Spending priorities and revenue options in selected sectors

Public finance policies to meet the goals of stable long-term growth, economic efficiency, and poverty alleviation vary from sector to sector. Despite these differences all sectors confront the same fiscal dilemma: tightening financial constraints make it impossible to maintain large subsidies across a wide range of public services and still provide adequately for priority needs and target groups. This chapter complements the earlier discussion by focusing jointly on spending, revenue, and the role of government in certain specific sectors. It has three recurring themes.

- **Setting priorities.** Spreading resources across low-priority tasks is common. Spending and subsidies need to be selective in the types of services covered and to be directed toward target beneficiaries.

- **Mobilizing financial resources.** User charges and other benefit-related fees can improve economic efficiency as well as raise revenue. Charging provides incentives for efficiency in production and use (see Box 6.1). Distributive goals need not suffer if charges are levied on services used primarily by the rich and are differentiated by income.

- **Decentralizing provision.** Shifting more administrative and financial responsibilities to those in closer touch with local conditions and needs may both improve efficiency and raise revenue.

The sectors examined are those in which public finance has traditionally had a major role—human resources and urban and rural infrastructure. Other important sectors, such as industry, agriculture, and national infrastructure (for example, transport and telecommunications) are not discussed, but examples drawn from some of them appear in other chapters. Public policies toward agriculture and industry were examined in the 1986 and 1987 *World Development Reports*.

**Education and health**

For historical, economic, and political reasons, government has had a dominant role in education and health in most countries. Schools are usually owned, administered, and financed by central governments. As shown in Table 6.1, the average regional percentage of students in public schools exceeds 83 percent at the primary level and 74 percent at the secondary level. The direct cost of public schooling is borne almost entirely by the government. In a survey of thirty-six developing countries in 1980, more than 30 percent obtained no fee revenue at primary or higher levels. Of those with fees, the amount collected was small—about 8 percent of cost.

Although private activity in the health sector is greater than in education, the government accounts for a major share of total health expenditure in all regions except Asia. Government activities include free or low-cost curative care in public health institutions or social security facilities, specialized hospitals for certain diseases, and other public programs for immunization, water purification, sanitation services, and the like.

*What's wrong with present financing arrangements?*

Government activity in education and health has produced dramatic improvements in the indicators...
of human well-being during the past thirty years. But risks lie ahead because of three basic problems.

- In a time of rising demands and tightening financial constraints, many governments cannot financially sustain these rates of improvement.
- Many public programs are inefficiently run.
- The distribution of education and health subsidies is not equitable.

**INSUFFICIENT SPENDING ON COST-EFFECTIVE ACTIVITIES.** Despite improvements in literacy, child mortality rates, and other human resource indicators during the past three decades, more investment in education and health is still socially profitable. Studies based on wage employment data show that the social rate of return to education, as calculated by comparing the higher lifetime productivity of educated workers with the social cost of education, generally exceeds that of most alternative investments. This finding is corroborated by evidence that educated farmers are considerably more productive: the crop yields of farmers with four years of education are up to 9 percent higher than those of farmers with no education. Health investments, too, have been shown to contribute to development through improvements in the productivity of the labor force, although returns here are more difficult to quantify.

Moreover, much remains to be done for purely humanitarian reasons (see also Box 1 in the Over-
educational credit or health insurance, as is generally the case in developing countries, a price equivalent to marginal cost would be beyond the means of most of the population. Until such markets can be developed, their failure serves as a practical constraint on higher prices.

Administrative costs. For some goods or services (for example, a malarial spraying program to eliminate mosquitoes), it may be extremely costly to identify individual beneficiaries. It may not be feasible to charge at all. In many cases, however, there are alternatives to charging individuals, such as levies within a geographic area. Another problem is that it may be costly to monitor consumption (such as urban road use) or to administer the collection of fees. If fees are collected and kept by the public facility that provides the service, collection may be easier: beneficiaries are often willing to pay more when they know that their money will go toward improved access or quality. Even a high collection cost may not justify free provision. The inefficiency and administrative cost of generating revenue from general taxes may exceed that of mobilizing revenue through prices.

Poverty alleviation. Many public services are provided free so that the poor have access to them. In practice, however, poor people often fail to get these services anyway. Because of budget constraints, public services must often be rationed. When that happens, poor people are likely to be at a disadvantage. Subsidized water and electricity consumption benefits heavy users, such as the rich or industry. Subsidized universities are open only to students, mostly from rich families, who have finished secondary education and who can pass the entrance examination. Subsidized urban transport often bypasses the poorest neighborhoods.

Generating revenue by charging users can improve the distribution of income if the revenue then subsidizes services used by the poor, such as rural health care, primary education, and maintenance of feeder roads. In addition fees can be designed so that subsidies are targeted to the poor rather than dispersed across the entire population. For example, a “lifeline charge” for water allows for free consumption up to a threshold amount and then charges at marginal cost thereafter.

Bureaucratic incentives and political constraints. Basing price purely on cost may limit the incentives for public providers to minimize cost. To ensure efficient operation in the absence of competition, public providers should be evaluated according to rigorous performance criteria and should be made responsive to users who lobby for better and cheaper public services. Political constraints are important because, once subsidies have become entrenched, beneficiaries see them as an entitlement and will object vigorously to any reductions. Subsidy cuts are more easily implemented if they are combined with a credible commitment to improve quality and cut costs.

Apply pricing rules carefully... but apply them all the same

Because of the many objectives and constraints, charging for publicly provided goods and services almost always involves some tradeoffs. As the sectoral examples of this chapter demonstrate, however, the tradeoffs are generally less dramatic than often thought. Against a background of clear spending priorities, appropriate prices improve investment decisions and the operational efficiency of public agencies—and often reduce inequities, too.
Table 6.1 The role of the public sector in educational enrollment and health expenditure in developing countries, by region

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage of public school students in total enrollment, 1980</th>
<th>Percentage of public spending in total health spending, 1975-80</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
<td>Secondary</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>84</td>
<td>80</td>
</tr>
<tr>
<td>Francophone</td>
<td>90</td>
<td>83</td>
</tr>
<tr>
<td>Anglophone and others</td>
<td>78</td>
<td>78</td>
</tr>
<tr>
<td>Asia</td>
<td>87</td>
<td>78</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>84</td>
<td>75</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>92</td>
<td>91</td>
</tr>
</tbody>
</table>

Note: Unweighted averages are used for each country group.
Source: Unesco data and de Ferranti 1985, table 2.

A fundamental problem is that the limited resources are badly used. Too little goes to relatively cheap and cost-effective services. In education, there is a pressing need to expand and improve primary education, the socially most profitable form of investment, particularly in the poorest countries. In twenty-six African countries surveyed by Unesco in 1982, more than half of all adults were illiterate; among women the proportion was much higher. Yet, in a quarter of the countries in Sub-Saharan Africa, primary school enrollment in 1982 was less than 50 percent of the school-age population. In health, most current public spending goes to nonessential drugs and expensive curative services provided largely by hospitals (see Figure 6.1). Inexpensive health measures (in terms of the cost of each death averted), such as immunizations and prenatal care, are not as well financed.

The problem of resource allocation for health and education is partly the result of large across-the-board subsidies and the lack of any pricing mechanism, particularly in centralized systems. The large share of the health budget going to hospitals is a response to demand stimulated by subsidies. Much more of the burden of hospital spending could be borne by the beneficiaries, especially in urban areas. The direct and implicit annual public cost of university students in developing countries is on average twenty-six times that of primary school students. The gap is largest for Sub-Saharan Africa (see Figure 6.2). Much of this cost is in living allowances. In some of the poorest African countries, including Benin, Burkina Faso, Cameroon, and Niger, these living allowances—paid directly to students regardless of need—amounted in 1982 to about one-half of the average salary in the public sector. Because of subsidies such as these the private rate of return to higher education for all developing countries exceeds 20 percent, about twice the social rate of return to higher education.

Internal inefficiency of public programs. Evidence indicates that the mix of inputs in publicly
provided services is often inefficient—that is, the same funds could achieve more if they were reallocated. One problem is that administrators of centralized tax-supported systems have to set norms on budgetary allocations for key inputs; for example, they must balance labor inputs (such as teachers', doctors', and nurses' salaries) against nonlabor inputs (such as drugs and school books). These norms may not match the institution's needs or the community's preferences, but school or health administrators have neither the financial power nor any incentive to change them.

This problem has worsened in recent years because centralized systems have been slow to adjust to aggravated resource scarcities. A common response has been to underfund nonlabor recurrent costs. Central authorities find it extremely difficult to cut the wage bill in favor of operation and maintenance. This creates an imbalance that reduces the efficiency of spending. For example, the scarcity of learning materials in the classroom, such as books and pencils, is the most serious impediment to educational effectiveness in Africa. In health, drug shortages are common in public facilities; Zambia's "free" government health services simply ceased for lack of basic supplies.

Another sort of inefficiency arises when, for lack of an appropriate price signal, demand fails to match supply. When demand cannot be met, institutions resort to rationing by queue. In health, this means long waiting times in government facilities: up to eight hours in Nigeria and five hours in Uganda, according to some studies. Not only is time wasted, but services could be unintentionally and inefficiently rationed, because people with relatively minor ailments are induced to use health facilities more often when the facilities are heavily subsidized.

INEQUITABLE DISTRIBUTION OF PUBLIC SUBSIDIES. Uniformly low prices throughout the education and health sector imply that high-cost services are much more subsidized than low-cost ones. The relatively poor have little access to those high-cost services, however. Contrary to policy, the poorest are not only denied a greater share, but they often get less than their proportionate share.

In education, subsidies for higher education are much greater than at lower levels. Thus the very small percentage of the population able to gain access to higher education receives a large share of the education budget. Moreover, among these few, the rich are overrepresented. In the sample of countries shown in Table 6.2, the bottom 40 percent of the population obtains from 2 to 17 percent of all higher education subsidies. In Colombia, the Dominican Republic, and Indonesia, this poorest group obtains less than 10 percent of the subsidies. The evidence for Africa suggests that only 39 percent of students in higher education have parents with poor rural backgrounds, although farmers make up 76 percent of the population.

The distribution of public health expenditures is also skewed in many countries. Most health facilities are in urban areas, where household incomes are on average higher. Because 70 to 90 percent of hospital clients live within ten kilometers of the facility they use and public hospitals are generally free, health subsidies disproportionately benefit higher income households. The average health sector subsidy for urban households in China, Colombia, Indonesia, and Malaysia, for example, is up to five times that for rural households.
Table 6.2 Share of higher education subsidies received by different income groups in selected countries in Asia and Latin America

(Percent)

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Lowest 40 percent</th>
<th>Middle 40 percent</th>
<th>Highest 20 percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>1980</td>
<td>17</td>
<td>45</td>
<td>38</td>
</tr>
<tr>
<td>Chile</td>
<td>1982</td>
<td>12</td>
<td>34</td>
<td>54</td>
</tr>
<tr>
<td>Colombia</td>
<td>1974</td>
<td>6</td>
<td>35</td>
<td>60</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>1982</td>
<td>17</td>
<td>41</td>
<td>42</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>1980</td>
<td>2</td>
<td>22</td>
<td>76</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1978</td>
<td>7</td>
<td>10</td>
<td>83</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1974</td>
<td>10</td>
<td>38</td>
<td>51</td>
</tr>
<tr>
<td>Uruguay</td>
<td>1982</td>
<td>14</td>
<td>52</td>
<td>34</td>
</tr>
</tbody>
</table>

Note: Rows may not add to 100 because of rounding.
Sources: Colombia, Indonesia, and Malaysia, World Bank 1986a, table 10; all other countries, Petrei 1987.

Toward more efficient and equitable delivery of human resource services

What can governments do to alleviate these problems? Specific policy options will vary, but the overall direction of change is clear. Public involvement should be more selective, both in the type of service to be subsidized and the beneficiaries to be targeted.

Selective user charges. Public facilities that are used mostly by high-income households and have large private benefits (but few additional benefits to society at large) should carry charges, with some protection for the poor. Higher education is an obvious candidate. It is usually heavily subsidized, and in many countries excess demand is so great that fees would have little effect on enrollment. Such fees should initially be small (perhaps taking the form of reduced allowances). Further improvements in cost recovery will depend partly on the development of scholarship and student loan schemes. In health, fees set at cost are generally undesirable unless insurance is widely available (as discussed below), but outpatient fees and more modest inpatient charges would discourage inappropriate resort to hospital care. Alternatives are charges in public hospitals for patients of doctors in private practice, hospital charges payable directly by insurance providers for insured patients, and charges for drugs.

The allocation of services will be improved if the revenue generated from charges is used to supply more of those services with the highest social benefit. For many of the poorest countries this means improving access to primary education, which should continue to be subsidized. The budget for primary education in some African countries—for example, Côte d'Ivoire, Mali, Senegal, Tanzania, and Togo—could be increased by more than 20 percent if the stipends for living expenses paid to higher education students were terminated. For other developing countries in which enrollment in primary education is already high, the best policy would be to improve its quality and to expand secondary education or even some selected disciplines in higher education where graduates are in short supply.

Similar considerations apply to health. Revenue from user charges would allow underfunded, cost-effective basic health services to expand. Modest fee increases could cover a substantial part of nonsalary costs, the component of expenditure that tends to be squeezed.

Charges to users could also make delivery of government services more efficient. In health, a small charge proportional to the service cost would tend to make clients avoid unnecessary services. Different charges for different services could be used to signal priorities. For example, a clinic could charge nothing for prenatal care but a fee for regular outpatient care. In education, too, fees induce students, their parents, and administrators to scrutinize costs.

Modest charges for some services used by the bulk of the population, such as drugs and school materials, also appear to be affordable. In surveys of several countries the current level of spending by households indicates a willingness to pay for both education and health services. This willingness is greater if households feel they are receiving better services in return. In the Philippines visits to private facilities and traditional practitioners remain popular, despite the fact that their charges averaged twenty-eight times those of government clinics.
Can social goals such as poverty alleviation still be met? Increased charges need not reduce the poor's access to health and education facilities. Charges for universities and tertiary-level hospitals have a negligible effect on the poor. If spending on services used by the poor expanded at the same time that charges for services used by the rich increased, the distribution of subsidies could be significantly improved at no additional cost. For example, in developing countries 71 percent of people leave their school-age years with either no schooling or at most only primary schooling. These people, who tend to be poor, receive only 22 percent of public spending on education. Their share would rise to 64 percent if user charges were introduced to recover the entire public cost of higher education and the savings were then used to finance additional primary school places for those now denied access. The funds could also be used to stimulate the demand for education, particularly in rural areas, through reimbursement for out-of-pocket expenses, feeding programs, and other initiatives. Although full cost recovery is generally neither economically appropriate, for reasons explained below, nor politically feasible, this rough calculation illustrates the potential redistributive gains to introducing or increasing fees.

These policies do not preclude safeguarding the poor’s access to higher education or hospital care, or the access of the very poor—who cannot afford even modest fees—to services at every level. Differential pricing is needed. One option would be to base fees on residence, so that people living in poor areas pay less. In Mali, for example, cost recovery in hospitals began in 1983. The fee for a day’s stay in a small-town health center is less than 20 percent of the fee at a main urban hospital. Adult consultation at rural health posts costs half that at an urban health post. In Thailand, where insurance is available only in urban areas, rural coverage is provided through the sale of health cards, which entitle the bearer to a specified number of treatments. In education, one approach is to make greater use of scholarships based on need as well as merit. More sophisticated schemes, such as student loans, need to be developed if cost recovery is going to be used extensively for the most expensive services.

An adequate financial environment. The development of educational credit and health insurance systems is critical in determining how much governments should recover of costs. Educational loans can serve the goals of cost recovery, efficiency, and equity. Particularly in the middle-income countries of Latin America and Asia, it is possible to recover a substantial part of current subsidies through loans, while keeping the repayment burden relatively low. Such schemes increase the competition for places by opening higher education to a larger pool of applicants—including good students with no funds—thus increasing efficiency and equity.

Few developing countries have capital markets that enable individuals to borrow for education, however, even though the returns on such investments are high. Education is a particularly long-term investment. Risks are high because few students have acceptable collateral, and many countries lack the legal or administrative framework to enforce financial contracts. Governments can therefore play an important role. Whether they lend the money themselves or insure commercial loans, governments are big enough to absorb risks that private lenders will not bear. Many countries in Latin America have been able to maintain a long-standing educational credit system with a relatively low incidence of default and late repayment. Administrative problems remain, however; some of the present systems fail to be self-financing because of low interest rates. If a subsidy is desired, a financially viable loan scheme should be complemented by scholarships targeted to needy students.

In health, where large individual expenditures are unpredictable, risk-sharing through insurance is desirable. Health insurance programs generally cover only a small proportion of low-income households, despite government sponsorship. Coverage is often restricted to urban areas or to employees of agricultural estates. One reason for this is that many governments have opted to offer free services, making insurance unnecessary. Another is that the administrative cost of organizing and operating a risk-sharing program tends to be high. The government can play an important role in setting up these schemes by encouraging increased participation and, for example, by mandating that only high-cost services be covered. Such schemes—like any others—should use techniques such as deductibles and copayments to encourage beneficiaries to take care of themselves and encourage providers to compete with each other. In Uruguay, for instance, the social security system funds health care organizations in which members pay a participation fee plus small charges for services used. Such schemes pool risk without eliminating the incentive to minimize cost.
Many health schemes are part of the national social security systems existing in most developing countries; old age pensions are usually the other main element. Although most such systems are recently established and are not yet a burden on public finance, experience from older schemes in both industrial and developing countries shows that financial problems can easily arise. In many developing countries the fiscal cost of new and expanded schemes may outweigh the benefits (see Box 6.2). Countries that already have such systems can try to improve their design.

Decentralizing responsibilities. User charges will improve efficiency if public institutions such as clinics or schools are given greater responsibility for collecting them and choosing how to spend the proceeds. Decentralization means greater flexibility in responding both to local demands and to tightening financial constraints. Incentives for fee collection and efficiency should also improve, since users are more willing to pay when they can hold the providers accountable for the cost.

However, the central government must retain an important role in areas such as training policy, overall facilities planning (particularly of large institutions, such as hospitals and universities), research funding, the setting of national education standards, and the provision of information about the benefits and costs of services.

Public transfers can ensure that equity is not sacrificed. Ideally these should be given directly (based on need and, for education, on merit) to individuals to spend the funds at the facility of their choice—public or private. These schemes are still at the experimental stage in some developing countries, such as Chile and Thailand. A more modest approach is to distribute subsidies according to the economic need of localities or neighborhood groups. But funding should be set to maintain the local community’s incentive to collect its own revenue (see Chapter 7).

Increasing the use of nongovernmental resources. As Chapter 2 made clear, there is no uniquely “correct” balance between public and private activity. However, governments reduce their ability to broaden access to education and health when they discourage private initiatives. For example, Congo, Ethiopia, Nigeria, and Pakistan banned or tried to ban private schools through legislation in the late 1970s. In Benin, Cameroon, and Togo, private health care is frowned upon. Private schemes elsewhere face un-

Box 6.2 Financing social security

Most developing countries have social security systems; that is, public programs that provide financial support if people lose their source of income (caused by retirement, disability, death of a primary earner in a family, illness, maternity, work-related injury, or unemployment) and often if they need medical care or help with the expense of raising children. These programs provide social insurance by sharing the risk against individual income loss among the population. As of 1985, twenty-four out of thirty-seven low-income economies and fifty-two out of sixty middle-income economies had programs that cover at least work-related injury and provide pensions for those retired because of age or disability. Many of these systems apply only to urban workers in the formal sector and are small. In urbanized middle-income countries such as Brazil, Chile, Cyprus, Hungary, Malaysia, Portugal, Singapore, Uruguay, and Yugoslavia, however, social security covers much of the labor force, and receipts exceed 5 percent of GDP.

Issues in social security finance

Solvency, distribution, and efficiency of social security are critical issues in public finance.

Solvency. Current mandatory contributions from workers and their employers finance disability, unemployment, and maternity benefits. Pensions may be operated on a pay-as-you-go basis, where current contributions pay for current benefits, or on a fully funded one, where reserve funds equal the value of future benefit payments, or some combination of the two. In most developing countries benefit payments are still substantially below revenues, particularly for recently established systems where there are few beneficiaries relative to contributing workers. For a sample of twenty-nine developing countries, only four with older systems—Mexico, Peru, Portugal, and Uruguay—had deficits in 1983 (Box figure 6.2). These deficits amounted to less than 10 percent of revenues for all sampled countries except Uruguay, which is discussed further below.

However, social security systems can easily become insolvent and have broader public finance implications. First, surpluses generated in the early stages of these systems can be quickly dissipated if they are used to fund general government activities with low financial returns. Once the social security system matures and ceases to run surpluses, governments that rely on it may not redeem the bonds held in the social security reserve fund. A more subtle, and more common, means by which a government escapes its obligation to its social security reserve fund is through high inflation, which erodes the value of nominally fixed assets such as government bonds. This has happened in Turkey (in the late 1970s and early 1980s) and in many Latin American systems. Second, the soundness of so-
cial security finance can also be altered by demographic factors. An unexpected rise in life expectancy, decline in the birth rate, or increase in emigration raises the "dependency ratio"—the number of pension beneficiaries for each contributing worker—and worsens the system's financial status. For example, the old age and survivors components of Uruguay's social security system, which is now being reformed, required subsidies in 1983 amounting to more than 3 percent of GDP partly due to low retirement ages (sixty for men, fifty-five for women), high life expectancy (seventy-two years at birth), and a high rate of emigration among the

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Box figure 6.2 Financial status of social security systems, 1983

Revenues minus expenditures as a percentage of revenues

<table>
<thead>
<tr>
<th>Country</th>
<th>Revenues minus expenditures as a percentage of revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>100</td>
</tr>
<tr>
<td>Nigeria</td>
<td>80</td>
</tr>
<tr>
<td>Cameroon</td>
<td>60</td>
</tr>
<tr>
<td>Zambia Congo</td>
<td>40</td>
</tr>
<tr>
<td>Mauritius Côte d'Ivoire</td>
<td>20</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>-10</td>
</tr>
<tr>
<td>Indonesia</td>
<td>-65</td>
</tr>
<tr>
<td>Philippines</td>
<td></td>
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<tr>
<td>Thailand</td>
<td></td>
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<tr>
<td>India</td>
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<td>Pakistan</td>
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<td>Singapore</td>
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<td>Cyprus</td>
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<td>Morocco</td>
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<td>Turkey</td>
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<td>Israel</td>
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<td>Yugoslavia</td>
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<td>United States</td>
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<td>Colombia</td>
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<td>Brazil</td>
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<tr>
<td>Portugal</td>
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<tr>
<td>Uruguay</td>
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<tr>
<td>Sub-Saharan Africa</td>
<td></td>
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<tr>
<td>Asia</td>
<td></td>
</tr>
<tr>
<td>Europe, Middle East, and North</td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td></td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td></td>
</tr>
<tr>
<td>Industrial countries</td>
<td></td>
</tr>
</tbody>
</table>

Average age of the system (years)

<table>
<thead>
<tr>
<th>Region</th>
<th>Average age of the system (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Saharan Africa</td>
<td>22.1</td>
</tr>
<tr>
<td>Asia</td>
<td>28.4</td>
</tr>
<tr>
<td>Europe, Middle East, and North</td>
<td>38.7</td>
</tr>
<tr>
<td>Africa</td>
<td>42.5</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>54.3</td>
</tr>
</tbody>
</table>

Note: Social security systems include public programs that provide benefits for old age, disability, death, work injury, and unemployment. Some of these programs also provide health and family allowance benefits.

Sources: Puffert (background paper), U.S. Government 1986, and World Bank data.
young. Third, financial problems can arise unless a pragmatic balance is reached between the objectives of social assistance, which call for an adequate benefit financed by redistribution from rich to poor, and individual equity, which provides benefits based solely on an individual’s contributions. For example, Turkey’s use in 1984 of general revenue to finance the government’s social assistance objective for the civil service pension will soon have a substantial effect on the budget deficit.

Distribution. The use of general funds to subsidize social security can be inequitable. Coverage is limited in most developing countries. Only in industrial countries and several middle-income countries in Latin America (Argentina, Brazil, Chile, Costa Rica, Uruguay, and Venezuela) and a few other countries (such as Israel, Mauritius, and Singapore) are most of the labor force and population covered. In most other countries less than 10 percent of the population, primarily in urban areas, is covered. Coverage is highly correlated with income, work skills, and the power of pressure groups. If social security is funded from general revenues, it can be a mechanism for a regressive redistribution.

Efficiency. Social security reserve funds may not be directed toward investments with the highest economic returns. As a readily available and large source of long-term financing, such funds are often used for projects that turn into “white elephants.” In the 1970s the Philippine Government Service Insurance Systems (GSIS) devoted a large share of its investment portfolio to developing a series of first-class hotels in Manila. These hotels were never used at full capacity and have already lost a mixed record of profits. The present government plans to turn them over to the private sector.

Social security may also distort savings and labor markets. People may reduce their own savings because their expected social security benefits serve as a replacement. Social security systems can affect the labor market both by inducing earlier retirement and by introducing distortionary marginal taxes on wage payments. In practice, the net effect on savings and labor markets varies across countries and depends on the responsiveness of private transfers and labor supply to social security taxes.

What can be done?

For the poorest countries the financial, economic, and administrative costs of establishing a publicly funded social security system, or of significantly expanding existing systems, can be substantial. The risk that such schemes may eventually be a substantial drain on general revenue and distort resource allocation will generally outweigh the benefits of serving only a limited and already privileged segment of the population.

Countries that have already implemented extensive systems have several policy options.

Sustainable benefit bases. First, where low retirement ages are partly responsible for financing problems, an increase in the age at which workers can receive benefits is appropriate. Second, social security programs should be structured so that the growth of benefits is tied to the growth of revenue. If benefits are indexed for inflation, then the revenue base should also be indexed. Third, social security benefits are often much higher than an actuarial return on contributions. This happens, in part, because benefits are frequently based on the last few years of a person’s earnings, when they peak, while contributions are drawn from a much longer earnings history. To bring benefits in line with contributions, benefit levels could be more closely related to an individual’s full earnings history.

Financially autonomous systems. One efficient method of safeguarding against insolvency is through autonomous social security funds. Current contributions for disability, work-related injury, unemployment, and maternity benefits should thus equal the actuarial premiums. Managers of such funds would be responsible for providing actuarially fair benefits based on explicit principles of social insurance and would be accountable to the beneficiaries. They should be subject to oversight and incentives to promote investments with high economic returns (see Chapter 5).

Targeting social assistance. Providing social assistance for redistributive purposes through social security poses risks for financial solvency and autonomy. Social assistance is best provided through programs financed from general revenue and kept separate from social security funds.

duly harsh restrictions on fees and on the hiring of professionals such as teachers and health workers, as well as overly high requirements for quality.

Relaxing these restrictions can mobilize new resources. In Pakistan in 1983, five years after a nearly complete ban on private schools was lifted, enrollment at the primary and secondary levels had increased significantly. Private schools accounted for at least 10 percent of total enrollment. With assistance in training and coordinating activities, private voluntary organizations can also contribute.

Again, the central government retains an important role. It must balance incentives and regulation to ensure that services are provided efficiently. In health, the government must ensure that the pri-
private market for individual health services is as competitive as possible. This involves spreading information on the prices charged by alternative providers, on the appropriate treatment for various ailments, and on the importance of insurance coverage. Cost control through prepaid plans or capitation (set fees per patient) is crucial in privately provided health care. For example, the Brazilian government encourages prepaid health organizations by allowing social security contributions to be used as payment. In education, this informational role might mean displaying the results of systemwide examinations. The government can also withhold accreditation from institutions that attempt to defraud students.

The scope for reform

These measures could be combined into a program that would make spending on education and health more efficient and more equitable. They would do so by making public spending more selective, both in the services covered and in the beneficiaries targeted. They include: charging for publicly provided curative hospital care, drugs, and university education; increasing public subsidies for basic services, such as preventive care and primary education; providing an adequate financial environment for both private consumers and providers through effective insurance and credit systems; decentralizing government services to foster management accountability; and encouraging the use of nongovernmental resources with an appropriate balance of incentives and regulation.

Such a package may be difficult to implement. In some countries it would upset the long-established traditions, often inherited from developed countries, of free education and health. Institutional limitations may also complicate the administration of some policies, such as the loan schemes or the insurance systems. For these reasons reform will take time and is bound to vary from country to country.

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**Box 6.3 Implementing educational reform in Ghana**

Until the mid-1970s Ghana had one of the most developed and effective educational systems in Western Africa, with enrollment rates at all levels among the highest in the region. As the country’s economy declined during the 1970s, however, the quality of education deteriorated, and school enrollments stagnated or fell. With some international assistance the present government started in 1987 to rehabilitate its educational system. The overall objectives of the six-year reform are to improve teaching standards, to make education financing more efficient and equitable, and to ensure that the reformed system is fiscally sustainable.

The reform is concerned with both the primary and the secondary levels. It calls for savings from eliminating nonexistent staff from the rolls, from reducing the number of nonteaching staff (universities had more than one nonteaching member of staff for each student), and from avoiding duplication in programs. Moreover the public share of postprimary education costs will be reduced by gradually eliminating boarding subsidies and by introducing fees for the use of books. At both the secondary and tertiary levels, loan and scholarship schemes are being developed to make education more accessible to poorer students.

In 1971 an effort to reduce the cost of higher education by introducing maintenance fees along with student loans provoked strong opposition. Within a year the government was overthrown, and its successor withdrew official support for the proposal. The present government, recognizing the importance of gaining broad public support for the current reforms, drew up a plan. The early signs are that it is enjoying some success. It has two main elements.

- **Cost recovery linked with improved quality.** Secondary school boarding subsidies will end at the same time that new science equipment and textbooks for secondary students arrive. At the university level, to minimize opposition to the announced reduction of boarding subsidies, the policy promises to make books and equipment more easily available, to rehabilitate educational facilities, to offer land on which students can grow food, and to introduce student loans to cover the cost of textbooks and, eventually, boarding.

- **Public education campaign.** Since it was first announced, the education reform program has dominated the media and been a major topic of public debate in Ghana. Through leaflets, meetings, and speeches by high officials, the government has stressed the disparities in the cost for each student at different levels of education (unit costs in Ghanaian universities are 120 times those in primary education); the high cost of subsidizing the boarding of university students and secondary students, when the funds could provide places for many more students; the fact that the cost of food and lodging for one university student is enough to educate fifteen primary school pupils; and the savings to be achieved through improved quality and effectiveness.
country. Improvements in public administration, management, and institutions are also generally needed to complement the reforms in financing mechanisms. A hopeful sign is that many governments have already begun reform (see Box 6.3 on Ghana). Even if it is only partial, reform can produce worthwhile improvements.

Urban services

Governments usually play a large role in the provision of urban services. A traditional justification for this is that private providers find it hard to make profits from some urban services. For example, it is usually impractical to charge individuals for road use. Economies of scale in water provision imply that a service may be economical only if run or regulated by government. For almost all urban services the government's role is also important because of congestion and environmental externalities: one person's consumption affects the well-being of others. Moreover the provision of urban services has a distributional dimension. Although urban residents are, on average, better off than their rural counterparts, a significant proportion of a country's poor lives in urban slums with no access to safe water and other basic services.

Despite the great diversity between and within

Box 6.4 The public finance of power: issues and options

With few exceptions electric power in developing countries is provided by a single, publicly owned, vertically integrated utility. In many countries this is the largest state-owned enterprise (SOE). Its prices are regulated by the government. This public involvement is usually justified by the argument that electric power is a natural monopoly. Power production and transmission have high fixed costs and low marginal costs that make it both expensive for a newcomer to enter the market and cheap for the established firm to add another customer.

The financial and management autonomy of power utilities varies. Often they have little of either. This leads to budgetary difficulties and to inefficient use of resources.

Financial and fiscal issues

A well-managed power utility that sets tariffs at long-run marginal costs should generally be able to cover all of its operating expenses and debt service and to contribute substantially to its investment program out of its own resources. Its effect on the government budget would be neutral or even positive if it were subject to corporate income taxes. Unfortunately, however, a recent study by the World Bank concluded that since 1965 the financial performance of power utility companies in developing countries has declined. The self-financing ratio—internal funds as a proportion of the enterprise's investment requirements—has fallen on average from 25 percent during 1966-73 to 17 percent during 1980-85. Financial rates of return are also falling (see Box figure 6.4).

The poor financial state of many power utilities has been blamed on the failure of governments to permit timely and sufficient rate increases. Collecting tariffs is a problem in itself. Accounts receivable increased from an average of 77 days in 1966-73 to 112 days in 1980-85, a trend that reflects difficulties over metering, billing, and collection. In many countries governments and SOEs are among the most delinquent customers (see Chapter 8).

As a result many utilities depend on government for investment financing at preferential interest rates, for the waiving of debt, and sometimes even for subsidies toward operating costs. In turn, these subsidies in-
countries, most urban services are provided by local governments and financed from local taxes, user charges, or transfers from higher level governments (see Chapter 7). Infrastructure, such as water, transport, and solid waste disposal, takes up a substantial share of the municipal budget in many cities. Some of these lower tier decisions can also have decidedly national repercussions, however, especially in the power sector (see Box 6.4).

Issues in public finance

Urban services are best examined as a whole. The major components—urban transport, water supply, power, and housing—confront the same issues of allocation, internal efficiency, and equity. Moreover consumers, private and public providers, and regulators typically make decisions about several services jointly. For example, residents do not buy or rent housing without considering the availability of local infrastructure.

Underprovision of basic services. Efficient urban services are a precondition for economic growth. Urban-based firms need transport and communications to do business with each other, sanitary services to dispose of their waste, and power to make their capital productive. Their

increase the national debt and deprive other sectors of the economy—where user charges may be inappropriate—of budgetary resources. In Colombia, for example, an ambitious investment program, which raised power’s share in total public investments from 24 percent in 1980 to 38 percent in 1985, was not matched by new revenues. As a result the combined deficits of the country’s power utilities amounted to 345 million dollars, or 1 percent of GDP, by 1986.

Efficiency issues

Electricity is efficiently supplied in very few developing countries. In Colombia excessive public investments in power, made when growth in demand was falling, contributed not only to the public deficit but also to excess capacity, which is expected to be about 20 to 25 percent of installed capacity during 1987-89. A comprehensive energy reform is now being planned. Even in a country such as the Republic of Korea, where operational standards are high, reforming investment policies and setting less ambitious targets for reliability could save $200 million a year.

Weak planning, high transmission losses, excessive staffing, inefficient operation, and inadequate maintenance are common and growing problems. In some cases the size and sophistication of the power sector has increased dramatically in the past decade without a corresponding improvement in management. In many other cases these problems can be blamed on regulations that take away managerial incentives to be innovative and efficient, such as rules regarding pricing, coverage of service, the use of inputs, and pay.

Inefficiency on the demand side is a worry, too. Efficiency requires that in principle the prices that guide the decisions of producers and consumers reflect true economic costs. Unsatisfied demand at those prices also indicates the need to expand production; under these conditions it is clear that consumers are willing to pay for the expansion. When the principle is violated, consumption is distorted, and the utility may face a serious financial handicap, leading in turn to a deterioration in service.

Policy options

Appropriate pricing is critical for allocational and internal efficiency in the absence of effective competition. Because investments in power are large and lumpy, the level of revenues needed to ensure financial viability will not necessarily coincide with that produced by short-term marginal cost pricing (see Box 6.1). In that case alternatives such as multipart pricing may need to be considered.

From a macroeconomic perspective the net fiscal effect of efficient electricity prices would generally assist programs of stabilization and structural adjustment. Rough estimates based on data from six African countries indicate that raising user charges closer to long-run marginal cost could add 5 to 10 percent to central government revenue.

Manipulating prices to redistribute income often goes wrong. Subsidizing the unit cost of electricity encourages waste and fails to aid the small consumer, who has few appliances, let alone the majority of poor households, which lack access altogether. If subsidies are used, they should be targeted. For example, the utility might charge “lifeline rates” for low levels of consumption. Alternatively, selective rebates on the connection charge to allow easier access are more visible and efficient than cuts in the unit price of consumption.

Pricing policy reform in power should be complemented by more transparent and accountable management practices, increased training, and a greater reliance on private sector (see Chapter 8).
workers need all these services and housing, too. Yet, despite heavy subsidies, many urban services are underprovided. Most recent World Bank estimates indicate that 23 percent of the urban population in developing countries has no potable water within 200 meters; the figure rises to 35 percent in Sub-Saharan Africa. Road congestion is spreading, and escalating transport costs have reduced productivity. Housing shortages are common in many cities.

Both sides of the public finance equation—revenue and spending—have contributed to this underprovision. Municipalities face tight budgetary constraints (see Chapter 7). Traditional ways of

Table 6.3 Comparative operating conditions and costs of private and public bus services in selected cities in developing countries, 1985

<table>
<thead>
<tr>
<th>City, country</th>
<th>Ownership</th>
<th>Fleet utilization (percent)</th>
<th>Staff-operating bus ratio</th>
<th>Cost per passenger (km/US cent)</th>
<th>Revenue-cost ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ankara, Turkey</td>
<td>Public</td>
<td>65</td>
<td>6.0</td>
<td>2.5</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>95</td>
<td>2.6</td>
<td>1.2</td>
<td>1.70</td>
</tr>
<tr>
<td>Bangkok, Thailand</td>
<td>Public</td>
<td>80</td>
<td>6.2</td>
<td>1.9</td>
<td>0.74</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>80</td>
<td>..</td>
<td>1.2</td>
<td>1.10</td>
</tr>
<tr>
<td>Calcutta, India</td>
<td>Public</td>
<td>64</td>
<td>20.7</td>
<td>1.9</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>86</td>
<td>4.0</td>
<td>0.7</td>
<td>1.10</td>
</tr>
<tr>
<td>Istanbul, Turkey</td>
<td>Public</td>
<td>60</td>
<td>7.5</td>
<td>2.0</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>..</td>
<td>..</td>
<td>1.7</td>
<td>1.10</td>
</tr>
<tr>
<td>Jakarta, Indonesia</td>
<td>Public</td>
<td>59</td>
<td>14.5</td>
<td>1.8</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>76</td>
<td>7.3</td>
<td>0.9</td>
<td>1.20</td>
</tr>
<tr>
<td>Karachi, Pakistan</td>
<td>Public</td>
<td>40</td>
<td>12.4</td>
<td>2.8</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>72</td>
<td>6.4</td>
<td>1.0</td>
<td>1.15</td>
</tr>
<tr>
<td>Khartoum, Sudan</td>
<td>Public</td>
<td>65</td>
<td>18.1</td>
<td>1.5</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>80</td>
<td>4.5</td>
<td>0.6</td>
<td>1.10</td>
</tr>
</tbody>
</table>

Note: Only data for comparable large bus types are included. Source: Armstrong-Wright and Thiriez 1987, table 1.

Box 6.5 How do Nigerian manufacturers cope with inadequate infrastructure services?

Nigerian manufacturers face frequent interruptions of publicly provided services such as water, electricity, telecommunications, transport, and waste disposal. When available, the services are often of poor quality. This is a waste of public funds that also adds significantly to the cost of manufacturing.

Nigerian manufacturers therefore make capital investments in services such as electricity and water for themselves. According to the Nigerian Industrial Development Bank (NIDB), frequent power outages and fluctuations in voltage affect almost every industrial enterprise in the country. To avoid production losses as well as damage to machinery and equipment, firms invest in generators. A milk processing firm, for example, needed its own generators because voltage surges or gaps in supply could threaten vital equipment. One large textile manufacturing enterprise estimates the depreciated capital value of its electricity supply investment as $400 per worker. If extrapolated to all 6,000 Nigerian manufacturing firms, such an amount (at current prices) could pay for capital equipment to improve transmission and distribution for the entire country, including the residential sector. Similarly companies invest in bores and waste treatment plants. Typically as much as 20 percent of the initial capital investment for new plants financed by the NIDB is spent on electric generators and bores.

The cost of poor telecommunications is reflected in numerous small expenditures, such as motorcycles for couriers and radio systems, and in time wasted, as managers and sales people travel to deliver messages or hold conversations that would take moments over a working phone line. In Lagos long commuting times caused by inefficient bus services have led firms and workers to rely on private transport as much as possible.

Although necessary, many of these self-provided infrastructure investments are inefficient, because they are too small. Since possibilities for input substitution are limited, firms that make capital expenditures to provide their own services have higher production costs. Better public provision of infrastructure would reduce the losses; policy options are already being studied and developed.
raising revenue are becoming increasingly costly. Transfers from higher tiers of government are unreliable, and many local authorities have neither the authority nor the know-how to coax more out of the property tax. Services that rely heavily on general funding sources are therefore bound to suffer.

The problem is aggravated because spending in many cities is not directed toward the appropriate services. In some cases, as in bus transport, large subsidies to public providers have squeezed out more efficient private providers. Table 6.3 shows that in cities where both types operate simultaneously, the cost per passenger is lower for private operators compared with subsidized public operators. Also public transit authorities often favor expensive schemes. The new metros in Caracas, Venezuela, and São Paulo, Brazil, cost (at 1983 prices) $1.44 billion and $2.34 billion, respectively. They serve a small percentage of the urban population, place a considerable and continuous burden on the cities' financial resources, and displace improvements elsewhere.

At the same time basic services are being neglected. The cost of this neglect is particularly high when alternative private sources are either unavailable or too small to be efficient. This is true for the provision of water and electricity. Private water vendors, who have an inefficiently small volume of business, operate in congested cities where the unit cost of piped water would be low. A water carrier's average charge was at least three times higher than the average incremental cost of publicly provided piped water in Nairobi, Kenya, in 1977 and two times higher in Lomé, Togo, in 1981. In Lagos, Nigeria, low-income families buy potable water from vendors at a price at least four times the marginal cost of piped water and must carry it long distances. Private manufacturing firms in Lagos have also found it necessary, at great cost, to provide almost all basic services themselves (see Box 6.5).

Public regulatory policies have inhibited private providers. Although not explicitly part of the public budget, these policies can have large effects akin to taxation and spending. The situation in housing illustrates this problem. In many cities private housing markets have been overly restricted by rent control, which has often produced results exactly opposite to those intended. Roughly 40 percent of the world's urban dwellers are renters. Most are subject to some form of rent control. Studies in industrial as well as developing countries show that the benefits of such restrictions to present renters are low. Some restrictions are simply not effective because of side payments. Effective restrictions, however, inhibit maintenance and new construction—as in Kumasi, Ghana, where controls have contributed to a nearly complete shutdown of the housing market. In addition rent control reduces property taxes and, thus, the government's ability to improve those services that cannot be privately provided.

Another constraint on the supply of private housing is housing finance. In many countries credit to finance investment in housing is limited. In some cases this is the result of financial policies that repress the efficient flow of capital in general and housing investment in particular. These policies act very much like distortionary taxes, with effects throughout the economy as well as the sector (see Box 6.6).

THE HIGH COST OF SOME SERVICES. Heavily subsidized public providers often produce urban services inefficiently. They have little incentive to be cost-effective or to respond speedily to changing conditions. In Calcutta, India, the public bus corporation requires a subsidy of around $1 million a month, since revenues cover only about one-half of the system's operating cost. Yet it has a lower fleet utilization rate, a higher staffing ratio, and a greater incidence of fare evasion than private sector competitors that are not subsidized (see Table 6.3).

FAILURE TO SERVE THE POOR. Heavy subsidies in urban infrastructure often fail to reach the poor. The poorest members of urban society do not use the most expensive forms of urban transport. For example, the Caracas metro, due to be completed in 1990, will not directly serve the lowest income groups; they demand few of the longer trips that the metro will provide, and they neither live nor work on the main line. Middle-income groups are expected to benefit the most.

As noted above, one-quarter of the developing world's urban population has no access to safe water. These are the city's poorest; many have to buy water from private vendors at rates from 4 to 100 times higher than those paid by the more fortunate, who have access to piped water (see Table 6.4).

Improving the delivery of urban services

The direction of reform depends on the service. Where a competitive private market is viable, such
Box 6.6 Hidden fiscal dimensions of housing policies

Fiscal policy has a significant effect on the housing sector even though, on average, housing accounts for only about 2 percent of central government expenditure in developing countries. One reason is that the intermediaries that finance and build housing in many countries are state-owned enterprises, which are regulated and financed in part by budgetary transfers that are not classified under the housing category. Another reason is that these intermediaries, whether private or public, are subject to implicit taxes and subsidies through government regulation. Interest ceilings and portfolio restrictions on banking institutions have tax-like effects that are magnified in inflationary environments. They significantly affect the ability of financial institutions to intervene efficiently in housing markets.

In Argentina implicit subsidization of housing finance for low-income dwellers and households that already own their homes has been costly. During the most recent macroeconomic downturn the only institutions lending for housing were FONAVI, a government wage tax fund, and BHN, a national mortgage bank. Both recover only a small percentage of their loans. The former pays extraordinarily large subsidies to a fraction of the eligible households. The latter has been decapitalized by a loan forgiveness program for previous borrowers. Other lenders have no access to government subsidies and have withdrawn from the market because of financial policies that make it impossible to mobilize resources and on-lend profitably. Access to housing finance is thus severely limited. Those most badly affected by the recent macroeconomic downturn are low-income renters, whose real rents doubled, and middle-income savers, who are either not eligible for, or have been denied, FONAVI and BHN funds.

In Poland public subsidies for housing, combined with restrictions on the ability of private providers to enter the market, have led to a severe housing shortage. High subsidies have stimulated the demand for government and cooperative housing programs. However, the large amounts being spent (off-budget interest subsidies and explicit government housing programs claim 6 and 13 percent of current government spending, respectively) have been insufficient to meet the growing demand. At the same time restrictions on prices and sales, the centralized allocation of housing materials, limitations on homeownership, and other regulations have removed the incentive for private finances to enter the sector. Thus, despite the obviously high rates of return to investment, shortages persist. In 1980 there were roughly 18 percent more households than dwellings, a very high figure compared with other countries.

Removing these distortions would bring substantial benefits. Reducing off-budget subsidies would alleviate pressure on the overall rate of inflation by slowing the rate of money creation. In the longer term there are also implications for growth, because housing is the single most important repository of household savings, and because efficient housing markets would increase labor mobility.

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as in urban transport and housing, narrowing public involvement will release resources for better use elsewhere. This might mean shifting from direct provision to financial and regulatory policies that mitigate externalities and breakdowns in capital markets. Where direct provision is most efficient—as in water, power, and roads—the public provider should apply user charges or cost-covering benefit taxes.

**Priorities for urban transport.** Governments can do much to improve urban transport in developing countries. The most pressing task is to upgrade and extend the urban road network. Experience shows that such activities offer high rates of return through faster journeys, reduced fuel consumption, and fewer breakdowns. Maintenance, in general, is a cost-effective form of spending (see Chapter 5). But some developing countries could make it more so. Studies in Argentina, Brazil, and Kenya, for example, have shown that roads can be maintained more effectively by private contractors than by public agencies. In Ponta Grossa, Brazil, in the mid-1970s road maintenance cost 59 percent more when done by municipal workers rather than by private contractors.
Governments also have a role in traffic regulation and management, the setting of safety and environmental standards in mass transit, and, where feasible, road pricing. These policies can serve as cheap, congestion-relieving alternatives to new transport investments. For example, in San José, Costa Rica, intense commercial development in the business district increased on-street parking and slowed average car speeds to ten kilometers an hour. Peak-hour parking restrictions (especially on bus routes), parking meters, and formal designation of loading areas greatly improved the traffic flow. Thus funds for new roads could be shifted to other priority areas in the overall highway system.

Efficient private providers should be allowed to enter the market for bus services. Transport services, whether publicly or privately provided, work best with a minimum of control on the setting of fares. Aside from balancing supply and demand, competitive fares create a favorable climate for efficient investment. Equally, they discourage investment that is unlikely to be profitable—such as capital-intensive subway systems in poor, densely populated cities.

In most cases a greater reliance on competitive provision of bus services will not hurt the very poor, since they tend to live in areas that are not served by subsidized bus routes. Indeed, competitive provision may even increase access by extending service to areas not covered by subsidized public providers. In Bangkok, Thailand; Istanbul, Turkey; and Kingston, Jamaica; for example, bus routes that public operators deemed "unprofitable" were contracted out to competitive private operators who earned profits without changing the fare structure.

Public priorities in housing. Housing means shelter, the lot on which the shelter stands, and the surrounding infrastructure. By itself public shelter construction can rarely meet the housing needs of the poor, let alone that of the entire population. Public housing projects frequently fail to give the poor what they want. Subsidies intended for the poor are often captured by high- and middle-income households. Instead of building shelter, the public sector could try to make the private market work better. That could mean, for example, rationalizing land tenure; liberalizing financial markets; easing restrictions, such as rent control; and providing basic infrastructure, such as water, sewerage, and electricity.

Housing finance has been particularly neglected. The scope for housing finance to stimulate supply is admittedly limited in low-income developing countries. In middle-income countries, however, appropriate reforms could readily free additional resources. In many countries interest rate ceilings and restrictions on new lenders have increased the public deficit (since many financial institutions are publicly owned) and have acted as distortionary taxes on the housing sector (see Box 6.6). Such subsidies are bad vehicles for relieving poverty. A liberalized financial sector would enable most of the population to finance its housing needs privately.

For the very poor, direct public intervention in housing will continue to be needed. However, such intervention is better focused on providing basic services and security of tenure rather than on dwellings. Where ill-defined property rights increase the risk of buying and selling a site, security of tenure makes squatters better off. One study in the Philippines estimated that it increases the value of dwellings by 18 percent. It also encourages squatters to improve their buildings. The provision of basic urban services is essential, too. For example, the kampung (neighborhood) improvement program in Indonesia—which emphasizes the provision of service roads, footpaths, drainage, and improved water supply and sanitation—has been extended into a national program covering 220 towns during the past fifteen years. Studies have concluded that this has greatly assisted a large proportion of poor neighborhoods without imposing too much of a fiscal burden. The lessons are being applied in slum-upgrading projects elsewhere in the world.

Efficient pricing of water and sewerage. Water and sewerage systems are generally managed at the local level by autonomous or semiautonomous agencies. Spending on these services is usually a big part of total local government expenditure; user charges generate additional revenue to finance such spending and can also improve efficiency.

Cities in developing countries differ greatly in their policies toward pricing water services. Efficient pricing in the absence of externalities means setting the price at marginal cost and using the proceeds to provide the service. For water supply the marginal costs of different levels of service may differ. Thus efficient pricing would include three components: a consumption charge related to the quantity consumed and roughly equal to the marginal cost of producing, treating, and pumping
water; a connection charge to reflect the marginal capital cost of connection, metering, and billing; and a development charge to cover the capital cost of the distribution network. Further refinements might take account of geographical and seasonal variations in cost.

Most cities face rising long-run costs because supplies of clean water are hard to find. In such cases the efficient price exceeds the average cost. Some cities have put this rule into practice. As a result, in Jakarta the local water company was able to pay surplus revenues to the local government in the early 1970s, and in Nairobi water surpluses were used to fund other city spending. What matters is that user charges should be set with efficiency—not merely short-term financing needs—in mind.

Falling long-run costs occur only rarely, as in Lahore, Pakistan, which has a plentiful supply of ground water. Marginal cost may sometimes fall below average cost temporarily, as a result of excess capacity following expansions of the system. In these cases efficient pricing would entail a deficit and would run counter to the objective of financial self-sufficiency. So in balancing efficiency with financial objectives, governments must also take account of the cost of raising revenue in other ways (that is, through taxation).

Urban water tariffs often reflect equity considerations. Some such price structures are consistent with efficiency and financing objectives, while others are not. Rising block rates (that is, higher unit prices at higher levels of consumption) have been used in cities as diverse as Belo Horizonte, Brazil; Bujumbura, Burundi; Cartagena, Colombia; and Jakarta, Indonesia. These might appear to meet efficiency and equity objectives. Water demand may be more sensitive to household size than income, however. If this is so, such schemes could hit poor families harder. A better way to ensure access for low-income households would be to charge according to the consumer’s characteristics—according to property values, for example, or to the type and size of connection. Another possibility is to charge “lifeline” rates for very low levels of consumption (see Box 6.1). Because the poor may have no access at all, it is usually better to subsidize connection charges first and then consumption, if at all, later.

Pricing of other urban services. In principle, road pricing is an attractive approach to the urban transport problem. Charges could ideally be related to the amount of travel through congested areas. In practice, such schemes can be expensive to run. A scheme in Singapore, however, where low-occupancy vehicles pay a charge for entering congested areas during rush hours, has been working since 1975. Where such charges are impractical, another option may be to use benefit taxes, such as lump sum charges to recoup costs from beneficiaries (see Chapter 7).

Subsidies for refuse disposal are required because of the externality of pollution and the difficulty of controlling unauthorized disposal. Still, it may be useful to levy different charges for industrial and commercial waste, as opposed to residential waste; to enforce refuse charges by collecting them jointly with water or electricity charges; or to levy a flat monthly fee according to area.

The pace of reform

Ultimately the public sector must decide which services to provide or to subsidize. Housing and urban mass transit are subsectors in which private providers can be efficient—especially if policy facilitates both free entry by new providers and a flow of private financing. Government can then focus its financial and administrative resources in areas where intervention is essential: road maintenance, traffic management, and urban land tenure. Where a competitive market does not exist because of economies of scale, as in water supply, cost recovery through consumption and development charges is desirable.

Administrative and political factors pose obstacles, however. Coordinating the activities of different tiers of the public sector is difficult (see Chapters 7 and 8). Once in place, subsidies are hard to remove, because they come to be perceived as entitlements, even if they were conceived as temporary measures to ease adjustment. City dwellers are particularly vocal in protecting their entitlements. Urban demonstrations forced the Philippine government to cancel a planned doubling of gasoline prices in August 1987. Rights to subsidies are also sometimes implicitly traded, since the price of land reflects the value of the surrounding infrastructure. Highly visible improvements in the quality of service, publicity campaigns, support from popular leaders, and gradual rather than sudden increases in user fees can reduce political inertia. These were part of the successful effort in Bangkok to increase the public water company’s revenues during the mid-1980s.

Rural infrastructure

The importance of rural infrastructure in productivity has long been recognized. Rural roads allow
inputs and outputs to be more efficiently transported between farms and market. Irrigation increases the yield from agricultural land. Rural electrification expands the area under irrigation through the use of pumps and offers power for rural nonfarm enterprises. Residential water supply may bring health benefits and, hence, a more productive labor force.

In most cases the central or provincial government—either directly or through state-owned enterprises (SOEs)—is the main provider of infrastructure in rural areas. Most services are provided either free or at highly subsidized rates. According to a recent study in Asia, tariffs covered only a small percentage of the economic costs of electrification. User charges for residential water are well below cost. In six Asian irrigation systems revenues collected from farmers as a percentage of capital and recurrent costs ranged from a high of 25 percent to a low of 1 percent. It is impractical to charge directly for access to rural roads, although vehicle and gasoline taxes might be considered as user charges to recover the cost of road maintenance.

Arguments of efficiency and equity have been used to justify this pattern of provision. Many of the benefits of rural infrastructure accrue to society at large. For services such as potable water the individual consumer might not be aware of all the benefits—especially improved health—and would consume too little at competitive prices. In addition subsidizing agricultural infrastructure is one way to target government spending toward the poor.

Issues in present financing arrangements

Although the arguments above justify public intervention in rural infrastructure in some form, the precise manner of intervention will depend as before on the criteria of allocation, internal efficiency, and equity.

Underinvestment in water and roads. The need for more infrastructure is becoming pressing partly because of the continuing rise in rural populations. Despite recent improvements, access to potable water has fallen short of what had been hoped for. More than 1.5 billion people—roughly a third of the world’s population—are estimated to be without access. In many low-income countries more than half of all villages remain unconnected to any all-weather road.

The cost of distributing rural services is high because the beneficiaries are scattered. Economies of scale in the production and transmission of power and water, for example, are offset by the high cost of serving far-flung communities. Extending coverage will be increasingly costly, since those easiest to reach have already been served.

Better allocation of resources is one way forward. Few rural electrification programs are part of an integrated plan based on the costs and benefits of alternatives. In residential water supply, misallocation has resulted from central governments (and external funding agencies) taking too great a role in deciding what to install and how to operate it. Projects tend to fail when users have no sense of responsibility for the service. The Thai government dug wells, installed handpumps, and committed itself to maintaining them, only to find that the people continued to use their traditional surface water sources. Another cause of failure is lack of maintenance. In Tanzania better access to potable water was provided without support for recurrent costs. The people wanted the new facilities, but the systems rapidly fell into disrepair.

Similar problems face investment in irrigation. Programs tend to be biased toward big new projects at the expense of cheaper solutions, such as improving existing systems, developing smaller community-controlled facilities, and improving rainfed farming methods. Studies conclude that irrigation agencies, which get most of their resources from central treasuries, support farmers’ demands for costly and subsidized investments. This is in line with their traditional role of expanding water supplies, and it enables the agencies to preserve high levels of staffing and spending.

Inefficient supply and consumption. Rural access roads tend to be constructed by the roads departments of national or provincial ministries. These departments do not like to contract out. They claim that small contractors have little experience or are generally inefficient. Yet, according to World Bank surveys in Latin America and West Africa, the performance of road maintenance agen-
cies has been generally poor. Equipment is underused because of lack of spare parts, poor training, lack of preventive maintenance, operator abuse of equipment, and inadequate workshop facilities. Government regulations make it difficult for roads departments to attract the right personnel, hire and fire staff, and provide incentives. Private contractors or highly decentralized rural construction units—as in Benin and Kenya—have been more cost effective. Ghanian contractors now undertake regraveling and routine maintenance.

The pattern of consumption is often inefficient as well, because prices are set too low. In fully irrigated areas, for example, farmers closer to the main water source, where water is abundant, typically waste more than those further away. To avoid such waste, prices need to confront users with true economic costs. Underpricing also makes it harder to plan investments.

INEQUITABLE ACCESS BY THE POOR. Heavy public spending on rural infrastructure is often justified as a measure to help the poor. Incomes in rural areas are indeed lower on average than those in urban areas, but the range is wide. In many countries poverty alleviation is not well served by the current system of rural subsidies.

Highly subsidized rural electrification does not mean that all village families have equal access to electricity. Findings from a survey of ninety villages in India indicate that about 15 percent of the population was connected during the first few years of electrification and only 45 percent after twenty years. The poorest often live far from the main electricity lines and can rarely afford to connect to them. Data for 1974 show that nearly 65 percent of the highest income groups in Malaysian rural areas had electricity compared with 20 percent of the lowest income groups; in Colombia only 29 percent of those connected were in the lowest 40 percent of rural income groups. Thus the uniform distribution of subsidies within rural areas (for example, through low prices for all) may mean that the poorest do not get their share.

There is also evidence of a regressive distribution of subsidies for rural water supply. For example, the proportion of the poorest families with connections to rural water services was about one-half that of higher income households in Colombia, Kenya, and the Republic of Korea in the late 1970s. The alternative to piped or well water is very expensive. Without access in their local community, families must walk and queue for their supplies. This claims 15 percent of women's time in some areas.

The distribution of benefits from spending on rural roads and irrigation is more difficult to judge. Some studies have found that the rural poor tend to live outside areas affected by new roads and are neglected by publicly financed rural development programs. Subsidies for irrigation can be regressive if instituted in response to political pressure, and the larger landowners are experienced at exerting such pressure. Land values rise in irrigated areas, but these economic rents are generally not shared with labor. Thus free (or nearly free) public provision of rural infrastructure may not serve the poorest: landless farm workers and smallholders of irrigated upland farms.

Policy options

Policymakers first have to set priorities and decide which services will be provided centrally rather than locally. The central government can shift responsibility for decisionmaking, investing, maintaining, and overseeing some rural infrastructure services to local communities and in so doing improve efficiency. This is particularly so for rural roads and the distribution-related services of water supply, where economies of scale and technical difficulties pose fewer problems. The center can then focus on training, regulating, and targeting subsidies toward selected impoverished communities. Having set priorities, the next task is to arrange for appropriate financing of the services that will continue to be centrally provided.

DECENTRALIZING PUBLIC RESPONSIBILITY. Although the argument for centralizing "natural" monopolies is strong for services that require heavy capital spending, it may not hold when the source of supply is local. Many irrigation facilities are supplied by national networks, but even in such cases a community-level service might still be the most efficient system for distribution to individual users. Programs with community participation coordinated by village-level officials or private associations have been shown to be generally more successful than those without such participation.

Such programs provide the services that are in demand, provide them at the appropriate standard, and do so effectively. Decisions made with little local consultation often result in low use. In northeast Thailand, for example, five years after handpumps and communal standpipes were installed, only one-quarter of the systems were still operating. Communal facilities were then converted to individual yard taps; after another five years about 90 percent were functional and well-
maintained, despite relatively high metered consumption charges. Water systems in Kenya built as part of harambee (self-help) efforts have proved more reliable than those installed by the water ministry, which were hampered by lack of funds, poor organization, and failure to design according to the communities' needs. In Malawi a carefully administered water supply program has tried to maximize local participation by making committees responsible for construction of local branches, cleanliness around the taps, enforcement of rules on water use, and minor maintenance. The systems have received a high rating for reliability. Informal users' associations can play an important role in such programs (see Box 6.7).

Central governments can rarely provide heavy subsidies indefinitely, especially during periods of fiscal adjustment. Self-financed community schemes, in contrast, match needs to available resources.

Paying for the service also gives users an incentive to consume economically and to monitor the efficiency of provision. If development as well as operational costs are recovered, the bias in favor of expansion over maintenance is reduced. Farmers in the Philippines, although responsible for only a modest fraction of the cost of developing their irrigation system, lobbied successfully against the use of expensive components that they considered unnecessary for good service.

Some have argued that it is impossible to make user charges for rural services cost-effective, particularly when metering is required. Egypt offers a counterexample. The cost of metering irrigation water is estimated to be only about $1 to $7 an acre—less than 3 percent of the full cost of supplying irrigation water. In many cases, however, metering is indeed uneconomical, and other methods of cost recovery have to be relied upon. In water supply, for example, charges for connection and

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Box 6.7  Cooperation in irrigation: the Philippines

In the Philippines the National Irrigation Administration (NIA) is responsible for constructing and operating the national irrigation system and smaller pump systems. The NIA is a semiautonomous public corporation that finances the capital costs of the projects from foreign assistance, capital stock subscriptions of the government, and general government appropriations. It covers operation and maintenance costs with supplementary income (equipment rental, funds on deposit, and fees charged for managing the construction of new projects) and water charges.

At its inception the NIA was authorized to collect user fees directly from the beneficiaries. Until 1980 the NIA remitted the entire collection to the national treasury. From 1980 onward, however, the NIA was given authority to retain the collection for operation and maintenance, and the government gradually reduced subsidies. To counter an initial shortage of funds, the NIA began promoting water users' organizations (WUOs) among farmers' groups to share responsibility for constructing, operating, and maintaining of irrigation systems. The NIA converted some of the marginal irrigation schemes (those that generate revenues less than operation and maintenance costs) into communal systems. In some cases it transferred the responsibility for managing entire systems to groups of WUOs. In other instances it turned over responsibility for operating and maintaining a portion of a project (such as the area served by a lateral canal) to WUOs with no cash payment in return. Sometimes WUOs were contracted to maintain sections of lateral canals at a fixed fee and at lower cost than if the job were done by NIA personnel.

The NIA relies on WUOs for better cost recovery. It encourages farmers to form user groups to collect charges among the group members and to pay a lump sum to the NIA. As an incentive the farmers' groups are allowed to retain some of their collection. In cases where the NIA collects charges directly from individual farmers, it provides cash incentives to collectors. In all cases it tries to raise the farmers' willingness to pay for irrigation services by improving them. Within the farmers' groups, farmers pay either in cash or in kind to the groups. The NIA negotiates with each group over the quantity of water delivered, and the group members in turn allocate water and costs among themselves.

The results are promising. The NIA has reduced its personnel, improved cost recovery, and reduced operation and maintenance costs. A case study on the Angat-Maasim River irrigation system showed that the collection of irrigation fees increased by 15 percent after the farmers' groups were formed. Fee collections as a percentage of spending on operation and maintenance increased from 69 percent in 1979 to 75 percent in 1984. The ratio of collections to collectibles improved from about 45 percent in the late 1970s to more than 60 percent in 1984. The expenditure on operation and maintenance per hectare declined 38 percent between 1981 and 1984. At the same time the ratio of personnel costs to total costs declined from 90 to 78 percent, indicating significant cuts in personnel.

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Box 6.8  Local village cooperation in India

Robert Wade’s recent study of thirty-one villages in upland South India suggests that local initiatives can thrive in an appropriate setting. Within the sample many villages have autonomous institutions to provide public goods and services. Only a few miles may separate a village with a substantial amount of “corporate” organization from others with none.

The “corporate” villages have a village council (distinct from the officially designated but moribund village council, the panchayat), maintain a village fund, and hold a general meeting of all the village’s cultivators at least once a year. They employ a group of “common irrigators” to distribute water between and below the outlets of the government-run irrigation canal, to which all the sampled villages have access, and another work group of village field guards to protect the crops from livestock and thieves. In addition to paying the irrigators’ and field guards’ salaries, the village fund is used to hire laborers to repair access roads, wells, and primary school buildings; to provide matching grants for the construction of animal clinics and primary schools; and to hire professional monkey catchers. Money for the fund is raised by the sale of franchises, which the council creates and sanctions. For example, the council auctions the right to sell liquor in the village and sells the right of access to the village’s stubble grazing to groups of outside shepherds. Some villages also auction the right to catch fish in the village pond and to collect a commission on all bulk grain sales.

Why do some villages have this kind of organization while others close by do not? One answer is that production conditions in the corporate villages make the net collective benefit of concerted action substantially higher than in other villages. The corporate villages tend to be located toward the tailends of irrigation distributions (which may be from five to twenty miles long). Because of their location, their water supply is more at risk than villages higher up. The function of the common irrigators is to reduce the risk by obtaining more water from higher up and by distributing water equitably between and beneath the outlets. The government’s irrigation department is meant to control all water allocation in the canal above each outlet, but deficiencies in the quality of control prompt villagers lower down to compensate through collective action.

The corporate villages also face a greater risk of crop damage by animals. Because they are in lower-lying locations, they tend to have a higher proportion of black soils, which are especially suitable for growing stubble for a long period after the harvest. As a result there is a higher density of livestock in the villages at the same time that some rainfed crops are still standing and therefore vulnerable to livestock. Organized villages can charge an entry fee to outside shepherds and thus have a larger village fund.

So where the risks of crop loss and conflict caused by water shortage and straying animals are high, villages tend to organize. Once set up to handle these problems, they can go on to organize village infrastructure at little additional cost.

development can be used instead of consumption charges. Betterment levies or access charges of this kind are analogous to urban benefit taxes. Connection charges can be subsidized for the poor.

Even where neither connection charges nor user charges are feasible—as in roads—remedies do exist. Many of them are better handled by local organizations than by central ones. In India local village funds have successfully provided basic services (see Box 6.8). Local benefit taxation (for example the valorization scheme discussed in Chapter 7) can be costly to implement in village areas but has sometimes proved feasible. In Kenya local residents have formed rural road crews to ensure effective maintenance.

These policy recommendations do not imply complete decentralization—nor even a diminution of the central government’s role. Rather they suggest a change in that role, away from directly providing many local services and toward helping local communities to organize themselves. Unlike in urban municipalities, formal government in rural areas is generally weak. Often at the village level traditional household groupings must be relied upon. In some cases individuals have little incentive to plan communal services (see Box 6.8). Central governments can play a crucial role in organizing rural communities, motivating them, and curbing the influence of self-serving local elites.

Further roles for the central or regional government are as educator, regulator, and financial intermediary. Rural residents will generally be unaware, for example, of the latest techniques for maintaining irrigation canals. National or provincial authorities can provide technical assistance, spread information about the benefits of innovation, design educational materials, and develop standards of service. Since local communities may find it hard to get loans for rural infrastructure, governments might provide financial guarantees.
or even funds. Experience has shown, however, that such credit schemes can be sustained only if they are not used to distribute subsidies through distorted interest rates.

The higher tier of government must regulate the use of common resources that cut across localities, such as water and roads. It must also provide those services for which only a systemwide approach is economical, such as trunk irrigation lines and large-scale power generation and distribution.

Efficient management and financial autonomy of centralized providers. In some countries and for some services it may be neither desirable nor feasible to decentralize. However, national institutions need to become more efficient, too. The managerial and administrative improvements discussed in World Development Report 1983 would be important elements of reform.

Managerial reforms would be more effective if central institutions had greater financial autonomy (as in power, see Box 6.4). The tendency for publicly subsidized irrigation authorities to invest anew when it may be more cost-effective to maintain or improve existing systems can be partly countered by making them more financially accountable to users—local communities or individual farmers. One approach would be to set up public utilities under the supervision of a regulatory body. Another would be to establish water districts empowered to impose fees or betterment levies. In either case the goal should be to establish a closer link between user and provider.

Such schemes hinge on the pattern of user charges. Traditional arguments that water systems are subject to large economies of scale and externalities in consumption do not justify low levels of cost recovery (see Box 6.1). Economies of scale in production are often offset by the rising cost of finding new sources. Efficiency pricing would then require full cost recovery. The externality argument correctly cites the health benefits of water supply, but without cost recovery there may be no service at all.

Decentralizing financial responsibility to local communities and to semiautonomous agencies does not mean that government subsidies from general sources are no longer needed. In some cases central subsidization is necessary to protect the interests of the poor or because the cost of raising revenue from beneficiaries is too high. But even when subsidies from general sources are necessary, governments can devise ways to ensure that they are distributed efficiently. What is important is that subsidized consumers are, as far as possible, given an incentive to choose the most efficient alternative. Similarly, public providers must be free to choose efficient suppliers. For example, governments could establish relatively autonomous road maintenance departments with the freedom to contract out to private providers.

Prospects for change

In summary, a gradual devolution of financial and administrative responsibility to the local level would improve efficiency and equity for services with few economies of scale—residential water supply, the distribution of local irrigation services, and the building and maintenance of rural roads. The central government's roles would shift from those of primary decisionmaker, investor, maintainer, and overseer to those of regulator, technical adviser, and dispenser of information. For services with economies of scale—rural electricity generation and main trunk line construction, for instance—a higher tier of government must remain the provider. In such cases the focus must be on appropriate pricing policies.

Decentralizing public activity must be done in stages, because built-in incentives lead the system to perpetuate itself. Some of the clearest lessons in the political economy of subsidies come from industrial countries, not developing ones. Irrigated water in the United States is a case in point. In 1985 the value of the total subsidy to the 146,000 farms that use water provided by the U.S. Bureau of Reclamation amounted to nearly $15 billion—or 56 percent of the average market value of irrigated land. The 6 percent of all farmers who receive the subsidy are among the richest in the nation. Farm groups, politicians, and the irrigation agencies all support this largely wasteful scheme. Reform is always possible—in the developing countries as well as in the United States—but the risks of doing nothing are far greater in the developing countries. It is indeed encouraging that many of the reforms discussed above are already being implemented.