Do benefits in kind or refunds affect health service utilization and health outcomes? A natural experiment from Japan

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ABSTRACT

Although the payment systems of public health insurance vary greatly across countries, we still have limited knowledge of their effects. To quantify the changes from a benefits in kind system to a refund system, we exploit the largest physician strike in Japan since the Second World War. During the strike in 1971 led by the Japan Medical Association (JMA), JMA physicians resigned as health insurance doctors, but continued to provide medical care and even health insurance treatment in some areas. This study uses the regional differences in resignation rates as a natural experiment to examine the effect of the payment method of health insurance on medical service utilization and health outcomes. In the main analysis, aggregated monthly prefectural data are used (N = 46). Our estimation results indicate that if the participation rate of the strike had increased by 1% point and proxy claims were refused completely, the number of cases of insurance benefits and the total amount of insurance benefits would have decreased by 0.78% and 0.58%, respectively compared with the same month in the previous year. Moreover, the average amount of insurance benefits per claim increased since patients with relatively less serious diseases might have sought health care less often. Finally, our results suggest that the mass of resignations did not affect death rates.

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1. Introduction

Although a large number of studies have examined the effects of health insurance on health care utilization [1–3], we still have limited knowledge of the effects of detailed designs such as the payment method. Payment methods, as well as coverage and copayment [4–6], differ across countries, and even within a single country. For example, the payment method of the New Cooperative Medical Scheme in China, which has attracted the attention of numerous researchers, greatly varies across regions [7–11]. The introduction of the free complementary health insurance plan in France [12] also entailed changes in payment methods from refunds to benefits in kind. However, there are few quantitative studies of how payment methods affect health care utilization and health outcomes.

With the fulfillment of these needs as its motivation, this study evaluates the impact of payment methods, which constitute a significant element of health insurance design. In general, the payment method of health insurance can be categorized into two types: benefits in kind (reimbursement) and refunds. For benefits in kind, patients make copayments to medical providers, and the providers claim the reimbursement from insurers. For refunds, patients pay the entire fee to medical providers, after which they claim refunds from insurers. We argue

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that patients prefer benefits in kind to refunds and utilize more health care services with benefits in kind than refunds for the following two reasons. First, patients cannot pay the entire fee and continue to receive health care services when they face liquidity constraints. Second, a refund entails administrative costs for patients. Claims for refunds require patients to submit all the documentation concerning the health care service availed by them, which results in time costs [13–17]. The paperwork in medical institutions required to get such documentation ready may make government-managed health insurance (GHI, Seikkan in Japanese) patients wait longer for a refund, which also increases their time cost. Therefore, a change in payment method from benefits in kind to refunds may decrease health care service utilization and deteriorate health outcomes. Indeed, one cross-sectional study [18] finds that benefits in kind in China significantly increase the likelihood of patients seeking outpatient treatment compared with refunds. Although the issue of payment methods is not of significant importance in the current policy debate, understanding the quantitative impacts of payment methods can lead to more comprehensive knowledge of the effects of health insurance coverage. By exploiting a unique and historical natural experiment (physician strike in July 1971) and using aggregated monthly prefectural data (N = 46), this study aims to provide quasi-experimental evidence of the effects of payment methods.

2. Background

2.1. short history leading up to the 1971 strike

Here, we explain briefly the events leading up to the resignation of insurance doctors led by the Japan Medical Association (JMA) in July 1971. Japan achieved universal health insurance coverage in 1961, when all municipalities implemented national health insurance (NHI, Kokaho in Japanese), a community-based public health insurance scheme. Over a period of 40 years, the gradual process of expanding insurance coverage fragmented the public health insurance system into (i) employment-based plans such as association-managed health insurance (AHI, Kumiai in Japanese) and GHI and (ii) community-based plans including NHI (see, for example Ref. [19]).

Because the large-scale cross-subsidy system among these fragmented insurers was not established until 1983, AHI, which mainly enrolls employees of large firms, was in the black during the 1970s, while GHI, which enrolls employees of small- and medium-sized firms, was deeply in the red. The deficit in GHI caused great political concern because the government was reluctant to increase the medical fee schedule that would have resulted in widening the GHI deficit. The government contained the revision rate below the consumer price index [20], which aroused doctors’ antipathy and resulted in municipal hospitals facing an increasingly tough management situation.

Taro Takemi, the then head of the JMA, was unsatisfied with the situation and insisted on public health insurance system reforms including an increase in the medical fee schedule and the abolition of AHI [21]. The following theory suggests the reasons for the JMA’s viewpoint: if AHI would have cross-subsidized GHI, then the deficits of GHI would have disappeared, and there would be room for increases in the medical fee schedule.

Although the series of events leading up to the mass resignations was complicated, it is widely believed that the direct trigger was the deliberations of the Central Social Insurance Medical Council on February 18, 1971, where reform plan of the medical fee schedule against the JMA’s theory was submitted. Takemi protested fiercely against this plan.

The JMA commanded its members to resign from all the advisory councils to the Minister of Health and Welfare on February 25. In March, the JMA sent to its prefectural branches a notice to prepare for the strike, but the schedule was unclear at that time. The government and the then ruling party, the Liberal Democratic Party, did not take action. Many other organizations such as government councils criticized and were opposed to the JMA’s strategy. Despite these criticisms, the JMA went on strike on July 1 in many prefectures.

After July 1, the Minister of Health and Welfare, Noboru Saito, discussed the situation with Takemi. Finally, on July 28, Takemi and Prime Minister Sato reached an agreement to end the strike by the end of July 1971 and to restart health insurance treatment from August 1. On the further details on the history of the strike, see JMA [22].

2.2. The JMA’s orders and regional differences in their effects

Because of its opposition to AHI, as mentioned in the previous subsection, the JMA treated AHI, GHI, and NHI differently. Its orders to its member doctors can be summarized as follows.

(I) JMA members should not go on strike for NHI enrollees.

(II) JMA members should care for GHI enrollees at the same price as the existing public fee schedule.

(III) JMA members should care for AHI enrollees at twice or thrice the price of the existing public fee schedule (‘independent prices’).

(IV) The out-of-pocket costs of GHI and AHI enrollees should be refunded via direct claims made to insurers.

The effects of these orders on patients are considered to have differed according to patients’ insurance plans and their location of residence for the following three reasons. First, NHI enrollees were not affected by this strike because of the JMA’s order (I). Note that the resignations of the insurance doctors did not prevent them from caring for GHI and AHI enrollees. The doctors who resigned as insurance doctors could and did provide medical care at the patients’ own expense, and the expenses could be refunded via direct claims to insurers (order (IV)). Despite the JMA’s order (III), some doctors secretly charged prices lower than the “independent prices” or the same price as the public medical fee schedule for AMI enrollees [23,24]. From the viewpoint of GHI patients, this strike was just a temporary change in the reimbursement method from benefits in kind to refunds without any changes in prices, because they had to pay
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