax rates can be extremely damaging. Governments in many developing countries lack the administrative capacity to apply their tax systems to a broad base of taxpayers. To raise a given

amount of revenue, therefore, tax rates must be higher. This increases the disincentives faced by the taxed and widens the distorting gap between the taxed and the untaxed. In Sri Lanka, for instance, growing enterprises that become limited liability corporations have faced very large increases in tax obligations. As a result, small- and medium-size firms limit their effort at expansion, and the emergence of large, dynamic, national firms is hampered.

Recent experience suggests, however, that tax distortions can be reduced and that the multiple objectives of revenue, economic efficiency, equity, and administrative effectiveness are attainable—through a systemic approach to tariff and tax reform. Reductions in customs tariffs to promote efficiency gains is more sustainable when domestic taxation is simultaneously broadened to maintain revenue targets. Improvements in tax administration, reductions in tax exemptions to the nonpoor, and simplification of the tax structure are key components of revenue and efficiency-enhancing tax reforms. Developing countries such as Colombia, Indonesia, Korea, Malawi, Mexico, and Turkey have revamped their tax systems through a comprehensive approach to reform (Box 4.5).

Evidence on the productivity of investment projects

A policy climate that promotes enterprise—by letting price signals be seen and acted upon—can radically increase the productivity of investments. The experiences of the World Bank and International Finance Corporation (IFC) as lenders in support of public and private investment projects confirm this.

World Bank and IFC projects are evaluated after their completion using standard cost-benefit methods. For 1,200 of these projects—implemented during the past twenty years—economic rates of return (ERRs), which measure the contribution of the project to the economy (or its productivity), have been compared with various indexes of market distortion. (For a discussion of how ERRs are computed and of the analytical methods used in this section, see the Chapter 4 portion of the technical note at the end of the main text.)

The indicators of distortion look, for instance, at trade (how high are tariffs and how prevalent are nontariff barriers?), the value of currency (how big is the premium on foreign currency in the parallel market?), interest rates (are real rates negative or positive?), and the public sector's financial demands (how big is the government's budget deficit?). By every measure, ERRs are highest in undistorted markets, and lowest in distorted markets.

Projects implemented in an undistorted policy climate can have, on average, an ERR that is at least 5 percentage points higher than in a distorted climate (Table 4.2). To put this finding another way, with a few exceptions, undistorted policies makes an investment at least one and a half times as productive. The implication for growth is striking: a difference in the ERR of 5 percentage points, if achieved across the economy, would translate into a difference in the annual rate of GDP growth per capita of more than 1 percentage point every year.

In broad terms, the result holds for different measures of distortion, and across sectors of the economy. The premium on the parallel-market foreign exchange rate captures distortions caused not only by exchange rate policies, but also by other policies affecting the economic agent's demand for parallel market transactions, such as trade restrictions, taxes and regulations, constraints on capital flows, and macroeconomic and political instability. This indicator is highly correlated with ERRs. Where the official exchange rate is close to equilibrium levels—as approximated by virtually no premium on the parallel-market exchange rate—the average ERR for public projects exceeds 18 percent. Where the premium exceeds 200 percent, the ERR is less than 9 percent. For agriculture, industry, and nontradables (transport, housing, public utilities, and energy), the average ERR of public and private sector projects combined is between 5

Table 4.2 Economic policies and average economic rates of return for projects financed by the World Bank and the IFC, 1968–89
(percent)

Policy distortion index	All projects	All public projects	Public agricultural projects	Public industrial projects	Public projects in nontradable sectors	All private projects
<i>Trade restrictiveness</i>						
High	13.2	13.6	12.1	INSF	14.6	9.5
Moderate	15.0	15.4	15.4	INSF	16.0	10.7
Low	19.0	19.3	14.3	INSF	24.3	17.1
<i>Foreign exchange premium</i>						
High (200 or more)	8.2	7.2	3.2	INSF	11.5	INSF
Moderate (20–200)	14.4	14.9	11.9	13.7	17.2	10.3
Low (less than 20)	17.7	18.0	16.6	16.6	19.3	15.2
<i>Real interest rate</i>						
Negative	15.0	15.4	12.7	12.7	17.9	11.0
Positive	17.3	17.5	17.0	17.8	17.9	15.6
<i>Fiscal deficit^a</i>						
High (8 or more)	13.4	13.7	11.7	10.3	16.6	10.7
Moderate (4–8)	14.8	15.1	12.2	21.0	16.8	12.2
Low (less than 4)	17.8	18.1	18.6	14.1	18.2	14.3

Note: INSF, insufficient number of observations (less than 10) to make inferences.

a. Percentage of GDP.

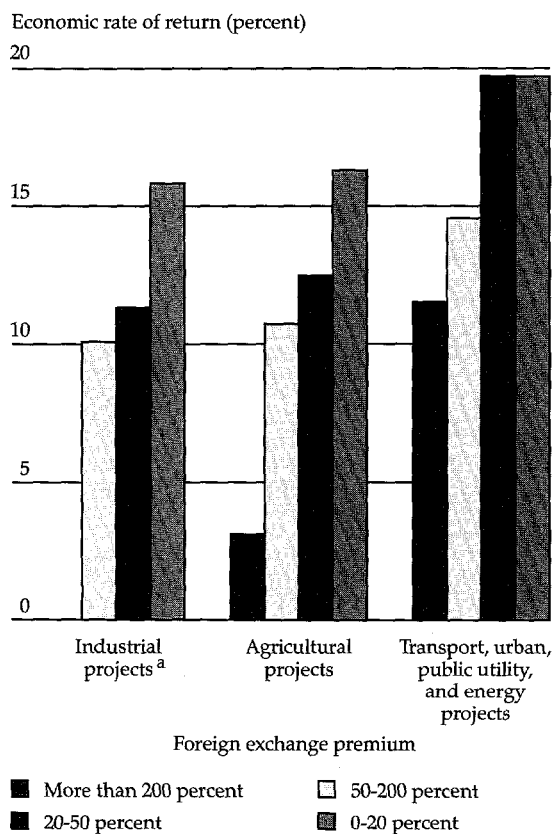
Source: World Bank data.

and 13 percentage points higher when the premium is small than when it is large (Figure 4.1). Projects in the nontradables sector are, it seems, just as vulnerable to a bad economic climate as the others.

Trade restrictions were measured using a yearly index of tariff and nontariff barriers in thirty-two countries. The pattern of the results is roughly the same, and it applies to private sector projects as well as to public sector ones (Figure 4.2). Private projects can readily go wrong if policy conditions are distorted (Box 4.6). Using budget deficits or interest rates as measures of distortion, the story is similar, although their overall effects on ERRs are not as large.

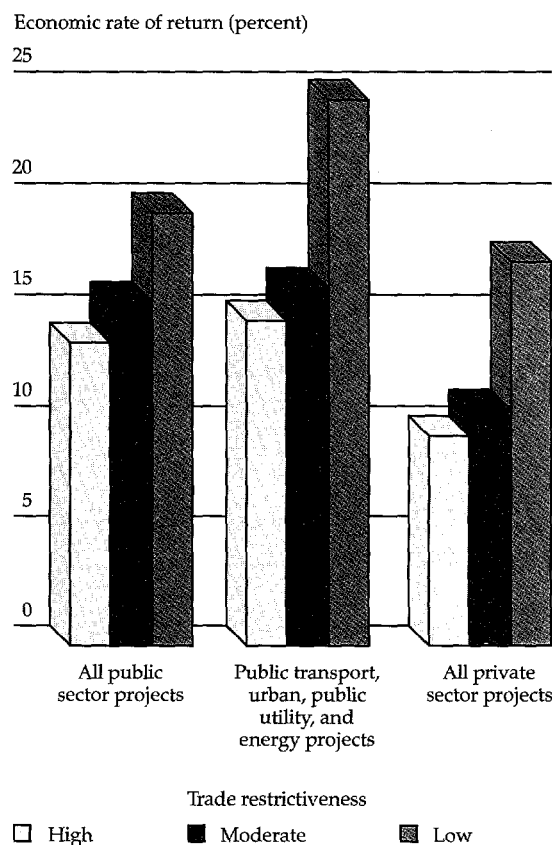
But there is more to success than a good envi-

Figure 4.1 Rates of return for projects financed by the World Bank and the IFC under varying foreign exchange premiums, 1968-89



Note: Calculated for 1,200 public and private projects.
 a. Insufficient data for projects implemented under a foreign exchange premium of more than 200 percent.
 Source: World Bank data.

Figure 4.2 Rates of return for projects financed by the World Bank and the IFC under varying degrees of trade restrictiveness, 1977-88



Note: For the definition of trade restrictiveness, see the technical note at the end of the main text. Calculated for 530 public and private projects.
 Sources: World Bank data; Halevi, Thomas, and Stanton, background paper.

ronment. The Tanzanian firms of Afro Cooling and Morogoro Shoe show that firms can perform very differently even in the same policy and national setting. The analysis of the Bank- and IFC-financed investment projects reveals a wide variation in ERRs even within the same country, ranging from negative to highly positive ERRs—exceeding 50 percent. Only some of that variation can be attributed to the economic climate.

The background research done for this Report makes it possible to be more precise. Under relatively undistorted conditions, as measured by low parallel premiums, the probability that a project will be an extreme failure (that is, have a negative

Box 4.6 Wrong incentives often make private projects go under

When market incentives are inappropriate, and complementary investments and institutions absent, private sector projects will tend to be inefficient. During the late 1970s, millions of dollars were invested in a private meat-production company in a developing economy. The enterprise was designed to process 40,000 head of cattle a year and export 80 percent of its production of frozen meat. Export demand did not materialize: an overvalued currency made the foreign selling price too high. Export taxes and wholesale-price controls on domestic sales lowered the firm's revenue even further. Meanwhile the firm paid market prices

for its inputs, which were not controlled. It tried to circumvent the wholesale-price restrictions by setting up its own retail shops, but the required licenses were never granted. Poor public services made matters worse: the parastatal electricity company was unable to provide adequate supplies. The firm bought a standby generator, but it was unable to purchase enough diesel fuel because its administrative allocation of foreign exchange was too small. The enterprise's purchases of cattle for processing never reached 10 percent of capacity: it lost money steadily before closing in the early 1980s.

ERR) is less than 10 percent; under more distorted conditions, the probability of failing altogether is nearly three times larger. Conversely, the probability of a very successful project (one with an ERR of 20 percent or more), is twice as likely in an undistorted climate than for projects implemented in a more distorted one. But even with undistorted policies, a merely satisfactory project (one with an ERR of 10 percent or more) is not assured; the probability is about 70 percent. This raises the question of why many projects are unsatisfactory even with undistorted policies.

One reason is that the indicators that measure the quality of the economic climate are partial, at best. The four policy indexes used in the research, even taken together, do not capture the quality of economic institutions (such as the legal and regulatory framework) and of complementary public investments. And possibly the biggest reason for variability in ERRs, even after accounting for the policy climate, is simply that some firms will always be more successful than others: success resides in firm-specific factors such as skill, drive, determination, willingness to take risks, a measure of luck, and an ability to learn from mistakes—witness Chu in Korea.

The importance of institution-building

The World Bank's experience with investment projects also points to the importance of institutions—contractual arrangements (including, for instance, land-tenure systems and rules on entry and exit), property rights, norms of behavior, and the organizational structures at the project level. Implementing an investment project is often, in itself, an exercise in institution-building. Each

project has its own institutional objectives, such as better techniques of management, higher technical standards, and adequate accounting procedures.

But lack of competent managers and inadequate technical skills and accounting procedures are all too common. Of seven hundred World Bank projects reviewed in the late 1980s, only one-third were judged to have substantially attained the institutional objective of strengthening project-related organizations and agencies; almost one-quarter showed negligible results in this respect. The weaknesses of implementing agencies have been especially important in agricultural projects in Africa, all the more so in complex ventures such as integrated rural development programs. They help to explain why the record of many such projects is not good.

The data show that the productivity of investments is much higher when the project's institutional objectives are achieved. Before implementation, the *expected* ERR for the appraised public sector projects was, on average, 22 percent. When institutional objectives had been attained *after* project implementation, the reestimated ERR turned out to exceed 20 percent—that is, it was close to expectations. This contrasts sharply with public projects for which institutional objectives had not been attained; in those cases the reestimated ERRs averaged less than 10 percent.

Difficulties in recruiting and retaining qualified staff greatly affect the performance of the implementing organizations. These difficulties, in turn, often are the result of labor and financial policies. Many such policies are external to the firm, such as limits on hiring skilled personnel in response to budgetary difficulties in government or legislative constraints on shedding unproductive labor.

Others are internal to the state organization itself—weak pay incentives, for instance, or underfinancing the costs of operation and maintenance. Sometimes the private sector has responded to these failures with innovative approaches of its own. These have demonstrated the benefits of involving local people—through NGOs and community groups—in designing and implementing projects. Community participation has proved successful in improving project effectiveness and promoting institution-building in many different settings. Water supply projects in Malawi are a typical example (Box 4.7).

Supportive public investments in infrastructure

Investments in infrastructure help to reduce costs, integrate markets, and disseminate information. As a result they make entrepreneurs more productive. In Nigeria, for instance, the costs of weak infrastructure for manufacturing enterprises are very high. Every firm of more than fifty employees that was surveyed had its own standby generator despite being connected to the power grid; altogether, firms had invested an average of \$130,000

each in their own power supplies. They also invest in private boreholes because of the unreliable water supply, and employ messenger motorcycles or radio transmitters because telephones and postal services do not work. The cost of such private facilities ranged between 10 and 25 percent of the value of all the firms' equipment. This clearly reduces the productivity of each firm—but the effects can be broader. Weak infrastructure can alter the character of a country's development. In Thailand, for instance, regional cities have stayed small, and industrial growth has been held back by poor transport and by the absence of an infrastructure for technology, information, and business services.

Infrastructure is at least partly a public good. It is not easily divisible, so it is difficult to exclude nonpayers; it is often subject to economies of scale, resulting in natural monopolies. The private sector is thus unlikely to produce enough; the public production and provision of many infrastructure services are required for development.

The ERR evidence from the World Bank's and IFC's projects provides evidence that public investments matter. The productivity of projects in agriculture and industry increases significantly as

Box 4.7 Participation enhances project efficiency and benefits the poor

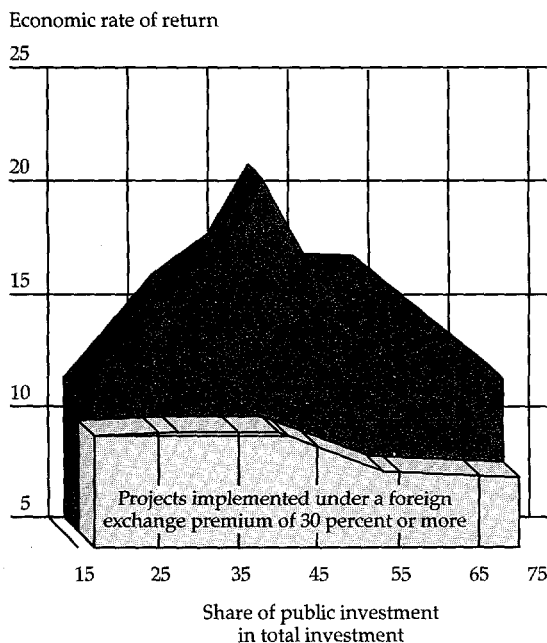
In 1968, a community of 2,000 people in Malawi started work on a novel water supply system. Community members began the planning, construction, and operation of their own water supply and distribution. Field staff for the project were recruited locally; traditional community groups formed the basis for water committees; government support was limited. Virtually all of the more than 6,000 standpipes installed nationwide are still in working order. More than 1 million Malawians have high-quality, reliable, and convenient water through systems that they themselves built, own, and maintain.

An analysis of rural and urban development over thirty years found high correlations between project performance and levels of participation. A survey of twenty-five World Bank agricultural projects evaluated five to ten years after completion found that participation was an important determinant in project performance and sustainability. In one World Bank project, Peruvian farmers in San Lorenzo formed thirty-two community groups and successfully took over all aspects of an irrigation project that had been designed and run by the national government. During a ten-year period in the Philippines, the National Irrigation Ad-

ministration shifted from a top-down management approach to heavy reliance on local farmers in the design, operation, and maintenance of local irrigation systems. The canals and structures worked better, rice yields were 20 percent higher, and the irrigated area 35 percent greater, than in a control group without participation.

Agricultural extension, rural infrastructure, urban upgrading, and the social sectors also benefit from the involvement of community groups. In Kenya, participation-based agricultural extension among local groups of women farmers doubled the number of farmers reached and promoted the adoption of new techniques. In a mountainous district in Nepal, local communities efficiently managed the construction of sixty-two suspension bridges. But not all projects have high returns from popular participation. Large-scale infrastructure and dam construction, for example, cannot benefit from the expertise and supervision of local community groups. Nevertheless, public discussion and evaluation of such projects by directly affected communities helps to identify potential environmental damage and economic dislocation.

Figure 4.3 The share of public investment in total investment and the rates of return of agricultural and industrial projects financed by the World Bank and the IFC, 1968-89
(percent)



Note: Calculated for 650 public and private projects.
Source: World Bank data.

the share of overall public investments in GDP grows—up to a point. On average, the ERR increases by more than 6 percent as the share of public investment in GDP is raised from 5 to 10 percent, but as the share of public investment continues to increase the ERR tapers off and then declines.

Thus, although identifying country-specific turning points in the relation between public investment and ERRs is difficult on the basis of this evidence, the data suggest that striking an appropriate balance is important. This is also seen when the relative importance of public and private investment is analyzed by plotting the share of public investment in total investment (rather than GDP) against the projects' ERRs. Assume that the policy climate is good—as measured by a low currency overvaluation. For projects in the tradables sectors, the ERR is significantly higher when public investments are neither very low nor very high

as a share of total (Figure 4.3). Interestingly, if the policy climate is bad, the ERR of these projects is very low regardless of the share of public investment in total investment. Put differently, the results suggest that there is a strong interaction between policies and complementary public investments: the effects of enhancing the latter are substantial only when policies are appropriate; and the beneficial effects of improved policies are much larger when an appropriately balanced public investment program is present.

A subsectoral decomposition of World Bank projects indicate that investments in transport are highly productive. In good economic climates, the ERRs for public transportation projects have averaged more than 25 percent; this is considerably higher than the average returns from other public or private projects.

The strong case for public investment, however, need not preclude more private participation. Carefully regulated private monopolies can be efficient providers of infrastructure. Africa provides recent examples of successful private sector provision: private bus operators in Ghana, for instance, or private contractors for water supply and refuse collection in Togo. Private participation works well in Thailand's power sector, and in the Chilean, Czech, Hungarian, and Turkish telecommunications systems. Power and telecommunications have in fact recently seen a big increase in private activity. Technological advances have reduced the scale of efficient investments in these sectors and radically altered their monopoly characteristics, especially in telecommunications. Competing firms can now serve the same population.

Implications for policy

The quality of policies can make a big difference to the productivity of investment projects. But how quickly will the productivity of investments change as a result of improvements in policies? Even radical reforms may not succeed in raising ERRs overnight. Some benefits should come quickly; for instance, stronger price incentives can have a rapid effect on annual crop yields, and hence on the returns from existing irrigation systems. For other projects, however, the need to restructure them—or to start anew—will delay some of the benefits.

Overall, then, improving economic conditions will take time. But significant benefits should be visible in a few years. The evidence from the World Bank's and IFC's projects suggests that bet-

ter conditions can pay off handsomely within the time it takes to complete a new project.

Table 4.3 compares the ERRs on the projects according to (a) the policy climate before they were initiated and (b) the climate when they were completed. Projects that were identified in a distorted climate but completed in an undistorted one show an average ERR of almost 18 percent. This is the same high average ERR as for projects initiated and completed in an undistorted environment. In other words, it is never too late to improve a distorted climate. Conversely, projects identified and prepared in an undistorted climate but completed in a distorted one—that is, cases in which markets became more distorted while the project was under way—show a much lower return.

The parallel-market foreign currency exchange premium is used as the measure of distortion in Table 4.3. Improving the policy climate even in this narrow sense usually requires changes not just in the exchange rate but in other aspects of policy. More generally, better policies also mean fewer distortions in the other three measures introduced above: trade restrictions, interest rates, and macroeconomic stability. The next two chapters pursue these themes. Chapter 5 looks in much more detail at the importance of openness to the international economy; Chapter 6 deals with macroeconomic policy and the financial sector.

The case for openness to trade and for prudent macroeconomic policies is gaining wider acceptance. The need for domestic liberalization—for the reform of ill-advised programs of regulation and licensing—is sometimes forgotten in the process. It deserves to be emphasized; a competitive domestic economy is all too important. Restructuring the regulatory framework, which requires institution-building and legal reform, is often more difficult technically and delicate politically. It is indispensable nonetheless. Entry to and exit from activities should be easy for workers, entrepreneurs, and capital. Institutions that establish secure property rights and legal remedies should be strengthened, so that entrepreneurs can manage their risks, gain access to credit, and lower their transaction costs. Institutions that promote the ac-

Table 4.3 Average economic rates of return for projects financed by the World Bank and the IFC under varying initial and final foreign exchange premiums, 1968–89
(percent)

Premiums before project start ^a	ERR under varying premiums at project completion ^b	
	More than 30	Less than 30
More than 30	11.7	17.8
Less than 30	13.2	17.7

Note: The number in each cell is the average of the ERRs of public and private sector projects.

a. Average foreign exchange premiums during the year of project appraisal, which takes place about a year before project implementation starts.

b. Three-year average of the foreign exchange premiums at about the time of project completion.

Source: World Bank data.

quisition of skill and access to technology are also extremely important.

An enabling economic climate, complemented by institutional development and investments, will not always prevent market failure. But, as in the cases of small-scale credit and crop insurance, the government cannot be expected to deal with market failures whenever they arise. In recognizing their limitations, governments should encourage the private production or provision of public goods and services, and also involve NGOs and the local users of the services and investments in their design and implementation.

This has implications, too, for the aid community in general and the World Bank in particular. First, it pays to limit public sector investment and institutional support to areas that help foster competition and the private sector, rather than crowd it out. Second, external aid and lending agencies should promote the involvement of private sector and local communities in decisions about the provision of public services. Third, aid is likely to work much better when used for projects undertaken in competitive and market-oriented climates. And finally, external agency support for improvements in the policy climate pays off. Perhaps the most powerful rationale for supporting structural reforms is that they raise the productivity of investments—public and private.