Journal of Health Economics 33 (2014) 57–66

Contents lists available at ScienceDirect

Journal of Health Economics

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

The impact of patient cost-sharing on low-income populations: Evidence from Massachusetts☆

Amitabh Chandra[a,d], Jonathan Gruber[b,d], Robin McKnight[c,d,*]

[a] Harvard Kennedy School, Harvard University, United States
[b] Department of Economics, MIT, United States
[c] Department of Economics, Wellesley College, United States
[d] NBER, United States

ARTICLE INFO

Article history:
Received 26 April 2012
Received in revised form 15 October 2013
Accepted 16 October 2013
Available online 1 November 2013

Keywords:
Heath insurance
Cost sharing

ABSTRACT

Greater patient cost-sharing could help reduce the fiscal pressures associated with insurance expansion by reducing the scope for moral hazard. But it is possible that low-income recipients are unable to cut back on utilization wisely and that, as a result, higher cost-sharing will lead to worse health and higher downstream costs through increased use of inpatient and outpatient care. We use exogenous variation in the copayments faced by low-income enrollees in the Massachusetts Commonwealth Care program to study these effects. We estimate separate price elasticities of demand by type of service. Overall, we find price elasticities of about −0.16 for this low-income population — similar to elasticities calculated for higher-income populations in other settings. These elasticities are somewhat smaller for the chronically sick, especially for those with asthma, diabetes, and high cholesterol. These lower elasticities are attributable to lower responsiveness to prices across all categories of service, and to some statistically insignificant increases in inpatient care.

The recently enacted Patient Protection and Affordable Care Act (PPACA) includes the largest expansion of health insurance coverage to low-income populations in our nation's history. The Federal government will spend over $1 trillion over the next decade to subsidize insurance for those below 400% of the Federal Poverty Line (FPL) (Congressional Budget Office, 2013). Roughly, half that total will be through expansions of the Medicaid program, which will provide publicly financed health care for those below 133% of the poverty line at essentially zero patient cost. The other half will be in the form of subsidies to private insurance for those between 133 and 400 percent of the poverty line. These subsidies are of two types: the first type is premium subsidies, which offset the premium cost of insurance by limiting the percentage of income that low-income individuals must pay. The second type is cost-sharing subsidies, which offset to some extent the copayments, coinsurance and deductibles that these low-income populations face.

The motivation for the subsidies is twofold: to make the transfers in PPACA more progressive, and to protect low-income populations from sacrificing necessary medical care because of cost. The optimal level of such subsidies, therefore, depends critically on the way in which the medical care utilization of low-income groups responds to cost sharing, and how any change in utilization impacts their health. On one hand, greater patient cost-sharing could help reduce the fiscal pressures associated with insurance expansion by reducing the scope for moral hazard. But on the other hand, there has been speculation that low-income patients may be more price sensitive than other patients or that low-income patients may be more likely to experience adverse health consequences as a result of cost-sharing (Baicker and Goldman, 2011).

Differential effects on low income patients could arise for a number of reasons. First, low-income patients may simply be more responsive because they face a tighter budget constraint; in this case, we would expect low-income patients to cut back on care with the lowest marginal benefit. Second, it is possible that lower income individuals are less able to evaluate the marginal benefit of their care than higher income individuals and, as a result, may have a higher propensity to cut back on high marginal benefit care. In their study of drug copayments in Medicaid, for example, Reeder and Nelson (1985) argued that, because education is positively correlated with income, low-income individuals may be less able to communicate with their physicians and, consequently, make less

☆ We are grateful to Kaitlyn Kenney and the staff at the Massachusetts Health Connector for making these data available. We thank, without implicating, Dan Fetter, Ilyana Kuziemko, Joseph Newhouse, and seminar participants at the Columbia/CUNY/NYU Health Seminar for very helpful suggestions on earlier versions of this paper.

* Corresponding author at: Department of Economics, Wellesley College, 106 Central Street, Wellesley, Massachusetts, 02481, United States.
E-mail address: robin.mcknight@wellesley.edu (R. McKnight).

0167-6296/$ – see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.jhealeco.2013.10.008

well-informed decisions. Goldman and Smith (2002) provide evidence that patients of lower socioeconomic status are less likely to adhere to treatment regimens for chronic illnesses and, as a result, experience worse health outcomes. Third, higher rates of chronic illness among low-income populations could imply differential effects of cost-sharing in low-income populations. In prior studies that have identified adverse consequences, these consequences have generally been concentrated among the chronically ill (Goldman et al., 2007).

These concerns highlight the importance of considering the possibility of cross-price effects in response to copayment increases: cost-sharing for one service could reduce utilization of complementary services or it could increase utilization of substitute services. The positive cross-price effects on substitute services are known in the empirical literature as "offset effects," because decreases in one service are offset by increases in substitute services (McGuire, 2012). In particular, prior work has suggested that reduced primary care due to copayment increases can lead to higher downstream costs in inpatient or outpatient settings. Commentators such as Evans et al. (1993) have argued that user fees are a "policy zombie", while Donaldson (2008) argued that it is "wrong, unfair, and ineffective to try to limit consumer and patient access through user fees, and also to dress up this process as actually enhancing access."

In this paper, we use exogenous variation in the copayments faced by low-income enrollees in Massachusetts' Commonwealth Care program. This state program was the model for PPACA, providing highly subsidized insurance for families below 300% of the FPL. Importantly, there was a substantial increase in the copayments paid by enrollees in this program in July 2008 that we exploit for identification. Using unique claims data on the Commonwealth Care population provided to us by the state, we are able to estimate the effect of greater cost-sharing on overall utilization. Because copayments increased nearly proportionately across most services, we are unable to separately estimate own- and cross-price elasticities for most services. However, we are able to estimate the overall price elasticity associated with across-the-board copayment increases. In addition, because copayments for inpatient admissions did not increase for most of our sample, we are able to provide evidence on hospitalization offsets.

In previous work (Chandra et al., 2010b), we had provided preliminary evidence on the price elasticity of demand in this population, using only the first six months of post-policy change data. This paper extends that analysis by incorporating additional post-policy change data, by using a superior estimation framework, and most importantly by considering a variety of questions not addressed in that earlier paper, such as the issue of population heterogeneity in demand elasticities and in offset effects. We are also able to perform a number of specification checks that provide assurance that our results are not be driven by stockpiling (where patients avail of medical care immediately before the policy change and do not use care in the immediate months after), or other confounders that may be timed with the policy change. As a result of a variety of improvements to our data and estimation, our current estimate for the overall price elasticity of demand in this population is on the low end of the range of elasticities that we reported in our earlier work. Overall, we find price elasticities of about −0.16 for this low-income population, which is similar to, but somewhat lower than, elasticities calculated for higher-income populations in other settings.

We also find lower price elasticities among individuals with chronic illness and with higher levels of prior spending, suggesting that copayments are less important in these subsamples. In addition, we find no evidence of offsetting increases in hospitalizations in response to the higher copayments, although there are some statistically insignificant impacts among the chronically ill population.

Our paper proceeds as follows. Section 1 reviews the prior literature on this topic. Section 2 provides background on the institutional setting and data. Section 3 presents our estimation strategy. Section 4 shows our results, while Section 5 presents a set of robustness checks of those findings. Section 6 concludes with a discussion of the implications of our findings.

1. Prior literature

Most analyses of price sensitivity of medical care still rely on the evidence from the RAND Health Insurance Experiment (HIE) of the mid-1970s (Newhouse, 1993). This seminal study found that, for the population as a whole, there was a significant but modest response of medical care utilization to the point-of-service cost of medical care. Notably, the reductions in care appeared to come across the board, both in categories of "effective" and "ineffective" medical care. There were, however, no "offset" effects in terms of reduced primary care leading to a demand for more hospital care; indeed, reduced primary care appeared to lower spending on hospital care. Most importantly, there was no evidence of a detrimental effect on the typical person in terms of worsened health. That is, for the average person in the HIE, there did not appear to be productive returns to marginal health care utilization in terms of improving health status.

Although the sample size was more limited, the HIE did consider heterogeneity by income and health. For the subset of low-income population, the findings paralleled those for the larger population: a modest impact on health care spending, with no offset effects and no impact on health status. However, there was an important potential exception to this finding: for the chronically ill low-income population, there was a suggestion of a sizeable rise in blood pressure for those in the higher cost-sharing insurance plan (although the overall health results for this population were mixed, and the blood pressure result itself was not significant). But the HIE evidence is now over thirty years old, and changes in the practice of medicine—including greater reliance on managed care contracts, the availability of many new pharmaceutical and surgical interventions, the growth of imaging and diagnostic technology, and the development of the medical device industry—may imply a structural change in the elasticity of medical demand and the health impacts of any utilization reductions.

Besides the HIE, there has been relatively little research on the impacts of cost-sharing on low-income populations. Indeed, Baicker and Goldman (2011) write that "while there is a lot of speculation that the poor have more elastic demand, there is little evidence." Much of the existing work focuses on the introduction of copayments for prescription drugs in Medicaid programs. Nelson et al. (1984) examined the introduction of a drug copayment in South Carolina's Medicaid program and found that it was associated with a statistically significant decline in drug purchases, in a pre-post framework and in comparison with Tennessee's Medicaid program. Follow-up work in Reeder and Nelson (1985) examines the change in drug utilization within South Carolina and notes a reduction in classes of drugs which, if not taken, "could result in a deterioration of health that could ultimately lead to the use of more expensive medical services." Stuart and Zacker (1999) use cross-state variation in the use of drug copayments in Medicaid to examine the impact of copayments on Medicare dual eligibles. They find that individuals in states with copayments, ranging from $0.50 to $3.00, use 15 percent fewer prescriptions than individuals in states without copayments, with the impact resulting primarily from a reduction in drug use on the extensive margin.