Social Science & Medicine 190 (2017) 11–19

Contents lists available at ScienceDirect

Social Science & Medicine

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

Does health insurance reduce out-of-pocket expenditure? Heterogeneity among China's middle-aged and elderly☆

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A R T I C L E I N F O

Article history:
Received 7 February 2017
Received in revised form
31 July 2017
Accepted 7 August 2017
Available online 11 August 2017

Keywords:
China
Health insurance
Healthcare utilization
Out-of-pocket expenditure
Migrant

A B S T R A C T

China's recent healthcare reforms aim to provide fair and affordable health services for its huge population. In this paper, we investigate the association between China's health insurance and out-of-pocket (OOP) healthcare expenditure. We further explore the heterogeneity in this association. Using data of 32,387 middle-aged and elderly individuals drawn from the 2011 and 2013 waves of China Health and Retirement Longitudinal Study (CHARLS), we report five findings. First, having health insurance increases the likelihood of utilizing healthcare and reduces inpatient OOP expenditure. Second, healthcare benefits are distributed unevenly: while low- and medium-income individuals are the main beneficiaries with reduced OOP expenditure, those faced with very high medical bills are still at risk, owing to limited and shallow coverage in certain aspects. Third, rural migrants hardly benefit from having health insurance, suggesting that institutional barriers are still in place. Fourth, health insurance does not increase patient visits to primary care facilities; hospitals are still the main provider of healthcare. Nonetheless, there is some evidence that patients shift from higher-tier to lower-tier hospitals. Last, OOP spending on pharmaceuticals is reduced for inpatient care but not for outpatient care, suggesting that people rely on inpatient care to obtain reimbursable drugs, putting further pressure on the already overcrowded hospitals. Our findings suggest that China's health insurance system has been effective in boosting healthcare utilization and lowering OOP hospitalization expenditure, but there still remain challenges due to the less generous rural scheme, shallow outpatient care coverage, lack of insurance portability, and an underdeveloped primary healthcare system.

1. Introduction

China's market liberalization since 1978 has brought about remarkable economic growth. Meanwhile, it also dismantled the previous publicly funded healthcare system, leading to a rapid increase in out-of-pocket (OOP) spending, with its share in total health expenditure rising from 20% in 1978 to nearly 60% in 2002 (MOH, 2006). To tackle the poor access to healthcare and medical impoverishment, China has launched a series of healthcare reforms since the late 1990s, and managed to achieve near-universal health insurance coverage by 2011 (Chen, 2009; Cheng, 2012). While this is remarkable progress, it remains unclear as to how effective China's health insurance schemes have been in reducing the financial burden of the world's largest population.

Existing evidence on the link between China's health insurance and OOP expenditure is mixed. In a review of empirical research on China's health system, Wagstaff et al. (2009b) suggest that there is no clear association between insurance and OOP spending under the pre-2003 health system. Using data from two national surveys and one provincial household survey, Wagstaff and Lindelow (2008) find the "curious case" of health insurance increasing the risk of high and catastrophic spending in China. This is likely due to healthcare users switching to more costly and higher-level providers, as well as higher utilization rates among the insured (Jung and Streeter, 2015). Some studies focusing on specific health insurance programs find little or no effect of reducing financial risks (Hou et al., 2014; Lei and Lin, 2009; Li and Zhang, 2013; Meng et al., 2012; Wagstaff et al., 2009a; Yip and Hsiao, 2009), while others arrive at the opposite conclusion (Jung and Streeter, 2015; Meng

☆ Acknowledgment: We thank Jia Hu and two anonymous referees for their comments and suggestions that helped us improve this article. We thank the China Center for Economic Research (CCER) at Peking University for making the China Health and Retirement Longitudinal Study (CHARLS) data available. All errors are our own.

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http://dx.doi.org/10.1016/j.socscimed.2017.08.005

et al., 2004), due to differences in data sources and methodologies used.

While much work has gone into the overall effect of health insurance on healthcare utilization and OOP financial burden, there is not much evidence on the distributional effects. In their evaluation of China's new rural health insurance scheme, Wagstaff et al. (2009a) find heterogeneity across income groups, with the poor more likely to use lower-level than higher-level facilities, and thus less upward pressure on their OOP spending. A few studies using small-scale data find that health insurance improves equity in healthcare access and eases the OOP financial burden. For instance, Liu et al. (2002) find a bigger increase in outpatient care utilization among lower socioeconomic groups, while Liu and Zhao (2006) find disadvantaged groups favored in the redistribution of OOP expenditure.

Few studies have examined how health insurance affects rural migrants, a subpopulation faced with lower immunization rates, higher infectious disease rates, more occupational health problems, higher maternal mortality rates, and higher healthcare cost (Barber and Yao, 2010; Herd et al., 2010; Hesketh et al., 2008; Hu et al., 2008; Zhang et al., 2010). Due to the *hukou* system, China's household registration system which ties certain local social welfare benefits to the place of *hukou* registration (usually the place of birth), migrants often do not have access to subsidized local healthcare at the place where they work and live. Qin et al. (2014), using data from a household survey covering nine cities in 2007 and 2010, find China's health insurance schemes are ineffective in alleviating the financial burden of healthcare or promoting the use of formal medical facilities among migrant workers. Using data from a telephone survey, Zhao et al. (2014b) find no association between health insurance and gross or OOP medical cost.

The main objective of this paper is to investigate the association between China's health insurance schemes and individual OOP expenditure as well as healthcare utilization, and further explore the heterogeneity in this association. We make a number of contributions to the literature. First, we examine in detail whether and how insurance is associated with healthcare utilization and OOP spending in different ways across socioeconomic groups, and how individuals incurring different levels of health expenditure are affected differently. Second, we specifically consider rural migrants, and investigate whether migrants and local residents derive different benefits from health insurance. Third, we examine whether health insurance has led patients to seek basic care from primary care facilities. Fourth, we also investigate the relationship between health insurance and pharmaceutical and non-pharmaceutical spending. Lastly, we apply these analyses to a recent dataset of the China Health and Retirement Longitudinal Study (CHARLS) for 2011 and 2013; CHARLS is a biennial survey of a nationally representative sample of the middle-aged and elderly in China. This new dataset enables us to examine the most recent progress in China's health insurance schemes and their impact at a national level.

2. China's health insurance schemes

2.1. Institutional background

China's current health insurance system consists of three main schemes, the Urban Employee Basic Medical Insurance (UEBMI), the New Cooperative Medical Scheme (NCMS), and the Urban Resident Basic Medical Insurance (URBMI), each intended for a certain population group. A brief description of these three schemes is provided in Online Appendix Table A1. See Meng et al. (2015) and Yip et al. (2012) for more details.

UEBMI, established in 1998, provides health insurance to formal-sector urban employees and retirees. It is managed by cities/municipalities and financed by premium contributions from employers' payroll tax (6% of employees' wages) and employees' wages (2% wages). Retirees' premiums are fully borne by employers. Outpatient and inpatient healthcare expenditures are managed in two separate accounts. 4.2% of the contribution goes to a medical savings account (MSA), which is used to cover outpatient services until it is exhausted, after which the enrollees will have to pay from their pocket; the rest of the funds (3.8% wages) go to a social risk pool (SRP), to cover inpatient services.

NCMS is a voluntary scheme, first rolled out in 2003 in a few provinces, and quickly expanded to the whole country. Enrollment is at the household level to alleviate adverse selection into the scheme. The scheme is operated at the county level, and subsidized by the central and county governments. This replaces an old cooperative scheme that operated at the village or township level, providing a larger risk pool and economies of scale in organization and management (Wagstaff and Yu, 2007). The premium and subsidy were set at very low levels (at 10 RMB or 2 USD individual contribution and 20 RMB or 3 USD subsidy) at the start of the scheme, but both gradually increased over time. By 2010, the average total premium had risen to 160 RMB (25 USD). The NCMS prioritizes inpatient services, with outpatient expenses covered only in some counties.

URBMI is intended to cover unemployed urban residents (including students and children), the self-employed, and employees in informal sectors, who are not eligible under UEBMI or NCMS. Launched in 2008, it is also a subsidized program, partly funded by local and central governments, and partly funded by individual contribution. Like NCMS, the URBMI also focuses on inpatient services, with outpatient coverage available only in some counties.

No comprehensive or universal medical coverage scheme targets migrants specifically at the national level. As the three main insurance schemes are managed by local governments, they are regionally segregated and often tied with the local *hukou*, and hence migrants are generally not eligible, except that URBMI is offered to migrants in some cities (Yip et al., 2012). As the majority of migrants move from rural to urban areas, with *hukou* registered at their home county, many migrants are eligible for enrollment in NCMS at their home county but not at their place of residence. Binding health insurance to the local *hukou* restricts the reimbursement for health services at non-local facilities and makes it difficult to obtain. This regional segregation of the health insurance system poses a significant institutional barrier to migrants receiving healthcare services at their place of residence rather than at their hometown.

2.2. Hypothesis development

From the description above, China's health insurance schemes are mainly intended to provide financial protection for inpatient OOP spending, while outpatient services have only limited coverage or are not covered at all.

All three insurance schemes feature a reimbursement cap, which is roughly six times the average local individual income. The reimbursement rates range from 44% to 68%, considering the deductibles, copayments, and ceilings. Given the shallow depth of coverage and low reimbursement rates, health insurances seem to offer better protection for individuals with relatively lower, than for those with higher, healthcare expenditure. From a demand perspective, low- and medium-income individuals, who are more likely to incur lower healthcare expenditures (for instance, by purchasing generic drugs rather than patented ones), may benefit from health insurance through lower OOP spending. Considering