Journal of Health Economics 48 (2016) 107–120

Contents lists available at ScienceDirect

Journal of Health Economics

journal homepage: www.elsevier.com/locate/econbase

How to sell a condom? The impact of demand creation tools on male and female condom sales in resource limited settings

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ARTICLE INFO

Article history:
Received 18 September 2015
Received in revised form 23 March 2016
Accepted 22 April 2016
Available online 30 April 2016

JEL classification:
I1

Keywords:
Advertising
Consumer demand
HIV prevention
Dynamic panel data estimators
Condoms
Low and middle income countries

ABSTRACT

Despite condoms being cheap and effective in preventing HIV, there remains an 8 billion shortfall in condom use in risky sex-acts. Social marketing organisations apply private sector marketing approaches to sell public health products. This paper investigates the impact of marketing tools, including promotion and pricing, on demand for male and female condoms in 52 countries between 1997 and 2009. A static model differentiates drivers of demand between products, while a dynamic panel data estimator estimates their short- and long-run impacts. Products are not equally affected: female condoms are not affected by advertising, but highly affected by interpersonal communication and HIV prevalence. Price and promotion have significant short- and long-run effects, with female condoms far more sensitive to price than male condoms. The design of optimal distribution strategies for new and existing HIV prevention technologies must consider both product and target population characteristics.

1. Introduction

Since the onset of the HIV epidemic around 50 million HIV infections have been averted by the use of condoms (Stover, 2014). Condoms are cheap and highly cost-effective. However, in 2012, 2.3 million people still became infected with HIV (Joint United Nations Programme on HIV/AIDS, 2013). A recent UNAIDS meeting identified a condom gap of over 8 billion condoms, i.e. the difference between the UNAIDS target condom use in risky sex acts and actual use, with an annual use of just eight condoms per sexually active person in sub-Saharan Africa (Deperthes, 2014). Though there is new optimism that bio-medical tools exist to stem the HIV epidemic in the form of anti-retroviral (ARV)-based HIV prevention (Fauci and Folkers, 2012), these are service intensive, expensive, and not widely available. Achieving high levels of uptake of preventive interventions is particularly challenging because it requires a change in behaviour among populations who may not perceive themselves to be at risk, feel ill or face barriers, real or perceived, to accessing products and product support. For condoms and new HIV prevention products to fulfil their public health potential they must be used widely and effectively; this requires both ensuring consistent and accessible condom supplies and demand creation activities such as mass media advertising and inter-personal communication (IEC) promotion approaches.

Though public sector distribution may be free or very cheap for consumers to access public health products, it has a number of potential drawbacks such as limited opening hours, inconsistent supply, and low perceived quality of products and services (Hanson et al., 2001). Where private sector markets do exist, prices are often too high for those who need the products most. Additionally, competitive prices will be above the socially optimal price for HIV prevention because they are not capturing external benefits to society attributable to reductions in HIV. To fill this gap, social marketing organisations have been active for decades, initially distributing subsidised contraceptives including condoms, and more recently expanding to a range of public health commodities and services, such as mosquito nets, voluntary counselling and testing services, and male and female condoms for HIV prevention.

Social marketing is the application of private sector demand creation tools to stimulate positive behaviour change (Kikumbih et al., 2005). In particular, consideration is given to the four Ps: product,

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http://dx.doi.org/10.1016/j.jhealeco.2016.04.001
0167-6296/

promotion, price and place (Grier and Bryant, 2005). Branded products aim to segment the market and appeal to different user groups. Promotion applies both generic advertising to increase the overall market size as well as branded advertising to appeal to different user groups, and interpersonal communication strategies. Differentially priced products allow for cross-subsidisation of high to low priced products, with the higher priced products capturing more of the consumer surplus, whilst providing a low-end product to ensure broad access. Additionally, having a sufficiently low, but positive, price aims to instil a sense of value and has been shown to have lower wastage associated with freely distributed condoms (Chapman et al., 2012). Subsidised products tend to be placed within the private sector retail distribution networks to increase outlets, while being sold by retailers for a profit, to ensure consistent supply and sustainability. In many countries, social marketing is now the dominant source of condom supply (Chapman et al., 2012). Because social marketing applies traditional demand stimulation tools to public health, while public sector distribution generally does not, it provides an opportunity for studying the effectiveness of these tools for stimulating demand for new and existing HIV prevention products, in the absence of private markets. Understanding drivers of demand for the male and female condom not only informs programmes on how to better stimulate demand for existing products, it also provides lessons that can potentially be applied to the introduction of both new single ARV based HIV prevention products and multi-purpose products that prevent both HIV and other infections or unwanted pregnancies.

No recent studies have addressed these questions. Brent (2009) estimated individual conditional demand for social marketing condoms in Tanzania and found a price elasticity around 1 with a strong influence of quality on willingness to pay, but did not allow price elasticity to vary by gender, though 86% of respondents (condom purchasers) were men. Sweat et al. (2012) reviewed the literature on the contribution of condom social marketing on condom use and their meta analysis showed that, though the evidence is weak, in particular for estimating the cumulative effect over time, exposure to a condoms social marketing programme doubled reported condom use among the general population. Differences in responsiveness between contraceptive products targeting men and women have been explored. A few studies provide some guidance as to the effect of social marketing on male condoms and oral contraceptive demand and they showed that the demand for products responded differently to the same stimulation tools. For example, Boone et al. (1985) showed that male condom demand was much more sensitive to changes in prices and advertising expenditures than oral contraceptive demand. Meekers and Rahaim (2005) looked at the impact of market environment and showed that, while male condom demand reacts consistently to variables representing country level socio-economic context, oral contraceptives were not significantly influenced by these in most of their analyses. Ciszewski and Harvey (1995) showed that condoms had much larger and quicker declines in sales than oral contraceptives following price increases in Bangladesh. More specifically for male and female condoms, a few important product and programme differences suggest potential differences in their demand responses. Firstly, male condoms have long been distributed and used as contraceptives, with the additional benefit of reducing the risk of STI and later HIV. Male condoms have generally been distributed through a wide range of distribution channels with minimal training and support for the users. Female condoms were developed as a method that women could use to protect themselves from HIV and pregnancy (Warren and Philpott, 2003). However, female condoms need significant introductory support: interpersonal communication and peer support groups have been shown to help women continue to use female condoms (Vijayakumar et al., 2006).

While these studies have shed some light on how marketing tools can stimulate demand, they have methodological weaknesses. None have tested for differences in drivers of demand between HIV prevention products, nor have any accounted for the fact that behaviour adjusts slowly to interventions and therefore analyses that fail to account for this may obtain biased estimates of the responsiveness of condom demand to changes in marketing tools and their long-run effects.

In this paper we explore the drivers of demand for HIV prevention products targeted at women and men (i.e. female and male condoms), using unique expenditure and sales data from Population Services International (PSI), a large international social marketing organisation, in an unbalanced panel of 52 countries over 11 years: 1997–2009.[1] To the best of our knowledge, this is the first study to conduct an economic/econometric analysis of the drivers of demand for female and male condoms. In addition to price, both programmatic demand creation tools (mass media advertising; 'information, education, and communication' (IEC) and programme effort), as well as the broader country context (income levels and adult HIV prevalence) are considered as potential drivers of demand. A dynamic panel data estimator is used to identify the short- and long-run impact of advertising, price and programme effort (staffing). This study can guide programmes on how best to allocate funds across their social marketing tools to maximise uptake and to inform programming of new HIV prevention products.

Broadly speaking this paper belongs to the advertising/promotion, and product/service use literature and is hence close in spirit to some papers in the health economics literature. Avery et al. (2012) study the impact of direct-to-consumer advertising on antidepressant use in the US, and similarly to this paper, they make a comparative analysis of female and male use of the product. Windmeijer et al. (2006) examine the responsiveness of general practitioners to promotional activities for ethical drugs by pharmaceutical companies in the Netherlands. Ridley (2015) investigates price and advertisement elasticities of demand in the US drug market. Dave and Saffer (2013) show that in the USA smokeless tobacco advertising both increases the market demand (primary demand) as well as shifting existing users to the advertised brand. Moreover they show taxes (i.e. higher prices) have a differential effect, reducing demand more among younger male smokers and lower educated individuals. These papers are all in high income settings and in the context of profit maximising firms. Our paper thus complements the economics of advertising literature by presenting evidence on a very different type of product, in resource limited settings and for a non-profit organisation aiming to maximise output.

There is a growing interest in the economics of HIV, with a body of papers addressing the interaction between HIV and the economy, or other structural factors such as schooling, gender based violence, risky sexual behaviour and labour force participation (Alsan and Cutler, 2013; Baranov et al., 2015; Chin, 2013; Francis, 2008; Galarraga et al., 2010; Oliva, 2010; Oster, 2012; Wilson, 2012). Many of these studies raise the challenge of establishing causality due to endogeneity issues, and address this using an instrumental variables approach. As another approach to establishing causality, economists have introduced randomised control trials in particular to test the impact of incentives on HIV prevention, such as keeping girls in school for longer (Baird et al., 2012), HIV testing (Baird et al., 2014; Thornton, 2008), staying free from sexually transmitted infections (de Walque et al., 2012; Galárraga et al., 2014) or voluntary medical male circumcision (Thirumurthy et al., 2014). While

[1] 2005 and 2006 data were not collected centrally and were therefore not available for this analysis.