

## Review article

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# Ends versus means: the role of markets in expanding access to contraceptives

KARA HANSON,<sup>1</sup> LILANI KUMARANAYAKE<sup>1</sup> AND IAN THOMAS<sup>2</sup>

<sup>1</sup>Health Policy Unit, London School of Hygiene and Tropical Medicine, London and <sup>2</sup>School of Development Studies, University of East Anglia, Norwich, UK

Achieving and sustaining universal access to contraceptives are key policy goals of interventions supplying contraceptive commodities. Donor support for contraceptive supplies is substantial and many public and national programmes rely on donated and subsidized supplies of contraceptives. Sustainability of programme benefits is a concern to both national governments and donor agencies. At the same time, market-based provision of contraceptives has become a major source of contraceptives for individuals in a number of countries. While the goals or 'ends' of policy are to increase and sustain universal access to contraceptives, there is debate about the role of markets and their negative impacts on equity and universality. There is also concern that while public programmes supplying free contraceptives may, in the medium-term, achieve high coverage, they may hamper the achievement of long-term sustainability and the development of commercial markets. This paper focuses on the tension between the public health and market paradigms, and uses economic analysis as a framework in order to examine the relative roles or 'means' for subsidized public and commercial private sector supply of contraceptives. The review of the theory and evidence focuses on the trade-offs between public sector and market provision of contraceptives, examining the role for the public sector given the potential for market failures, the impact of public provision on the development of markets, and the role of price in demand. However, because of the potential conflict between these policy objectives, we argue that strategies to deliver contraceptives should be based on the specific characteristics of the context. In particular four variables (contraceptive prevalence rates, HIV prevalence, income level of country, size and geographic spread of private sector development) are important in characterizing this context, and these are highlighted in a matrix of programme priorities. Public choices need to take into account the ways in which they will affect the potential for development of sustainable private sources of supply. Undertaking a 'market assessment' should be a key stage in the analysis of policy options. Such an assessment should address demand factors, health priorities, actual and potential sources of supply and the relationships between public and private supply. Clearly the development of markets for contraceptives is not an end in itself, but may prove an important means of improving the health of women and men.

## Introduction

Achieving and sustaining universal access to contraceptives are key policy goals of interventions supplying contraceptive commodities. The provision of contraceptives occurs both in the context of family planning and prevention of sexually transmitted infections (STIs) including HIV/AIDS, and has an emphasis on delivering a range of contraceptives. The latter includes the challenge of finding effective ways to expand access to new products that are becoming available, such as female condoms, and eventually, microbicides. While there have been important successes in increasing access to contraceptives (for example, in Bangladesh), there is still substantial unmet need (Bongaarts 1997). Donor support for contraceptive supplies is substantial and many public and national programmes rely on donated and subsidized supplies

of contraceptives. Sustainability of programme benefits is therefore a concern to both national governments and donor agencies, though it is recognized that this is a long-term goal and that the poorest countries will continue to require external resources to support their health and population sector goals for the foreseeable future.

Sustainability can be thought of on two interrelated levels. First, sustainability usually implies lessening the reliance on external sources of resources, which in many countries means achieving an appropriate balance between national government and donor resources. This is referred to as the capacity for continuity. At a second level, sustainability can be understood to be concerned with the ability of the programme to secure sufficient resources locally (from national government

and private sources) and to use the resources effectively and efficiently (La Fond 1995).

Current debates about sustainability and contraceptive supply are concerned with both of these levels. In the context of donor provision of contraceptives (as for other public health commodities such as insecticide-treated mosquito nets), concerns for dependency and programme sustainability have led donors to revisit the role for subsidized supplies. Interest has grown in the potential for using commercial markets to reduce reliance on donors and mobilize local resources while increasing access to contraceptives. In the drive to improve sustainability and encourage the development of markets, there may be policy trade-offs, in which equity and universality of coverage are incompatible with the longer-term goal of sustainability. So while the goals or 'ends' of policy are to increase and sustain universal access to contraceptives, there is debate about the 'means', for example, the role of markets and their negative impact on equity and universality. At the same time there is concern that while public programmes supplying free contraceptives may, in the medium-term, achieve high coverage, they may hamper the achievement of long-term sustainability and the development of commercial markets. The balancing of these interests is of critical policy importance.

The aim of this paper is to review this current debate, examine the empirical evidence regarding the supply of subsidized contraceptives, and assess the extent to which this evidence can be used to guide policy choices. We focus on the tension between the public health and market paradigms, and use economic analysis as a framework for examining the relative roles for subsidized public and commercial private sector supply of contraceptives. We focus on three central issues: the rationale for public intervention in the presence of market failure; the impact of public intervention on the development of markets; and the effect of price on contraceptive demand.

Given the review of theory and available evidence we then present a framework for analyzing the market for contraceptives that can be used to guide policy-making in this area. We argue that a small number of contextual factors, and the way that these influence intermediate priorities, should shape policy choices. Though no general rules exist for resolving the conflicts between policy goals, a careful characterization of the context and of the conflicts among objectives can help to identify short- to medium-term actions consistent with the long-term objectives of sustainable contraceptive supply.

### **Current strategies for contraceptive provision**

There are a number of strategies or 'means' by which contraceptives are currently provided to people in low- and middle-income countries.

#### **Public sector distribution of contraceptive commodities**

Public sector contraceptive distribution occurs through various outlets such as health facilities and family planning clinics, depending on the nature of government programmes.

Contraceptives tend to be distributed through the public sector free of charge or at a nominal fee. Condoms may also be distributed through workplaces and health facilities. The quality of services provided by the public sector is often low, or perceived to be so, and availability may be irregular.

#### **Contraceptive social marketing (CSM)**

The main objective of CSM projects is to increase the availability and use of high quality, low cost contraceptives. Campaigns usually promote contraceptive use in general and, in particular, the sale of the social marketing organization's own brands. The strategy also aims to disseminate messages concerning family planning, STI/HIV/AIDS prevention, safe sexual behaviour and correct use of contraceptives. CSM is generally undertaken by non-governmental organizations. Typically, the prices at which contraceptives are sold cover the cost of the commodities, but not the costs of promotion or distribution.<sup>1</sup>

#### **Commercial provision of contraceptives**

This is undertaken by private for-profit firms. Contraceptives are provided through private pharmacies and other commercial outlets at market prices that aim to cover costs and include profit margins. Commercial contraceptives are generally targeted at the middle- to high-income population in a country.

#### **Sources of contraceptive supply**

What is the source of contraceptives for these public and CSM programmes? In many countries the public sector or national reproductive health programmes are reliant on donated contraceptive commodities. In addition, many CSM programmes in low- and middle-income countries also obtain contraceptive supplies from donors at low or subsidized prices. While information about the extent of donor contributions to commodity supply is now assembled annually by the United Nations Population Fund (UNFPA, undated a), there is still considerable uncertainty about the real magnitude of resource flows.<sup>2</sup>

As shown in Table 1, over the period 1990 to 1995, the United States Agency for International Development (USAID) provided about 45% of total support, UNFPA 25% and the International Planned Parenthood Federation (IPPF) 5%.<sup>3</sup> Although USAID was traditionally a major provider of commodities (historically supplying about 75% of all donated commodities), they have been reducing their role, because of general reductions in their aid programme and domestic political pressures. Other donors, for example the World Bank and the UK Department for International Development (DFID), have moved to fill this gap in contraceptive commodity supply. Though previously not a provider of commodities, 29 World Bank projects since 1990 have made provision for financing contraceptive supplies (through loans). Sixteen of these projects are in Africa, with relatively small lending amounts for contraceptives (\$3–6 million) compared with Bangladesh (\$25 million) and Pakistan (\$31 million).

**Table 1.** Estimated contraceptive commodity support by donor/agency, US\$000

	1990	1991	1992	1993	1994	1995	1996	Totals	%
<i>Bilaterals</i>									
BMZ/KfW			10 798	18 312	11 350	9 317	38 071	87 848	10.96
CIDA					1 385	4 514	7 249	13 148	1.64
Japan					28	315	300	643	0.08
Netherlands						102	n/a	102	0.01
ODA/DFID			4 125	4 712	7 192	10 924	9 205	36 158	4.51
SIDA			1 297	0	6	1 400	750	3 453	0.43
USAID	57 636	59 892	39 575	55 142	47 848	51 059	46 481	357 633	44.64
<i>Multilaterals</i>									
EU				180	6 122	6 510	9 215	22 027	2.75
UNFPA	14 752	21 499	18 534	27 817	34 087	37 857	37 610	192 156	23.98
WHO	957	975	628	483	968	1 663	2 099	7 773	0.97
World Bank						5 000	7 930	12 930	1.61
<i>NGOs</i>									
DKT						177	0	177	0.02
IPPF	5 843	5 410	6 204	6 165	6 258	6 746	6 003	42 629	5.32
MSI			568	1 173	405		0	2 146	0.27
Pathfinder			700	1 692	462	892	0	3 746	0.47
PSI			418	1 210	2 323	7 419	7 239	18 609	2.32
<i>Total</i>	79 188	87 776	82 847	116 886	118 434	143 895	172 152	801 178	100.00

Source: UNFPA (undated a) Donor Support for Contraceptive Commodities 1996.

Seven large countries received more than half of all donated commodities (Bangladesh, Pakistan, Nigeria, Kenya, Egypt, Philippines and Mexico). Bangladesh alone receives more than 25% of the total. In comparison, 128 other countries account for approximately 10% of all donated commodities (World Bank, undated).

Information on private expenditure for contraceptives is limited. One estimate puts the cost of all contraceptive commodities used in developing countries at \$528 million in 1994 with the private sector (including households) contributing about \$130 million (25%) (UNFPA, undated b). However, these aggregate figures disguise variation among countries. In particular, they include China and India, which have important domestic manufacturing capacity and are likely to have greater private financing of commodities.

### The debate: public health vs. market perspectives

Given the current structure of contraceptive supply to programmes and the concern for sustainability, two opposing perspectives define the debate about how best to expand access to contraceptives – public health and the market.

#### The public health paradigm

This paradigm sees contraceptive distribution as belonging to the public health service. The central approach is to promote distribution of free or low-cost commodities through the public sector infrastructure and NGOs. The public health paradigm tends to characterize ‘markets’ as belonging solely to the private sector, accessible only to the rich, and therefore not a viable strategy for reaching poor people. However, there is evidence that public services are often of poor quality (in the eyes of patients), and may not be accessible

for financial, geographic or cultural reasons. There is also growing evidence that poor people use the private sector for a range of health services (see, for example, Berman 1998 on India), though their use may be concentrated in the informal sector. The strengths of the public health paradigm lie in its emphasis on access and equity. Its weakness is that it tends to ignore the reality that markets for contraceptives exist, and that they may have the potential to provide a sustainable means of ensuring that contraceptives are accessible for sections of the population in the long run. Furthermore, *de facto* inequalities in access to public sector supplies occur because of resource limitations and selective service provision, for example, with more service delivery in urban than rural locations.

#### The market paradigm

This paradigm sees contraceptive distribution as being akin to the distribution of other goods. The distribution of contraceptives through (mostly private) markets will lead to the most efficient use of society’s resources. The actions of the public sector, particularly the distribution of subsidized commodities, may have a negative effect on the development of markets, by ‘crowding out’ the private sector. The market perspective recognizes the potential for markets to ‘fail’ in efficiency terms because of externalities and imperfect information. Markets can mobilize additional local resources from private individuals and households; however, this is on the basis of the ability to pay. A pure market approach is silent on equity issues. The strengths of the market paradigm are its emphasis on efficiency and sustainability. Its major weakness is its lack of guidance on issues related to equity and access.

Some of the key policy questions underlying the debate are the issues of equity and access or increased coverage, and the

means by which to achieve them sustainably. The central concern from the market-type paradigm is that long-term sustainability, which requires some level of market activity in most countries, may be jeopardized by the immediate goals of reaching high coverage. The questions about long-term sustainability and development of markets are of particular concern for donors involved in supplying subsidized contraceptive commodities.

### **Markets, market failure and the rationale for public intervention: the theory**

Economic theory provides a useful framework with which to explore these trade-offs and to consider the appropriate roles for market and public sector provision. Central to this framework is an understanding of how markets work, the critical role of prices in the operation of markets, and the existence of market failures and the rationale for public sector intervention. A key rationale for public sector involvement is that markets for contraceptives may fail. In this section we review the rationale for public sector intervention. The starting point for the analysis is consideration of how markets may operate in the context of contraceptive provision.

Markets operate by bringing together demand for commodities by consumers who are willing and able to pay for them, and sellers of these commodities who are able to recover their costs and possibly generate profits. Markets can be defined as occurring when there is exchange between suppliers and demanders of a particular product. Prices are critical in guiding behaviour in markets: excess demand will cause prices to rise, which will in turn induce additional supply from firms who realize that there are profits to be made. Where there is excess supply, prices will tend to fall and consumers will increase their purchases.

#### **Markets and market failure**

Economic theory uses the abstract concept of 'perfect markets', where demand is equated to supply at a market price, and where there is neither excess demand nor supply. Under restrictive assumptions, perfect markets can be shown to lead to the efficient allocation of society's resources, where individuals are making decisions that maximize their welfare, and suppliers produce the appropriate combination of goods and services at minimum cost. However, markets for most goods are not 'perfect' in this restrictive sense. Instead, a range of market failures may justify public action to reach social goals. Here we define market failures broadly, as situations in which market outcomes cannot achieve the desired social outcome. There are five types of market failure that may limit the provision of contraceptives through the market.

#### *Externalities*

When individuals purchase a good in a market, the amount of the good that is purchased is based on how they value the good and its benefits for themselves. This is described as the private benefit. However, there may be additional benefits for society or other people if individuals buy or purchase different goods. These additional or social benefits will not be

valued by individuals and this may result in under-investment in certain goods because the social benefits are not fully valued in individual decisions. An important externality associated with the use of barrier methods, including male and female condoms, is the cases averted by protection from STIs, including HIV/AIDS. Particularly where there is a high prevalence of HIV/AIDS and STDs, the positive externality associated with the use of these barrier methods means that one person or couple's decision to use a barrier method will result in a beneficial effect on the health of others, without an additional cost (Over 1999).

There are also externalities associated with population growth (such as economic growth, income distribution and environmental effects) which mean that the private demand for family planning will lead to a level of contraceptive use which is less than that desired from a societal perspective.

#### *Poverty*

Where individual or a household ability to pay is low such that access to commercially priced products is limited, markets will not achieve the socially desired level of use. In low-income countries where poverty is generalized, markets may not even exist.<sup>4</sup>

#### *Merit goods*

Merit goods are those goods which society believes should be widely accessible. Recent commentators have concluded that the most powerful arguments for providing subsidies for contraceptives are the health benefits for women and children of improved access, particularly those related to child spacing and maternal mortality (World Bank 1994). If at full market prices individual willingness to pay does not produce the level of consumption required to achieve these social benefits (because of the presence of either externalities or poverty), intervention in the market may be warranted. Merit goods differ from externalities in that they do not relate to additional benefits or costs associated with the consumption of contraceptives. Rather, merit goods represent the notion that there are optimal levels of contraceptive use within a society that might not be achieved in a functioning market.

#### *Information*

The demand for contraceptives and STI prevention is partly determined by the level of information about their benefits and the effectiveness of specific methods. Where information can be tied to a specific product, in the form of advertising, markets will produce information. However, the level of information needed to shift the demand for contraceptives to an economically profitable level may be so great that private firms are not willing to enter this market. This problem may be particularly acute for the introduction of new methods, such as female condoms. A second problem is that information has 'public goods' characteristics, i.e. the demand created for one particular brand of condom can spill over to competing brands. This means that markets will tend to under-supply information. This is particularly true for more generic messages such as the possibility of reducing fertility,

or the availability of alternative contraceptive methods. There is therefore a role for government in the provision of information.

### *Gender equity*

A final 'market' failure, which incorporates all of the above arguments, involves intra-household inequalities. Where women have restricted access to money, their demand for contraception may be constrained. The benefits of interventions to improve their access to contraceptives accrue both to society, through the externalities of childbearing, and to themselves, in the form of greater control over reproduction. Female controlled methods are particularly important here.

### **Market failure and the role for public intervention**

In the presence of any of these market failures, reliance on private markets alone will result in the demand for contraceptives being less than the ideal level for society. There are, therefore, economic arguments in support of government intervention to increase this demand. The choice of specific tools will depend on the specific types and magnitudes of market failures. Some, such as information failure and problems of poverty, apply to both STIs and family planning. The positive externality from preventing additional cases of communicable disease is particularly important for STIs. In the case of family planning, the evidence about the negative externalities of population growth for economic growth, distribution and environmental effects is mixed. However, there are strong merit goods arguments in support of public intervention that can help to bring the benefits to households of smaller families.

While the economic case for public intervention is therefore strong in both STI prevention and family planning, economic analysis is less helpful in identifying the appropriate form of intervention in a specific case. Governments may choose to: subsidize services in order to raise demand to the socially optimal level and help address problems of affordability; provide information directly; engage in other demand promotion activities; or provide commodities and services directly. However, in considering the alternative forms of government intervention it is important to recognize the risks of 'government failure', for example, in providing inefficient or low quality services. A careful assessment of the merits and risks of different forms of government intervention is critical to ensure that public health goals are met, and that resources are used efficiently.

Subsidies raise a number of specific issues. They work by attempting to increase the quantity demanded by reducing price. The subsidy level can vary from 0 (100% cost recovery) to 100% (free provision). An important problem is that it is not possible to reduce the price only for non-users: all users of a particular product will benefit from the price reduction. The net effect of a subsidy in increasing demand therefore depends on the relative numbers of new users who respond to the price change and old users who simply benefit from the lower price for something they were doing anyway (for example, by switching from an unsubsidized to a subsidized

source). Substitution of this latter type represents an inefficiency and is called a 'deadweight loss'. Its size will depend on the nature of demand in the market, and the responsiveness of demand to price. It may be possible to minimize the deadweight loss by targeting subsidies to those who are more likely to be non-users (for example, by geographical area, by type of outlet, or by producing specific products that are unlikely to appeal to higher income groups). Other forms of government intervention may suffer from the same form of inefficiency, for example mass media messages that predominantly reach people who are better informed. A final issue relating to subsidies is that the number of people who respond to a subsidy by increasing their demand will depend on the price elasticity of demand (see section below, 'The influence of price on contraceptive use').

### **Crowding in or out: what is the impact of public provision for the development of private markets?**

The preceding section argued that markets for contraceptives may fail, implying a range of roles for public sector intervention. However, it is also important to consider the effects that particular forms of public intervention may have on the operation of the private sector, particularly as it is still developing in many countries. It has been argued that the provision of free supplies through the public sector may undermine the development of a market for privately distributed commodities. This has been described as 'crowding out' of commercial markets. This occurs because people will not be willing to pay market prices for goods they can receive at low or no cost from public sector or CSM provision. The potential for this 'crowding out' of the private sector has traditionally received less weight than concerns for increasing access. However, as concerns for programme sustainability gain prominence, the possible conflict between goals has received more attention in donor discussions and in project design.

While crowding out of the private sector through widespread free or very low cost provision of supplies in the public sector is a possibility, in practice its importance is likely to vary enormously across country settings. In fact, at very low levels of contraceptive prevalence and private sector development, free supplies might actually 'crowd in' the private sector. Where poverty is widespread and disposable incomes low, there may be insufficient demand at commercial prices to warrant entry by a private sector supplier. Widespread provision of subsidized supplies, together with information and demand creation activities (health education, advertising, etc.), could cause an increase in demand, bringing it past the minimum threshold needed for a commercial supplier to earn profits, inducing entry, and thus actually creating a commercial market.

So in fact, charging a low price for public sector commodities could magnify the crowding-in effect, reducing the difference between the prices of the alternative sources. In addition, charging a low price for commodities could reduce leakage of public sector supplies into the private sector, where they compete with commercial or social marketing brands. Thus,

there may be both market development and efficiency arguments in support of charging a small price for publicly distributed commodities. However, even low charges will be unaffordable for the poorest, raising issues of how to guarantee access.

It is also important to remember that the choice of where to obtain commodities, even when they are available free of charge, is influenced by the total costs of accessing them. Where travel or time costs in the public sector are high, there will be demand for products from more convenient sources. The mere presence of subsidized commodities in the public sector is not sufficient for crowding out to occur.

Crowding out becomes more likely as demand increases (reflected in rising contraceptive prevalence) and where incomes are higher. There may also be geographic differentials, such that highly subsidized supplies are more likely to substitute for less-subsidized or commercial products in urban areas, where an active private sector exists, but less likely where private market penetration is lower, such as smaller cities and rural areas.

Very little empirical research has considered the impact of subsidized services on the use of commercially priced sources. The key problem with evaluating the different arguments is knowing what would have happened in the absence of free supplies (the 'counterfactual'). The limited evidence that exists tends to be descriptive and does not allow for firm conclusions.

#### **Crowding in?**

- Most countries where social marketing and commercial sources are now important began with widespread availability of free commodities.
- In countries which have experienced a rapid and sustained fertility transition, public sector supply has played an important role. Subsequently, it has been possible to promote commercial suppliers once a minimum level of demand has been created.
- A number of social marketing programmes have successfully achieved complete cost recovery and transferred activities to a private sector organization, even in the presence of large public sector condom distribution programmes (e.g. Zimbabwe) (Kincaid et al., undated)

#### **Crowding out?**

- There are a few examples of crowding out, but in general the picture remains unclear.
- The introduction of subsidized methods distributed through government health posts in north-eastern Brazil in the early 1980s led to only a very small change in overall oral contraceptive use. It was argued that the subsidized supply had drawn clients away from pharmacies where they were purchasing oral contraceptives at full price, and led to a decline in the number of pharmacies selling pills (World Bank 1993).
- Cross et al. 1991 (cited in Janowitz and Gould 1994) looked at 13 countries that had two household contraceptive prevalence surveys during the 1980s. In eight of the 13

countries, the private sector share declined between the two surveys, and in six of these, the absolute numbers of private sector users decreased. In the remaining five countries, the private sector share increased but no gain exceeded 5% between surveys. The public sector share increased in all countries.

- Data on changes in levels of private sector sales and market share in countries with social marketing programmes show no clear patterns in changes in the private sector share over time (Guy Stallworthy, Population Services International, personal communication).

There is little question that the introduction of subsidized products will cause some switching from higher priced commercial products. There is potential for conflict between coverage and sustainability goals. However, the magnitude of this switching must be compared with the gains in coverage, especially among key target groups, achieved by providing subsidized commodities.

The central issue in programme design is to recognize where the potential for crowding out is greatest. While the conflict between promoting access and promoting sustainability cannot be completely resolved, there are options for designing programmes that can reduce such conflicts. Branding of commercial and social marketing products may be an effective tool for minimizing crowding out. A good understanding of the importance of commercial sources is essential, and better targeting of subsidized commodities can help to reduce the impact on the private sector. It is important to keep in mind that private sector development is a dynamic process. What may be appropriate where there is substantial private sector development may not be feasible where there is very little commercial activity.

#### **The influence of price on contraceptive use**

The discussion in the previous sections has explored the rationale for public sector involvement in contraceptive supply, and also the potentially negative impact of public intervention on the development of markets for contraceptives. The degree to which price influences contraceptive use is the third and critical issue which should be considered in evaluating the appropriate balance between public and private roles in contraceptive supply. To what extent is price a barrier to contraceptive access and how can this information be used to inform the policy debate?

Use of contraception is determined by many factors, the most important being geographic proximity, cost to the user (including money price and other costs of using the service such as transport and time costs), and psycho-social barriers. Given the central role of price in the market, much of the debate surrounding the role of markets in the supply of contraceptives has to do with the influence of price on the demand for contraceptives. Two related questions are important: first, the extent to which subsidized commodities promote increased contraceptive coverage; and secondly, whether charging for contraceptives significantly reduces the quantity demanded. Here we review the available evidence about the sensitivity of demand to price.

### Subsidies and service coverage

Historically, subsidized supplies have played an important role in creating markets for contraceptives and in expanding coverage. Such subsidized supplies have usually been provided through the public sector and non-governmental organizations (NGOs). In turn, public sector provision is usually subsidized or provided free of charge. Data on contraceptive use are generally disaggregated by the type of outlet visited (e.g. family planning clinic, pharmacy, etc.) rather than by level of subsidy reflected in the price. It is assumed here that most countries charge zero or very low prices for services delivered in the public sector.

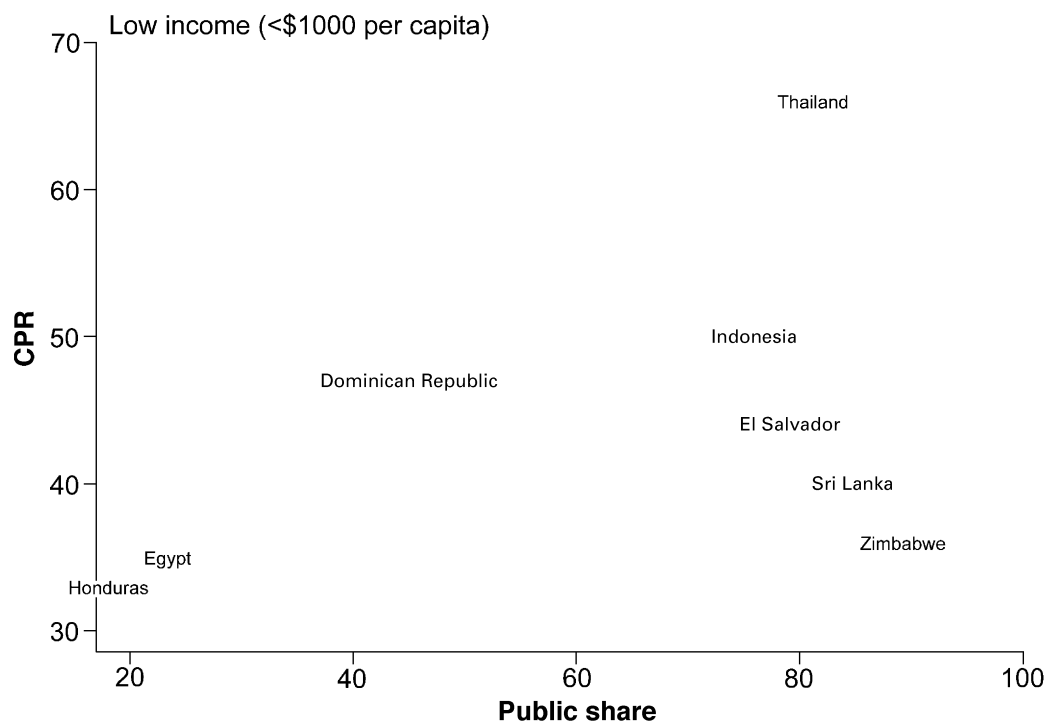
World Bank data suggest that public provision plays an important role in expanding coverage, and that the role of the public sector may be more important at lower income levels (World Bank 1994). Figures 1 and 2 show the relationship between the public share of provision and the contraceptive prevalence rate (CPR) for countries that have achieved a contraceptive prevalence level exceeding 30%. Three key findings emerge from these graphs. First, there are large variations in the public-private mix of contraceptive provision. The public share ranges from 19% in Honduras to 94% in Botswana. There are also very different patterns of distribution of the private sector between commercial and voluntary sources. Secondly, quite different patterns exist depending on the income group. In countries with levels of income less than \$1000 per capita, there is a positive relationship between CPR and the public share of provision (key outliers are Sri Lanka and Zimbabwe). However, for countries that are less resource constrained, there is a negative and

significant relationship between public sector share and contraceptive prevalence. Thus, public (subsidized) provision appears to play a more important role in low-income countries. Thirdly, even where the private sector dominates, the public sector tends to provide a minimum level of services (at least 25%), often claimed to serve as a safety net for low-income groups.

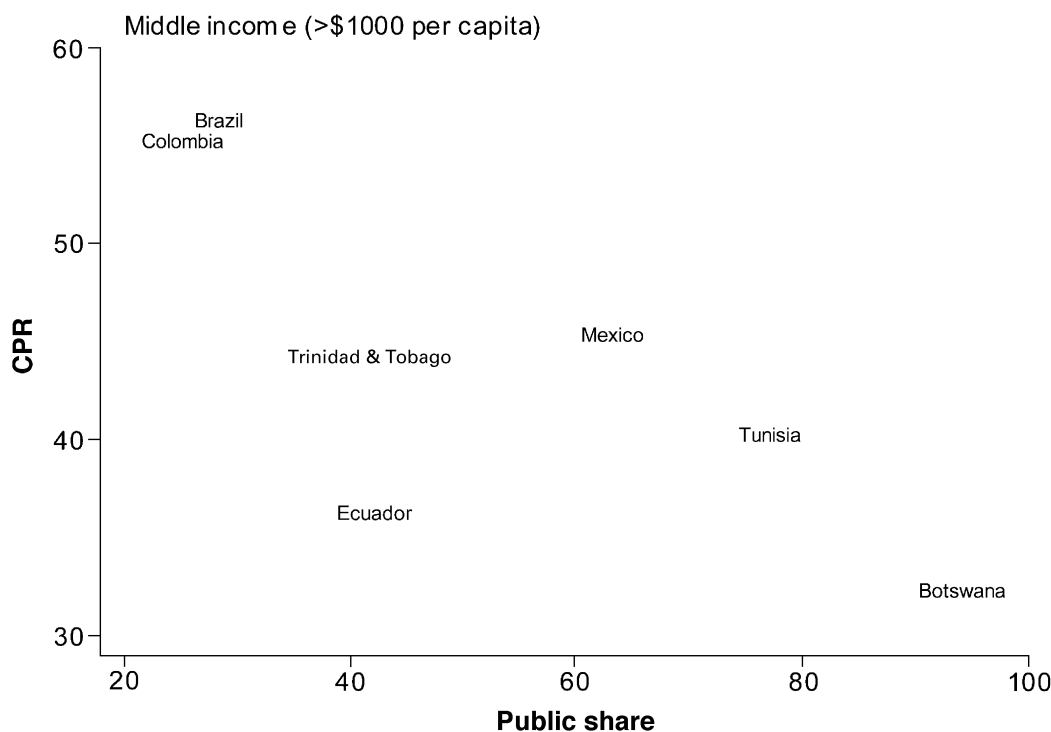
The main problem with most of this analysis is that association does not imply causality. It is difficult to evaluate whether the public sector is 'crowding out' the private sector (see previous section). Furthermore, the role of any subsidized delivery system also needs to be considered in light of its success in reaching specific target groups.

### Price elasticity estimates

With downward sloping demand, any increase in price will lead to decreased consumption. However, the measure used more commonly in economics is the price elasticity of demand, which measures the proportionate change in the quantity demanded of a good or service relative to a proportionate change in its price. The price elasticity of demand will vary with the initial price charged, the type of commodity/service, the size of initial cash outlay required, the presence of different types of contraceptives available (both methods and sources), the individual's income, and the perceived value of the commodity (Lande and Geller 1991). Demand is elastic if this measure is more than one. This means that consumers are quite sensitive to price changes, and will more than proportionately reduce the amount they will buy for a given increase in price. In contrast, if the price



**Figure 1.** Public sector contraceptive provision and contraceptive prevalence rate (CPR) for low-income countries with a CPR of over 30%



**Figure 2.** Public sector contraceptive provision and contraceptive prevalence rate (CPR) for middle-income countries with a CPR of over 30%

elasticity is less than one, consumers are less sensitive to price changes, and demand is inelastic. Price elasticity can be measured through econometric studies, observational studies and experiments, and willingness to pay (WTP) studies.

How does price affect the use of contraceptives? Existing studies do not provide a clear answer to this question. Lewis' (1986) summary of the early evidence found that:

- small price rises generally do not produce a large fall in demand;
- large price rises are usually associated with a large fall in demand;
- reducing prices almost always leads to an increase in uptake;
- in some circumstances, small increases in price (from free to a low charge) can increase demand because of the association of cost with value quality.

The findings of more recent studies are consistent with these conclusions, but also demonstrate that the interpretation of study findings requires a good understanding of the specific context in which the price change takes place.

An increase in public sector prices in Ghana in 1995 led to a large fall in distribution. However, a post-price rise evaluation showed that the increase in official prices only raised them to the levels being charged informally by health workers, and that the previous low prices were associated with leakage of commodities into the private sector. This leakage had previously been measured as supplies distributed through the public sector. The evaluators concluded that it

was unlikely that the fall in distribution represented a significant fall in use (Kress and Dayaratna 1997).

In Bangladesh in 1990, the prices of condoms and pills sold through social marketing were increased by an average of 60%. A dramatic decrease in condom sales (a drop of 46%) followed, with a smaller decrease in the sales of pills (Ciszewski and Harvey 1993). However, at the same time the government introduced charges for condoms, and this led to a diversion of government condoms to retail outlets and a decrease in retail stocking of the more expensive social marketing product. Although the increase in social marketing prices would have led to some decrease in sales, the concurrent change in government policy undoubtedly increased the impact on social marketing sales (Janowitz and Gould 1994).

In contrast to the above two examples, the argument that the increase in the social marketing price in Pakistan in 1991 reduced condom use, particularly among lower income groups, is bolstered by population-based evidence about changes in overall contraceptive prevalence. However, Agha and Davies (1998) also suggest that a reduction in cross-border leakage explains part of the decline in condom sales.

Low-income groups are more likely to be sensitive to price changes (Jensen et al. 1994), and free services may be most important for specific target groups. For example, Meekers (1997) presents evidence that publicly distributed free condoms in Cameroon are used more than social marketing products by sexually inexperienced adolescents, and by women.



Together, the observational studies of other family planning methods, mostly from Latin America, present a mixed picture of the effect of price changes on demand. Vargas et al. (1998) use both willingness-to-pay and experimental methods to estimate price elasticities for obstetric/gynaecological services, intrauterine device (IUD) revisits and antenatal care. They find elasticities in the range of 0.19 to 0.60, and that price changes in NGO clinics were not associated with clear patterns of change in the socioeconomic profile of users. However, Haws et al. (1992), looking at sterilization prices, and Leon and Cuesta (1993), examining IUD insertions, both found larger price rises associated with a larger fall in demand, and a shift towards a more middle-class mix of users.

While not measuring price elasticity directly, surveys (such as Demographic and Health Surveys) that ask about the reasons for discontinuing or choosing not to contracept typically find that cost and access are not important factors (Lewis 1986, for Brazil; Kress et al. 1995, for Ghana).

Finally, there is little analysis of the effect of introducing/raising charges for commodities in public facilities. The evidence that exists tends to be from observational studies, which need to be interpreted carefully. Studies that look only at sales from a single source are not able to capture the substitution among methods and sources (the patterns of switching) that would be expected to follow a price rise.

Thus, the evidence regarding the influence of price on contraceptive use is mixed at best, and does not provide clear guidance in the policy debate. The key issue revealed by the empirical studies is how complex and diverse contraceptive markets are, and that the total effect of price changes in one segment of the market is difficult to assess, as people may respond by shifting to other, less expensive, sources of supply. The market is also complicated by informal flows of commodities from the public to the private sector. This complexity has important implications for methods for studying markets, and for planning and implementing support to the contraceptive sector. For example, efforts to segment markets and target subsidies are not 'once and for all': changing price or brand or location can affect the demand for all products. It is clear, however, that price sensitivity will differ among socioeconomic groups, and that price changes will have a greater impact on use by those with low incomes.

### A framework for analyzing policy choices

The preceding sections have shown the following.

- Purely private sector distribution of contraceptives may be subject to market failures that would reduce contraceptive coverage below the socially desired levels. Therefore, there is a role for continued government action.
- Public intervention in the form of provision of free or subsidized contraceptives has the potential to 'crowd out' the development of the commercial sector. However, where there is very low demand for contraceptives because of, for instance, very low income or very limited information,

subsidized contraceptive supply can potentially 'crowd in' the private sector.

- Evidence on the extent to which price influences the demand for contraceptives is mixed.

Given these findings, how should policy-makers at the national and international levels think about the role of markets and subsidized contraceptive supplies? In this section we present an analytical framework that identifies some of the critical areas to be considered.

As outlined in the introduction, both the public health paradigm and the market paradigm contribute significant insights to the development of strategies for reaching the public health goals of coverage, equity, quality and sustainability of contraceptive supply. However, because of the potential conflict between these policy objectives, strategies to deliver contraceptives should be based on the specific characteristics of the context. For any individual donor or national government, prime considerations will be prioritization of the problem being addressed – be it HIV/AIDS prevention, children by choice, poverty reduction – and the volume of resources being allocated to the interventions. For example, HIV prevention in a large population (for example, India or Nigeria) could be multi-faceted and very expensive when attempting to achieve national coverage for all couples at risk, combined with widespread public education of those likely to be at risk in the medium term. Alternatively, a more limited objective and fewer resources could result in a narrowly focused intervention among vulnerable groups, such as those with high-risk occupations (e.g. sex workers, truck drivers) and high incidence groups.

Four variables (CPRs, HIV prevalence, income level of country, size and geographic spread of private sector development) are important in characterizing this context, and these are highlighted in Table 2. These can be related to the economic framework and case for public intervention. First, contraceptive prevalence is an indicator of the current level of demand for contraceptives. Where the CPR is low, priority should be given to promoting demand, since a deeply rooted change in behaviour (both in terms of family planning and the use of barrier methods to prevent STIs) will ensure that the demand for contraceptives becomes self-sustaining. Experience shows that achieving this behavioural change requires a diversified approach to service delivery, including public, private and NGO sources. Subsidies may be needed to encourage demand, and will be necessary to ensure access for the poor. However, where contraceptive use is already well established, it may be possible to shift towards market-based strategies.

A second factor is HIV prevalence and vulnerability. In settings where the HIV epidemic is already generalized (e.g. much of sub-Saharan Africa), the positive externalities from use of barrier methods may dominate absolutely and less weight may be given to the effect on the private sector and sustainability issues. Even here there may be a case for targeting high-risk groups if resources are constrained. In settings where the HIV epidemic is not yet generalized, the focus of efforts will be on reaching vulnerable populations who are at high risk of becoming infected with HIV.

**Table 2.** Matrix of programme priorities

	Nascent epidemic	Concentrated epidemic	Generalized epidemic
<i>Low CPR (&lt;15%)</i>			
Low income	Subsidized distribution through multiple channels, including public sector; promote range of methods; ensure access to free/low cost supplies for the poor; outreach services for hard-to-reach groups	Broad distribution of subsidized condoms (public sector and CSM); target high-risk groups, including adolescents (Ethiopia, Nigeria)	Broad distribution of subsidized condoms (public sector and CSM). Method mix: supplement barrier with non-barrier methods (Tanzania, Malawi)
Lower middle-income	Improve targeting of public sector services; promote other channels (including private sector) through commodity support (Central Asian Republics)	Broad distribution of subsidized condoms (CSM). Target high-risk groups, including adolescents	Broad distribution of subsidized condoms (CSM)
<i>Medium CPR (15–40%)</i>			
Low income	Improve targeting of public sector services; promote private channels; outreach for hard-to-reach groups; ensure access to free/low cost supplies for the poor (Madagascar)	Broad distribution of subsidized condoms (public sector and CSM). Target high-risk groups, including adolescents (Ghana)	Broad distribution of subsidized condoms (public sector and CSM). Promote commercial suppliers (Uganda, Kenya)
Lower middle-income	Improve targeting of public sector services, promote CSM and commercial sources	Broad distribution of subsidized condoms (CSM). Target high-risk groups, including adolescents (Guatemala)	Broad distribution of subsidized condoms (CSM). Promote commercial suppliers (Namibia, Lesotho)
<i>High CPR (&gt;40%)</i>			
Low income	Improve targeting of public sector services; outreach; ensure access for the poor (Bangladesh)	Target high-risk groups, including adolescents. Encourage method mix/ supplementation with condoms (India)	Encourage increased condom use (male and female)
Lower middle-income	Improve targeting of public sector services, promote CSM and commercial sources (Indonesia)	Promote condom use and some subsidized supply to encourage widespread use (CSM) (Egypt)	Broad distribution of subsidized condoms (CSM). Promote commercial suppliers; target high-risk groups (Botswana)

The income level of the country will also help to shape the strategies adopted. In very poor countries, it is unlikely that the majority of individuals will be able to afford full-priced, privately distributed contraceptives. However, in middle-income countries there is likely to be greater scope for promoting private sector supply (either commercial or subsidized social marketing products). Even in middle-income countries it will be necessary to ensure access for poor people. This may be done by geographical focus of interventions (deprived urban and rural areas), or by subsidies for supply channels likely to reach the poor (small pharmacies and market traders).

A final variable is the size and geographic penetration of the private sector (Figure 3). In countries where there is already significant private sector distribution of contraceptives, care should be taken not to discourage this sustainable supply by

undercutting with subsidized goods (either in the public sector or subsidized social marketing products). It will be important to recognize variations in the level of private sector development, which may be lower in rural areas and in smaller cities. In these areas, there may be a need to help to ‘crowd in’ the private sector by activities to create demand. This may involve providing subsidized commodities, but could also involve subsidizing promotion and demand creation activities.

Together these four variables can be used to shape programme priorities, to balance among competing policy objectives (ends) and to choose the appropriate means to achieve them. While trade-offs may exist, a clear understanding of the context and how this influences the relative weight attached to different objectives can help to ensure that short-term strategies are consistent with long-term goals. A next step is to develop assessment tools that can be used to collect

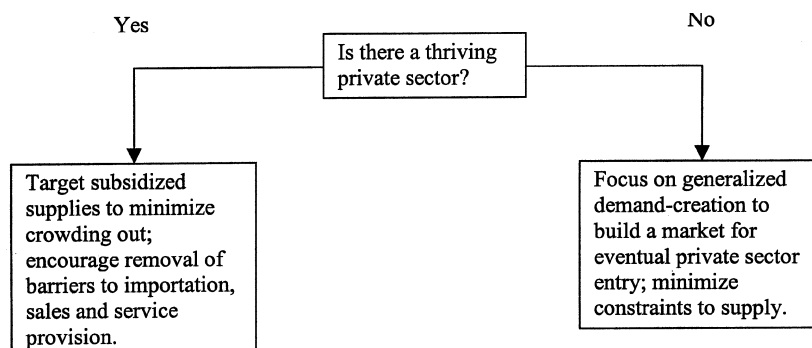


Figure 3. Private sector development and programme choices

information about the key contextual features, and to evaluate the potential for using markets to achieve public health goals.

## Conclusions

In reviewing the debate about the relative roles of public and market provision of contraceptive commodities, this paper has taken an economic perspective, highlighting some of the key issues that can help to inform policy choices. Interestingly, the same policy debate is taking place around the supply of other public health commodities, in particular, insecticide-treated nets for malaria control.

The review of the theory and evidence has focused on the trade-offs between public sector and market provision of contraceptives, examining the role for the public sector given the potential for market failures, the impact of public provision on the development of markets, and the role of price in demand.

On all three dimensions the evidence is mixed. This suggests that policy decisions need to take account of key features of the context. Of particular importance is how to balance the public health needs (contraceptive prevalence, HIV risk) against the resources available (income levels and potential demand, level of private sector development). Of course, where viable private markets are not present, the option for private sector participation does not exist, and governments will need to play the major role in ensuring access to contraceptives.

Public choices should take into account the ways in which they will affect the potential for development of sustainable private sources of supply. Undertaking a 'market assessment' should be a key stage in the analysis of policy options. Such an assessment should address demand factors, health priorities, actual and potential sources of supply and the relationships between the different sources of supply (including both public and private) in increasingly diverse and segmented markets. Clearly the development of markets for contraceptives is not an end in itself, but may prove an important means to improving the health of women and men.

## Endnotes

<sup>1</sup> Some social marketing programmes, mostly in middle-income countries, have 'graduated' from project assistance, and are able to charge prices that cover both direct and indirect costs (Kincaid et al. n.d.).

<sup>2</sup> Expenditure on donor-funded commodities is not consistent among sources, even for UNFPA estimates.

<sup>3</sup> Note that Table 1 also includes lines for organizations (e.g. PSI, UNFPA, IPPF) that receive direct funding from bilateral donors so that the estimates underestimate total bilateral commodity support.

<sup>4</sup> Strictly speaking, this is not a market failure but relates to the allocation of resources. However, where markets do not exist because of lack of demand, they cannot be relied upon to achieve social goals.

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## Biographies

Kara Hanson is a lecturer in health economics in the Health Policy Unit, Department of Public Health and Policy, London School of Hygiene and Tropical Medicine, London, UK.

Lilani Kumaranayake is a lecturer in health policy and economics in the Health Policy Unit, Department of Public Health and Policy, London School of Hygiene and Tropical Medicine, London, UK.

Ian Thomas was a senior lecturer at the School of Development Studies, University of East Anglia, and is now an independent consultant.

*Correspondence:* Kara Hanson/Lilani Kumaranayake, Health Policy Unit, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK.