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Mandatory universal drug plan, access to health care and health: Evidence from Canada

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ABSTRACT

This paper examines the impacts of a mandatory, universal prescription drug insurance program on health care utilization and health outcomes in a public health care system with free physician and hospital services. Using the Canadian National Population Health Survey from 1994 to 2003 and implementing a difference-in-differences estimation strategy, we find that the mandatory program substantially increased drug coverage among the general population. The program also increased medication use and general practitioner visits but had little effect on specialist visits and hospitalization. Findings from quantile regressions suggest that there was a large improvement in the health status of less healthy individuals. Further analysis by pre-policy drug insurance status and the presence of chronic conditions reveals a marked increase in the probability of taking medication and visiting a general practitioner among the previously uninsured and those with a chronic condition.

1. Introduction

Pharmaceutical drug expenditure accounts for a significant proportion of overall health spending in many OECD countries. On average, more than a sixth of total health expenditure was dedicated to pharmaceuticals across OECD countries in 2011. On a per capita basis, the United States spend the most, almost USD 1000, followed by Canada (OECD, 2013). The rising financial burden associated with prescription drugs has raised policy concerns about the optimal design of health insurance, and drug insurance in particular, to ensure access to affordable prescription drugs. For example, the Part D drug benefit was added to Medicare in the United States (The Medicare Prescription Drug, Improvement, and Modernization Act of 2003). Several OECD countries, such as New Zealand, United Kingdom, the Netherlands and Germany, provide universal coverage for prescription drugs, which is integrated into the broader system of public health insurance or statutory social health insurance policies (Morgan et al., 2013).

Unlike physician and hospital services, which are universal in Canada, coverage for prescription drugs dispensed outside hospitals falls outside the Canada Health Act and provincial governments only provide public drug programs for some population groups, primarily seniors and social assistance recipients. A number of provincial and territorial governments introduced some form of catastrophic drug coverage with high deductibles for certain groups in the past decade (Daw and Morgan, 2012; Daw et al., 2013) but there has been little progress on a national pharmacare program. Most non-elderly Canadians who have drug insurance obtain it through employee benefit plans. However, a significant number of Canadians are un-insured or under-insured against the costs of prescription drugs (Kapur and Basu, 2005). About one in 10 Canadians who receive a prescription report cost-related non-adherence, and the lack of drug insurance coverage appears to be a key reason behind this phenomenon (Law et al., 2012).

How to reform Canada's pharmaceutical drug coverage has been under active discussion in Canada since the late 1990s. A number of recommendations for a national pharmacare program have been proposed, such as expanding universal public system to include first-dollar of prescription drugs (National Forum on Health,

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1997) or protecting Canadians against catastrophic drug expenses through a catastrophic drug plan (Romanow Commission on the Future of Health Care in Canada, 2002; Standing Senate Committee on Social Affairs, Science and Technology, 2002). The national pharmaceuticals strategy report calls for further analysis on the impact and feasibility of maintaining a private payer role in a catastrophic drug coverage framework (Federal/Provincial/Territorial Ministerial Task Force, 2006). Some current discussions in this area include, e.g., Morgan et al. (2015), Daw et al. (2014) and Busby and Pedde (2014). Despite various recommendations, Canada is still the only country that does not provide universal coverage for prescription drugs among all developed countries with universal health care system.

While many Canadian citizens and politicians believe that some form of universal drug coverage is needed, empirical evidence to inform the design of such a policy in the Canadian context is limited.[1] In this study, we exploit the natural experiment of a policy change in the province of Quebec, Canada to evaluate whether and how a mandatory universal drug program affects drug insurance coverage, health care utilization and health outcomes. Quebec's experience can provide valuable insights to inform policy debates regarding the optimal design of drug insurance in Canada and internationally.

Using Canadian National Population Health Survey longitudinal data from 1994 to 2003, we find that the universal drug program increased drug insurance coverage by 33 percent and medication use by 13 percent. The latter estimate is in the middle range of those found in the Medicare Part D studies which vary from 5.9 percent (Yin et al., 2008) to 27 percent (Duggan and Scott-Morton, 2010) in drug utilization increase. To gauge the plausibility of the results, we calculated the elasticity of drug utilization. For simplicity we only take into account the reduction in co-payment rather than the whole non-linear pricing policy in the public plan. The coinsurance of the public plan is 25 percent, which implies a 75 percent reduction in out-of-pocket cost for those without insurance. The 13 percent increase in total drug utilization suggests an elasticity of approximately −0.17, which falls within the range of drug elasticity estimates from other contexts. Given that the utilization measure is total drug utilization, the elasticity for prescription drug utilization would be larger if there is substitution for non-prescription drugs because of the policy intervention.

The estimated spillover effect on GP visits is about 10 percent but the policy has no statistically significant spillover effects on specialist visits and hospitalization. This provides evidence of a complementary relationship between prescription drugs and physician visits. The estimated effect on GP visits is large relative to zero or small spillover effects found in the U.S. context (Balkrishnan et al., 2001; Kaestner and Khan, 2012). This should not be unexpected given the multi-payer system for physician services in the U.S. in contrast to the free single-payer public system in Canada. Possible explanations for the finding of no effects on hospitalization include, first, that we look at the overall hospitalization rate rather than hospitalizations linked to pharmaceutical therapy and second that the hospital sector was downsizing and restructuring nationally in this period and the pharmaceutical effect was likely modest by comparison with the variation from those other sources.

We find that health impacts of the policy are heterogeneous across the health outcome distribution, with large positive health gains concentrated among less healthy individuals. Analysis by pre-policy drug insurance status reveals that previously uninsured individuals experienced a large increase in the probability of taking any medication and visiting a general practitioner. Further analysis by the presence of chronic conditions shows that, compared to those without any chronic condition, the chronically ill experienced a much larger increase in the extensive margins of medication and general practitioner utilization.

This paper makes several important contributions to the literature. First, it uses nationally representative longitudinal data to identify the impacts of a universal mandatory drug program by exploiting a natural experiment in Canada. Many previous studies use administrative or claims data for particular drug plans or specific population groups which limits generalizability of their findings. Moreover, the mandatory nature of the policy intervention creates a large exogenous variation in insurance coverage, in contrast to previous studies that focus on small changes in co-payments.

Second, this paper contributes to the literature by exploring the spillover effects of drug coverage on physician utilization and hospitalization. The limited empirical evidence of spillover effects is mixed and inconclusive. The context of universal public provision of physician and hospital services provides an extra advantage of identifying the spillover effects. Under health systems where physician and hospital services are covered by multiple insurers, such as the U.S. Medicare program, estimation of a uniform spillover effect may be complicated by the different cost-sharing structures of physician and hospital services across insurance plans.

Third, this study adds to the literature by evaluating the impact of drug insurance on health outcomes and its impact in different parts of the health outcome distribution. Going beyond mean health effects, we analyze whether the policy effect is relatively larger among individuals with low health status versus high health status. To our knowledge, no other study has evaluated this type of heterogeneous health effects.

Fourth, from a policy perspective, analysis of the drug program can help to inform the policy debate on expanding public drug coverage to universal level in Canada and internationally. The Quebec reform gives us a novel opportunity to examine the impacts of a policy that achieved universal drug coverage among the entire nonelderly population in Quebec. The mixed public and private financing structure of the Quebec program may also be useful for policymakers on general health insurance financing. For example, the individual mandate to buy prescription drug insurance in Quebec is similar to the individual mandate to obtain general health insurance of the U.S. national legislation passed in March 2010.

The remainder of the paper is organized as follows. In Section 2, we provide background on previous work. Section 3 describes the institutional setting and policy change we are studying. In Section 4, we discuss our data and descriptive statistics. Empirical methods are discussed in Section 5. Section 6 gives the results of our analysis. Finally the conclusions are drawn in Section 7.

2. Literature review

There is a rich literature examining the effects of drug insurance/health insurance on utilization. It is well documented that individuals without insurance have lower levels of utilization than those with insurance; further, among individuals with insurance, those who face cost-sharing have lower utilization than those with full insurance. Zweifel and Manning (2000) and McWilliams (2009) review the evidence with respect to health insurance in general; Lexchin and Grootendorst (2004) and Goldman et al. (2007) review the evidence with respect to drug insurance. The RAND Health Insurance Experiment (HIE) estimated the price elasticity of demand for health care to be in the order of −0.2 (Newhouse,

[1] There are some studies focusing on the distributional effects of provincial drug programs on out of pocket drug expenditure (e.g., Alan et al., 2005), or on predicting prescription drug expenditure (e.g., Demers et al., 2008). However, none of them explores the utilization and health impact of the drug programs.