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Are private physicians more likely to veto generic substitution of prescribed pharmaceuticals?☆

David Granlund*

The Swedish Retail Institute (HUI) and Umeå University, Department of Economics, Stockholm/Umeå, Sweden

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ABSTRACT

Physicians' decisions whether or not to veto generic substitution were analyzed using a sample of 350,000 pharmaceutical prescriptions from the county of Västerbotten, Sweden. Although generic substitution reforms have been introduced in many European countries and American states, this is to my knowledge the first study on this topic. The topic is important since physicians' decisions regarding generic substitution not only directly affect patients' and insurers' costs for pharmaceuticals, but also indirectly since more bans against substitution reduces price-competition between pharmaceutical firms.

The primary purpose was to test if physicians working at private practices were more likely to oppose substitution than county-employed physicians working on salary. It was found that private physicians were 50–80% more likely to veto substitution. Also, the probability of a veto was found to increase as patients' copayments decreased. This might indicate moral hazard in insurance, though other explanations are plausible.

Introduction

Imperfect information often results in Principal-agent problems when one person, the agent, is employed to act on behalf on another, the principal (Ross, 1973). In the healthcare sector the problem is complex since efficiency requires physicians to act not only as agents for their patients, but also for third-party payers, insurers (Blomqvist, 1991; Shortell, 1998). This study analyzes how economic incentives affect physicians' decisions whether or not to veto generic substitution, and also whether their decisions suggest that they internalize differently the costs occurring to their two principals.

Since October 2002, pharmacists in Sweden have been required to substitute the prescribed pharmaceutical product to the cheapest available generic when neither the prescribing physician nor the patient opposes it. Patients who oppose substitution have to pay the difference in price themselves, but if the physician vetoes it for medical reasons, patients are subject only to the normal copay requirement under Swedish pharmaceutical insurance.

Although similar reforms have been introduced in many European countries and American states, what determines whether physicians' veto substitution has, to my knowledge, not been studied previously. One explanation could be lack of data: Hellerstein (1998) noted that the US NAMCS-data unfortunately lack information about whether substitution was vetoed, while Mossialos, Walley, and Rudisill (2005) noted on a general scarcity of good prescription data for several European countries.

To study physicians' decisions regarding generic substitution is important since it not only directly affect patients' and insurers' costs for pharmaceuticals, but also indirectly since more bans against substitution likely reduces price-competition between pharmaceutical firms. In the sample used for this study, brand-name products for which substitution was vetoed by physicians were on average 218% more expensive than the cheapest generic alternative, whereas the corresponding figure for other brand-name products was only 15%. This correlation might indicate that physicians' decisions whether or not to veto generic substitution have an important effect on price-competition among pharmaceutical firms.

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* Tel.: +46 702229172.
E-mail address: david.granlund@econ.umu.se

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The primary purpose of this study was to analyze whether privately employed physicians were more or less inclined to oppose substitution, compared to county-employed physicians. Private physicians have a stronger incentive to please their patients in order to keep them, since their income depends on the number of patient-visits, whereas county physicians work on salary. Opposing substitution, if the patient suggests that, might be a costless way of doing this. Allowing substitution might also be time-consuming for the physician if it worries the patient. Hence, each consultation could take longer, resulting in fewer of them, and again less income. Private physicians might also have stronger brand-name loyalty since, for example, they are less restricted, compared to county-employed physicians, from participating in education organized and paid for by pharmaceutical companies. The hypothesis to be tested is thus that private physicians were more likely than county physicians to veto substitution.

Another purpose was to analyze the effect of patients' copayments on physicians' decisions. The Swedish pharmaceutical insurance is non-linear, with patient-copayments decreasing as total expenditure increases. This provided an opportunity to study whether physicians internalized patients' costs more than costs to the insurer, indicating what Pauly (1968) called moral hazard in insurance (also called ex post moral hazard).

The analyses were done using a sample of 350,000 observations drawn from a micro-dataset covering all prescriptions dispensed in the county of Västerbotten, Sweden – or dispensed elsewhere in Sweden to inhabitants of Västerbotten - during 43 month after the substitution reform of October 2002. The dataset includes information about the patients, prescribers, prices, copayments, pharmaceuticals prescribed and dispensed, and about whether the physician or patient opposed substitution. Patients and prescribers are, however, not traceable over time.

Since the values were observed at micro-level, the risk of estimators being biased towards zero was reduced; this is otherwise a common problem when aggregated data are used as proxies for micro-variables. Using register-data also eliminated recall-bias, as well as selection-bias, which can be a problem if for example not everyone participates in an experiment or answers a questionnaire. The size of the dataset also substantially reduced the risk of accepting a false null-hypothesis which is otherwise a common problem when studying questions, such as here, where a large part of the variation, for various reasons, cannot be explained by the observables.

Gosden, Pedersen, and Torgerson (1999) reviewed the literature on the effects of salary payments on physicians' behavior. They reported some evidence that payments of salary was associated with fewer referrals and tests compared both with fee-for-service (FFS) payments and capitations. Compared with FFS payments, salary payment also correlated with fewer procedures per patient, fewer patients per physician, longer consultations, more preventive care, and different patterns of consultation. Nassiri and Rochaix (2006) found that primary-care physicians in Quebec reacted both to temporary removal of expenditure caps and to changes in the relative price of consultations by changing their treatment pattern. Dusheiko, Gravelle, Jacobs, and Smith (2006), studying the effect of financial incentives on general medical practices in England, found that abolishing foundholding increased elective surgery by 3–5%.

Leibowitz, Manning, and Newhouse (1985) and Hellerstein (1998) used U.S. data to study the choice between prescribing brand-name or generic pharmaceuticals and found that the choice was not a function of the insurance plan; however, Leibowitz et al. found that individuals with more generous insurance plans bought more prescription pharmaceuticals. On the other hand, using a Swedish dataset covering seven pharmaceuticals, Lundin (2000) found evidence of moral hazard: patients with low copayments were more likely to receive brand-name pharmaceuticals. Similarly, Mott and Cline (2002) found that insured patients in a Midwestern state were more likely to receive prescription that did not allow generic drug use, either because the prescribed pharmaceutical was patent protected or because the physician opposed generic substitution. The literature analyzing the effects of patients' copayments on the choice of pharmaceutical also includes Crown et al. (2004) and Rudholm (2005). Crown et al. found no statistically significant effect of insurance plans' mean copayment-rates on patients' treatment patterns for asthma. Rudholm, however, found significant effects of individual patients' copayment-rates on the price of the chosen pharmaceutical. Rudholm also included a variable indicating for privately employed physicians in his regressions but, except in one subsample, found no statistically significant effects of this variable.

Empirical results presented in this paper show that private physicians were 50–80% more likely to veto substitution than county-employed physicians. Also, the probability of a veto was found to be increased as patients' copayments decreased. This might indicate moral hazard in insurance, though other explanations are plausible.

Rules and incentives

Patients' copayments and the substitution reform

During the study-period, all pharmaceuticals in Sweden were sold through a nation wide government owned monopoly, which at all times charged a nation wide uniform price for each pharmaceutical product.

All residents were (and are still) covered by a mandatory and uniform health insurance, including the pharmaceutical insurance presented below. In the pharmaceutical insurance patients pay all costs up to 900 Swedish crowns (approximately 120 USD)[1] per 12-month period; 50% of the cost from 900 to 1700 SEK; 25% from 1700 to 3300 SEK; and 10% from 3300 to 4300 SEK; after which all costs during the period are paid by the insurance (specifically, by Swedish county councils). However, there are some exceptions: some pharmaceuticals are always free of charge for the patient, and others are not covered by insurance at all. Another exception is that patients who oppose generic substitution have to pay the entire extra cost caused by this.

Under the substitution system, physicians should check a box on the prescription to veto substitution. When physicians veto substitution, the extra costs are covered by the pharmaceutical insurance system, but physicians are allowed to veto only for medical reasons, for example, if the patient is sensitive to inert ingredients in some of the substitutes. Unless substitution has been vetoed by the physicians, pharmacists should inform the patient if substitutes are available, and that the cheapest available generic product considered to be a perfect substitute by the Swedish Medical Products Agency would be provided within the Swedish pharmaceutical insurance system. Patients need not accept substitution, but the entire extra cost will then be charged to them.[2]

Physicians

There were nearly 1000 physicians working in the county of Västerbotten during the study-period. Most of them were county-

[1] On June 4, 2009, USD/SEK = 7.67 and EUR/SEK = 10.84.

[2] Some employees were covered by supplemental medical insurance for prescription drugs, provided by their employer. (According to Lundin, 2000, 10% of the employees were covered by such insurances in 2000.) However, even if the entire out-of-pocket cost were covered by such extra insurance, the cost was not reduced to zero for the patient, since such fringe benefits were subject to taxation. Also, many patients were retired (45% in the dataset used here) and thus not covered by extra insurance.