

Booklet B1: Using economic analysis to justify public intervention for SRH

This booklet introduces the issue of priority setting. It asks which services governments should provide with the limited funds available. It explains how an economic perspective can be used to assist governments in deciding which interventions to provide on the basis of market failure, cost-effectiveness, equity and the perceived needs of the population. These criteria are sometimes competing and also not the only ones to be used. This booklet addresses questions such as:

- What should governments spend money on, i.e. what are the criteria for public intervention?
- Should governments provide free Sexual and Reproductive Health (SRH) services to everybody, or only to the poor? How can they best target their services?
- Should governments also offer SRH services in remote areas, even when this is relatively costly, given the limited number of people reached?

It also demonstrates the process of prioritization, based on the burden of disease or cost-effectiveness of interventions.

B1.1 Economic justifications for public intervention in Sexual and Reproductive Health

Consider an SRH programme manager whose budget for the upcoming year is US\$ 5 million. There are demands from many sides for funding. However, given the budget constraints, only a selected number of activities can be financed. Which ones should the SRH manager select for funding? Many factors can influence this decision, for example, concerns of financial affordability, efficiency, political acceptability and equity, or perhaps the SRH manager will just do the same as in the previous year.

There is, of course, no single correct way of making such decisions, as priorities are always multi-faceted, subjective and relative. Nevertheless, the economic perspective is that these decisions should be evidence-based and made as rationally and transparently as possible.

The first question that economists ask when justifying public expenditure is: would the private sector provide this service? If so, why not leave it to the private sector? Economists would generally assume that the **private sector**, or the 'free market', is the most efficient provider of goods and services. Demand and supply adapt to each other in the market through the adjustment of prices.

Take the simple but real example of a market for apples. Even in the absence of governments, there will be buyers and sellers of apples. A buyer will buy an apple if the perceived benefit of the apple is greater than its price. A seller will sell an apple if its price is greater than the cost to produce and sell it. If demand is greater than supply, there will be a shortage of apples on the markets, and salesmen will increase the price. As a result, fewer people will want apples, and more people will offer them at this higher price until demand equals supply again. Economists have demonstrated that, if every person in the economy could make their decisions in this way, resources would be used efficiently. Resources would be allocated in a way that meets the preferences of buyers, thereby maximizing consumer satisfaction. Production and consumption would be exactly what is needed and available. The

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idea that markets respond to changes in demand, supply and prices is fundamental to economics, and is known as market efficiency.

However, for those working in SRH, in other words, those producing SRH goods and services, it might be difficult to imagine such an efficient market. Indeed, in the real world, and the market for health, market adjustments don't lead to efficient or acceptable outcomes. Government intervention might be needed. Economists call these instances **market failures**.

Governments are indeed active in the financing and provision of health care in almost all countries. Although many accept the role of the government in doing so, it is also the case that public funding is limited and governments cannot do everything. Governments have to choose which interventions can best be publicly funded or provided and which ones can be left to the free (private) market.

The first step would be to think what would happen if certain SRH interventions were left to the free market. Would there be a market failure, i.e., need for government involvement? This thought-process can help define the areas where there is an acute need for government intervention, and demonstrate how a change in governmental priorities might be beneficial.

Before we start though, a point of caution: public intervention is not synonymous with the public *provision* of SRH services. In some cases interventions such as regulation may adequately address market failures. Even if services are to be financed by the government, they need not actually be provided by the government. Governments can finance services and provide them directly, through a public hospital, or they can finance care through private providers, using subsidies or contracts.

Public goods

Public goods are things that people cannot be excluded from consuming and where the consumption of the good by one individual does not affect its consumption by others.

An extreme example is fresh air, which everyone breathes freely. For such public goods, no price can be set because, while everyone benefits, it is impossible to exclude someone who wouldn't pay for it. Why would anyone pay for it if it can be had for free? Or if others would benefit while they don't pay? In the area of SRH, health education is another good example of a public good. It is unlikely that any individual will pay for a mass media campaign (unless they are very altruistic), because they can benefit from the information for free.

If no price can be set and nobody is willing to pay, it will not be attractive for the private sector to provide this good or service. The government may, therefore, decide to carry out this task.

Externalities

Another justification for public intervention is the presence of positive or negative **externalities**. Externalities are the side-effects of the consumption or production of goods and services that are not considered by those that produce or consume. A good example of a negative externality is second-hand smoke inhalation when sitting close to smokers. A positive externality is the benefit to passers-by of a well-kept garden.

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If left to the private market, goods and services with positive externalities would be under-provided. The supply of a garden is dependent on the willingness of the gardener, who makes the garden at certain costs, while the optimal supply would be much more given the amount of people who benefit from it (but will not pay for looking). Those with negative externalities would be over-produced, because the producers and consumers do not take these negative externalities into account when determining the quantities they need.

Good health in itself has positive externalities for society, as it makes people more productive and reduces the costs on society of ill health. On top of that, some SRH services provide significant benefits to people other than those directly receiving the services (positive externality). A good example is the treatment of sexually transmitted infections (STIs). It is not only the individual with an STI that benefits from treatment. The greater benefit is to the community at large, as transmission to others will be reduced. The individual is unlikely to consider these positive externalities in the decision to obtain STI treatment. When left to the private market, the number of people receiving STI treatment would, therefore, be less than optimal from the societal or community point of view. So, the government has a role to play in encouraging STI treatment.

Imperfect information

Health care is so complex that individuals are likely to have difficulties in valuing the quality and appropriateness of the service that they receive. Patients are very reliant on health care providers to determine what they need (and thus the costs). This does not necessarily apply to other goods and services. For example, in the marketplace individuals can easily choose the fruit they like. However, they are unlikely to be able to fully determine the health care they require without advice from professional health care providers. The fact that one party has more information than the other is called 'asymmetric' or '**imperfect information**'.

Because of imperfect information, the private market may not produce the most efficient demand or supply of goods and services. It is difficult for consumers to determine what kind and quality of care they need. Private providers of health care, therefore, have opportunities to provide ineffective, low-quality services, and charge prices that are too high. For example, most pregnancies do not need 3D ultrasound; however, it might be in the provider's interest to make the mother-to-be believe she needs one (for example, to generate income for the clinic). Government could then, for example, set rules for the use of such diagnostics in the public health sector to limit the use of certain expensive procedures.

Economists argue about the extent to which this happens and the best way for governments to intervene, given that there might be asymmetric information between government and providers as well. Nevertheless, this problem provides one of the strongest economic rationales for government regulation of the private sector. At the very least, most economists agree that governments have a role in accrediting providers or facilities and fostering quality assurance. In addition, many complex medical procedures – such as cancer treatment – may require considerable government involvement to ensure high-quality training and follow-up of medical professionals.

Merit goods

Another market failure is the provision of the so-called **merit or demerit goods**. These are goods or services whose consumption and provision government would like to encourage (or discourage). For example, while certain amounts of vitamins are merit

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goods, cigarettes are demerit goods. Essential health care in itself is actually a merit good as well. It is, of course, better for people to be healthy. The government will decide what is good and necessary for its people, and which incentives are required to stimulate or discourage consumption.

Catastrophic health expenditure and equity concerns

Health services may impose very high costs on patients if provided by the private sector. Private markets would normally provide health insurance to allow individuals to protect themselves against sudden, unexpected and large **out-of-pocket health expenditures** (see also Booklet C3). However, insurance is often unavailable in low-income countries or for the poorest and most vulnerable population groups. Therefore, in the absence of health insurance, government intervention can protect households against catastrophic costs and still stimulate the consumption of merit goods and services. Such reasoning justifies public sector interventions, such as exempting pregnant women from having to pay for emergency obstetric care, or helping to provide public or community health insurance.

For many in health care, the main justification for government intervention is concern about equity outcomes. It is feared that the private sector has no incentive to care for people who are sick or poor, who might not have sufficient resources to get health care. Therefore, there is a role for government to regulate, fund or provide health care for those who will not be served by the private sector.

This argument is nevertheless still related to efficiency arguments. Health care for all, including those that cannot afford it, has significant positive external effects for society as a whole. However, governments might also want to intervene out of a moral conviction of the necessity to care for all, regardless of whether equitable access to health care benefits the society. For more on equity, see Booklet B2.

Government failures

As already discussed, there are efficiency and equity reasons for government interventions in the health sector. These are called market failures. However, there are also government failures.

Economists are particularly concerned with the way in which government interventions are influenced by political interests. For example, politicians' interests are to a certain extent determined by the short-term election cycle, whereby it is easier to reduce spending after being elected and more popular to spend more close to an election. Moreover, when designing interventions, for example when imposing regulations, governments can be sidetracked by vested interests (so-called 'regulatory capture'). This would potentially lead to inefficient and inequitable outcomes.

Another government failure occurs when government interventions influence the activities of the private sector. This is a particular concern because government, as well as the private sector, might be confronted with asymmetric information. For example, providing companies with subsidies to offer particular services can result in less attention to production costs or excessive production.

As a result, in most countries the health system will consist of a combination of both public and private interventions. For example, governments can make hospitals more autonomous and allow for some competition in the market, which is expected to reduce inefficiency and asymmetric information problems. Or governments can

contract out certain services to the private sector, while continuing to provide those that serve as a public good.

B1.2 An introduction to priority setting

The previous section established why government should intervene in SRH. This section looks at how managers can use economic techniques to allocate funds *within* SRH. For example, on the basis of the previous section, an SRH manager may decide that it is worthwhile to:

- a) encourage the use of antenatal care services because of the benefits to the health of women and newborns,
- b) stimulate condom use by subsidizing condoms because of the large positive externalities,
- c) finance an information and education campaign on HIV/AIDS because otherwise it would not take place.

However, they still may not have the funds to provide all these services. Programme managers need to make further difficult choices on which interventions or services to fund as highest priority. This we call **priority setting**.

Priority setting is a political and technical process. Economics can help improve the technical aspect of decision-making. From the economic perspective, priority setting should be conducted in a transparent framework that takes into account the needs of society, the budget that is available, and how to best meet these needs within the budget. This approach suggests that programme managers and policy-makers should explicitly define what they want to achieve, explain how health needs will be met and estimate the cost of different interventions.

There are two main economic approaches to priority setting: (i) on the basis of burden of disease; (ii) on the basis of cost-effectiveness analysis (CEA). These methods focus on maximizing the benefits to the population with a given set of resources and are primarily concerned with achieving efficiency. However, economists also recognize that, amongst other criteria, equity is an important consideration. Therefore, the next booklet (B2) examines how these techniques can be adapted to take equity into account. More detailed information on how to do a CEA is provided in booklet A3.

These approaches can be challenging. Managers are required to question what they have been doing rather than simply continuing as before. The approaches are likely to highlight the substantial gap between allocations that result from political reasoning and allocations that would result from economic reasoning. It is, therefore, important to give sufficient thought to the – often political – process of applying economic techniques of priority setting in the implementation of health sector strategies.

A key question is how technical approaches fit in with what people and politicians want. Should we listen to patients, health staff, community organizations and policy-makers at district, provincial and national levels, and determine public policy according to their wishes? In other words, should we be *responsive* to their needs?

What is politically desirable may conflict with the priorities set by an economic analysis. The public would probably agree with the general idea that one should get value for money when spending public funds. However, often the outcomes resulting from economic analysis are much less acceptable. First of all, the economic argument that there are limited resources despite unlimited needs is already very unpopular. Moreover, economists might point out the significant positive externalities

of preventative services, but the public may prefer access to life-saving interventions and the provision of hospital care. Economists can recommend that more public funds are spent on SRH and preventative interventions because of market failures, but in practice closing a large hospital to fund this will be politically impossible.

B1.3 Priority setting on the basis of burden of disease

To prioritize SRH interventions, managers require information on the magnitude of SRH problems, what causes them, and how they are changing. Data related to mortality, such as life expectancy, crude death rates, and maternal or infant mortality, are important aggregate indicators of health needs. This data can provide an idea of what diseases people die of, but not of the burden of disease they suffer from during their lifetime. It does not say anything about the severity of illness, how often people were ill or how premature death was. To get the full picture, data is also required on morbidity. For example, which diseases have the highest prevalence rates – the total number of cases in a given population at a specific point in time – and what is their incidence rate – the number of new cases occurring each year?

Periodic household surveys can provide some idea of the prevalence and incidence of diseases. Data from health facilities is less useful, as it only reports cases that pass through the health facility and, therefore, may underestimate the burden of disease particularly in areas where access to health facilities is low, such as remote areas. Qualitative survey methods can also provide useful information on the needs of populations, using focus group discussions or open-ended surveys of individuals.

However, each of these methods provides a limited perspective of a population's health. A more comprehensive framework is a 'burden of disease' study, a comprehensive overview of all causes of disease and injury. The burden of each is then expressed in a single summary measure, the 'disability-adjusted life year' (DALY).

In simple terms, a DALY strives to include the complete burden that a particular disease forms. DALYs combine loss from premature death and the loss of healthy life resulting from disability. DALYs take into account key elements such as the age at which disease or disability occurs, how long its effects remain, and its impact on quality of life. Losing one's sight at age 7, for instance, is a greater loss than losing one's sight at 67. Similarly, a bout of acute illness that is over quickly counts less in the DALY calculation than one that leaves lingering weakness, such as persistent worm infections.

DALYs, in combination with prevalence data, can help SRH managers identify which of the full range of SRH problems causes the highest burden in a population. It can also help managers compare the disease burden in SRH with other health areas. However, there is also a lot of critique against using DALYs to measure the burden of SRH, because the assumptions used might be biased against the particular impact of SRH problems.

According to the 1993 World Development Report "Investing in Health", reproductive ill health accounts for 40 per cent of the total disease burden among women of reproductive age (15 –to 44) in developing countries. Three groups of conditions account for those 40 per cent: pregnancy-related deaths and disabilities, sexually transmitted infections and AIDS (Table B1.1). This type of information can provide a basis for priority setting. Of course, there are other factors to take into account, but nevertheless the burden of disease provides a strong indication of where the health need of a population is greatest.

Box B1.1: Estimated global health burden of selected conditions for women aged 15 to 44

Condition	DALY lost (millions)
Maternal Conditions	29.0
Sepsis	10.0
Obstructed Labour	7.8
STIs (excluding HIV)	15.8
Pelvic Inflammatory Disease	12.8
Tuberculosis	10.9
HIV/AIDS	10.6
Cardiovascular Disease	10.5
Rape and Domestic Violence	9.5
All Cancers	9.0
Breast	1.4
Cervical	1.0
Motor Vehicle Accidents	4.2
War	2.7
Malaria	2.3

Source: World Bank. 1993. World Development Report 1993: Investing in Health

One note of caution, however: it is important that this information is country-specific. Global burden of disease estimates are too crude for local policy-making, so fortunately more and more country-level studies become available.

B1.4 Priority setting on the basis of cost-effectiveness analysis

One major drawback of burden of disease studies is that they are silent on the potential effectiveness of interventions to reduce the burden. In the most extreme case, a certain disease may have a very high burden, but in the absence of an effective intervention, it is unwise to spend a large share of your budget on it. This is why burden of disease information needs to be complemented with data on the effectiveness and costs of interventions to potentially reduce the burden.

Together with burden of disease studies, cost-effectiveness analysis (CEA) is a powerful tool for priority setting (see also Booklet A3). CEA provides information on the relative costs and health effects of different interventions. An intervention is considered cost-effective if it offers relatively large health effects at little cost compared to other interventions. Priorities are then set by implementing interventions with the lowest cost-effectiveness ratio first, in other words, those that offer best value for money. Choosing the set of most cost-effective interventions will in principle maximize population health at lowest costs. Given limited resources, an investment in a more cost-effective intervention would enable a manager to generate a higher health outcome with the same resource costs.

A wide variety of issues can be examined in this way. CEA can guide choices such as:

- investments in interventions (e.g. iron supplementation versus iron fortification),
- the use of technology (e.g. which type of drugs to use for the prevention of mother to child HIV transmission),
- the delivery site of interventions (e.g. hospitals versus health centres for the treatment of obstetric complications),
- the choice of target (e.g. tetanus toxoid immunization for pregnant women only or for all women of childbearing age).

In combination with information on burden of disease, these estimates can aid priority setting within the health sector and guide governments in directing public spending. Cost-effective interventions that target 'high-burden' diseases are generally prioritized. The 1993 World Development Report has estimated the cost per case or per participant and cost per DALY for several SRH interventions (Table B1.2). For example, a standard AIDS prevention programme was estimated to cost US\$ 3–5 per DALY saved through this programme in a low-income country. The cost-effectiveness estimates are presented with a range to emphasize that these are rough estimates. For all of these SRH interventions, saving a DALY would cost less than US\$ 130. A comparison with 47 other child and adult interventions suggests that several SRH interventions are among the most cost-effective services in the health sector in developing countries.

Box B1. 2 Costs and cost-effectiveness of selected SRH interventions

	Annual cost (\$), per case or participant, 1990		Cost (\$) per DALY, 1990	
	Low-income country	Middle-income country	Low-income country	Middle-income country
Public health				
EPI including micronutrient supplementation	15	29	12-17	25-30
Public health information (family planning, nutrition information)	2.4	5	N.A.	N.A.
AIDS prevention programme	112	132	3-5	13-18
Clinical interventions				
Prenatal and delivery care	90	255	30-50	60-110
Family planning	12	20	20-30	100-130
Treatment of STIs	11	18	1-3	10-15

Source: World Bank. 1993. World Development Report 1993: Investing in Health

On the basis of burden of disease and cost-effectiveness information, the World Bank defined a minimum package of essential health services. This package of interventions was expected to generate the highest health benefits from available resources. Many SRH interventions — including family planning services, prenatal and delivery care, and case management of STIs — are a fundamental component of this package.

If countries follow these methods of priority setting, there is a high potential for health improvement. For example, one analysis of the East Africa region suggests that a reallocation of 50 per cent of the health budget (which averages about US\$ 5.20 per capita) from interventions that are not cost-effective towards those that are most cost-effective could result in a 64 per cent increase in the number of years of life saved in the region.

However, the application of burden of disease and CEA has been criticized on three grounds. First, there are disagreements over the theoretical basis of the methods and the availability of good quality data to measure DALYs (e.g. relative weights of disability for each disease). Second, CEA assumes that the sole objective of society is to maximize health, and doesn't consider equity or other economic or social benefits

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of health. One intervention might not be as cost-effective as another, but it might have other benefits apart from saving DALYs. Third, the process of CEA or burden of disease analysis is often not participatory, and does not take into account the interests of different groups in a particular context. These criticisms are addressed in the next booklets.

Summary

This booklet has summarized the main economic justifications that can be used to argue for government funding or provision of SRH services. These are based on the occurrence of so-called market failures in health, which require government intervention. It also described different methods of priority setting, such as cost-effectiveness analysis. It does not argue that economic criteria should be the only criteria used to set priorities, but it does demonstrate that they can be extremely useful.

Economic arguments and methods are complex, and the public or politicians may find them particularly difficult to understand. However, the use of economic techniques for priority setting in the health care sector is growing, and SRH managers need to engage with them if they are to ensure that SRH care is not neglected.