European Economic Review 61 (2013) 116–131

Contents lists available at SciVerse ScienceDirect

European Economic Review

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

Margins and market shares: Pharmacy incentives for generic substitution ☆

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ARTICLE INFO

Article history:
Received 3 August 2010
Accepted 17 February 2013
Available online 26 February 2013

JEL classification:
I11
I18
L13
L65

Keywords:
Pharmaceuticals
Pharmacies
Generic substitution

ABSTRACT

We study the impact of product margins on pharmacies' incentive to promote generics instead of brand-names. First, we construct a theoretical model where pharmacies can persuade patients with a brand-name prescription to purchase a generic version instead. We show that pharmacies' substitution incentives are determined by relative margins and relative patient copayments. Second, we exploit a unique product level panel data set, which contains information on sales and prices at both producer and retail level. In the empirical analysis, we find a strong relationship between the margins of brand-names and generics and their market shares. This relationship is stronger for pharmaceuticals under reference pricing rather than coinsurance. In terms of policy implications, our results suggest that pharmacy incentives are crucial for promoting generic sales.

1. Introduction

In this paper we study pharmacies' role in promoting generic substitution and thus competition between brand-names and generics. Most consumers enter the pharmacy with a prescription of a brand-name product due to the tendency of physicians to prescribe brand-names rather than the cheaper, but therapeutically equivalent, generic versions. Insurers (payers) therefore use various instruments to increase competition and generic market shares in order to reduce pharmaceutical expenditures. One important instrument is generic substitution regulation, which implies that pharmacies can dispense a generic substitute to consumers with a brand-name prescription. However, convincing consumers that a generic product is of the same quality (therapeutically equivalent) as the brand-name product prescribed by the physician is likely to involve costly promotional effort by the pharmacies, so what are the incentives for pharmacies to engage in generic substitution?

☆ The paper has benefited from being presented at the European Economic Association Conference in Oslo 2011, the European Health Economics Workshop in Brescia 2011, and the National Health Economics Conference in Oslo 2010, and seminars at the University of Zurich, Manchester Business School, and Toulouse School of Economics. Thanks to Jon Andersen, Matteo Galizzi, Gisela Hostenkamp, Ulrich Kaiser, an associate editor, and two anonymous referees for valuable comments. We are grateful for financial support from Health Economics Bergen (HEB) and Bergen Centre for Competition Law and Economics (BECCLE). The usual disclaimer applies.

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http://dx.doi.org/10.1016/j.euroecorev.2013.02.005

The obvious answer is the pharmacies' profitability of selling generics rather than brand-names. We therefore study the role of pharmacies in promoting generic sales by analysing the relationship between the margins that pharmacies obtain for brand-names and generics and their respective market shares. We find this issue interesting for several reasons. First, pharmaceutical expenditures are growing in most Western countries, and the off-patent market is becoming increasingly important as patents have expired for several blockbusters.[1] Stimulating generic competition is therefore seen as one of the most important instruments for regulators (payers) to contain costs in this industry.

Second, our paper is, to the best of our knowledge, the first to study the role of pharmacies in promoting generic sales and the effect of generic substitution regulation. There are several papers on the physicians' prescription choice between brand-names and generics.[2] There are also a few, recent papers on the physicians' choice of drug when they are allowed to dispense drugs and can pocket the product margin.[3] There is also a large literature on the impact of regulation and copayment schemes on generic sales, where recent studies show that reference pricing, which imposes extra copayments on patients that demand high-priced brand-names, tends to promote generic sales and reduce prices and expenditures.[4] None of these studies consider the role of pharmacies in stimulating generic sales.

Finally, our study offers insight into retailer incentives more broadly, as we study the promotional incentives for steering consumers toward more profitable products. The idea that retailers can influence consumers' purchase choices among competing products, and that their incentives to do so depend on relative margins, goes back at least as far as Telser (1960).[5] Similar incentives are likely to be present in many downstream markets, where retailers sell rival products (e.g., grocery stores, electronic stores, car dealers, etc.), not just in the pharmaceutical market.[6]

We study the pharmacies' incentives for generic substitution both theoretically and empirically. In the theoretical part, we set up a vertical differentiation model where brand-names are perceived to be of higher quality than their generic versions. Within this framework we introduce a (monopoly) pharmacy that may expend effort on persuading consumers to buy a generic version, for instance, by informing them that the products are therapeutically equivalent.[7] We analyse the pharmacy's substitution incentives under different copayment schemes (i.e., coinsurance and reference pricing) and pricing regimes (i.e., prices are regulated or set by the pharmacy).

The theoretical analysis offers three main findings. First, we show that the pharmacy's incentive for generic substitution is higher (i) the larger the generic margin is relative to the brand-name margin, and (ii) the lower the generic copayment is relative to the brand-name copayment. If the brand-name margin is higher than the generic margin, the pharmacy has no incentives to expend effort on generic substitution. Moreover, if the brand-name copayment is equal to (or even lower than) the generic copayment, the pharmacy would not be able to convince patients to substitute the prescribed brand-name with a generic version.

Second, we show that pharmacy price setting involves counteracting effects on the generic substitution effort. A lower, say, brand-name price implies a lower brand-name margin, which increases the generic substitution effort. However, a lower brand-name price also implies a lower copayment difference, which makes consumers less willing to accept a generic substitute. Optimal pharmacy pricing balances these two considerations.

Finally, we show that reference pricing gives stronger incentives for generic substitution effort than regular coinsurance provided that the distribution of consumers' willingness-to-pay is characterised by either an increasing or a sufficiently weakly decreasing density function. The reason is that reference pricing induces larger copayment differences between brand-names and generics, and therefore higher financial gains for consumers purchasing generics, which implies that substitution effort by the pharmacy is more effective. This result holds irrespective of whether prices are regulated or set by the pharmacy.

[1] See, for instance, the reports by Pharma (2008) and European Generic Medicines Association (2009). According to European Generic Medicines Association (2009) about half of the dispensed pharmaceuticals in the off-patent market segment in the European Union are generics, but there are large variations across the member countries. In the US, however, the generic market share (in volume) in this segment is about 90%. Thus, there should be great scope for regulatory policies to affect the generic sales and thus the pharmaceutical expenditures.

[2] Hellerstein (1998) uses US survey data and finds that physician characteristics (not patient characteristics) explain why patients are prescribed a brand-name or a generic. Coscelli (2000) uses Italian microdata on prescriptions and finds evidence for habit persistence for both physicians and patients. Finally, Lundin (2000) finds that patients facing large copayments are less (more) likely to receive a brand-name (generic) prescription using Swedish microdata.

[3] Iizuka (2007) studies prescription choices in Japan where physicians also can dispense drugs and pocket the (regulated) margin. He finds that physicians tend to prescribe drugs with higher margins, but they are also concerned about the copayments of their patients. Liu et al. (2009) study the same phenomenon in Taiwan.

[4] Pavcnik (2002) studies the introduction of reference pricing in Germany in 1989, and reports significant price reductions on both brand-names and generics. Brekke et al. (2009, 2011) exploit a policy experiment in Norway, and report large reductions in prices and brand-name market shares, resulting in lower total expenditures and copayments. See also Aronsson et al. (2001) and Bergman and Rudholm (2003) for similar results in Sweden.

[5] A recent paper considering such "steering" by retailers is Raskovich (2007), who shows that competition for steering by upstream suppliers can lead to double-marginalisation.

[6] A well known argument in the IO literature for common agency is that it facilitates collusion in the downstream market and is therefore in the interest also of upstream suppliers (Bernheim and Whinston, 1985, 1986). On the other hand, the retailer's ability to steer demand towards more profitable products can induce more competition between suppliers and create a rationale for exclusive dealing. However, the question of common agency versus exclusive dealing is less of an issue in our setting since such contracts are strictly regulated requiring pharmacies to store and deliver the full range of pharmaceuticals that are prescribed.

[7] In some countries or health plans, generic substitution is mandatory. However, patients can still refuse to accept a generic version, which means that persuasion still plays a role also under mandatory generic substitution.