The Role of Exposure, Social Networks and Marketing Messages in Households' Willingness to Pay for Malaria Prevention in Kenya

Researchers:

Pascaline Dupas

Sector(s): Health

Fieldwork: Innovations for Poverty Action (IPA)

Location: Western Province, Kenya

Sample: 1,120 households from 6 rural areas

Target group: Rural population

Outcome of interest: Citizen satisfaction Malaria

Intervention type: Social networks Preventive health Subsidies

AEA RCT registration number: AEARCTR-0000665

Data: Download from Dataverse

Partner organization(s): Acumen Fund, CFW Shops, Sumitomo Chemical

In 2006, malaria was responsible for one out of every four child deaths in Kenya, impacting economic growth and productivity. This study evaluated the impact of subsidies and two different marketing messages on the take-up of insecticide-treated bed nets by rural households. Take-up did not vary with the framing of marketing messages but was highly sensitive to changes in price. Gaining access to a highly subsidized bed net in the first year also increased households' willingness to pay for an additional net a year later.

Policy issue

In 2010, an estimated 7.6 million children died before the age of five. It is estimated that nearly two-thirds of these deaths could be averted using existing preventative technologies, such as vaccines, insecticide-treated materials, vitamin supplementation, or point-of-use chlorination of drinking water. A key policy question is how to increase the availability and adoption of these technologies. In particular, what are the roles of prices, social networks, and marketing in the adoption of such products? A commonly proposed way to increase adoption in the short-run is to distribute those essential health products for free or at highly subsidized prices. The rationale for some subsidization is evident for health interventions that generate positive health externalities. In addition, when the majority of the population is poor and credit-constrained, subsidies might be necessary to ensure access to the technologies.

For products like vaccines, one-time adoption is sufficient to achieve the eradication of the corresponding disease—every child needs to be immunized only once. But other products, such as water treatment kits or anti-malarial bednets, require sustained adoption and use to generate the hoped-for health impact. A key question is whether policies aimed at achieving immediate adoption of such technologies increase or dampen their long-term use. It is often argued that free or highly subsidized distribution may generate an "entitlement" effect, whereby beneficiaries anchor around the subsidized price and refuse to pay for

the product once the subsidies are lifted. Furthermore, if people do not put free products to good use, incorrect information about the quality of the product might diffuse through the community. In this context, marketing messages might be important to increase adoption.

Context of the evaluation

In Kenya, malaria is responsible for one out of every four child deaths.[1], It impacts economic growth and productivity, and almost 170 million working days are lost annually in Kenya due to the disease.[2], Insecticide-treated bed nets (ITNs) are used to prevent malaria infection and have been proven highly effective in reducing maternal anemia and infant mortality, both directly for users and indirectly for non-users with a large enough share of net users in their vicinity. ITNs have been shown to reduce overall child mortality by 18 percent on average in Sub-Saharan Africa and reduce morbidity for the entire population.[3] At the time of the study, ITNs were available at a subsidized price of US$1.50 in local stores in Western Province. A new generation of ITNs was approved by the WHO in 2001 and mass-produced starting in 2006: the long-lasting ITN (LLIN), which keeps its insecticide properties for its entire lifespan (typically four to five years).



A man and woman assemble a bed net in rural Kenya.

Photo credit: Aude Guerrucci | J-PAL/IPA

Details of the intervention

Households were given a voucher for a LLIN at a randomly assigned subsidy level, ranging from 40-100 percent. The final prices ranged from 0 to US$3.80 and households had three months to redeem their voucher. Twelve months after the distribution of

the first LLIN voucher, households received a second LLIN voucher, redeemable at the same retailer as the first LLIN voucher received a year earlier. Unlike the first voucher, however, all households faced the same price (US$2.30) for this second voucher. By comparing the take-up rate of the second, uniformly-priced voucher in the second phase price groups, researchers are able to test whether being exposed to a large or full subsidy dampens or enhances willingness to pay for the same product a year later.

This study also evaluated the effects of two interventions based on behavioral models derived from psychology: varying the framing of the perceived benefits and having individuals verbally commit to purchase the product. At the time they received their first voucher, households were exposed to a randomly assigned marketing message. The “health framing” group emphasized the morbidity and mortality due to malaria which could be avoided by using the net. The “financial framing” group emphasized the financial gains households would realize (from averting medical costs and loss of daily income) if they could prevent malaria. A third group received no marketing message. Finally, a randomly selected half of all the households were asked to verbally commit to buy the ITN, and state who would sleep under it once they had bought it.

Results and policy lessons

Price Sensitivity: The demand for malaria-preventing bed nets in Western Kenya is very price sensitive: take-up is almost universal for free LLINs (at 97.5 percent subsidy), but drops to around 30 percent when the price increases to 100 Ksh (US$1.50). Although the price effects are large, the price elasticity observed here is lower than that found in other similar studies, possibly because households in this experiment had three months to redeem their voucher, and therefore time to save for the price of the net.

Marketing Effect: Neither of the two framing options (health or financial) had any impact on LLIN take up, and women to do not appear to have a different price elasticity than men. Likewise, the verbal commitment treatment had no impact on actual investment behavior, despite a 92 percent initial agreement to purchase the LLIN .

Long-term adoption: Gaining access to a highly subsidized LLIN in the first year increased households’ willingness to pay for an additional LLIN a year later. Households who had to pay 50 Ksh (US$0.75) or less for their first LLIN were 7.2 percentage points more likely to invest in a 150-Ksh (US$2.30) LLIN one year later than those who faced a higher price for their first LLIN. About 90 percent of households surveyed said that the LLIN was better than other bednets they had owned in the past. During the first follow-up survey, the main reasons given for why the LLIN was better were its comfort level (37 percent), sturdiness (40 percent), and health effectiveness (26 percent). Taken together, these results suggest that households who initially received a high subsidy were more willing to pay a higher price for an additional LLIN because they learned about its quality and health effectiveness by using it over a period of time.

Diffusion Effects: People’s positive experience with bednets trickles down to others in the community: households facing a positive price were more likely to purchase the LLIN when the density of households around them who received a free or highly subsidized LLIN was greater.

Dupas, Pascal. 2009. "What Matters (and What Does Not) in Households' Decision to Invest in Malaria Prevention?" American Economic Review: Papers & Proceedings 99(2): 224-230. Dupas, Pascaline. 2014. "Short-Run Subsidies and Long-Run Adoption of New Health Products: Evidence from a Field Experiment." Econometrica 82(1): 197-228. Bhattacharya, Debopam, Pascaline Dupas, and Shin Kanaya. "Estimating the Impact of Means-tested Subsidies Under Treatment Externalities with Application to Anti-Malarial Bednets." Working Paper, Stanford University, July 2013.

1. As of 2006, The World Bank, “News & Broadcast: World Bank Intensifies Anti-Malaria Efforts in Africa”, http://go.worldbank.org/IWWIICOOC0. (Accessed August 26, 2009)

2. The World Bank, “Booster Program for Malaria Control in Africa – Kenya,” http://go.worldbank.org/EGMG4G6DX0. (Accessed September 14, 2009)

3. World Health Organization Global Malaria Programme. (2007.) “Insecticide-treated Mosquito Nets: a WHO Position Statement.” Accessed 13 July 2012. http://www.who.int/malaria/publications/atoz/itnspospaperfinal/en/index..... pp. 3.