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Can Walmart make us healthier? Prescription drug prices and health care utilization☆

Florencia Borrescio-Higa*

Universidad Adolfo Ibañez, School of Government, Diagonal Las Torres 2640, Santiago, RM, Chile

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ABSTRACT

This paper analyzes how prices in the retail pharmaceutical market affect health care utilization. Specifically, I study the impact of Walmart's $4 Prescription Drug Program on utilization of antihypertensive drugs and on hospitalizations for conditions amenable to drug therapy. Identification relies on the change in the availability of cheap drugs introduced by Walmart's program, exploiting variation in the distance to the nearest Walmart across ZIP codes in a difference-in-differences framework. I find that living close to a source of cheap drugs increases utilization of antihypertensive medications by 7 percent and decreases the probability of an avoidable hospitalization by 6.2 percent.

1. Introduction

Chronic diseases are among the most common, costly, and preventable of all health problems in the U.S.[1]. Indeed, patients with chronic conditions are the heaviest users of health care services, accounting for almost 80 percent of all health care spending[2]. For many such conditions, prescription drugs can substantially delay or even prevent costly medical complications. Yet patients recurrently underuse medications because of cost, either by taking less than their prescribed doses or by not taking them continuously (Piette et al., 2004). The failure to treat chronic conditions with medications may have adverse consequences both for individual health outcomes and for the sustainability of the health care system, as non-compliance eventually necessitates more costly medical interventions.

In this paper, I analyze the health effects of a sharp drop in retail prices of generic drugs across the United States by examining the effect of Walmart's $4 Prescription Drug Program. The program, introduced in October 2006, allows customers to purchase many of the most frequently prescribed generic medications at $4 for a 30-day supply. In particular, I study the effect of this program on the utilization of medicines and hospitalizations.

As medical spending puts increasing pressure on the national budget, one common cost-containment strategy has been to increase patient cost. Most studies find that higher copayments lead to lower utilization of drugs. The RAND Health Insurance Experiment set the standard for this result (Manning et al., 1987; Newhouse, 1993). More recently, Chandra et al. (2010, 2014), Goldman et al. (2004, 2006, 2007) have confirmed its findings, in particular for chronic illness. With the exception of Goldman et al. (2006), these papers analyze changes in the scheme of

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* Tel.: +56 223311361.
E-mail address: florencia.borrescio@uai.cl

[1] The CDC reports that 70 percent of deaths among Americans each year are from chronic diseases and, in particular, heart disease, cancer and stroke account for more than 50 percent of all deaths. In 2005, almost 1 out of every 2 adults had at least one chronic illness, while 1 in 5 Americans have multiple chronic conditions. Source: http://www.cdc.gov/chronicdisease/overview/index.htm#ref1.

[2] Anderson (2002).

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out-of-pocket costs for patients and are not able to isolate the effect of a change in the cost of prescription drugs.

While there is evidence that prescription drugs utilization is sensitive to price, it is not clear whether these responses are large enough to have important effects on hospitalizations. The RAND HIE found modest effects on health outcomes, and Chandra et al. (2014) and Gaynor et al. (2007) found no evidence of an increase in the use of or spending on inpatient services. On the other hand, several studies suggest adverse health outcomes when increased cost-sharing leads patients to reduce their use of prescription drugs or physician services (Chandra et al., 2010; Goldman et al., 2004, 2006; Swartz, 2010). Thus, the evidence on the effects of cost sharing on hospitalizations is less conclusive.

This paper contributes to the literature by providing an estimate of the impact of a change in the cost of prescription drugs on health care utilization by the non-elderly population. Moreover, I analyze the heterogeneity of the effect across insurance schemes, including the uninsured population. This paper also relates to the literature on insurance design since Walmart's $4 program can be thought of as a targeted reduction in the copay for medications with a high expected clinical benefit. In accordance with the findings of Value-Based Insurance Design studies (Chernew et al., 2010; Fendrick et al., 2009), I find that a reduction in the cost of prescription drugs leads to lower downstream costs in the form of reduced hospitalizations due to conditions amenable to drug therapy.

I exploit the introduction of Walmart's program as a reduction in the retail price of generic drugs regardless of the consumer's insurance status. I compare utilization of blood pressure medications and hospitalizations of individuals living near a Walmart store to those living farther away, using data from the state of Florida. I focus on a class of hospitalizations that one can expect to be avoided if patients comply with their prescribed treatments.

The difference-in-differences empirical strategy relies on the assumption that individuals living close to a store are more likely to be affected by the program. Since Walmart launched the program in all existing stores simultaneously, there is no concern that access to the $4 prescription program is related to underlying characteristics of the population that may change with the introduction of this program.

I show that the drop in average prices at Walmart pharmacies is over 80 percent for drugs in the $4 program, while average prices across all pharmacies decrease by less than 2 percent.

I find significant effects of the price reduction on utilization and hospitalizations. The difference-in-differences models suggest that utilization of antihypertensives increased by 7 percent, while there is a 6.2 percent decrease in the probability of an avoidable hospitalization[3]. I argue that these effects are consistent with those found in previous studies. When stratifying the sample by insurance, I also find that the effect is found for the uninsured and the privately insured, but not for Medicaid beneficiaries, which was expected since they face no copays for prescription drugs in Florida.

The paper proceeds as follows. Section 2 provides background, and Section 3 describes the data. Section 4 presents evidence on the price reduction and its impact on utilization of medicines. Section 5 shows estimates of the impact of the $4 program on avoidable hospitalizations and provides a set robustness checks. Section 6 concludes.

[3] In this paper I focus on antihypertensive medications because of data availability. Walmart's program reduced the price across a wide variety of drugs, and utilization most likely increased for many of them, but I am able to show evidence on antihypertensives, which is the only drug category included in the Behavioral Risk Factor Surveillance System for Florida in the relevant analysis period.

2. Background

2.1. Previous work

Chronic diseases are the leading cause of death and disability in the US. Almost one in every two adults suffers from at least one chronic condition, and these are the heaviest users of health care services in all major categories: hospitalizations, office visits, home care and prescription drugs. In addition, more than 75 percent of national health care spending is on people with chronic conditions.

Pharmacological treatments can substantially delay or even prevent the costly medical complications that can arise from conditions such as high blood pressure, high cholesterol and diabetes. Despite the ability to effectively manage chronic conditions with prescription drugs, an estimated one third to one half of all patients fails to take medications as prescribed by their providers. This often results in preventable worsening of disease and, in turn, excess hospitalizations (Osterberg and Blaschke, 2005)[4]. The treatment of many chronic conditions requires compliance with a drug regimen prescribed by a physician—in the form of daily intake, for example (Encinosa et al., 2010; Dezii, 2000)[5].

A major component of compliance is out-of-pocket cost. Many studies show that more cost sharing in prescription drugs is associated with a reduction in drug adherence (Goldman et al., 2004, 2006; Gibson et al., 2005) and with an increased use of other medical services (see Goldman and Joyce, 2012 for a detailed review). Based on individual health insurance claims and benefit data, Gaynor et al. (2007) show that increases in consumers' copayments for prescription drugs reduce both use of and spending on prescription drugs, but they do not find changes in inpatient spending. Encinosa et al. (2010) analyze the impact of diabetic drug adherence on hospitalizations and find that for this population, drug adherence reduces hospitalization rates and ER visits, reducing overall costs.

In a more recent paper, Chandra et al. (2010) show that, among retired public employees in California, an increase in patient cost sharing decreased physician visits and prescription drug usage and increased hospital utilization. Analyzing low-income enrollees in the Massachusetts' Commonwealth Care program, Chandra et al. (2014) report a decline in utilization as a response to higher copayments, but no offsetting increases in hospitalizations or ER visits.

Most of these papers rely empirically on a change in the cost-sharing schedule of individuals within a particular health insurance scheme. In this paper, I broaden the scope of prior research by focusing on a decrease in the cost of pharmaceuticals, a decrease that is widespread and available to any patient regardless of their insurance coverage.

[4] According to Kaiser Family Foundation's "Prescription Drug Trends May 2010" uninsured non-elderly adults are more than twice as likely as insured non-elderly adults to say that they or a family member did not fill a prescription (45 percent vs. 22 percent) or cut pills or skipped doses of medicine (38 percent vs.18 percent) in the previous year because of the cost. Among non-elderly adults in 2008, 27 percent of the uninsured could not afford a prescription drug in the past 12 months, compared to 13 percent of those with Medicaid or other public coverage, and 5 percent of those with employer or other private coverage. A September 2009 survey found that during the past 12 months, 26 percent of American adults did not fill a prescription, and 21 percent cut pills in half or skipped doses of medicine, because of cost (Kaiser Family Foundation, 2010).

[5] Further, many of these conditions require a combination of drugs to be taken simultaneously, which increases patients' out-of-pocket cost. The average non-elderly American consumes twelve prescription drugs per year, and about 58 percent of the non-elderly population reports an expense for prescription drugs. Total Rx expenses amounted to over $170 million in 2009, with almost 21 percent of this being represented by out-of-pocket payments.