



## **The Effects of Social Medical Insurance Participation on Migrant Workers in China: Estimation Based on the Propensity Score Matching Approach**

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### **Dear Editor-in-Chief**

The magnitude of migrant workers reached 274 million in 2014. Since the social welfare system of China is locality-based depending on the household registration (*hukou*) system, migrant workers are excluded from the urban public health service system (1). They are especially vulnerable to three health threats: infectious diseases, maternal health, and occupational diseases and injuries (2). To protect the health security of migrant workers, the Chinese government has implemented the social medical insurance (SMI) which dedicates to incorporate migrant workers into the urban public health system. This system is contributed to both migrant workers and their employers and is committed to protecting migrant workers against health risk (3).

The purpose of this study was to examine the effects of SMI on medical service utilization, out-of-pocket cost, and medical reimbursement of migrant workers. Since previous studies have neglected that the characteristics of insured and uninsured migrant workers are not comparable, this research used the propensity score matching (PSM) method to overcome this issue. Data used in this study was from the Rural Urban Migrant in China (RUMiC) survey project which is an international cooperation project initiated by a team of international researchers. The survey was

conducted in 15 cities located in 9 different provinces and municipalities of China in 2008 and 2009. Totally, 8446 and 5426 migrant workers were interviewed in 2008 and 2009 respectively. Among all migrant workers, 1422 reported that there were sick or injured during the last three months. In this study, we analyzed medical service utilization, medical reimbursement, and out-of-pocket cost of the 1422 migrant workers. Medical service utilization is measured by asking migrant workers “what did you do when you were sick or injured?” Responses include two categories (1=see a doctor in a medical office, clinic, or hospitals; 0=do nothing or self-medication). Out-of-pocket cost is measured by asking migrant workers “how much did you personally pay?” Medical reimbursement is defined as the difference between gross cost and out-of-pocket cost. Gross cost is measured by asking migrant workers “how much was the total medical expense on the sickness or injury in the last three months?” Social insurance participation is measured by asking migrant workers “did you participate in SMI?” Responses include two options (1=yes; 0=no). Initially, we used demographic characteristics, socioeconomic status, and migration experience of migrant workers as independent variables in the Probit model to estimate

the propensity score of SMI participation of migrant workers. Then, to ensure the balance of covariates between treatment and comparison groups within each block of the propensity score, the balancing property of the propensity score was tested. After the balancing property of the propensity score is satisfied, this study used four matching methods, including nearest neighbor matching, radius matching, Kernel matching, and stratification matching to examine the effects of SMI on medical service utilization, out-of-pocket cost, and medical reimbursement of migrant workers.

First, SMI participation shows no significant effect on the medical service utilization of migrant workers. The estimated coefficients by different PSM methods range from 0.002 to 0.044, but no one is statistically significant. This may relate to the fact that the medical service system in urban areas is not convenient for migrant workers to use. Moreover, the strong self-medication tendency among migrant workers may also lead to the insufficient utilization of medical service (4). Second, SMI participation also shows no significant effect on the out-of-pocket cost of migrant workers. Although, the coefficients of SMI range from -99 to -35, all of them are not statistically significant. There might be two reasons for this; Firstly, the coverage range of SMI is not enough. Since SMI mainly targets at hospitalization and critical diseases, the insured migrant workers still have to afford most outpatient fees personally (5). Secondly, the medical service at community-level health centers is very poor. In China, an inordinately large share of health budgets is allocated to top-tier hospitals, while community-level health centers only get very little (2). This causes the dilemma that many people are reluctant to go community-level health centers because of the low quality of health service, even though the expenditure in community-level health centers is less than top-tier hospitals. Finally, the effect of SMI on medical reimbursement is very weak. Only the Radius matching method shows that the

insured migrant workers receive 27 Yuan (about 4 U.S. dollars) more than the uninsured ( $P < 0.05$ ). The nearest neighbor matching and Kernel matching display weak evidence ( $P < 0.1$ ). The stratification matching method, on the other hand, shows no significant evidence ( $P > 0.1$ ).

This result reflects the relative ineffectiveness of the reimbursement system of SMI program. Therefore, this study suggests that the Chinese government needs to establish a universal SMI system. First, SMI should cover more outpatient and inpatient cares rather than just some critical diseases and hospitalization. Second, more health budgets should be allocated to the community-level health centers. Third, a more effective reimbursement system should be designed to alleviate the medical expenditure of migrant workers.

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