

Family Planning Programs: Getting the Most for the Money

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At a time when funding for family planning programs is shrinking, it is important for donors to know how to get the most change in contraceptive prevalence per dollar spent. By some estimates, roughly half of family planning program funds, net of labor costs and capital outlays, are used to subsidize contraceptive prices.¹ Price subsidies may serve as an important source of income support for families, but it is not clear they have been cost-effective in increasing contraceptive use. Although researchers have studied the effect of contraceptive prices on contraceptive demand (commonly measured in terms of price elasticity), virtually none have compared the cost-effectiveness of contraceptive price subsidies to alternative expenditures on quality, promotion or distribution.

Lacking the data that such research could provide, donors and managers have designed programs around the little information that is available. In this case, it has often meant using estimates of price elasticity to argue for the subsidization of contraceptive supplies. Harvey, for instance, used the results of a regression of social marketing condom sales against social marketing condom prices to advance the commonly cited “1% rule” of contraceptive pricing—one couple-year of contraceptive protection should cost less than 1% of per capita income or gross national product.²

These types of arguments for price subsidies have two faults. First, the research on which they are based typically assumes that contraceptive users are incapable of switching brands or methods. Harvey, for instance, assumed that a drop in social marketing brand condom sales represented a decrease in contraceptive prevalence. In reality, consumers of contraceptives, like consumers of most other things, may substitute one brand or method for another when prices or other product differences suit them. Such research, then, may overestimate the importance of contraceptive price as a determinant of overall use.

The second fault with these arguments for price subsidies is more critical. Even if contraceptive use were extremely sensitive to price, that alone would not justify price subsidies. To make wise decisions about pricing, we need to know the cost-effectiveness of price subsidies relative to the cost-effectiveness of expenditures on other program activities.

BARRIERS TO CONTRACEPTIVE USE

At least six components contribute to the cost of contraception for users: the monetary cost of purchasing contraceptives; the search cost of acquiring information about methods and where to purchase them; the time and travel costs of obtaining them; the costs associated with side

effects of use; the variety-constraint cost of not getting one’s preferred method; and the psychic costs of using contraceptives despite perceived social disapproval.³

To reduce these costs and increase use, family planning programs divide their resources among efforts to subsidize prices, increase quality, promote contraceptive use and distribute methods. Price subsidies reduce the direct monetary cost of purchasing contraceptives. Money spent to enhance the quality of contraceptive supplies and services reduces side-effect costs, variety-constraint costs and, in the case of method switching, all the original costs associated with finding and purchasing a contraceptive method. Resources used for promotion—which includes information, education and communication efforts and behavior change communication activities—reduce the search and psychic costs of use. Expenditures on distribution reduce search and travel costs. Each of these types of expenditures thus reduces one or more of the costs of contraceptive use. We want to know which of these costs is the most critical barrier to contraceptive use, and which category of expenditure most reduces the cost per unit of funding by a donor.

Given the disproportionate allotment of program funds to price subsidies, one would assume the existence of substantial evidence that direct monetary costs are a significant barrier to contraceptive use. However, in all 56 countries with the relevant Demographic and Health Survey (DHS) data, fewer than 3% of married women not practicing contraception report that contraceptive prices are the reason for their nonuse. Moreover, in the 19 countries with relevant DHS data, fewer than 3% of married women who have discontinued contraceptive use cite price as the reason. This is true even in countries (Indonesia, for example) that have experienced severe contraceptive price shocks. When asked the most important barrier to use, most women report lack of knowledge about contraceptives, social opposition to their use or concerns about possible health side effects.⁴

Still, surveys cannot convey the full significance of price, given that highly subsidized supplies are available to many of those surveyed. Moreover, many respondents who are uninformed about contraceptives or not inclined to use them would not report price as a barrier to use, even if it could become one in the future. So although the surveys cast doubt on the importance of price as a determinant of contraceptive use, the unreliability of survey responses reinforces the need to measure price elasticity of demand from the actual behavior of contraceptive users.

PRICE ELASTICITY

The price elasticity of demand for a good is the proportionate change in the quantity demanded of that good relative to a proportionate change in its price. Some price elasticity studies of contraceptive use measure the decrease in consumption as a continuous variable, such as contraceptive sales. Others measure the decrease in consumption as a dichotomous variable, such as the use or nonuse of contraception.

Two types of price elasticity are worth distinguishing: “own-price elasticity,” the percentage change in sales of (or number of respondents using) a particular brand or method, divided by the percentage change in the price of that brand or method; and “overall-price elasticity,” the percentage change in the sales of (or number of respondents using) any brand or method, divided by the mean or median change in the overall price of contraceptives. From a public health perspective, increasing total effective contraceptive use is generally a more important goal than increasing sales of a particular method or brand. Likewise, overall-price elasticity is a greater concern than own-price elasticity.

Over the past two decades, more than two dozen studies have been published on the price elasticity of demand for contraception. Three previous reviews of these studies found the evidence was equivocal, in large part because of methodological problems.⁵ Most studies measured the effects of price on demand for a particular brand or method, not on contraceptive use as a whole; measured elasticities at low prices, where demand may not change; or were limited by selection bias, as price subsidies may target couples with a lower demand for contraception.

For the most part, the following observation made by Janowitz and Bratt in 1996 still holds true: “We know a lot more about the elastic properties of condoms than we know about the elasticity of demand for contraceptive products and services.”⁶ This is largely because research on price elasticity has continued to ask questions about own-price elasticity. This focus is in part the fault of donors, who often ask grantees only for sales figures as measures of impact.

When own-price elasticity estimates are used to estimate the effect of price on overall use, it is assumed that users who stop using a particular brand or method do so because they have stopped practicing contraception altogether. This assumption, however, is often incorrect. For instance, when Ciszewski and Harvey found that social marketing price increases in Bangladesh had caused a decrease in social marketing sales, they inferred that overall contraceptive prevalence had decreased.⁷ Nevertheless, Janowitz and Bratt found that contraceptive prevalence in Bangladesh had actually increased during that period. They concluded that users of socially marketed brands had simply switched to other brands and methods after the price increase.⁸

Studies in Morocco and Bangladesh have also found that brand or method discontinuation is often followed by use of another brand or method, or by an intentional pregnancy.⁹ To measure the net effect of price on contraceptive use, then, a study must account for brand and method substitution.

TABLE 1. Price elasticity of contraceptive demand, by study and country

Study	Country	Elasticity
Bratt et al., 2002	Ecuador	IUD, 0.1–0.5
Leon and Cuesta, 1993	Ecuador	IUD, 0.5
Agha and Davies, 1998	Pakistan	Condom, 0.5 among users in small cities; 0–0.1 among users in large cities
Ciszewski and Harvey, 1995	Haiti, Pakistan, Bangladesh	Condoms, 0.29–2.68; oral contraceptives, 0.3
Jensen et al., 1994	Indonesia	Oral contraceptives, 0.03–0.08 at public clinic; 0.2–0.3 at private clinic; injection, 0.8–1.5; implant, 0–0.04; IUD, 0–0.13; female sterilization, 0.05–0.36
Haws et al., 1992	Mexico	Tubal sterilization, 1.7
Akin and Schwartz, 1988	Jamaica, Thailand	Methods used by 85% of users, elasticity <0.1
McKelvey, 2003	Indonesia	Overall use, <0.08
Molyneaux, 2000	Indonesia	Overall use, 0.03–0.05
Levin et al., 1999	Bangladesh	Overall use, 0.0
Feyisetan and Ainsworth, 1996	Nigeria	Overall use, (+)0.02–(–)0.15†
Molyneaux and Diman, 1991	Indonesia	Overall use, 0.03

†Most elasticity values are negative, meaning that a price increase decreases consumption; thus, a negative value is usually assumed and the minus sign omitted. However, a price increase may sometimes increase consumption, for example, if some consumers interpret a higher price as signaling higher quality. Note: For full study citations, see reference 10.

Table 1 lists studies published between 1988 and 2003 on the price elasticity of contraceptives.¹⁰ The only studies to have measured the overall-price elasticity of current contraceptive use are based on longitudinal or cross-sectional data examined through regression analyses. These studies place price among a number of other variables expected to affect contraceptive use, such as education, age, religion, ideal number of children and so on. The independent effect of price on use is then isolated from these other variables to establish price elasticities.

Of the five studies to measure overall elasticity, elasticities ranged from 0 to 0.15.¹¹ That is, for every 100% increase in mean or median contraceptive prices, contraceptive use decreased by 0–15%. These results are consistent with two other studies that estimated the overall-price elasticity of fertility, rather than contraceptive use. Schultz estimated that the price elasticity of fertility in a sample of countries was 0.05.¹² Pritchett estimated the price elasticity of fertility in the Matlab project in Bangladesh as 0.06–0.17.¹³

PRICE SUBSIDIES

Two of the studies allow us to make educated guesses about the cost-effectiveness of price subsidies in the unique laboratory provided by Indonesia. Between 1991 and 1997, contraceptive prices doubled in real terms because of the financial crisis, allowing us to measure elasticities over broad price ranges. Contraceptive use was barely affected, however, even among those paying 2% of their per capita in-

come for a couple-year of contraceptive protection.

Using panel data from Indonesia during this period, McKelvey estimated that increasing 1997 median contraceptive prices by 100% would decrease use by 0–8%, and found no statistically significant difference in price sensitivity between poorer and richer households.¹⁴ Molyneaux estimated that increasing mean contraceptive prices by 100% would decrease use by 3–5%; elasticities were largest in the poorest quartile (0.05).¹⁵

Elasticities can be converted into estimates of the cost-effectiveness of price subsidies. In Molyneaux's study, elasticity was 0.05 or less at the mean contraceptive price of around \$4.88 per couple-year of protection in 1997 (in 2001 international dollars). Thus, in a population of 100 users, with total contraceptive use equal to 100 couple-years of protection, an additional price subsidy of \$244 (cutting the price in half for each user) would increase contraceptive use at most by 2.5%—or 2.5 couple-years of protection. An investment of \$244 for 2.5 couple-years of protection equals a cost-effectiveness ratio of \$97.60 per new (or retained) couple-year of protection. McKelvey's elasticity estimate, at the 1997 price, translates to a cost of around \$61 per couple-year of protection (in 2001 international dollars).

The few studies to look at overall contraceptive use suggest that price elasticity is low, even among lower-income groups. Though price changes may cause significant switching among brands or methods, the price of contraceptives does not appear to substantially affect the decision to use family planning.

But suppose overall price elasticity were much higher. Should program managers spend more of their funds subsidizing prices? Or, in the case of donated commodities, should donors spend their funds on bulk purchases? Not necessarily. There is little question that contraceptive demand has some price elasticity. The important question is whether elasticity is so great that expenditures on price subsidies will increase contraceptive prevalence more than identical expenditures on promotion, distribution or quality improvement.

OTHER ACTIVITIES

DHS data suggest that three of the major barriers to contraceptive use—lack of knowledge about family planning methods, social opposition to their use and concerns about health effects—are affected by promotional activities. Studies examining data from numerous countries suggest that exposure to promotional messages through television, radio and print media increases the likelihood of contraceptive use, independent of price.¹⁶ However, few studies have measured changes in contraceptive use overall, rather than use of a particular method, and even fewer studies have published program costs.

Only three studies—by Robinson and Lewis in Egypt, by Yun and colleagues in Turkey and by Piotrow and colleagues in Zimbabwe—appear to have done both. In these studies, media campaigns increased method use at a cost per new contraceptive user of \$3.26, \$1.36 and \$3.57 (in 2001 dol-

lars), respectively.¹⁷ The costs per couple-year of protection would be even lower if new users continued contraceptive use for more than one year, on average. However, these and other evaluations of promotion campaigns depended on respondents' recollection of promotional messages and were therefore likely to overestimate effects because respondents who are already interested in practicing contraception are more likely than those who are not to remember having seen contraceptive advertisements. Thus, the actual cost-effectiveness of these programs is uncertain.

Perhaps a more promising approach is one adopted by Brinkley, Walsh and Mitchell, in which fertility rates in Ecuador over 21 years were regressed against variables that included the annual costs (broken down by line item) of family planning programs.¹⁸ According to their results, spending on promotion was a significant predictor of fertility rates, whereas spending on contraceptive supplies was not. Further analysis, using program costs from 22 countries, indicated that spending on promotion was a better predictor of contraceptive prevalence than was spending on contraceptive supplies. If more programs were to publish their costs, additional studies of this kind would be possible.

How cost-effective are expenditures on distribution? A common conclusion is that inadequate physical access to supplies and services is not one of the predominant causes of unmet need.¹⁹ But there are exceptions among countries with very low contraceptive prevalence, such as Ghana and Pakistan.²⁰ In Nigeria, availability of contraceptive methods has been more important than price in predicting contraceptive use.²¹ But without knowing the costs of improving both price and availability, these studies cannot help us decide how much to spend on distribution.

The evidence is a little clearer for measures of quality, such as the range of method choice, private vs. public provision, waiting times and the caliber of counseling. Contraceptive discontinuation rates are strongly affected by the range of contraceptive methods available to users—no single method works for all couples, and a lack of access to a method that meets their needs leads many couples to abandon contraception altogether. Several studies have likewise shown that contraceptive use rises with greater method choice and increases in quality.²² In the Philippines, providers who added another contraceptive method to those already available increased contraceptive use by an average of five percentage points.²³ These findings are corroborated by experiments in Bangladesh, Taiwan, India, Thailand, South Korea and Hong Kong in which contraceptive prevalence increased after the introduction of additional methods.²⁴

How do the effects of expenditures on quality compare to those of expenditures on price subsidies? Studies of family planning and other health programs suggest that quality improvements can more than offset the demand-reducing effects of price increases, even among poor clients.²⁵ Many contraceptive users perceive supplies or services from private sources as being of higher quality than those from

public sources.²⁶ One study in Ghana likewise suggested that privatizing family planning facilities would be more cost-effective in increasing prevalence than would distributing all family planning supplies at no cost.²⁷ According to other studies, large numbers of even the poorest users obtain their contraceptives from private sources for a fee, despite the availability of free or highly subsidized supplies, suggesting that clients are willing to pay higher prices for services or supplies they perceive as being of sufficiently higher quality.²⁸

Improvements in quality can even reduce costs. At clinics, improving client flow and shifting service delivery from physicians to nurses can increase quality by decreasing waiting times and improving the counseling clients receive; at the same time, these improvements decrease clinic costs. One clinic in Guatemala was able to double the number of clients served by improving client flow, with no change in clinic hours or staffing costs.²⁹

FURTHER RESEARCH

We know little more now than we did 20 years ago about the relative cost-effectiveness of expenditures on various family planning program activities. Few programs have evaluated their effectiveness, and even fewer have published their costs. We do know that price elasticity estimates alone are not sufficient to set priorities in program spending. Subsidizing prices should be seen as one of several activities competing for scarce funding. At both the donor and the program level, funds should be directed to the most cost-effective ways to realize program objectives. These activities are likely to vary among target groups and to depend on existing knowledge of, attitudes toward and access to contraceptives. Donors should likewise encourage programs to conduct marketing research before launching programs, and to identify the local barriers to contraceptive use and the most cost-effective measures to lower these barriers. In addition, donors should encourage programs to evaluate the effectiveness of their projects, using methods that account for brand and method switching, and to publish their costs, so that future projects can be better informed.

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Acknowledgments

The David and Lucille Packard Foundation funded the research on which this Viewpoint is based. The author thanks Françoise Armand, John Bratt, Steve Chapman, Karen Foreit, Barbara Janowitz, Ahmed Khwaja, Dominique Meekers, Jack Molyneaux and Reed Ramlow for comments on an earlier version.

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