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## Direct-to-Consumer Advertising and its Impact on Health Insurance Markets\*

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### Introduction

Spending on prescription drugs in the U.S. was projected to be US\$269 billion in 2012, now making up 10 per cent of all health-care spending (Keehan *et al.*, 2012). Thus, it is not surprising that direct-to-consumer advertising (DTCA) for prescription drugs has increased dramatically over the past decade, from US\$200 million in 1997 to US\$3.9 billion in 2011, accounting for 37 per cent of total drug promotion expenditures. It now represents 2.3 per cent of all consumer advertising spending in the U.S., exposing the average American television viewer to 30 hours of DTCA each year. This has had a profound effect on the consumer. Consumer surveys consistently find that between 2 and 7 per cent of adults each year request and receive prescriptions for specific drugs after seeing advertisements for these products (Kravitz *et al.*, 2005).

However, outside the United States and New Zealand, many nations continue to ban DTCA (Humphreys, 2009). One main counterargument against DTCA is that it raises health-care costs in the insurance market. Indeed, the “persuasion theory” of advertising predicts that DTCA will raise prices due to persuasive brand effects that deter competitive entry from rivals. As a result of this anti-competitiveness, pharmaceutical manufacturers might be able to pass advertising costs through to insurers and patients, and patients might insist that they receive the advertised drug, as opposed to a generic drug or no drug at all, thereby raising the costs of insurance through higher drug prices. In contrast, the “informational theory” of advertising predicts that DTCA will lower prices by making patients more aware of all the possible drugs available for their condition, increasing their price sensitivity and inducing more price shopping. Thus, there are two general countervailing theories of how DTCA may impact insurance markets.

While there has been little research on which of these two price effects of DTCA dominates in insurance markets, DTCA has been shown to have a positive informational effect in terms of improving health-care outcomes for patients. For example, DTCA can inform patients that they suffer from an undiagnosed medical condition (Myers *et al.*, 2011). There is also evidence that DTCA induces patients to start drug therapy sooner and can match patients to the best drug for their case (Bradford *et al.*, 2006).

This short text summarises the recent work by Encinosa *et al.* (2014) that examines if there is a similar informational effect of DTCA, not on health outcomes, but on costs in the insurance market.

### Background on advertising and prices

While the studies cited above show that there is some initial evidence of value added from the clinical information conveyed in DTCA, one main counterargument against DTCA is that it is very costly and raises the price of drugs, outweighing the benefits. This can occur both directly and indirectly.

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Firstly, DTCA could indirectly raise prices by inducing consumers to switch from a low-cost drug to a high-cost drug with little added clinical benefit. But, according to Berndt and Donohue (2006), most studies have consistently shown that DTCA does not induce switching and does not change individual market shares. Instead, DTCA attracts new consumers and expands the overall market. Secondly, DTCA can increase prices directly simply due to the large costs of advertising. In 2005, US\$4.2 billion was spent on DTCA. Berndt and Donohue (2006) estimate that this was about 2.2 per cent of total drug sales. In fact, the European Union and Canada have banned DTCA primarily on cost concerns. Unfortunately, the effect of drug advertising on prices still remains an open question.

It is well known that the advertising of drug prices by pharmacists and retailers is pro-competitive and lowers retail prices (Kaul and Wittink, 1995). However, DTCA ads from the manufacturers never include price information (due perhaps to the past per se illegality of resale price maintenance). Yet, several theories have been posited on how manufacturers may nevertheless affect prices with non-price advertising. These theories fall under two general schools of thought on the economics of advertising: the “persuasion theory of advertising” and the “information theory of advertising”.

“The persuasion theory of advertising” posits that advertising is used by manufacturers to sustain market power. This theory is called the “persuasion theory of advertising” since the consumer is persuaded that the product is better than anything else to the extent that rivals are dissuaded from entering the market (Leffler, 1981). One early model in this area was the single stage model developed by Comanor and Wilson (1974) which showed that a large incumbent firm may have economies of scale in advertising which prevents entry into a market. The large advertising outlays of the incumbent and the barriers to entry due to the rival’s higher marketing costs allow high profit margins to be earned by the incumbent. This was empirically supported in several industries by Comanor and Wilson (1974). While Comanor and Wilson (1974) inferred that these higher profit margins were due to higher manufacturer prices, this has not yet been empirically demonstrated. More generally, the “persuasion theory of advertising” predicts higher prices, since advertising differentiates the brand relative to rival brands and, thus, decreases consumers’ price sensitivity for the brand and increases market concentration.

In contrast, the “information theory of advertising” (Nelson, 1974) predicts that advertising lowers prices. Instead of differentiating brands, advertising in this case now allows consumers to recognise substitutes more easily, creating more price competition. The product information provided by advertising makes consumers more price sensitive. For the case of drugs, it lowers the search costs for consumers to find an appropriate set of drugs for their disease. On the retail side, Steiner (1993) showed that advertising resulted in lower retail prices and margins, as demonstrated in a number of empirical studies and case studies of various industries. Moreover, it is well known that a telltale sign of increased price sensitivity is a reduction in within-market price dispersion. The dispersion is the variation in prices within a market for a given drug (e.g. the maximum price minus the minimum price paid for a drug within a market). Therefore, under an informational effect of DTCA, reduced retail price dispersion would be expected, while under the persuasion effect, greater price dispersion would be expected.

Thus, we are faced with two competing models of the impact of advertising on retail prices—the persuasion effect results in higher prices and the information effect results in lower prices. It could be that the persuasion effects raise wholesale price, while the informational effects lower retail price conditional on wholesale price, with the net change in retail price being unknown. In this paper we will examine which effect of advertising on prices dominates in the fastest growing advertising market, the DTCA pharmaceutical drug market. Because of the positive clinical effects of DTCA on patient outcomes, it is anticipated that the information effect of advertising will dominate in the drug market. Therefore, it is posited that greater manufacturer DTCA will lower retail prices and reduce price dispersion.

While there has been little research on DTCA and retail prices, two recent papers by Capella *et al.* (2009) and Dave and Saffer (2010) consider the impact of DTCA on wholesale prices aggregated to the national level. Capella *et al.* find no impact of DTCA on wholesale prices, while Dave and Saffer (2010) found that DTCA increases wholesale prices. Thus, the effect of drug advertising on prices still remains an open question, especially for retail prices—the prices paid by consumers.

## Results and discussion

Encinosa *et al.* (2014) fill this gap in the literature by attempting to move beyond the data limitations found in these two recent papers. Firstly, the use of national level prices in these papers precludes the correction for biases arising from market selection effects and pharmacy heterogeneity. Second, these papers consider only wholesale prices paid by pharmacies, not retail prices paid by consumers.

Using 17 million prescription drug insurance claims and all local and national DTCA advertising in 212 advertising markets across the United States, Encinosa *et al.* (2014) examine the impact of DTCA on insurers' negotiated prices for 166 drugs. Controlling for unobserved pharmacy and pharmacy benefit manager attributes, as well as manufacturer advertising market selection effects, they find that an increase in a manufacturer's DTCA spending lowers insurer prices and reduces insurance market price dispersion. These competitive effects intensify as DTCA competition increases between drug manufacturers.

Therefore, Encinosa *et al.* (2014) find that there is little empirical support for the "persuasion theory" of advertising—advertising that deters entry and raises retail prices. Instead, they find that DTCA lowers retail prices. This supports the "information theory" of advertising, increasing demand and resulting in greater economic efficiency, as reflected in mean prices and the degree of price dispersion. First, retail prices decline with DTCA. Second, retail price dispersion declines with DTCA. Third, retail prices and dispersion both further decrease with increased DTCA competition within a pharmacological class. Fourth, the presence of generic competition intensifies these effects of DTCA.

Currently, the U.S. and New Zealand are the only developed countries that do not ban DTCA. However, as European health care becomes more privatised, the European Union has recently loosened some of its restrictions on DTCA, allowing pamphlets and websites on treatments for diabetes, AIDS and asthma (Calfee, 2002). In December 2008, the European Commission proposed legislation that would allow DTCA with "objective and non-promotional" information. However, 22 of the 27 European Union Member States voted against the proposed legislation that would have allowed even this limited information to patients (Humphreys, 2009). In contrast, the U.S. market is moving towards tighter voluntary regulation due to recent drug safety concerns. As a result of the potentially negative effects of DTCA brought to light by the removal of Vioxx from the market, the Pharmaceutical Research and Manufacturers of America voluntarily issued a moratorium on DTCA for new drugs for an unspecified amount of time. Similarly, the Institute of Medicine has called for a two-year moratorium on DTCA after the introduction of new drugs. Simulations from Encinosa *et al.* (2014)'s regression results show that a ban or moratorium on DTCA would raise retail prices for consumers. Among the 38 advertised drugs, a ban on advertising in 2001–2002 would have increased the retail price per prescription by 86 cents and increased the retail price range per prescription by US\$1.09.

Encinosa *et al.* (2014) do not know how manufacturers will fare under a ban since they do not know their total costs of advertising. But, clearly, their research suggests that consumers may face higher costs under a ban or moratorium on DTCA. Their research indicates that DTCA is Pareto improving—patients obtain lower prices with less dispersion, and manufacturers earn a profit (otherwise they would not opt to advertise).

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