The Economics of Pricing Health Products

The current practice of charging money for life-saving health products in developing countries is a source of controversy among policymakers.

Opponents argue that the practice is unfair and that fees will result in goods only reaching the richest of the poor. Advocates of pricing, including nongovernmental organizations, argue that free products will not be valued or used. New research suggests charging money for these products could lead to more intensive product use, and thus greater health benefits.

“In a market system, prices serve as an efficient allocation mechanism, ensuring that the people who really value goods and services are the ones getting access to them,” explained assistant professor of economics, Jesse Shapiro of the University of Chicago.

Many social programs focused on improving health in developing countries require active participation. Unlike a one-time vaccine, products ranging from condoms to insecticide must be utilized regularly to have any health benefit. The crucial role of household behavior in

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making such offerings work has led practitioners to search for new ways to ensure regular use among those receiving these products.

In the new study “Can Higher Prices Stimulate Product Use? Evidence from a Field Experiment in Zambia,” Professor Shapiro, along with Nava Ashraf of Harvard Business School and James Berry of the Massachusetts Institute of Technology, presented results from Lusaka, Zambia, on whether charging more for a home water purification product (Clorin) resulted in greater use of the product.

Almost 1.2 billion people worldwide lack access to clean water, with waterborne diseases killing approximately 3.1 million people per year. Products like Clorin, distributed by the Society for Family Health (the Zambia division of the global nonprofit PSI), are a promising tool for addressing this problem. Clorin kills pathogens in household drinking water, reducing the incidence of waterborne illnesses that are especially dangerous to young children.

To study whether charging more for Clorin would result in greater use, the authors designed an experiment that would examine two different ways pricing might have an effect. On one hand, charging a higher price might help target distribution to those who intend to use Clorin the most. On the other hand, the act of paying—or the amount paid—might directly influence use if households felt they must utilize a product to justify the expense. These two scenarios—which the authors respectively call the “screening” and psychological effects of prices—combined to influence behavior.

The authors found strong evidence that higher prices screened out less intensive users of Clorin. For a given transaction, increasing the offer price by 10 percent resulted in a 3.6 percent increase in reported use among buyers.

“We now have direct experimental evidence that people who really intend to use this health product are exactly the people who are willing to pay higher prices for it,” Shapiro said. “The principle that prices can help you identify the people who are serious about using a product or service is likely to have wide applicability.”

Turning to the psychological effect of prices, the authors found no evidence that charging a higher price causes households to increase their use of Clorin. However, their evidence suggests that paying something, as opposed to paying nothing, may cause greater use among recipient households.

The Field Experiment
“The strength of our research methodology is separating the two effects of prices: determining the composition of buyers and the decision to use the product,” Shapiro said.

The study consisted of a baseline survey, a marketing session, and a follow-up survey. The survey design allowed the authors to study households that paid different prices and to determine whether the price paid affected the decision to use the product. Variations in the offer price allowed the authors to study the impact of prices on the composition of buyers.

The baseline survey covered 1,260 households in Lusaka in May 2006, collecting basic demographic information as well as information about health attitudes and water treatment. In the last section of the interview, the surveyor tested the household’s drinking water for the presence of chlorine.

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Using the results of the marketing sessions, Ashraf, Berry, and Shapiro explored the effect of offer price on a household’s likelihood to purchase Clorin. As expected, higher prices resulted in fewer purchases. Raising the offer price by 100 Zambian Kwacha (Kw) reduced demand by about seven percentage points.

The households that chose not to buy when the price was high tended to be those with a relatively low likelihood of using the product. As a result, use was highest among households that agreed to pay the most for Clorin.

Moreover, the authors found some evidence that households that had transacted for a positive price tended to use Clorin more, though this effect was not statistically significant. Consistent with psychological theory, this effect was especially strong for households that reported they value purchased products more than free products.

Overall, the study reports strong evidence for screening effects, but mixed evidence for psychological effects of prices on use.

**Optimal Pricing Policies**

The authors combined estimates of screening and psychological effects of prices to develop a model that predicts product use based on price. Charging higher prices for Clorin reduced demand, but helped target distribution to those households most likely to use the product.

For example, switching from a free giveaway of Clorin to a sale at the common retail price of 800Kw increased the proportion of usage among buyers by almost 30 percentage points. Most of this effect came from changes in the composition of purchasing households, though some also may have come from the psychological effect of the act of paying.

According to the policy simulation, moving from free distribution to a price of 100Kw increased usage by about 6.5 percentage points. Thereafter, use tended to decline with price, but this decline was relatively gradual because of the screening effects.

The authors found that usage did not decline below the level achieved with free distribution until the price exceeded 700Kw per bottle of Clorin.

Put differently, the authors found that the screening and psychological effects allowed a firm or government to achieve the same level of Clorin use while charging a higher price. This, in turn, means that the Clorin program could produce greater revenue, which could in turn be reinvested in advertising to promote use or be redirected to other valuable social programs.

**Pricing Controversy**

Understanding the screening and psychological effects of prices is critical to resolving public policy debates over the appropriateness of user fees for access to social products and services.

Ashraf, Berry, and Shapiro’s findings have important implications for economics and psychology, as well as for private and public sector industries where product use is an important consideration.

“Our findings offer a new way to think about the pricing controversy,” Shapiro said. “Charging higher prices for health products does have an obvious downside, which is that fewer people will get access; but the benefit is in targeting the distribution of the product to the people most likely to use it, as well as creating greater revenue for social programs. These issues need to be weighed against each other when making policy decisions about setting prices.”

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**PPS Welcomes New Certification Program Director**

New PPS Executive Julie R. Martin joined the Professional Pricing Society in 2008 as the Certification Program Director. Julie has been involved with continuing education for the past 15 years, both at a national association as the Education Manager and at a major healthcare organization as the Training Program Leader for pediatric and family practice interns and residents. With an undergraduate degree from the University of Wisconsin (Madison) and a Master’s degree from Columbia University College of Physicians and Surgeons (New York City), Julie offers a number of transportable skills to PPS that include planning, coordinating, implementing, and evaluating continuing professional development, certification and industry-related programming. She is a member of the American Society of Association Executives and the Center for Association Leadership (ASAE) and The Georgia Society of Association Executives (GSAE).