THE FUNCTION OF A PUBLIC HEALTH SYSTEM

The purpose of Poverty and Social Impact Analysis (PSIA) is to examine the distributional consequences of sectoral reforms. It is not a review of the impact of reforms on overall sectoral performance. However, the effect of health sector reforms on welfare among the poor and other groups is inextricably linked to the effect of reforms on sectoral performance. Reforms are intended to address a wide variety of problems and constraints in the sector and to achieve myriad and often conflicting objectives. Not all of these are explicitly intended to enhance equity, but they will all have distributional consequences.

As a prerequisite to examining health sector reforms, understanding what the health system is designed to do, how it can achieve its goals, and the context in which it operates is important. Although improved health is a goal in itself and is a requirement for economic growth, to expect that the health system can, on its own, achieve broader welfare or growth objectives is unreasonable. The health system should focus on improving health.

According to World Health Report 2000 (WHO 2000a), national health systems have three fundamental objectives: (1) improving the health of the population they serve, (2) responding to people’s expectations, and (3) providing financial protection against the costs of ill health. World...
Health Report 2000 goes on to suggest that the second and third goals are partly *instrumental*, that is, they contribute to the first goal.

Note that this list says nothing about how these objectives are to be achieved. There is nothing about health or public health that requires a particular mode of organization or delivery. This is distinct from the acknowledgment that certain components of health and health care are *public goods*, which (it is assumed) must be provided or at least encouraged by collective action.

To achieve these goals, health systems perform a number of general functions. Paraphrasing the *World Health Report*, these can be classified as: (1) governance and oversight, (2) investment and training, (3) finance and risk-pooling, and (4) service provision.

One can imagine many hundreds of things that health systems actually do, but they can reasonably be subsumed into these comprehensive categories of activities. This requires a broader view of health systems, such as described in both *World Health Report 2000* and *World Development Report 2004* (World Bank 2003a). Public health is not merely medical care, or human resources, or social insurance; similarly, it consists of more than vertical public campaigns targeted at specific diseases.

To understand the impact of health sector reforms, especially on poverty and welfare, one must ask how the proposed actions will influence the performance of the system and the system’s ability to achieve its fundamental objectives. To make this a bit more concrete, it is important to ask, for example, not only whether a particular program (say, a program on insecticide-treated bed-nets) is achieving its objectives and not merely whether the program is pro-poor. It is important also to ask about the *opportunity costs* of the program: can the objectives of better public health and better health among the poor be achieved by other means? We can then ask whether the program is best designed to achieve its own objectives. In the current jargon, we must first ask whether we are “doing the right things” and then whether we are “doing them right.”1 It is also essential to have some idea of the *counterfactual*: what is likely to happen in the absence of any changes or intervention?

We must keep in mind that health is an input to human well-being, and human well-being is the goal of public policy. Health is instrumental, even (*pace* Amartya Sen) fundamental, but it is conceivable that, under certain conditions, welfare will be more enhanced by investments in items other than health. The concept of the counterfactual should therefore be broadened to encompass nonhealth alternatives. Even if one particular investment or policy is found to dominate others *within the sector*, it is possible that another nonhealth investment will increase living standards even more.
These alternative investments can cover items that also improve health, such as food, shelter, water, sanitation, and transport, but these are usually outside the purview of health ministries.

Thus, it is important to understand the broader context of health sector reforms. However, it is equally important to maintain the analytical focus on the distributional consequences of reforms. This chapter specifically aims to provide a guide for policy practitioners who wish to conduct an analysis of the impact of health reform or health policy changes on the welfare of households, especially poor households (thus, “poverty and social impact analysis”).

At a minimum, analysis of proposed reforms in health must address the following questions:

- What is needed to enable the health sector to achieve its broader objectives?
- What is the potential welfare impact of the proposed reforms across socioeconomic groups?
- What can be done to avoid or minimize possibly adverse consequences of reforms?

The first of these questions addresses the design and context of reforms. Understanding the welfare consequences requires that we consider the main intended purpose of the reforms. What goals are the reforms intended to achieve, and how can the health system be organized to best achieve the goals? These questions are addressed in *World Development Report 2004*. The third question addresses the design of compensation mechanisms to mitigate the unintended adverse effects of policy changes. While there is little experience with designing mitigation mechanisms specifically for health reforms, more general guidance is provided in *A Sourcebook for Poverty Reduction Strategies* (Klugman 2002), especially Part 5, “Human Development” (pages 163–231) and “Technical Note” (pages 543–76), as well as in *A User’s Guide to Poverty and Social Impact Analysis* (World Bank 2003b).

This chapter focuses on the second issue: the identification of the consequences of reforms for the poor and other groups. This information is clearly required for the design of mitigation programs, but mitigation should be considered a last-best alternative to designing reforms in order to achieve the best outcomes for all. The identification of impacts is also essential for designing effective reforms that enable the sector to achieve its overarching goal of enhancing public health.

This chapter proceeds as follows. First, we discuss the rationale for and the types of reforms that are common in the health sector. We then discuss
the stakeholders and transmission channels for the impact of reforms. Finally, we turn to the technical aspects: analytical methods, assumptions, data requirements, and so on.

ISSUES SPECIFIC TO THE ANALYSIS OF HEALTH REFORMS

Before we begin, we must deal with a few aspects of reforms that are unique to the health sector. Some of these issues arise in other reforms, especially those dealing with public or quasi-public goods, such as education. But they are arguably more complex and more confounding in health reforms than in reforms in other sectors, and they are all vital to the analysis of the impact of reforms on welfare. These include the definition of equity, moral hazard and agency, asymmetric information and adverse selection, and other confounding factors.

Health care is not the same as health

One feature of health care that distinguishes it from other public goods and services is that the consumption of health care is only one input, albeit an important one, in the production of health. As Filmer, Hammer, and Pritchett (2000) demonstrate, the connection between public health spending and public health outcomes is rather tenuous. Health is produced in the household as a function of health care, nutrition, behavior, water, and myriad other factors. Wagstaff (1999) provides a figure to illustrate these links. He points out that not only do health outcomes vary across groups, but there is enormous inequality in the determinants of health outcomes as well (Figure 2.1).

When examining the impact of health reforms on health and welfare, one should understand that these other characteristics will inevitably get in the way of the path from policies to outcomes. It is equally important that we understand the interactions between the sectoral reforms and these confounding factors. Three main questions must be addressed, as follows:

- What effect will the reforms have on these other confounding factors?
- How will these confounding factors influence the impact of reforms on health?
- How will these confounding factors shape the process of reform?

The first of these questions is not intuitive. Reforms may have significant external (to the health sector) effects, positive and negative. For
Outcomes

Health outcomes
Health and nutritional status, and mortality

Households/Communities

Household actions and risk factors
Use of health services; dietary, sanitary, and sexual practices; lifestyle, etc.

Household assets
Human, physical, and financial

Community factors
Cultural norms, community institutions, social capital, environment, and infrastructure

Health system and related sectors

Health service provision
Availability, accessibility, prices, and quality of services

Health finance
Public and private insurance, financing, and coverage

Supply in related sectors
Availability, accessibility, prices and quality of food, energy, roads, water, sanitation, etc.

Government policies and actions

Health policies at macro, health system, and micro levels

Other government policies, e.g., infrastructure, transport, energy, agriculture, water, and sanitation

Source: Wagstaff, 2002, Figure 2.
example, reforms in the health sector may influence community institutions. There have been numerous experiments recently to harness community groups to monitor the performance of local public services (see, for example, Loewenson 2000). This may have the added effect of strengthening local capital and local institutions, which may then collectively bargain for (or informally provide) other services that incidentally enhance health, such as water and sewage connections.

The second question—on the influence of confounding factors on the outcomes of the reforms—is related to the issue of transmission channels. In this case, however, the transmission channels are primarily external to the sector and to the reforms. Clearly, enhanced access to health services will affect health care consumption and possibly health outcomes. That is the direct and intended impact. But this impact will differ across areas because of, for example, differing access to clean water. Health is not necessarily enhanced by the construction of clinics if the local drinking water is contaminated by sewage. There may be more subtle consequences as well: for example, the physiological impact of medical treatment may be affected by illnesses caused by pathogens in drinking water.

Finally, many nonhealth institutions, both private and public, will influence the implementation of reforms in the sector. These are external to the health sector proper, but will shape the process and impact of reforms. In Mozambique, for example, eight ministries are involved in health care finance and policy, six of which are actually providing health services. These include the ministries of public works, education, justice, and interior, as well as health.

**Equity**

Equity in health has been the subject of enormous discussion and literature. Here, some of the issues are mentioned that will arise in the context of any health reform. These can be crudely distinguished as *equity of what?* and *what equity?* These questions are not trivial: *World Health Report 2000* placed great emphasis on creating indexes of the equity of health finance and services (see the Statistical Annexes in the report), and these indexes have been remarkably controversial (for example, see Asada and Hedemann 2002; Wagstaff 1999). Here, the various concepts of equity are briefly described that are commonly used in health.

Equity in health care can be conceived in terms of *access, finance, expenditure,* and *outcomes,* and health policy has usually distinguished between *horizontal* and *vertical* equity, which have specific meanings in each case. Table 2.1 briefly describes these different terms as they are commonly used.
Horizontal equity generally refers to the distribution of costs and benefits across groups of similar socioeconomic or health status; vertical equity refers to the distribution of costs and benefits across groups of differing status. The underlying assumptions are that unequal health outcomes are unjust, that health services should be provided (or guaranteed) socially, and that the distribution of costs and benefits should somehow be related to health and wealth status. Note that there is one exception: in public health finance, equity is usually defined in terms of the ratio of payments to income; it is not necessarily defined as the ratio of payments to the consumption of health services. It is assumed that those who consume more health care are more ill and have greater need for health services.

**Moral hazard**

The common belief that health care payments need not be related to health care consumption presents a moral hazard on the part of the consumer. This can occur both ex ante and ex post. Ex ante moral hazard, that is, occurring prior to the need for health care consumption, leads individuals to engage in riskier behavior than they would do if they were required to bear the total cost of the health care. Ex post moral hazard, that is, following the appearance of the need for health care consumption, is manifest in the over-consumption of health care services or, in other words, the consumption of services even when the benefits are less than the total social cost. Health care

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**TABLE 2.1. Definition of Equity in Health Policy**

<table>
<thead>
<tr>
<th>Dimension of equity</th>
<th>Concept of equity</th>
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<tbody>
<tr>
<td><strong>Horizontal</strong></td>
<td><strong>Vertical</strong></td>
</tr>
<tr>
<td>Access</td>
<td>Those with similar needs have similar access to services.</td>
</tr>
<tr>
<td>Finance</td>
<td>Those in equal socioeconomic positions pay the same for care.</td>
</tr>
<tr>
<td>Expenditure</td>
<td>Those in equal socioeconomic positions or similar health receive the same value of publicly funded services.</td>
</tr>
<tr>
<td>Outcomes</td>
<td>All households experience similar health outcomes, regardless of socioeconomic status.</td>
</tr>
</tbody>
</table>

*Source:* Compiled by the authors.
is different from other public goods and services, such as education, since greater consumption is not always beneficial. There exists a point beyond which the net social returns to more use of health services are negative. This is of greater concern in former socialist countries, in which overconsumption was common, but it may be troublesome also where publicly provided services are captured by a (presumably wealthier) minority.

Moral hazard can cause problems on the supply side as well, since doctors have no incentive to control costs. For instance, doctors working under a fee-for-service regime have an incentive to provide more services than the patients would choose to receive if they had complete information. This is also known as supplier-induced demand. It is not merely a theoretical concern, although the evidence is primarily from developed countries. Studies on China (Bumgarner 1992), France (Chiappori, Durand, and Geoffard 1998), the Netherlands (Hurst 1992), Taiwan (Cheng and Chiang 1997), and the United Kingdom (Dusheiko et al. 2003) find that fee-for-service reimbursement leads providers to increase the volume of services.

ASYMMETRIC INFORMATION

Moral hazard arises from the asymmetric distribution of information. Ex ante moral hazard occurs because an insurer (for example) cannot monitor the behavior of the people he insures. Asymmetric information causes, in addition to moral hazard, further problems in health care provision since the quality of care is generally unobservable. Moreover, the characteristics valued by the consumer of care are not necessarily related to the efficacy or medical quality of care. For instance, a patient might prefer a pleasant, but ineffectual doctor to an impolite, but effective one. In that case, the preferences of the patient and the public health authorities conflict.

The quality of care is unobservable partly because we cannot see clearly the effort that physicians and other providers expend in producing health care. Even if they show up for work (which is not always the case; see Chaudhury and Hammer 2003), it is difficult to monitor the attention providers give to patients. To use the economics jargon, the interests of the principals (the patients and the public health authorities) differ from those of the agent (the provider) who is hired to supply the services. The principals want greater health; the agents may want that, too, but they also want to avoid working long hours for low pay. This leads to lower levels and quality of service than the principals would like.

A good deal of research has gone into the design of incentives and payment schemes to minimize the difference between the interests of princi-
pals and agents, or, at least, to reduce the cost of controlling the agency problem. Since the agent’s behavior is expensive to monitor, the principal must design a contract such that the provision of the services the principal wants is in the interest of the agent (Eggleston and Hsieh 2004; Hammer and Jack 2001; Jack 2001a; McGuire 2000).

This is not merely of academic interest, but has great impact on the distribution of services, since physicians may neglect poorer patients in favor of those who can pay, or may direct patients away from public services to alternative, fee-paying services. This issue of “dual practice” is rather controversial and has received considerable attention from reformers. On the one hand, dual-practice doctors can induce demand, reduce effort and quality in their public sector jobs, and steal other resources from public facilities to benefit their private practices. On the other hand, dual practice can be a way for the public sector to retain skilled doctors at low wages and for the doctors to target public services more effectively to those who cannot pay privately (Bir and Eggleston 2003; Ferrinho et al. 2004; Gruen et al. 2002).

The provision of health insurance and prepayment systems may be rendered inefficient or unsustainable by the problem of adverse selection. This refers to the observation that those who expect to have high health costs are more likely to seek insurance. The problem for insurance arises because the insurer cannot sort (and price-discriminate among) consumers according to health risks (or rather, that screening and monitoring are expensive), and high-risk consumers drive up the costs of care insurance.

HEALTH SECTOR REFORMS: MOTIVATION AND TYPOLOGY

Motivation

Health sector reforms have been a focus of policy debates in both developed and developing countries at least since the 1970s. In response to plainly deteriorating morbidity and mortality (for instance, see Bennett 1979), the Alma Ata Declaration of September 1978 established, among other points, that health is a fundamental human right and that people are entitled to take part in health care planning and implementation.

In principle, health sector policies in developing countries have emphasized equity and focused on delivering services to the poor, but, in practice, the basic goals of the Alma Ata Declaration have not been achieved in the intervening 25 years. According to some, the ideals have been abandoned; according to others, the ideals were unrealistic and unattainable in the first place (for example, see Hall and Taylor 2003).

In addition, recent research has demonstrated the weak links between public health policies and expenditures on the one hand and health services...
and outcomes on the other (see Filmer, Hammer, and Pritchett 2000 and World Development Report 2004). More money is clearly not sufficient and may not even be necessary to achieve better health outcomes. Surveys and case studies in low-income countries reveal a rather disappointing picture. Wagstaff (2000a) and Wang (2003) present data from more than 40 low-income countries in the 1990s showing that children in poor households had a much higher probability of dying before age 5 and that survival rates improved much less among these children than they did among children in more well off households.

Some of the reasons for continuing inequities and poor health outcomes are external to health policy. Thus, civil wars, natural disasters, and the AIDS crisis have overwhelmed public health services, and political commitment to the rhetoric of the Alma Ata Declaration has proven easier than committing the resources required to achieve the declaration’s goals.

But some of the reasons for poor outcomes involve governance, capture, and mismanagement in the sector itself. Public spending intended for services to poor households has been captured by the non-poor (see Castro-Leal et al. 2000); large shares of limited public spending on health (about 1 percent of gross domestic product) have been devoted to curative services, which mainly benefit the more well off. Griffin (1992) found that the distribution of central government health resources to the provinces in many Asian countries was often inversely correlated with need as measured by infant mortality. Health programs that are designed specifically to benefit the poor (such as the expansion of primary health care) were not reaching the poor effectively. Poor children are much less likely to receive simple curative care such as oral rehydration salts, and they are much less likely to be immunized than are children from wealthier households (Gwatkin et al. 2000).

In a comprehensive review, the World Health Organization (WHO 2000a) categorized three generations of health sector reforms. As in many other areas, the first generation of reforms concentrated on cutting bloated budgets and encouraging the private sector. The second wave of reforms emphasized public sector efficiency, human resource management, and decentralization. More recently, the approach has been to take a broader, “sectorwide” view to improve both service delivery and outcomes (see World Development Report 2004). This has meant that the aims of health reform have become—in principle, at least—more clearly defined and openly shared among policymakers and donor communities. The reforms reflect changes in thinking about health systems and their links to health outcomes, as well as to broader development objectives.
Very often, health system reforms are imposed from the outside. For example, in response to structural adjustment programs and imposed public sector reform, many African countries engineered partial changes in health system financing, such as the introduction of user fees. In Central America, the devolution of some management functions to district or regional health offices was a direct response to macroeconomic reforms because of fiscal crisis and government decentralization (Bossert 1998). These imposed reforms included the promotion of the private sector delivery of health services (mainly by nongovernmental organizations), which was often part of a nationwide privatization movement (McPake 1997).

Recent years have seen popular reaction against health sector reforms, with the common perception that reforms have adversely affected the provision of services, particularly for the vulnerable. The list of perceived failures associated with reforms has included inequity due to the introduction of user fees, the damage done to vertical immunization and family planning programs by decentralization, and the reduction of access to quality services by the poor caused by inadequately designed insurance schemes (Berman and Bossert 2000). In spite of this backlash, it is clear that continued reforms are essential both to enhance the performance of the sector and to expand coverage to poor and vulnerable groups (for example, see World Development Report 2004).

Typology of reforms

The scope of the health reforms implemented in developing countries varies substantially. It is useful, albeit crude and imprecise, to distinguish the reforms into those affecting the supply side and those affecting the demand side of the health sector, that is, those involving the financing, management, and provision of services on the one hand and, on the other hand, those involving the demand for and consumption of services. The vast majority of reforms have focused on the supply side. Table 2.2 presents a highly stylized selection of reforms and their potential consequences for welfare and poverty. These are not necessarily comparable: some are ambitious and comprehensive, and some are relatively minor.

The list is not exhaustive, nor is the taxonomy perfect, but it shows the majority of issues that will come up during health sector reforms. In the table, supply-side reforms include governance, organization, management, provider payments, human resources, and such issues. Primarily for convenience, the table combines demand-side issues with those dealing with sources of funds for the health sector. This chapter cannot deal with all these reforms in great detail, but the table does present a fairly representative
<table>
<thead>
<tr>
<th>Reform</th>
<th>What is it?</th>
<th>What are the possible consequences for equity?</th>
<th>References</th>
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<tbody>
<tr>
<td>Supply-side reforms</td>
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<tr>
<td>Community participation, monitoring, and governance</td>
<td>Local participation in the design of policy, health promotion and preventive care, resource mobilization, and resource allocation (service delivery), as well as monitoring to overcome agency problems.</td>
<td>Positive, in principle, with the caveats that local institutions are vulnerable to capture by local elites and that local revenue may be insufficient, inequitable, and unsustainable.</td>
<td>Brinkerhoff 2003; Cornwall, Lucas, and Pasteur 2000; George 2003; Johnston, Faure, and Raney 1998; Loewenson 2000.</td>
</tr>
<tr>
<td>Sectorwide approaches</td>
<td>Coordinated policy-setting among agencies, under government leadership; agreed milestones and targets; all supported by a medium-term expenditure framework.</td>
<td>Depends on the components of the reform program; successful sectorwide approaches have focused on constraints to the access and consumption of services; can improve coordination across ministries.</td>
<td>Foster and Mackintosh-Walker 2001; Jefferys and Walford 2003.</td>
</tr>
<tr>
<td>Defining and providing “essential packages” of services</td>
<td>Formalized in World Bank (1993); identifies most “cost-effective” interventions (defined by average costs); does not consider marginal costs.</td>
<td>May be effective for chosen interventions, but resources are often inadequate; does not deal with systemic constraints; may be rigid and unresponsive to local needs.</td>
<td>Enemark and Schleimann 1999; World Bank 1993.</td>
</tr>
<tr>
<td>Managing the “purchaser-provider split”</td>
<td>Separating the purchaser of care from the provider of care; in principle, this enables competition among providers and minimizes the incentive to oversupply care (and induce excess consumption).</td>
<td>The greater effect will be (in principle) on efficiency. The direct effect on distribution is neutral and depends on the extent to which the purchaser can target funding to pro-poor services or poor regions.</td>
<td>Gerdtham, Rehnberg, and Tambour 1999; Jack 2001a; McPake et al. 2003.</td>
</tr>
<tr>
<td>Decentralization</td>
<td>This is a vast topic, including transferring the management of service provision, policy formation, and revenue generation to local or regional authorities.</td>
<td>Mixed. Greater local responsiveness is positive, but requires local administrative capacity; may exacerbate regional inequality if institutions are weak and if revenue is based solely on local funding.</td>
<td>Atkinson and Haran 2004; Bossert 2000; Collins, Araujo, and Barbosa 2000; Gilson 1998; Jütting et al. 2004.</td>
</tr>
<tr>
<td>Human resource management, downsizing</td>
<td>This refers to reforms of human resource policy, as opposed to the impact of reforms on the health workforce. It includes training and deployment, as well as reducing the workforce. Arguably a sorely neglected issue in health reforms.</td>
<td>Positive when incentives can be designed to encourage greater delivery of services to the poor. Can be negative if morale and motivation are diminished. Careful consideration of working conditions and the interests of the workforce are essential. Implications of “dual practice” unclear.</td>
<td>Bir and Eggleston 2003; Dussault and Dubois 2003; Ferrinho et al. 2004; <em>Human Resources for Health</em>.</td>
</tr>
<tr>
<td>Resource allocation</td>
<td>The greater portion of health budgets are allocated to secondary and tertiary care, whereas the poor consume relatively more primary care.</td>
<td>Reorientation is generally pro-poor, but it is not sufficient; consumption among the poor is constrained by other factors, such as low quality.</td>
<td>Castro-Leal et al. 2000; Diderichsen 2004; Pearson 2002.</td>
</tr>
<tr>
<td>Pharmaceuticals policy and management issues and technical issues (for example, the cold chain)</td>
<td>The availability of medicines, especially vaccines, is often hampered by inadequate lines of supply to local clinics, as well as by leakage.</td>
<td>Expanding immunization coverage (for example, the expanded program on immunization) is generally positive.</td>
<td>Caines and Lush 2004; Fairbank et al. 2000; Grace 2003; Laing, Hogerzeil, and Ross-Degnan 2001; WHO 2000b.</td>
</tr>
<tr>
<td>Pharmaceuticals, trade-related aspects of intellectual property rights, and the World Trade Organization</td>
<td>Trade and patents are the subject of heated debate and are generally beyond the scope of the ministry of health in most countries.</td>
<td>Debatable. Advocates argue that patents increase barriers to treatment among the poor.</td>
<td>Bailey 2001; Druce 2004; Lanjouw 2002, 2004.</td>
</tr>
<tr>
<td>Reform</td>
<td>What is it?</td>
<td>What are the possible consequences for equity?</td>
<td>References</td>
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<tr>
<td>Regulation and support of private sector providers</td>
<td>The majority of care is provided by the private sector; most of the care consumed by the poor is private.</td>
<td>Monitoring is vital, but expensive, especially among unorganized individual providers. The poor often use informal or even illegal providers, who may play important roles, but require training.</td>
<td>Bennett, McPake, and Mills 1997; Kumaranayake et al. 2000; Mills et al. 2002; Smith, Brugha, and Zwi 2001.</td>
</tr>
<tr>
<td>Quality monitoring, control, enhancement</td>
<td>Poor consumers are affected at least as much by the quality of care as by the price.</td>
<td>There is considerable evidence that the poor will respond to quality enhancements even if prices also rise.</td>
<td>Collier, Dercon, and Mackinnon 2002; Montagu 2003; Mwabu, Ainsworth, Nyamete 1993; QAP and PAHO 2003.</td>
</tr>
<tr>
<td>Public-private partnerships</td>
<td>Engaging the private sector to provide the right mix of services to the target population; can include clinical care, as well as nonclinical services.</td>
<td>Can be positive if incentives are managed carefully.</td>
<td>Caines and Lush 2004; England 2002, 2004; Liu et al. 2004; Nieves, La Forgia, and Ribera 2000.</td>
</tr>
<tr>
<td>Payments to providers: incentive- and performance-based contracts</td>
<td>Using contingent contracts to pay providers; these are becoming popular, especially since the appearance of World Development Report 2003 (World Bank 2002).</td>
<td>Can be positive if incentives are designed and managed carefully; can be used to deliver targeted or subsidized services.</td>
<td>Barnum, Kutzin, and Saxenian 1995; Bitrán and Yip 1998; Eggleston and Hsieh 2004; Jack 2001a; Lavadenz, Schwab, and Straatman 2001; Leonard 2000; Loevinsohn 2001, 2002; Maceira 1998.</td>
</tr>
<tr>
<td>Payments to providers: capitation</td>
<td>Population-based payments to providers; may be weighted by demographic characteristics and may specify the services to be provided.</td>
<td>Can increase access to services among the poor; must account for variations across communities; there is an incentive for cream-skimming and cost-cutting, since the provider’s profit is the residual between his costs and the capitation grant.</td>
<td>Bitrán 2001; Bitrán and Yip 1998; Maceira 1998; Telyukov 2001.</td>
</tr>
</tbody>
</table>
### Demand-side reforms, sources of revenue

#### Sources of revenue

<table>
<thead>
<tr>
<th>Source of Revenue</th>
<th>Description</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>General government revenue, taxes</td>
<td>From general government revenue such as income taxes, value-added taxes, duties, and so on; these may be earmarked for health care (for example, cigarette taxes).</td>
<td>Organisation for Economic Co-operation and Development evidence that tax-based systems are more progressive. The limited tax base in most countries is inadequate to fund adequate services; direct taxes can be progressive, but require functioning tax systems; indirect taxes are less progressive.</td>
</tr>
<tr>
<td>Prepayment schemes</td>
<td>General term for schemes including insurance that involve contributions ex ante; specifically, a scheme to pay in advance for services.</td>
<td>In principle, the schemes can protect participants from the financial consequences of care for catastrophic events; they may exacerbate differences between participants and nonparticipants.</td>
</tr>
<tr>
<td>Medical savings accounts</td>
<td>These are not insurance; they are generally self-financing and do not pool risks.</td>
<td>No pooling, exclude nonparticipants; contributions may be ( regressively) tax-deductible; will cause insurance premiums to rise.</td>
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</table>

#### Insurance and risk-pooling schemes

<table>
<thead>
<tr>
<th>Source of Revenue</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal sector, employment based</td>
<td>Can be privately or publicly managed; contributions usually paid through payroll deductions.</td>
<td>Excludes people not in the formal sector; cross-subsidization is possible, but difficult.</td>
</tr>
</tbody>
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(continued)
### TABLE 2.2. Typology of Selected Health Sector Reforms (Continued)

<table>
<thead>
<tr>
<th>Reform</th>
<th>What is it?</th>
<th>What are the possible consequences for equity?</th>
<th>References</th>
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</thead>
<tbody>
<tr>
<td>Covering the informal sector</td>
<td>Providing insurance to people outside formal employment. Extremely difficult to do either as a community-based or a provider-based scheme.</td>
<td>Evidence that programs are exclusive and not self-sustainable; they may best be added to poverty reduction programs or existing assistance schemes such as crop insurance.</td>
<td>Bennett, Creese, and Monasch 1998; Gumber 2002.</td>
</tr>
<tr>
<td>Social health insurance (broadbased)</td>
<td>Services are paid for through contributions to a health fund, most commonly through the payroll; enrollment can be mandatory.</td>
<td>Debatable: advocates argue that it provides self-sustaining, equitable protection; detractors argue that it exacerbates disparities between participants and nonparticipants, that it may not reduce out-of-pocket costs, nor increase access, that it requires “solidarity,” managerial capacity, economic growth, and so on (Normand and Weber 1994).</td>
<td>Carrin, Desmet, and Basaza 2001; Gertler and Solon 2000; Jimenez 1987; Normand and Weber 1994.</td>
</tr>
<tr>
<td>Community health insurance (locally based)</td>
<td>Voluntary, nonprofit insurance scheme; pools resources and risks.</td>
<td>Promising, but mixed results: can provide greater access and financial protection, and local control may minimize moral hazard, but small financial and risk pool, and the poorest may still be excluded; requires external funding.</td>
<td>Atim 1999; Binam, Nkama, and Nkendah 2004; Criel, Van der Stuyft, and Van Lerberghe 1999; Jakab and Krishnan 2001; Preker et al. 2002a.</td>
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<tr>
<td>Fees for service</td>
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<tr>
<td><strong>User fees</strong></td>
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<tr>
<td>Hotly debated topic that may be missing the point; “free” does not mean affordable (there may be under-the-table payments), and demand is constrained by other factors, such as quality.</td>
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<tr>
<td>The poor are more price sensitive than the rich: most of the evidence suggests that user fees are regressive, but the poor are also more sensitive to other factors. User fees, plus better quality, can increase utilization.</td>
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<tr>
<td><strong>Under-the-table payments</strong></td>
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<tr>
<td>Payments required of clients and patients, in addition to official posted fees. These may be informal, negotiated at the point of service, or highly structured; they usually go directly to the provider rather than the facility.</td>
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<tr>
<td>Generally regressive. Both the levels and the uncertainty of prices discourage use of services among the poor. But there is evidence of better performance and higher utilization among providers who charge under-the-table payments.</td>
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<tr>
<td><strong>Targeting: tariffs, fee waivers</strong></td>
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<tr>
<td>Price discrimination: charging different prices to different groups; can be by fiat (decided by an administrator based on certain characteristics of the recipient) or by self-targeting (whereby the recipient decides whether to apply based on the characteristics of the good or service being provided).</td>
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<tr>
<td>Subject to type-I (incorrectly denied) and type-II (incorrectly accepted) errors; administrative targeting is expensive, requiring means testing and enforcement, but, in principle, it enables more resources to go to the poor (or other groups) than do untargeted benefits.</td>
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</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Reform</th>
<th>What is it?</th>
<th>What are the possible consequences for equity?</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vouchers</td>
<td>“Entitlements” to the purchase or receipt of specific services; has been used for general health services or specific goods (for example, treated bed-nets) for specific target groups (for example, sexually transmitted infection services for sex workers).</td>
<td>Generally positive; can be expensive to establish and maintain; impact partly depends on copayments; must deal with the issue of secondary markets; vouchers seem to perform better for specific goods and services rather than generally.</td>
<td>Bitrán and Giedion 2003; Ensor 2003; Ensor and Cooper 2004.</td>
</tr>
</tbody>
</table>

**Other issues**

| “Scaling up” of pilot programs | Many health policies are drawn from successful pilot programs, and a great deal of attention has been paid to the problems of replication and scaling up to nationwide levels. | Depends on the benefits and characteristics of the program; incentives and commitment are difficult to replicate; must be careful to consider increasing marginal costs. | Bertozzi et al. 2001; Johns and Baltussen 2004; Johns and Torres 2005; Wyss, Moto, and Callewaert 2001. |

*Source:* Compiled by the authors.
selection of references—neutrally empirical, advocatory, or critical—to which the reader can refer for more information. Below, we highlight two of the most commonly undertaken reforms: decentralization and community-based health insurance.

In practice, reforms are generally not implemented independently or piece by piece. They are often ambitious and far reaching, comprising a broad range of different actions. This has implications for the analysis, since it is difficult convincingly to identify the impact of components of reform programs. Table 2.3 presents a few of these comprehensive reform

<table>
<thead>
<tr>
<th>Country</th>
<th>Reform</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zambia</td>
<td>Health financing and decentralization</td>
<td>Initiated in 1991–2; involved significant decentralization to district health-management teams and health boards, the introduction of user fees for publicly provided health services, and a nationally defined benefits package.</td>
</tr>
<tr>
<td>Colombia</td>
<td>Health financing and health delivery</td>
<td>Started in 1993; included the establishment of social insurance schemes designed to allow managed competition between public and private health insurance plans and the contracting of both public and private providers for service delivery.</td>
</tr>
<tr>
<td>Chile</td>
<td>Health financing, health insurance, and privatization of services</td>
<td>Started in early 1980s; involved the establishment of private insurance, the decentralization of primary health care, and user charges in public health facilities.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Health insurance and privatization</td>
<td>Started in the early 1990s; covered the rapid privatization of state-owned public services, the creation of multiple state-linked and private health insurance funds, and the introduction of a new payment mechanism and regulation organization.</td>
</tr>
<tr>
<td>Hungary</td>
<td>Privatization, health insurance, and decentralization</td>
<td>Included the privatization of primary care, the introduction of a centralized social insurance system, and decentralization of health facility ownership to the municipal level.</td>
</tr>
<tr>
<td>China</td>
<td>Health financing and devolution (in a few localities)</td>
<td>Driven by economic reform; involved the decentralization of health services to local health centers, hospital financial autonomy, and the introduction of community medical schemes with three-tier financing (central, local government matching funds, and households).</td>
</tr>
</tbody>
</table>

Sources: Berman and Bossert 2000; Tang and Bloom 2000.
programs. The reforms in Chile, begun in the early 1980s, are typical of such ambitious and comprehensive restructuring efforts (de la Jara and Bossert 1995). This involved all the principal “control knobs” discussed by Hsiao (2000): the creation of a private insurance system funded largely through social insurance contributions, the decentralization of primary care facilities, the introduction of user charges and per capita payments, and new regulation regimes and new programs to alter health behavior and help address preventable conditions.6

Health reforms commonly include changes in health financing and changes in health system organization and management. Changes in health financing may involve cost recovery and user charges for publicly provided services, community-based financing schemes, insurance schemes (social and private), and changes in public expenditure and allocation. Changes in health system organization and management may entail decentralization (authority, responsibilities, and functions) and changes in the ownership of service provision and delivery (privatization or a public-private mix). Here, two types of the more commonly implemented reforms are highlighted: community-based health financing and the decentralization of health services.

**Community-based health financing**

Community-based health financing broadly covers financing schemes that have three key features: community control, voluntary membership, and prepayment for health care by community members (Hsiao 2004). It does not include compulsory regional or national social insurance plans. Community-based schemes have been implemented with increasing frequency since the early 1990s as a means to raise resources for health care, to overcome insurance market failures, and to promote the inclusion of the poor (Table 2.4).

In most low-income countries, the scope for raising public revenue to finance health services through general taxation is narrow.7 The amount that can be allocated from the government budget to public health activities is limited, and providing primary health care to all is not sustainable through general government revenue alone. Other avenues, such as fees for service or some sort of prepayment, are required to raise the funds needed to provide care.

As noted in the section on issues specific to the analysis of health reforms, information problems lead to insurance market failures in both developed and developing countries so that health insurance is insufficient or even absent. Community-based health financing is seen by many
as a powerful tool to extend health care coverage and financial protection to a larger number of low-income households in rural or poor urban localities by avoiding the problems associated, on the one hand, with comprehensive social insurance and, on the other, with private insurance.8

Evidence suggests that community-based financing is effective in mobilizing resources for health care provision among the poor and that it can spread risks and ease the burden associated with the high cost of illness. Still, such financing requires significant local capacity to implement and monitor, and it is usually not self-sustaining: the local financing pool is too small to provide sufficient revenue to operate the financing independently (see, for example, Bennett, Creese, and Monasch 1998). In addition, the poorest in the community are often excluded from the schemes, and wealthier households select themselves out, thus reducing the financing pool even further. It is important to note that, although community-based financing has gained in popularity and exposure, there is rather little evidence of the impact. In a review of 45 studies of such schemes, Jakab and Krishnan (2001) find many examples describing the design and intent of the schemes, but very few systematic reviews of outcomes.
Despite the limited amount of rigorous evidence of beneficial outcomes, there is no shortage of suggestions for the design of community-based financing schemes. Advocates have proposed numerous modifications to enhance sustainability and performance. These include (1) targeted subsidies for the poorest, (2) reinsurance to enlarge the effective size of the risk pool, (3) improved prevention interventions, (4) technical support to strengthen management capacity, and (5) strengthening links with formal financing and provider networks (Preker et al. 2002a, 2002b). In addition, community-based financing must take care to deal with (1) the levels of the insurance premium, (2) moral hazard and adverse selection, (3) “covariant risks” (the phenomenon that health problems are correlated within a population), (4) community participation, (5) the quality of care, (6) the referral system, and (7) cultural concepts of illness, among many other factors (Wiesmann and Jütting 2000). In addition, Jakab and Krishnan (2001) find that successful schemes take into account the nature of the incomes of the membership population, allowing members to pay premiums at irregular intervals and even through in-kind arrangements.

Community-based health financing is not a panacea. But broad-based social insurance is not a viable option for a typical poor country with a limited tax base and a small formal sector workforce, and private insurance is insufficient to provide for poor and vulnerable groups. Expanding health care to underserved populations will most likely require community participation in resource mobilization and in the management of care.

**Decentralization of health services**

Like community financing, decentralization comes in many forms. The term is applied to myriad diverse policies, from increasing hospital autonomy to local revenue generation. The impact of decentralization on the poor depends to a large extent on what is being devolved, to whom, and under which circumstances. The consequences of the decentralization of services are quite different from the consequences of the decentralization of revenues; empowering a local community group to monitor performance is different from entrusting medical training to a regional government; a large city will have a different set of management skills than a small rural council. It is also important to pay attention to the consequences of devolution for the management of the health system and the coordination of health policy, and it is important to be concerned about the people who are not in areas involved in the decentralization, as well as those who are in such areas.
Decentralization in health systems is justified on the basis that it will correct the information-related problems of agency and moral hazard discussed in the section on issues specific to the analysis of health reforms. In principle, local communities have better knowledge of local needs and conditions and can make better decisions if they are granted the authority to manage resources and organize and supply health services. Decentralization promotes accountability and participation among the local population, makes health service providers accountable to the local community, and boosts the responsiveness of the providers to the local demand for services. Decentralization is expected to improve the efficiency, equity, and quality of health service delivery and management.

Decentralization has been widely implemented in Latin America since the 1980s, in Africa since the 1990s, and elsewhere (China, Eastern Europe and Central Asia) more recently, but the ambitious goals presented above have only rarely been realized. A recent study of 19 country cases (Jütting et al. 2004) found that decentralization had “somewhat negative” or “negative” consequences for poverty and that all but one of the positive performers were middle-income countries. The study concluded that “one has to be very cautious in promoting decentralisation for poverty reduction.”

Decentralization will improve service delivery for the poor if the health system and other services and infrastructure are already performing well. When conditions are favorable, local participation and control may well be used to improve both the performance and targeting of services. But if there are problems with coordination and performance at the national level, decentralization may merely make things worse. Studies of the experience of rural China (Tang and Bloom 2000) and Nigeria (Khemani 2004) found that there is little enforcement or accountability at the local level. Decentralization will not, by itself, solve problems of governance. It is unlikely that local governments will function any better than national governments. If the national health system is performing poorly, local health systems are probably no better. Decentralization may simply reinforce local patronage systems (Brinkerhoff 2000).

In their review of country experiences, Jütting et al. (2004) present a list of the factors they found to be correlated with successful, pro-poor decentralization. These include:

- sufficient and stable local finances
- sufficient local human capital and managerial capacity
- political commitment at the national level
donor support
the free flow of information
participation and accountability
policy coherence, especially between the national government and donors

There is broad agreement that the constraints of poor governance and poor performance must be dealt with before attempting decentralization. Atkinson and Haran (2004) found that, in Ceará, Brazil, good management practices led to successful decentralization rather than vice versa.

Any apparent association between decentralization and performance seems to be an artifact of the informal management, and the wider political culture in which a local health system is embedded strongly influences the performance of local health systems (Atkinson and Haran 2004: 822).

STAKEHOLDERS

One of the primary obligations of the health sector in any country and a major justification for reforms is that the system must be responsive to the needs of citizens. This is generally taken to mean the clients—actual and potential—of health services. A quick review of the literature, on the other hand, suggests that most of the focus has been on the “human resource” aspects of reform, that is, the impact of reform on health sector workers. There is even a professional journal devoted exclusively to this topic.\(^{10}\)

Any policy change will affect different groups in different ways depending on their relationship to the sector, and reforms often reflect compromise among various stakeholders. It is important to understand that different stakeholders exercise different degrees of control and influence over the reforms.

Table 2.5 presents a list of stakeholders, distinguishing between those on the supply side and those on the demand side of health care. Again, the distinction is not perfect. Individuals can be both providers and consumers of services: employees of the local health ministry have children who need vaccinations and become ill. But it makes sense heuristically to consider these as two separate groups. The doctor who is ill becomes a patient. The household that consumes health services is concerned with efficiency when the time comes to pay taxes. Below, two categories of stakeholders are discussed in detail: health workers on the supply side and women on the demand side.
The attention paid to health workers in the design of reforms is not misplaced. As noted in the section on issues specific to the analysis of health reforms, one significant motivation for reform is to improve the efficiency of service provision, and the behavior of providers is one of the key determinants of productivity. In addition, the response of providers is probably the single most important ingredient in the success of reforms. So, it is necessary to understand not only the role of the workforce in providing services, but also to anticipate their response, to design incentives to encourage behavior that advances public health goals, and to engage the active support of the workforce in implementing the reforms.

Reforms must deal with the factors that motivate health sector workers. To some extent, workers in the sector are driven by a genuine desire to improve public health in general and the health of patients in particular. Reforms that engage providers by promoting issues and policies that providers can “rally around” (Dussault and Dubois 2003) are more likely to succeed. But providers are discouraged by low wages, inadequate resources, poor working conditions, and the general lack of support from governments. Studies suggest that reforms have ignored these factors and that health sector workers resent being treated as “mere production tools” (Dussault and Dubois 2003). In spite of that rhetoric, health providers are not so different from the rest of us. Notwithstanding the anecdotal evidence, more money does matter to health workers (see, for example, the contracting studies cited in Table 2.2), but so do trust, autonomy, and professional recognition.
The unfortunate consequences for the poor of these human resource issues are well known, but difficult to resolve. There are few incentives in place to enhance service provision to poor, rural, or otherwise underserved communities. To improve the distribution of services, governments generally combine the carrot and the stick, that is, incentives and compulsion. The health system can provide supplements to wages or other financial incentives, funding for travel, or assistance to families. The government can also make certain services compulsory for medical graduates, as well as paying them more, as is the case in China, India, and Indonesia (Chomitz et al. 1997; Hindu April 7, 2005).

Reforms, especially those that introduce competition, tighten monitoring, or change payment regimes, will inevitably produce winners and losers. Successful reforms will require political strategies to address the concerns of different groups of providers. Reforms that threaten job security and incomes may lead—as they did in Zimbabwe—to strikes, theft, high turnover, and low morale among workers (Mutizwa-Mangiza 1998).

Finally, the AIDS epidemic is taking its toll among health workers. The perceived risk of contracting HIV is quite high among health workers, the demand for and complexity of care continue to outstrip the available resources, and workers are confronted daily with wards full of dying patients. These factors contribute to stress and “burnout,” leading to increased absenteeism and attrition (Aitken and Kemp 2003; Marchal, De Brouwere, and Kegels 2005; Tawfik and Kinoti 2003; World Bank 1997b). The human and financial demands of the AIDS crisis reduce the resources that might be otherwise available for expanded care for the poor.

Women as consumers of care

To some extent, treating women as a distinct and coherent category among consumers is to obscure enormous differences among women. Clearly, women can be disaggregated by health status, geography, caste and ethnicity, wealth, and myriad other factors. However, even if they do not always speak with one voice, they arguably share concerns and constraints in health care that are often neglected (Cornwall 2000). Men and women are often not treated equally even when they have common health needs, and, when their health needs are different, these differences are not addressed equitably (Mensch 1993; see also the papers cited in Lakshminarayanan 2003a).

There are few empirical studies of the impact of reform on women, especially poor women, and this section derives primarily from anecdotal evidence and advocacy. But there are some regularities, even among
the anecdotes. One common concern is the effect of user charges on poor women. Although there is little robust evidence on the impact of user fees, women may have less disposable income and less control over purchasing decisions within households (Nanda 2002). Reforms that purport to increase access to care by poor women must take into account gender inequalities in purchasing power and decisionmaking.

Financial constraints are exacerbated where women do not have the right to travel alone or to be in the company of men, including health care providers, outside their immediate family. Where female health workers are not available, women may be forced to go without care. The opportunity costs of medical treatment may also be greater for a woman. If she becomes ill at harvest time, for example, there may be no one who will take her place in the fields or at home. The visit to a health worker might thus impose unacceptable burdens on the household (WHO 1998).

Women are the main health caregivers in the household. The first option for the treatment of children’s diseases such as malaria is home treatment by the mother. The mother will buy over-the-counter medication, possibly on the advice of the shopkeeper, but lack of information can lead to ineffective treatment and accelerated drug resistance. A pilot study in Kenya found that training shopkeepers in appropriate drug use had a large impact on both the use and the adequate dosing of chloroquine (Marsh et al. 2004).

Women’s health services have focused on the reproductive needs of women, especially contraception and safe childbearing, and the majority of studies on the impact of reforms on women have also focused on the consequences of reforms for reproductive health. These studies emphasize the importance of participation, openness, and flexibility in the reform process and in the management of health care, especially at the local level. They also emphasize the need to understand the constraints facing women and their consumption of health services (Futures Group International 2000; Lakshminarayanan 2003b; Langer, Nigenda, and Catino 2000).

TRANSMISSION CHANNELS

In this section, we examine the way households are connected to the health sector and the mechanisms through which the impact of reforms is felt by stakeholders. The PSIA guidebook (World Bank 2003b) lists five main transmission channels: labor markets, prices, assets, access to goods and services, and transfers and taxes. In health, there are a number of
other factors through which the impact of reforms is experienced by the poor. First, because health is often publicly provided, some decision must be made on which services the public health system will supply. This includes determination of the “basic package” of services. Second, the demand for services will greatly influence both the level and the efficiency of supply. Third, the perceived quality of services is a major determinant of the consumption of services.

Table 2.6 presents a description of the major transmission channels. They are mostly supply side in that they transmit signals from producers to consumers. However, the links from those paying for services to those who produce services may be thought of as a demand-side transmission, and, in addition, the supply of services certainly responds to demand. The ultimate welfare impact of a reform depends also on how households and consumers respond to changes in policy, supply, prices, and so on. These channels do not operate in isolation: the effects of one (say, public-private interactions) will have an effect on others (for example, prices), and the distributional impact of reform can be transmitted through all of them.

Defining the service package is a major task for policymakers. This involves setting priorities based on information about the current burden of disease of the population and choosing the most cost-effective solutions. It depends on changes in available health financing, whether through fees for service, public health spending allocations, or insurance schemes. Changes in health financing, meanwhile, also have a direct impact on the incentives offered to service providers and on consumer behavior, which determines the level and distribution of health service provision and use. The ownership structure of service provision and delivery (private versus public, for instance) also has implications for health financing, as well as for the quality and equity of health services.

The health financing reform in Jamaica that involved a government-supported expansion of private insurance to the urban formal sector provides a useful illustration of these transmission channels (Gertler and Sturm 1997). The expansion of private insurance coverage can lead to a reduction in public health expenditure by inducing those who are better off to switch to private providers. The insurance scheme will lower the out-of-pocket price of health care at the point of use by smoothing payments across individuals and time, and it will reduce cost differentials between public and private providers. Both factors will encourage those covered by the insurance to opt out of public care in favor of private care. Indeed, Besley and Coate (1991) demonstrate theoretically that, in a quality-based separating equilibrium, individuals above some income level choose to purchase services from a higher-quality, higher-priced private sector,
### TABLE 2.6. Health Reform Transmission Channels

<table>
<thead>
<tr>
<th>Channel</th>
<th>Impact on the poor</th>
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<tbody>
<tr>
<td>Labor markets</td>
<td>Reforms will have an impact on workers in the health sector. Ideally, reforms will allow health workers to focus effort and resources on health care for the poor. But reforms will affect working conditions and motivation among workers. Some workers may be forced out if budgets are cut or if there is a drive for greater efficiency; rules against theft and opportunistic behavior, including dual private practice, may be tightened. In most countries, there will be little impact on general employment.</td>
</tr>
<tr>
<td>Public-private interactions</td>
<td>Reforms are often intended to strengthen the private sector and provide incentives for private provision to the poor. These incentives are difficult to design, and public services may be more easily targeted. Conversely, increased public provision of services may crowd out private provision. Better regulation and training of private sector (especially informal) providers will enhance the quality of services for the poor.</td>
</tr>
<tr>
<td>Finance and revenue</td>
<td>The cost of defined insurance contributions is clearly outweighed by the benefits from participating in an insurance plan. The same is true for local community insurance and prepayment plans. Self-insurance is far more expensive than almost any risk-sharing arrangement. Finance and payment mechanisms will, in turn, influence provider behavior.</td>
</tr>
<tr>
<td>Risk-sharing and insurance</td>
<td>Risk-sharing, whether through community or social arrangements, allows greater coverage (of people and services) at lower cost than self-insurance.</td>
</tr>
<tr>
<td>Transfers and taxes</td>
<td>Tighter targeting will increase type-I errors (false negatives); the general tax burden is usually borne by the middle and wealthy classes.</td>
</tr>
<tr>
<td>Package of services</td>
<td>What services are to be included, whether provided publicly or paid for publicly, has a significant impact on the welfare of beneficiaries. Different populations have different requirements: reproductive health, maternal and child health, treatment of infectious diseases, inpatient treatment, and so on, all have different constituencies. There is some discussion that the health system should provide insurance (that is, pay for services) rather than provide the services directly. This reduces, but does not eliminate, the pressure to define the package.</td>
</tr>
<tr>
<td>Prices</td>
<td>As noted in Table 2.2, the poor are more price sensitive than are the non-poor, and, so, all else being equal, they will consume more if user fees are reduced or eliminated. But all else is not equal: prices can be a signal of quality, and the poor are at least as sensitive to quality as to prices. In addition, opportunistic behavior among providers means that “free” services are not truly free.</td>
</tr>
<tr>
<td>Assets</td>
<td>Health sector reform will have no effect on asset values. To the extent that insurance is extended to cover the poor, the poor will have less need to liquidate assets to cover health expenditures.</td>
</tr>
</tbody>
</table>
while individuals below that level of income opt for the lower-quality, lower-priced public sector.

Private insurance can also affect the distribution of the services provided. Public subsidies will shift away from curative care (consumed more by the wealthy) toward preventive care, which disproportionately benefits the poor. However, private insurance can have deleterious effects on public services. As households that are more well off opt out of the public system, the support for improving public services may be considerably eroded. When government initiatives to change health policy are politically motivated and heavily influenced by the interests of those who are more well off (as observed in many developing countries), policies such as the promotion of private insurance plans for the more well off may, in the long term, significantly worsen the welfare of poor households and increase inequities due to wider quality differentials between the private and the public services.

**IMPLEMENTATION MECHANISMS**

Two stages in the reform process are distinguished here: *policy formation* and *policy implementation*.

**Policy formation**

It is widely accepted that successful reforms are characterized by openness and consultation with the main stakeholders. Among the most obvious stakeholders are clients, but also public and private sector pro-
providers, including for-profit and nonprofit, charity, and nongovernmental-organization providers. This is because reforms are not merely technical blueprints, but are value laden and frequently conflict ridden (Gilson 1997). In other words, it is necessary to build collegial support for the reforms and to anticipate and deal with disagreements that might derail the reform process.

There must be coordination among international and bilateral donors and funders, as well as other ministries within the national government. This ensures that policies are consistent with medium-term plans, sectorwide approaches, the Poverty Reduction Strategy Paper, and the Poverty Reduction and Growth Facility.

There is often more talk about openness and consultation than there is actual openness, especially in the planning stage. In his study of participation in Tanzanian reforms, Semali (2003) found that, although the process of policy formation was supposed to follow the guidelines for consultation established in *World Development Report 1993* (World Bank 1993), the actual consultation consisted of meetings of Ministry of Health officials in Washington, a meeting of the “consultative group” of donors in Paris, and two workshops comprising ministry officials, donors, and the World Bank.13

Policies must also be internally consistent. For example, it is important that one set of policies does not encourage private sector providers to expand services, while another set of policies simultaneously discourages them from expanding. While this seems obvious on paper, sectoral policies can, in principle, be quite complex; to coordinate sectoral policies with those of, for instance, the tax authorities or policies regulating small businesses is even more difficult. In addition, the stated objectives of policy reform and the instruments proposed to achieve these objectives can appear to conflict, for instance, expanding private sector provision by tightening licensing restrictions (Gilson 1997).

**Policy implementation**

Successful reforms require a functioning and capable public sector at both the national and local levels. This again raises the unfortunate point that reforms—such as decentralization—cannot, in principle, be expected to solve problems of governance and stewardship.

Similarly, the reforms must define the responsibilities of all participants in the process. The government must have a clear conception of its role in the sector. This may simultaneously include the roles of policy-maker, regulator, purchaser, and, possibly, provider of health services. On the other hand, the public sector need not actually supply the services.
The private sector dominates primary care provision in many countries, and many health ministries contract with private providers to deliver services to the poor (for example, Bangladesh, Mozambique, and Uganda).

The government must also have a firm commitment to achieving the goals set out by the reform process. This includes the will and ability to provide adequate funding. Policy statements and intentions are meaningless unless sufficient resources are allocated to fulfill the required tasks. Similarly, public expenditures and, more importantly, changes in sectoral institutions and structures must be supported by an appropriate legal and regulatory framework. For example, if the reforms are intended to encourage the participation of the private sector, the appropriate legal institutions should be established to define and protect both the rights and the responsibilities of private providers in health (Kumaranayake et al. 2000; Mills et al. 2002).

A number of studies have highlighted the importance of paying attention to the process of reforms and not merely the goals (Gilson 1997; Walt and Gilson 1994). It is not simply a matter of “knowing which direction to move in, but paying attention to how to get there: in essence, recognizing that policy implementation is as much a process as it is content” (Brinkerhoff 1996: 1395). Thus, it is important to develop a common understanding, to build consensus for the reforms, and to obtain input and support from a wide and inclusive selection of government people (including politicians), health providers, and civil society (Aga Khan Health Services 2004). This requires openness and consultation not only during the implementation, but during the process of policy formation as well.

TOOLS AND DATA FOR ANALYSIS

Once a potential set of reforms has been proposed to advance national health goals, a PSIA should aim to provide evidence to address the basic question posed at the beginning of this chapter: what is the potential welfare impact of the identified reforms across socioeconomic groups? In particular, how are disadvantaged households affected? As a requirement of PSIA, the identification of reform options is absolutely essential. In this section, we discuss how distributional analysis can be conducted on an identified policy change.

The choice of tools for analyzing the distributional impact on household welfare of health sector policy changes is determined by four basic considerations:

- the nature of the policy change
- the type of questions to be addressed
the available data
- the constraints on time, resources, and analytical capacity

While the last two considerations are straightforward, the first two require some explanation. The policy itself will have an influence on the choice of analytical method. In general, health is not a tradable good, so it is usually not necessary to resort to economy-wide models with external accounts (such as computable general equilibrium models). On the other hand, if the reforms are broadly based, if they involve not only the health sector, but also other sections of the economy, some understanding of the link between health and (for instance) labor markets will be required. In addition, reforms will always have general equilibrium or multiplier effects, that is, any policy change will induce behavioral responses on both the supply side and the demand side. These responses, in turn, will affect each other: a change in finance policies will affect the demand for services, which will affect the supply of services, which will have further demand effects, and so on.

Second, the nature of the question to be asked will have an effect on the methods used. On one level, a policy analyst would like to examine the long-run consequences of reforms through all possible transmission channels and for all groups. But this will clearly not be possible in practice, nor is it necessarily desirable in all cases. In practice, the policy analyst may be interested in only one particular aspect of the reforms. For example, what are the direct effects of subsidized antiretroviral treatment on food consumption among households in which someone is infected with HIV? This very narrow question can be examined through econometric analysis of household expenditures. Nonetheless, the analyst must be aware that an approach that is too narrow might miss some important effects. In the case of antiretroviral medication, treatment may improve the health of the person with HIV to the extent that he can continue working or resume working, so that household income increases. Or the burden of caring for the ill household member will be diminished, so that other members of the household can increase the time they spend at school or in work. These factors might be missed by a narrowly defined and static econometric approach.

One can crudely distinguish the available analytical methods as quantitative and qualitative. A clear distinction between the two is not easy to draw, although Bamberger (2000) provides a useful summary of the methods in terms of the selection of units of analysis, the research protocol, and data collection. When time and data permit, a combination of the two methods (that is, “mixed” methods) is preferable. Qualitative methods can provide hypotheses to be tested by the quantitative
methods, and the qualitative methods also supply a way of validating the results of the rather more abstract quantitative methods.

The following discussion centers on four topics: the choice of outcome indicators, data and sources, qualitative methods, and quantitative methods.

**Choice of indicators**

There are two factors to consider in the choice of indicators. Recalling the discussion in the section on issues specific to the analysis of health reforms, these can be thought of as “the distribution of what?” and “what distribution?” First, what dimension of outcomes are we interested in? Do we care about the distribution of health status or about the distribution of the financial burden of illness? Second, how do we measure the distribution of this outcome? The two issues are discussed here in turn.

**The distribution of what?**

How do we define and measure the changes in welfare among households or individuals because of health policy changes? Sen’s (1984) capability approach has led to the recognition that welfare is multidimensional, so that human capital outcomes, such as those in health and education, are valid measures of welfare, as much as consumption and income. In the health literature, indicators such as child mortality, morbidity, life expectancy (often adjusted for disability), and self-reported health status are the most widely used.

Understanding the impact of health policy changes is complicated by a number of factors. First, as noted in the section on issues, health outcomes are determined by factors both inside and outside the health sector. Second, health status is a lagging indicator of health investments and policies. The impact of health policy changes on health outcomes will only be manifest after some time even in the case of major policy changes. Third, self-reported health status indicators are often not independently reliable: they are determined partly by expectations and sensitivity to illness, which vary systematically with factors such as income. The poor are less likely than the more well off to report sickness. The poor are not healthier than the rich, but they are more likely to underreport, partly because they are less able to do anything about it (Schultz and Tansel 1997; Strauss and Thomas 1998).

These complications leave two options for analysis. The first is to choose a set of “proximate determinants” of health outcomes, that is, not health outcomes per se, but the factors that are closely (preferably causally)
correlated with health outcomes. These include measures of the access to and utilization of health services, the incidence of public spending, and the degree of financial protection represented by various health financing programs. Second, the analysis can examine indicators of process. Since reforms are time consuming and since the impact of reforms will not be observed in health outcomes for even longer, choose indicators of the direction and progress made in the implementation of the reforms. Table 2.7 lists a range of possible indicators of both outcomes and process, but organized more thematically, that is, as measures of access, quality, outputs and outcomes, and finance and sustainability.

Again, this is not an exhaustive list, and some (especially the outcome variables) may be only tenuously related to the short-term consequences of reforms. In brief, access refers to the absence of barriers to receiving care, including prohibitive costs; quality refers both to the quality perceived by

### TABLE 2.7. Indicators of Health Sector Reforms

<table>
<thead>
<tr>
<th>Access</th>
<th>Outputs and outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity to services: distance, time, cost</td>
<td>Utilization</td>
</tr>
<tr>
<td>Primary services, hospital</td>
<td>Immunization coverage</td>
</tr>
<tr>
<td>Pharmacy, dispensary, drug shop</td>
<td>Supervised deliveries</td>
</tr>
<tr>
<td>Hours of service, primary care</td>
<td>Outpatient visits, inpatient days</td>
</tr>
<tr>
<td>Out-of-pocket service cost, inpatient and outpatient</td>
<td>Facility performance criteria</td>
</tr>
<tr>
<td>”Hotel” costs</td>
<td>Incidence, morbidity, and mortality</td>
</tr>
<tr>
<td>Medical and drug costs</td>
<td>Malaria</td>
</tr>
<tr>
<td>Fee schedule: targeted tariffs, waivers</td>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>Under-the-table fees, gratuities</td>
<td>Diarrheal diseases</td>
</tr>
<tr>
<td>Waiting times for outpatient services</td>
<td>Maternal and postpartum health</td>
</tr>
<tr>
<td>Waiting lists for inpatient services</td>
<td>Malnutrition</td>
</tr>
<tr>
<td></td>
<td>Demographic indicators</td>
</tr>
</tbody>
</table>

#### Finance and sustainability

<table>
<thead>
<tr>
<th>Household level</th>
<th>Total fertility rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial protection, household expenditures</td>
<td>Crude birth and death rate</td>
</tr>
<tr>
<td>Spending on regular and catastrophic care</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sources of finance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Share from taxes, fees for service, and so on</td>
<td></td>
</tr>
<tr>
<td>Incidence of payment for services</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenditures</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out of pocket</td>
<td>Staff: number and qualifications</td>
</tr>
<tr>
<td>Insurance premiums and copayments</td>
<td>Availability of equipment and supplies</td>
</tr>
<tr>
<td>Insurance coverage</td>
<td>Protocols: whether they exist and are followed</td>
</tr>
<tr>
<td>Incidence of expenditures</td>
<td>Cleanliness</td>
</tr>
</tbody>
</table>

### Table continued

<table>
<thead>
<tr>
<th>Source: Adapted from Hutton 2000, Table 1.</th>
</tr>
</thead>
</table>
the clients and to the technical, medical quality of the care provided; *outputs and outcomes* are combined here and include the volumes of services provided (from the supply side) and population-level and household-level indicators; *finance and sustainability* also encompass both systemwide and household-level variables, including financial protection among households and sources of finance for the system.

**What distribution?**

The most commonly used measure of equity in public services is *benefit incidence*, that is, how much of a given benefit (or cost) accrues to which fraction or group within the population. The usual practice is to rank the population by some welfare measure, such as income, and then ascertain the value of public benefit that each member of the population receives. Evaluation of the incidence of health care finance requires examination of all sources of health sector funding, not only the direct payments that are made exclusively for health care. In addition to out-of-pocket payments, health insurance contributions, and earmarked health taxes, the distributional burden of all direct and indirect taxes may be examined where these comprise a significant part of total health sector revenue.

Alternatively, one can calculate the *concentration index*, which is a summary measure describing benefit incidence. The advantage of the index is that one can also easily compute standard errors, which permit robust comparisons of statistically significant differences across classes of individuals or households.

One important advance is the computation of *marginal benefit incidence analysis*. This is used to examine the distribution of the marginal costs and benefits of program expansion across different income groups. This is a more informative measure than average benefit incidence, since policy changes often involve the scaling up of existing programs. Recent research indicates that the benefits of public programs can be initially captured by the non-poor, but that the poor will benefit more as a program is expanded. For example, the rich may demand payoffs in return for their taxes to cover a social program’s start-up costs, and only once the program has expanded (and the marginal costs of program expansion have been lowered) will it be politically feasible for the government to concentrate services in poor, remote areas (see Lanjouw and Ravallion 1999).

**Data**

The data required for the distributional analysis of health reform depend mainly on the nature and scale of the policy change, the question to be
addressed, and the choice of methods. Lindelöw and Wagstaff (2003) offer a comprehensive review of the data sources commonly used in health analysis. Only a selection of the more widely available data are discussed here.

**Demographic and Health Survey (DHS)**

These surveys are among the most widespread sources for data on health status and policy. Funded by the U.S. Agency for International Development, nearly 200 of these household-level surveys have been collected since 1985 (see http://www.measuredhs.com). The DHS attempts to be comparable across countries and over time and includes a wide range of indicators, such as basic household characteristics, fertility, child nutrition and health status, access to environmental services (safe water, sanitation, and electricity), and utilization of basic health and education services. A typical DHS collects detailed information on reproductive history, educational attainment, knowledge about common childhood illnesses, HIV/AIDS, and sexually transmitted infections, as well as knowledge about the treatment of these illnesses. The DHS is useful for assessing health knowledge and practices, health status, and the consumption of health services.

One of the limitations of the DHS data is that they include only very little information on wealth and generally no information on income and expenditure. This information is traditionally used for measuring living standards and is essential for distributional analysis. A number of recent studies using DHS data have constructed a wealth index as a proxy measure of living standards in order to address distributional issues (see, for example, Filmer and Pritchett 1998).

The surveys and the methods are being continually updated and expanded; for example, surveys of providers are now being conducted. These facility-based provider surveys gather information on health service delivery, including quality, infrastructure, utilization, and availability, and can be linked to household surveys in order to identify relationships between behavior and outcomes on the household side and the supply of health services.

**Living Standards Measurement Study (LSMS)**

More than 50 LSMS surveys have been conducted in low-income countries to measure levels and changes in living standards. These are large and comprehensive household surveys that collect rich information on socioeconomic characteristics, especially on household consumption and income. They frequently include health modules to gather information on
the health status of household members, service utilization, and access costs. The LSMS surveys that have an added health module are useful data sources for analyzing the impact of health policy changes (for example, user charges, health financing programs, or publicly financed health projects) on health demand, as well as for the distributional impact analysis of public spending.

For some, the LSMS and DHS datasets (which are narrow, but deep) can be combined with census data (which are broad, but shallow) to produce maps of poverty, health status, and access to services and infrastructure. The availability of such tools at the disaggregated level can be valuable in helping policymakers target poor localities accurately. Elbers, Lanjouw, and Lanjouw (2003) have developed a methodology to combine census and household-survey data to create reliable district-level poverty maps. An ongoing research project at Macro International (http://www.orcmacro.com) is exploring the possibility of replicating the methodology to produce maps on key health indicators. Similar work is being conducted elsewhere. Fujii (2003), for example, has developed anthropometric maps using DHS and census data on Cambodia.

**Other household-level data sources**

Other agencies conduct internationally comparable and valuable surveys, sometimes with a health focus. For example, the Multiple Indicator Cluster Surveys sponsored by the United Nations Children’s Fund focus on women and children; about 50 country reports are available. Hundreds of other household surveys are conducted throughout the world every year, usually in an ad hoc fashion. There are periodic attempts to standardize and codify survey methods. The Paris 21 Initiative, for instance, was established by the United Nations to develop survey techniques and to build a “culture of evidence-based policymaking” (see http://www.paris21.org). The World Bank’s Africa Household Survey Databank contains more than 400 surveys, and surveys are available for other regions as well.

**Quantitative service delivery surveys and Public Expenditure Tracking Surveys**

Quantitative service delivery surveys focus on the service facility and factors affecting quality of services. It is a technique for surveying service providers, resource availability, and performance. Public Expenditure Tracking Surveys measure problems in the budget execution process, such as leakage, delays, and the reallocation of resources, but they can also be
used to examine incentives for service providers and the quality and quantity of services. These two are often linked, and the distinction between them is becoming smaller. About 30 of these two types of surveys had been carried out by the Bank and its clients as of early 2005 (see Dehn, Reinikka, and Svensson 2003).

**Experimental and quasi-experimental data**

Rigorous evaluation of the impact of a specific health intervention may require data collected from a policy experiment. This is because the impact of an intervention can be affected by factors that are impossible to disentangle exclusively through ex post evaluation. For example, a program may be put in a particular place for reasons that also affect the program’s outcomes. If we were only to look at outcomes, we would be unable to determine the impact of the program and the impact of these other factors.\(^{17}\)

Experimental analysis is complex and generally expensive; it requires both baseline and follow-up data, preferably including supply-side (health facility) and demand-side (household) surveys. However, surveys to analyze policy experiments generally use simpler instruments on smaller samples relative to the DHS or LSMS, especially if the intervention is a pilot program. See the section on quantitative methods hereafter for a more complete description of the method.

**Qualitative data**

Qualitative data differ from survey or experiment data because of the format of the data and the process through which the data are generated (see, for example, Chung 2000). For instance, focus-group interviews are often conducted during small meetings using open-ended questions about a specific topic. The information collected is often contextual and provides insights about the process and implementation of the reform program that are particularly valuable for confirming an evaluation based on experiment or survey data. See the section on analytical methods below for a more complete description.

**National health accounts**

National health accounts describe in great detail all the sources and uses of funds and other resources within the health system, private and public. These are an excellent source of information on the *functional* classification of the sources and the allocation of expenditures; they less often
disaggregate the information by income or other household categories. National health accounts have so far been prepared for about 75 countries. Since 1999, the World Health Organization has been undertaking a systematic exercise to develop health expenditure data for all its 191 member states, based on the United Nations System of National Accounts (see WHO 2003).

Analytical methods

The methods used to examine the consequences of health reforms (or any reforms) are often distinguished as either qualitative or quantitative. In many ways, this is a false and unproductive dichotomy. Faute de mieux, we maintain this distinction and discuss a few of the methods in detail.

Qualitative methods

“Qualitative methods” generally refers to the use of case studies and in-depth, open-ended interviews and discussions to analyze the distributional impact of health reforms. The methods most commonly mentioned in the literature include social impact analysis, participatory beneficiary assessments, and stakeholder analysis. Each of these methods is described in A User’s Guide to Poverty and Social Impact Analysis (World Bank 2003b).

One major strength of qualitative methods is that they provide a much deeper understanding of the processes underlying policy implementation, including the interactions among the various stakeholders, than can be elicited in a structured, impersonal questionnaire. This information is crucial for gauging the benefits and costs of a reform for different stakeholders. It can offer valuable insights into the reasons for the failure or success of a reform program in reaching the intended objectives. Findings from studies using this approach can also supply information that can be applied to improve the design of household surveys and interpret the results of quantitative analyses. It can also be employed to validate the outcomes of quantitative analysis.

For the analysis of the distributional impact of policy reform, these qualitative methods have a few limitations. First, they cannot quantify the welfare gains or losses due to a health policy change. Thus, they are not valuable as guides in the design of explicit compensation measures to mitigate any adverse impact (that is, the “willingness to pay” or “willingness to accept” a sum as equivalent to the welfare change caused by the policy). Indeed, very few empirical studies that use the qualitative method have touched upon the distributional aspect of reform. Two empirical examples
of attempts to use qualitative methods to address equity issues are Bossert (2000), on the decentralization of health system organization in Bolivia, Chile, and Colombia, and Tang and Bloom (2000), on health service decentralization in rural China. Second, findings from the qualitative approach are not usually generalizable; they are strongly dependent on local conditions (indeed, that is a strength of the method). This means that it is more difficult to apply the lessons learned in one case to another case and that any attempt to do so must carefully account for these differences in local conditions.

Table 2.8 summarizes several studies that have used qualitative tools to evaluate health reforms.

Quantitative methods

The majority of PSIA cases will involve some quantitative analysis. This is not to say that the information produced by these tools is always preferable to the information derived from the qualitative methods discussed above. In fact, the richest and most robust story will derive from mixed methods. In this section, two of the quantitative methods are described that are commonly used to examine the distributional impact of health reforms. These are conventional econometric welfare analysis and experimental evaluation. These are illustrated in greater detail in A User’s Guide to Poverty and Social Impact Analysis (World Bank 2003b).

The first method, econometrics, derives from a model of household welfare in which welfare (utility) is determined by health status and the consumption of other goods and services. Health outcomes, in turn, are modeled through a “production function,” with individual, household, community, and other characteristics as inputs. Households maximize utility, subject to a budget constraint, by choosing the optimal combination of health services and other goods. From this solution can be derived a (“reduced-form”) health-demand equation that can be estimated empirically as a function of prices and individual, household, and community characteristics.

A regression of the health-demand function using information commonly collected through household surveys and health-facility surveys provides an estimation of the marginal impact of policy changes. For example, the demand equation can be used to examine the impact of changes in user fees, improved access to health facilities, changes in quality, or any other quantitatively measurable policy change.

There are three main advantages to the econometric welfare approach. First, this method has a strong theoretical foundation, including
# TABLE 2.8. Qualitative Analysis of Health Sector Reforms

<table>
<thead>
<tr>
<th>Reform cases</th>
<th>Tools</th>
<th>Data sources</th>
<th>Examples</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanding the role of the private sector</td>
<td>Stakeholder analysis, institutional and political analysis</td>
<td>Focus-group interviews</td>
<td>González-Rossetti and Bossert (2000) on Chile, Colombia, and Mexico</td>
<td>Identifies stakeholders, their interplay, their potential to influence the process, and the strategies used by reformers to pursue reforms.</td>
</tr>
<tr>
<td>Pharmaceutical policy reform</td>
<td>Political economy models</td>
<td>Case studies</td>
<td>Reich (1995) on pharmaceutical policy reform in Bangladesh, the Philippines, and Sri Lanka</td>
<td>Examines the political dynamics of health sector reform through a comparative study of pharmaceutical policy reform in three countries.</td>
</tr>
<tr>
<td>Decentralization of health services</td>
<td>Institutional analysis</td>
<td>Administrative data on public health facilities and utilization, focus-group interviews</td>
<td>Tang and Bloom (2000) on rural health service decentralization in China</td>
<td>Focuses on the impact of the devolution of health services on health service performance. The findings indicate that attempts to implement rapid decentralization without addressing the financial and institutional capacity of local governments can have negative consequences, as illustrated by the China case study.</td>
</tr>
<tr>
<td>Decentralization of health services</td>
<td>Stakeholder analysis</td>
<td>Focus-group interviews, case studies</td>
<td>Bossert (2000) on decentralization in Bolivia, Chile, and Colombia</td>
<td>The findings indicate that decentralization seems to improve utilization and equity in health expenditure over time in both Chile and Colombia. In Bolivia, the impact of decentralization depends on local institutional capacity.</td>
</tr>
</tbody>
</table>

*Source: Compiled by the authors.*
a clearly defined concept of welfare, which provides an analytical base for conducting distributional impact analysis. It is generally agreed what these methods measure, and the results are therefore comparable across studies and settings. Second, the method allows us to examine the marginal impact rather than the average impact of a policy change, that is, we can see the incremental value of the next dollar spent on a particular policy, rather than of the average dollar spent. This is important because there is no reason to believe that the impact of the next dollar will resemble the impact of an average dollar. Third, this method can provide a basis for policy simulations of various reform scenarios. In other words, we can use these results to ask “what if?” for any number of changes to policy or social and environmental conditions. This can be extremely useful in designing policies and projecting the consequences of reforms.

The disadvantages to this approach revolve mainly around the fact that the reliability of the empirical results depends crucially on data quality and the correct specification of the health-demand function. Unfortunately, obtaining good data is difficult, and perfect data may be impossible to collect. Microbehavior is driven partly by nonmonetary costs and benefits, which are very hard to measure (Das and Hammer 2004). Analysis of the microlevel impact of health reforms therefore requires data that we cannot have or for which we must rely on imperfect proxies. In addition, the results are often driven by methods rather than by the data or by the question that needs to be answered. Different methods can yield different results. Please note that this does not mean that all econometric methods are equally suspect: differences may reflect problems in one method that can be corrected by another.

Addressing the misspecification of the health-demand function poses other formidable challenges to the analysis. The econometric evaluation of program impact suffers from the problems of omitted variables generally and endogeneity and sample selection problems specifically. For example, the impact of a child health intervention will depend on the motivation and behavior of the household in which the child lives. Children whose mothers are more able and willing to seek public health services and follow advice on the prevention of illness and disease are more likely to experience better child health outcomes. These households are also more likely to participate in government-promoted health programs. A naive evaluation runs the risk of ascribing to the intervention the benefits to the child of having a motivated mother. This problem would be minimized if we could measure the mother’s motivation, but these variables (ability, knowledge, and willingness of mothers) are not directly observable.
These problems (omitted variables, sample selection, and measurement error) can yield misleading conclusions. Thus, the estimated coefficients of the health-demand function cannot be interpreted as a causal effect (that is, health policy changes generate changes in health outcomes); at best, they imply associations between the two sets of variables. Policy designs based on a misspecified health-demand function could produce serious, unintended welfare consequences. The push for introducing user fees to finance improvements in health services in developing countries in the 1990s provides a good illustration of the way invalid empirical results can bring about adverse welfare consequences. Box 2.1 presents a summary of studies on user fees and their impact on policy design.

Two econometric strategies can potentially correct the model-specification problem, but both are very data demanding. First, when panel data are available, taking the first difference of the demand function eliminates the time-invariant unobserved confounding factors. In practice, panel data are rare and expensive to collect, and they do not exist for many countries. Second, when selection into a program is unobserved, it is possible, in principle, to estimate the impact of the intervention using instru-

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**BOX 2.1 Economometric Research on User Charges**

Early work on user charges was based on a regression framework of the health-demand function. This research found that prices were not an important determinant of demand, the relevant coefficients generally showing up as statistically insignificant or even positive in sign (Akin et al. 1984, 1986; Birdsall and Chuhan 1986; Heller 1982; Schwartz, Akin, and Popkin 1988).

Subsequent research indicated that the earlier results were mainly due to poor data quality and the misspecification of the estimation equation (Feldstein 1974; Gertler and van der Gaag 1988, 1990). More recent studies have found that prices are an important determinant of health demand in developing countries, with statistically significant negative price elasticities (Alderman and Gertler 1989; Cretin et al. 1988; Gertler, Locay, and Sanderson 1987; Mwabu 1986).

The policy implications and the potential welfare impact of user charges derived from the above two sets of research are clearly divergent. However, the understanding that the poor are price sensitive does not by itself imply that services should be provided free or at subsidized prices. The weight of empirical studies to date suggests that the benefits of subsidies will flow primarily to those who are better off rather than to the poor for whom the services are intended (Gwatkin 2003). Moreover, there is substantial evidence that consumers pay significant out-of-pocket charges for nominally “free” services (see, for example, Khan 2005).
mental variables. This requires the identification of a variable that determines the household’s decision to participate in the program, but is not independently correlated with health outcomes. Valid instrumental variables are difficult to find. To some extent, good knowledge about program placement and implementation can help in identifying potential instrumental variables (see Baker 2000).

Table 2.9 presents a few examples of the use of quantitative econometric methods to simulate the impact of policies on health outcomes. This is clearly only suggestive: the list of references to this chapter and, indeed, most of the citations in Table 2.2 provide many examples of the use of quantitative econometric methods. Some of the studies presented in Table 2.9 are conducted ex ante, that is, prior to the introduction of policy changes, and some are conducted ex post, that is, following the policy changes. But they all share the same basic method, whereby demand parameters are derived econometrically, and then these are used to simulate the impact of the proposed policy change on behavior.

The search for solutions to the problems associated with cross-sectional econometric evaluation methods has led to the increased use of experimental and quasi-experimental techniques, especially to control for bias caused by nonrandom sample selection. These techniques are based on a simple comparison of differences between (usually two) subsamples drawn from the same population, one of which has received an intervention, while the other has not. In the scientific jargon, the first group is the treatment group, and the second is the control. The control group plays the role of counterfactual, permitting policy analysts to see what would have happened if the reform had not taken place.

There are two main strands to this literature, which can be distinguished by the underlying basis for the comparison between the treatment and control groups. In the first, the control group is selected ex post; in the second, the control and treatment groups are selected ex ante. Each is briefly described hereafter, and a few examples are presented.

The first method is often referred to as “quasi-experimental” evaluation and consists primarily of variants of matching methods. This involves creating the control group ex post, that is, from a sample that contains both treatment and control individuals (or households); one then selects the subsample of untreated individuals who most closely resemble the treated individuals. This is most commonly done by the method of propensity-score matching (see Cochrane and Rubin 1973; Rosenbaum and Rubin 1983). The propensity score is an estimate of the probability that any individual (treated or untreated) will receive the treatment, as a function of the individual’s observed characteristics. Each treated individual is then matched
### TABLE 2.9. Quantitative (Econometric) Studies of Health Sector Reforms

<table>
<thead>
<tr>
<th>Case</th>
<th>Reference</th>
<th>Tools</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction of user charges in Peru</td>
<td>Gertler, Locay, and Sanderson 1987</td>
<td>Demand elasticities from the reduced-form health-demand function</td>
<td>The poorest two quintiles are more price sensitive than are other quintiles.</td>
</tr>
<tr>
<td>Distribution of government spending on education in India</td>
<td>Lanjouw and Ravallion 1999</td>
<td>Marginal benefit incidence analysis</td>
<td>Marginal incidence is significantly higher among the poor than it is among the non-poor, and marginal incidence among the poor is much higher than average incidence among the poor.</td>
</tr>
<tr>
<td>Determinants of health care demand in Uganda</td>
<td>Lawson 2004</td>
<td>Reduced-form health-demand functions for different segments of the population</td>
<td>Reducing travel time will increase the consumption of health care among all; reducing user fees will encourage consumption by women.</td>
</tr>
<tr>
<td>Placement of doctors in rural areas of Indonesia</td>
<td>Chomitz et al. 1997</td>
<td>Estimation of revealed preference and stated preference for location choices of physicians</td>
<td>Compensation and bonuses are likely to be more effective than compulsory postings, and more students from rural areas should be encouraged to train.</td>
</tr>
<tr>
<td>Social insurance in Hungary</td>
<td>Ravallion, van de Walle, and Gautam 1995</td>
<td>Simulations of the distribution of consumption over time</td>
<td>Cash benefits introduced to compensate for other policy reforms protected many from poverty, but promoted few out of poverty.</td>
</tr>
<tr>
<td>Community-based health insurance in Senegal</td>
<td>Jütting 2001</td>
<td>Estimation of the impact of participation on consumption and financial protection</td>
<td>Although the program reaches otherwise excluded people, the poorest in the communities are not covered.</td>
</tr>
<tr>
<td>Government subsidies for a health insurance program in Egypt</td>
<td>Yip and Berman 2001</td>
<td>Estimation of the impact of a school-based health insurance program on consumption and financial protection</td>
<td>The program increased visit rates and reduced out-of-pocket expenditures, especially among the poor, but only middle-income children benefited from the reduced financial cost.</td>
</tr>
</tbody>
</table>

*Source: Compiled by the authors.*
with one or more untreated individuals who are most closely similar based
on the estimated propensity score. The control group is then the subsam-
ple of untreated individuals who are otherwise nearly identical (that is,
“matched”) to the treated individuals. The impact of the treatment can be
seen as the difference in mean outcomes between the treated group and the
matched, untreated control group.\textsuperscript{21}

The main advantage of matching methods is that they can draw on
existing datasets and are often more rapid and less expensive to implement.\textsuperscript{22}
The principal disadvantage of this method is that it may not completely
solve the problem of selection bias: selection into the treatment group may
be a function of unobserved characteristics. In addition, matching methods
can be statistically complex, requiring considerable expertise in the design
of the evaluation and in the analysis and interpretation of the results.

The second method involves experimental, randomized controlled
trials. These studies require a sample of individuals equally eligible and
willing to receive treatment. One subsample is randomly assigned to the
treatment group, and the remainder is assigned to the control group,
which does not receive the treatment. This is generally considered the
most robust evaluation method. The random assignment process creates
comparable treatment and control groups that are statistically equivalent
to one another, given appropriate sample sizes. In principle, control groups
generated through random assignment serve as a perfect counterfactual,
free from the problems of selection bias that plague evaluations.

The benefits of this technique are the robustness and simplicity of the
results: the impact of the intervention can be measured simply as the dif-
fERENCE between the mean measured outcomes of the samples of the treat-
ment group and the control group. Although experimental designs are
considered the ideal approach to estimating project impact, there are sev-
ereal problems in practice:

- Randomization may be unethical or may be perceived as unethical.
- It can be politically difficult to provide an intervention for one group
  and not another.
- Nationwide programs or policy changes leave no room for a control
group.
- Circumstances and the behavior of participants may change during
  the experiment: people move or may seek alternative treatment.
- Assignment may not be truly random: program administrators may
  exclude high-risk applicants to achieve better results.
- Experimental designs can be expensive and time consuming in cer-
tain situations, particularly in the collection of new data.
### TABLE 2.10. Experimental and Quasi-Experimental Evaluations in Health

<table>
<thead>
<tr>
<th>Case</th>
<th>Reference</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method: quasi-experimental, matching</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Privatization of water services in Argentina</td>
<td>Galiani, Gertler, and Schargrodsky 2005</td>
<td>Increase in connections was greater, and child mortality was significantly lower in privatized municipalities.</td>
</tr>
<tr>
<td>Water and sewerage provision in Ecuador</td>
<td>Galdo and Briceno 2004</td>
<td>Impact was significant on child mortality; among the poor, the decrease was significant only among households in which women had at least primary education.</td>
</tr>
<tr>
<td>Piped water in rural India</td>
<td>Jalan and Ravallion 2003</td>
<td>Drop was significant in diarrhea incidence and duration; among the poor, the decrease was significant only among households in which women had at least primary education.</td>
</tr>
<tr>
<td><strong>Method: randomized controlled trial</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deworming, health externalities, and education in Kenya</td>
<td>Miguel and Kremer 2001</td>
<td>Deworming led to more rapid growth and lower anemia among treated children and had significantly positive external effects among untreated children and neighboring nonparticipating schools.</td>
</tr>
<tr>
<td>Progresa (cash-transfer and incentive program) and health outcomes</td>
<td>Gertler 2000</td>
<td>Progresa increased consumption of primary care, lowered hospitalization, and improved health among both children and adults.</td>
</tr>
<tr>
<td>Deworming and child growth in Uganda</td>
<td>Alderman, Sebuliba, et al. 2004</td>
<td>Deworming led to more rapid weight gain among treated children.</td>
</tr>
<tr>
<td>Early childhood nutrition program in Uganda</td>
<td>Alderman, Britto, et al. 2004</td>
<td>Program significantly prolonged breastfeeding; increased consumption of milk, legumes, porridge, fruits, and vegetables; there was greater frequency of primary care visits and greater school enrollment.</td>
</tr>
</tbody>
</table>

*Source: Compiled by the authors.*

An important extension of these methods involves conducting the evaluation not on a static comparison of levels or outcomes between the treatment and control groups, but as the “difference in differences” between groups, that is, examining the difference in the changes in outcomes across groups. This will eliminate the influence of those unobserved characteristics that are time invariant (the characteristics that do
not change during the period of the study). This requires a baseline and follow-up surveys (panel data for comparisons across individuals).

Table 2.10 presents some examples of both experimental and quasi-experimental (matching) evaluations. They are primarily evaluations of specific interventions rather than large-scale multifaceted programs. That is not to say that these methods are not applicable to larger programs. Rigorous evaluation was key to the design of the Progresa program in Mexico and has been ongoing since before the program’s launch in 1997. Fundamental to these types of evaluations, however, is the existence of a control group. Without external controls, it is only possible with these methods to conduct a “before and after” comparison within the treatment group itself. While some confounding unobservable characteristics may be controlled through instrumental variables, it is likely that the results will be biased by selection problems.

NOTES

1. In the literature on health sector reforms, it is common to equate these with *allocative* and *technical* efficiency, respectively.
2. Health care is seen as a *merit good*, that is, a good that we have decided is beneficial for people to consume, regardless of their own feelings in the matter. Health has *external effects*, that is, one person’s health behavior and status affect the health and welfare of others.
3. See, for example, Wagstaff (2002) for a summary of inequality in the health sector.
4. The RAND health care experiment in the United States found that higher copayments reduced health care consumption, but had little impact on health, implying that people seek unnecessary care when the cost per visit is low (Newhouse and the Insurance Experiment Group 1993).
6. Hsiao (2000) specifies a set of “control knobs”—financing, payment, organization, regulation, and consumer behavior—that capture the full range of health reforms.
7. Developing-country tax revenue is about 18 percent of gross domestic product, compared to 38 percent among countries of the Organisation for Economic Co-operation and Development (Tanzi and Zee 2001).
8. In addition to the references cited in Table 2.2, see Atim (1998) and Stinson (1982).
9. The exception was West Bengal.
11. It must be noted that these two goals are sometimes in conflict: what is good for any one particular patient may not be in the best public interest.
12. There is little evidence that the actual risk of HIV infection is higher among health workers. See Marchal, De Brouwere, and Kegels (2005).
13. Once this group had decided on a package of reforms, these were pilot tested, partly to gauge the reaction of communities to the proposed reforms.
14. The factors include better nutrition, mother’s education, access to safe water and sanitation, access to electricity, and so on, in addition to health sector outputs such as immunization and basic health services.
15. For excellent introductions and instructions for these measures, see the technical notes, especially 7, 12, and 16, at http://web.worldbank.org/WEBSITE/EXTERNAL/TOPICS/EXTHEALTHNUTRITIONANDPOPULATION/EXTPAH/0,,contentMDK:20216933~menuPK:460204~pagePK:148956~piPK:216618~theSitePK:400476,00.html.
16. See Lanjouw et al. (2002); Lanjouw and Ravallion (1999); Younger (2003).
17. To make this a bit more concrete, imagine that a group of highly motivated parents lobby successfully for a child health intervention. Comparing the children who had received this intervention to a group of other children would conflate the beneficial consequences of the motivation of the parents on their children with the benefits of the intervention. The benefits of motivation are likely to be high, perhaps even higher than the benefits of the intervention itself. See Newman et al. (2002); Newman, Rawlings, and Gertler (1994).
18. Tang and Bloom (2000) indicate that rapid decentralization that does not address weaknesses in the financial and institutional capacity of local governments can have an adverse impact on the quality of health services, and poor areas are likely to be disproportionately affected. However, distributional issues are not explicitly analyzed. According to Bossert (2000), local stakeholders perceive that decentralization has improved service quality; but Bossert acknowledges that these findings are based on rather limited information.
19. See, for example, Bamberger (2000); Hentschel (1999); Rao and Ibanez (2003); and Woolcock (2001).
20. This is most clearly illustrated by the universal phenomenon of nonlinear costs. In a program to vaccinate 1 million children, for instance, the marginal cost of reaching the millionth child is likely to be much higher than the cost of reaching the thousandth child. Also see the discussion on marginal benefit incidence analysis in the section titled “What distribution?”.
22. This and the following three paragraphs draw on Baker 2000.
23. This includes factors such as the education of the parents of the included adults, ethnicity, religion, and place of birth, and other unobserved characteristics that might influence health behavior. However, the influence of unobserved individual characteristics that change during the study may be increased by differencing.
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Analyzing the Distributional Impact of Reforms


