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ABSTRACT

The Effect of Health Insurance Reform: Evidence from China

This paper estimates the impact of a health insurance reform on health outcomes in urban China. Using the China Health and Nutrition Survey we find that this reform increases the rate of health insurance coverage significantly among workers in Non-State Owned Enterprises. The double difference (DD) estimations show that the reform also leads to better health outcomes: workers are less likely to get sick and more likely to use preventive care. Using an instrumental variable (IV) approach to look at the causal effect of health insurance, we find those with health insurance use more preventive care but do not report significantly better health outcomes, an increase in health care utilisation, or an increase in out-of-pocket medical expenditure.

JEL Classification: H51, H43, O2
Keywords: health insurance reform, health outcomes, China

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1 Introduction

Providing adequate health insurance to the majority of a country's citizens in a cost-effective manner is a challenge faced by many countries. Given the uncertainty present in the market for health care and the lack of resources faced by individuals and governments in developing countries, the issue is even more acute for less-developed nations. Many developing countries are trying to use social insurance systems and payroll taxes to provide their citizens with equal access to health care (Hsiao & Fraker 2007). Indeed, around 50 percent of countries outside of the OECD finance the majority of health spending using public funds.[2] In this paper we look at how China, one of the largest developing countries, expanded health care coverage to a significant proportion of its citizens working in urban areas and the effects that health care expansion had on self-reported health outcomes and the use of preventative care. The results outlined in this paper can provide insights for other large developing countries that are considering expanding health care coverage; the results show how health insurance, while being able to spread financial risks and prevent deprivation of care due to a patients inability to pay (Feldstein 2006), may lead to an increase in demand for services.

In the early 1990s China had not established a comprehensive health insurance system for all of its citizens. In the urban areas, only employees of government-run facilities and Sate-Owned Enterprises (SOE) were covered. In rural areas, the old cooperative medical scheme had collapsed when the commune was broken up. The poor coverage in urban areas coupled with the downfall of rural coverage meant that the vast majority of the population did not have health care insurance; in fact, in 1998, only 9.5% of the rural

[2] Wagstaff & Moreno-Serra (2009) provide a good review of health insurance systems in the developing countries.

population were insured (Liu 2004). Many people could not afford basic health care and families were suffering from high medical expenses (Watts 2006). China sought to remedy the failures in the health care market by introducing reform aimed at expanding insurance coverage to all employees: both those working in SOEs and the private sector. In 1999 a new social insurance system for all urban works was established. In 2003, China re-established the cooperative medical system in rural areas and health insurance was expanded to cover the non-employed, children, the disabled, poor, and aged in urban areas. By the end of 2011, the coverage rate had reached 95% of the population. This paper will focus on the first major expansion, the Urban Employees Basic Medical Insurance (UEBMI) Reform, that took place in 1999 and was the impetus for the rest of the health care reforms.

Despite the immense size of the health care expansion little work has been done to look at its effects in urban areas. Wagstaff et al. (2009*a*) and Lei & Lin (2009) examine the New Cooperative Medical Scheme (NCMS) that involved the expansion of health care in rural areas. Both studies found no change in out-of-pocket spending and that there was some increase in the demand for health services, including preventative care. Wang et al. (2009) evaluated the impact of Rural Mutual Health Care (RMHC), a social experiment which was conducted in one of China's western provinces from 2003 to 2006, and found it had a positive effect on the health status of participants. Wagstaff & Lindelow (2008) do look at the effect of insurance provision on 'high' spending on health care for both urban and rural areas using three surveys; two of which only sample rural households though. They find an increased risk of high and catastrophic spending with the introduction of health insurance. However, the closest study to ours is Liu & Zhao (2006) that looks at a pilot experiment conducted in Zhenjiang that found out-of-pocket expenditures increased

for all groups.[3] We will examine whether, in urban China, which tends to be richer and more educated than its rural counterparts, the use of preventative care went up, health outcomes improved, and if, as it seems to be in the rural areas, out-of-pocket did not increase.

Research on the provision or expansion of health insurance in other countries can provide insights into what we might expect to find in China. Currie & Gruber (1996) and Dafny & Gruber (2005) look at the expansion of Medicare in the US and found that take-up of medical services increased and led to lower child mortality and an improved efficiency of care for children who were eligible. Card, Dobkin & Maestas (2008) and Hadley & Waidmann (2006) find that the provision of Medicare leads to more visits to the doctor, positive effects on self-reported health status, and, for some groups, an increase in expensive procedures. Yip & Berman (2001) found the School Health Insurance Programme in Egypt increased visit rates and reduced the financial burden of use. Sepehri, Sarma & Simpson (2006) and Wagstaff (2007) examined health care provision in Vietnam and found that health insurance increased service utilization and reduced the risk of catastrophic spending but had not led to lower out-of-pocket expenditures. Chen & Jin (2012) provide some evidence that health insurance helped improve school enrolment of six-year-old children in rural China. Therefore, we expect to find that the expansion of health insurance in urban China likely led to an increase in utilization of services and had a positive effect on self-reported health status. However the potential effect on out-of-pocket expenses is ambiguous.

To examine the effect of the UEBMI we will use difference-in-difference (DD) approach. Using longitudinal data, the China Health and Nutrition Survey (CHNS)[4], we

[3] See Wagstaff et al. (2009*b*) for a summary of empirical studies examining health insurance and health system reforms in China.

[4] This research uses data from China Health and Nutrition Survey (CHNS). We should thank the Na-

find that, as expected, health insurance coverage in Non-State-Owned-Enterprises (NON SOE) significantly increased from 1997 to 2004. The DD estimates also suggest, people are less likely to report being sick and are more likely to utilize preventive care. However, we find no impact on health service utilisation or total medical expenditure. Besides looking at the DD estimates, though, we will also use an instrumental variable approach to get at the effect of the program on those individuals newly covered; we want to identify the causal effect of having health insurance on self-reported health and service utilization. The main difficulty in establishing causality arises from the endogeneity of the health insurance status and health outcomes. For example, adverse selection suggests that those who have higher risks in health are more likely to buy insurance. The UEBMI reform provided us with a plausibly exogenous variation to look at causal effect of providing health insurance in urban China. We instrument for "health insurance status" using the UEMBI reform. The estimates, like the DD results, suggest individuals who are newly covered are more likely to use preventative care and are less likely to report being sick. These benefits occur despite finding no evidence of an increase in demand for formal care or an increase in total medical expenditure for those who are newly covered.

While we show that the expansion of health insurance in urban China led to a decrease in self-reported sickness and an increase in the use of preventative health care utilisation, we do not examine the costs required to achieve those benefits. Work in other countries have shown that health insurance actually increases medical expenditure. Manning et al. (1987) studies the RAND Health Insurance Experiment in 1974 and reports the role of insurance increases medical expenditure. Finkelstein (2005) investigates the effects of

tional Institute of Nutrition and Food Safety, China Center for Disease Control and Prevention, Carolina Population Centre, the University of North Carolina at Chapel Hill, the NIH (R01-HD30880, DK056350, and R01-HD38700) and the Fogarty International Centre, NIH for financial support for the CHNS data collection and analysis files from 1989 to 2006 and both parties plus the China-Japan Friendship Hospital, Ministry of Health for support for CHNS 2009 and future surveys.

the introduction of Medicare in 1965; they found that the introduction of Medicare may explain at least 40 percent of the increase in real per capita health spending. Therefore whether health insurance provision should be expanded further in China or in other large developing countries depends on how policy makers view the benefits we are able to identify against the costs that may increase.

The paper is organised as follows: in the next section, a background of health insurance reform in China is provided. Section 3 describes data and identification strategies. Section 4 presents the main results and Section 5 concludes.

2 Health Insurance Reform in China

China established its social medical insurance system for urban workers in the early 1950s. The system primarily consisted of two programmes. The first was the Labour Insurance Programme (LIP) which began in 1951 and aimed to provide free health care for all employees in SOEs. Beneficiaries received treatment at an assigned hospital or the company's own facility and all health care expenses were covered by the SOE. The second was the Government Insurance Programme (GIP) which began from 1952 (Liu & Wang 1991) and provided free healthcare services to the people in government-run facilities, retired state officials, civil servants, social workers, academics and military personnel. The fees for any services were paid by government or paid by the patients first and then reimbursed by the government.

In December of 1998, the Chinese government issued the Decision of State Council on Establishing Urban Employees' Basic Medical Insurance (UEBMI) System, a new social insurance system for *all* urban workers - not just those in SOEs or government-run facilities. The reform was set to start from the beginning of 1999 and was planned to be

completed by the end of 1999. The new programme expanded coverage to both public and private companies and it was supposed to be mandatory. The UEBMI was meant to, gradually, replace the GIP and LIP.

Self-employed and rural industry workers could participate in the UEBMI but it was not required. Instead of being free to users, like the GIP and LIP, employers and employees shared the costs of healthcare. Employers contributed 6 percent of the employees' wage and the employees' contribution was 2 percent.[5] The total insurance premium was divided into two parts: a general medical trust fund and individual medical saving accounts. Roughly 70 percent of an employers' contribution was put into the general medical trust fund while the rest was put into the individual medical saving account. The detailed proportions would be determined by the local government according to the employees' age.[6]

The general medical trust fund was used to pay for inpatient or chronic outpatient medical expenses. Individual medical saving accounts were used to pay for outpatient medical expenses that were not associated with a chronic illness. If an individual's medical saving account was exhausted, the individual needed to cover the outpatient expenses out-of-pocket. The maximum medical expenditure paid by insurance each year was determined by local governments and individuals needed to pay the rest. Local governments (city and above) were responsible for the management of these two funds. Therefore, given the potential limits on coverage, while health insurance coverage is being expanded by UEBMI it is unclear if out-of-pocket expenses will stay the same or increase.

Unemployed urban residents and dependents did not receive full coverage under UEBMI.

[5]The Decision of the State Council on Setting up Basic Medical Insurance System for Staff Members and Workers in Cities and Towns. State Council: December 14, 1998.

[6]The Decision of the State Council on Setting up Basic Medical Insurance System for Staff Members and Workers in Cities and Towns. State Council: December 14, 1998.

Unemployed individuals were responsible for all medical costs or had to purchase their own commercial health insurance. Re-employment centres would pay 60 percent of the preceding year's local worker's average wage for the laid-off workers from SOEs that had been laid off due to industrial restructuring. Dependents of employees that had been covered under the old system (GIP and LIP) were eligible to have 50% of their health coverage paid for under UEMBI. However, dependents not only covered under the old system received no support under UEMBI. One non-employed group did receive health insurance, though; retirees received coverage and the cost of contributions for retired employees were covered by their former employees.

From 1999 until the May 2003 the UEMBI was the primary policy governing health insurance provision in China. In May of 2003, the Ministry of Labour and Social Security of China enacted new rules to extend the population in the basic medical insurance system; self-employed people could take part in the system if they paid the premium themselves. In 2004, employees in Non-State Owned Organisations and Mixed-Ownership Enterprises were further covered by Basic Medical Insurance (BMI). From 2006, BMI extended its coverage to rural migrant workers. From 2007, the Chinese government started the Urban Residents' Basic Medical Insurance (URBMI) system aimed at non-employed residents including children, disabled, poor, and aged in urban areas; premiums were paid by both individuals and governments. Therefore, given the frequency of household survey data in China and the constant changes from year-to-year after 2004, the best period to examine the effect of health care expansion in urban China is from 1999 until 2004 as it is the time when one clear policy was in place and the groups covered are well-known.[7]

[7]See Wagstaff et al. (2009*b*) for a further discussion of salient facts regarding health insurance coverage in China

3 Data and Methodology

For our main analysis we use the 1997 and 2004 waves of the China Health and Nutrition Survey (CHNS) [8] and, for robustness checks, we will also examine the 1993 and 2000 waves. The CHNS is a repeated cross-sectional household survey that took place from 1989 to 2009. The survey covers nine provinces that were stratified by income (low, middle, and high) and where a multistage, random cluster process was used to draw the sample each year.

We will use a difference-in-differences (DD) estimator to examine the effect of UEMBI on rates of insurance coverage, self-reported health status, health service utilization, preventative health care use, and out-of-pocket medical expenditure. The 1997 survey will serve as our pre-treatment (pre-UEMBI) wave and the 2004 survey will serve as our post-treatment (post-UEMBI) wave. As described above, UEMBI began in 1999 and was not fully implemented until the end of the year. Therefore, the 2000 wave is not likely to pick up any effect because the intervention might not be fully functioning by the time the 2000 survey took place. Likewise, as explained above, after 2005 yearly changes were made to insurance coverage in China. Therefore using any of the survey waves after 2004 will make it hard identify which, if any, health insurance provision had an effect.

The use of the DD approach requires us to observe a treatment and control group over at least two time periods, pre and post-UEMBI for instance (see Wooldridge 2007). Since UEMBI focuses on providing insurance to non-SOE employees, they will be our treatment group as they are not covered in the first wave but are covered in the second wave. For the control group we have three options: retirees; SOE employees; and non-

[8] The data is available on the website: http://www.cpc.unc.edu/projects/china

employed individuals. Given that retirees were partially covered under the UEMBI we have chosen not to use them. Likewise, over the period we are looking at there was a lot of economic and social transitions occurring at SOEs. Therefore, we do not want to use SOEs as the control group. If we look at unemployed individuals, they did not receive any insurance coverage over the time we are examining and there were no changes in the support they received. However, we know that they were looking for jobs and were in the labour market. This makes unemployed individuals the natural control group in this setting.

One important assumption for using the DD approach is that the time trend of the treated group would have been the same as the control group in the absence of the UEMBI implementation. We will relax this slightly below by adding individual controls but, overall, we will assume that the assumption is correct given our sample is a subset of the labour force and facing the same support over the time period in question. However, we will be able to run some placebo tests and use the rural area to examine how likely it is that our assumption is correct. Given this set-up we aim to estimate the following:

$$\{E[Y_i|T = NONSOE, P = after] - E[Y_i|T = NONSOE, P = before]\} \quad (1)$$
$$-\{E[Y_i|T = Unemployed, P = after] - E[Y_i|T = Unemployed, P = before]\}$$

The result of DD estimate can expressed in a regression model. Consider the following regression equation:

$$Y_{i,t} = \alpha + \beta T_i + \gamma P_t + \delta T_i * P_i + \epsilon_{i,t} \quad (2)$$

where $Y_{i,t}$ is the health outcome of an individual and T_i equals one if the individual

works in a Non-SOE, otherwise it is zero. P_t indicates pre and post-reform periods: P_t equals one after the reform and zero otherwise. $T_i \times P_i$ is an interaction term. The dummy variable T_i captures the possible differences between Non-SOE workers and the unemployed prior to the reform launch. The time period dummy variable, P_t, captures the time trend. Given this set-up, the difference-in-differences estimate is actually:

$$\overline{\delta} = (\overline{y_{nsoe,2}} - \overline{y_{nsoe,1}}) - (\overline{y_{u,2}} - \overline{y_{u,1}}) \tag{3}$$

Since being employed in a Non-SOE or unemployed was not randomly assigned, we want to control for possible differences in the characteristics of the two groups. To do this we will use district fixed effects and individual covariates. This means that the identifying assumption is that, conditional on covariates, the time trend in the outcome variable would have been the same for the Non-SOE employees as it would have been for the unemployed. We will therefore estimate the following:

$$Y_{i,t} = \beta_0 + \beta_1 T_i + \beta_2 P_t + \beta_3 T_i * P_i + \theta I_{i,t} + \rho F_{i,t} + \varphi_{i,t} \tag{4}$$

where $I_{i,t}$ denotes a individual characteristics vector and $F_{i,t}$ denotes a district characteristics vector. In this model, the coefficient β_3 is the estimate of interest. However, there is the potential that other factors, unrelated to the reform, might also affect health outcomes and lead us to incorrectly attribute changes to UEMBI. For instance, if employees in non-SOEs are generally becoming healthier because they are able to buy better food than the unemployed as China's economy grows, we could get a DD estimate that is positive but that is not due to the reform. To test whether there is some time varying trend between non-SOEs and the unemployed that we are missing we add the rural areas

to our analysis.

While the rural area is not an ideal comparison for what might be going on in the urban areas, if the non-SOE sector is having a direct positive effect on health outcomes independent of the UEMBI policy, then we should see the trend in the rural area when we compare non-SOE employees to the unemployed. Unfortunately, while the rural areas were not affected by UEMBI, the new cooperative health care system (NCMS) did start in a limited number of rural areas in 2003 and 2004. This could affect our estimation but if we look at 1 we can see that in our 2004 survey there is not much evidence, if any, that the policy had begun to have an effect. Therefore, we will use the following to capture the DD estimate from the equation below:

$$Y_{i,t} = \beta_0 + \beta_1 T_i + \beta_2 P_t + \beta_3 T_i * P_i + \delta_0 R_i + \delta_1 R_i * T_i + \delta_2 R_i * P_t + \delta_3 R_i * T_i * P_t + \omega_{i,t} \tag{5}$$

The coefficient of interest is still β_3. The R_i is a dummy variable equal to one if the observation is from a rural area and zero otherwise. As before, we will also add individual covariates and district fixed effects to control for possible differences in the two groups:

$$Y_{i,t} = \beta_0 + \beta_1 T_i + \beta_2 P_t + \beta_3 T_i * P_i + \delta_0 R_i + \delta_1 R_i * T_i + \delta_2 R_i * P_t + \delta_3 R_i * T_i * P_t + \theta I_{i,t} + \rho F_{i,t} + \lambda \eta_{i,t} \tag{6}$$

Where β_3 is again the coefficient of interest and will tell us the net effect that UEBMI had on insurance coverage, self-reported health status, facility utilization, and out-of-pocket expenditures. While the UEBMI was meant to be mandatory, in practice far from everyone ended up being covered. Therefore, to compliment the DD approach, we will

also use an instrumental variable approach to get at the effect of the treatment on the treated. The provision of UEBMI will be used to instrument for whether an individual had health insurance coverage.

The empirical model can be summarised by the following two equations:

$$Y_{i,t} = \beta_0 + \beta_1 \widehat{H_{i,t}} + \beta_2 NSOE + \beta_3 After + \beta_4 Rural + \beta_5 Rural * After + \theta I_{i,t} + \rho F_{i,t} + \epsilon \tag{7}$$

$$H_{i,t} = \alpha_0 + \alpha_1 NSOE * After + \alpha_2 NSOE * Rural + \alpha_3 Rural * NSOE * After + \alpha_4 NSOE + \alpha_5 After + \alpha_6 Rural + \alpha_7 Rural * After + \theta I_{i,t} + \rho F_{i,t} + \upsilon \tag{8}$$

where $H_{i,t}$ denotes insurance status and $\widehat{H_{i,t}}$ denotes the predicted coverage. NSOE denotes the workers who worked in Non-SOEs. This approach involves two steps. In the first step, Equation 8 estimates how health insurance status is affected by the reform. Then in the second step, Equation 7 the predicted health insurance status is used in the regression to see the effect of having taken up health insurance on the outcomes of interest.

4 Results

4.1 The Effect of UEMBI on Health Insurance Coverage

First we will examine how the implementation of UEMBI effected health insurance coverage in urban China. Not all individuals chose to take-up health insurance coverage. Those who felt they might have been at a low-risk of needing coverage or low-income

groups that might have preferred to spend limited funds on other goods are likely to not have taken advantage of the health insurance that was supposed to be provided under UEMBI. However, there was demand for health insurance and a large group of people did take advantage of the state-supported system.

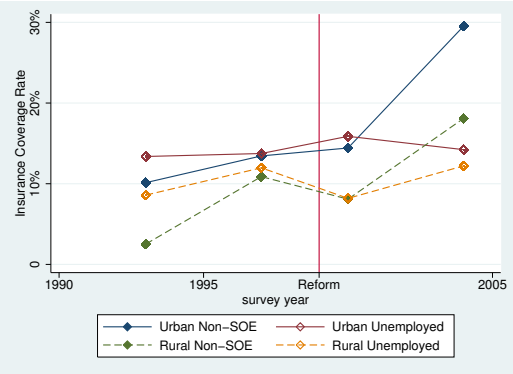

Figure 1: The Trend of Health Insurance Coverage

Figure 1 shows the health insurance coverage rate for our two main groups of interest: the urban unemployed and urban non-SOE employees. While insurance coverage among the urban unemployed increased slightly from 1994 to 1997 it stayed pretty much constant from 1999 until 2004. However, in comparison, the health insurance coverage rate for the urban Non-SOE employees doubled from 15% to 30% after the reform despite having been level beforehand. To see if this difference in trends is due just to something particular about the non-SOE sector, we also show the rural unemployed and rural Non-SOE coverage rates over the same time period. The rural unemployed, like their urban counterparts, had roughly the same coverage rate over the entire period. The coverage in the rural Non-SOE group did go up somewhat but not to the same extent as in the urban sector; this is very likely due to the NCMS partially coming into effect in 2003 but we will examine the triple difference just to make sure there was a difference in the urban sector above and beyond that in the rural sector.

Table 1: Summary Statistics

Variable	All		1997		2004		Differences in means	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Err.
Insurance	0.146	0.353	0.116	0.320	0.179	0.383	0.063***	0.007
Sick	0.099	0.298	0.051	0.221	0.150	0.357	0.099***	0.006
Health Service Uti.	0.064	0.245	0.042	0.201	0.087	0.282	0.045***	0.005
Preventive Care	0.013	0.114	0.004	0.062	0.023	0.151	0.019***	0.002
Medical Exp.	46.554	796.560	17.306	239.923	78.058	1119.906	60.751***	15.450
Age	42.736	14.489	40.972	14.874	44.637	13.815	3.665***	0.279
Years of Schooling	6.315	3.938	5.757	3.949	6.915	3.837	1.158***	0.076
Female	0.534	0.499	0.527	0.499	0.541	0.498	0.0137*	0.010
Non SOE	0.737	0.440	0.799	0.400	0.670	0.470	-0.129***	0.008
Rural	0.770	0.421	0.797	0.403	0.742	0.438	-0.055***	0.008
Rural*NonSOE	0.606	0.489	0.663	0.006	0.545	0.007	-0.055***	0.008
Rural*Unemp	0.164	0.370	0.133	0.005	0.197	0.006	0.063***	0.007
Urban*NonSOE	0.131	0.337	0.136	0.005	0.125	0.005	-0.011*	0.007
Urban*Unemp	0.099	0.299	0.067	0.003	0.133	0.005	0.066***	0.006
Observations	10633		5514		5119			

Column 7 shows the differences in means between 2004 and 1997.

* Significant at 10% confidence level

** Significant at 5% confidence level

*** Significant at 1% confidence level

Table 1 presents the means and standard deviations of key variables used in our analysis. The 1997 sample has 5,514 individuals and 2004 sample has 5,119. The first four variables are our outcomes of interest: insurance coverage; self-reported health status (whether the individual got sick in the previous 4 weeks); health care utilisation (whether the individual accessed any health care in previous 4 weeks); preventive care utilisation (whether the individual used any preventive care service); and the total out-of-pocket medical expenditure. Roughly 14.6% of our sample has insurance coverage; coverage increased from 11.6% in 1997 to 17.9% in 2004. The increase of 6.3 percentage points is significant at 1 percent level, which can be found in Column (7). We also see that people were more likely to report being sick in 2004 than in 1997: in 1997 only 5.1% of the sample indicated they had been sick in the previous four weeks while, in 2004, 15% reported having been sick.

Given the increase in self-reported sickness and the increase in insurance coverage, it is not surprising that we also see a significant increase in the health service utilisation. The increase of health service utilisation, though, was not as large as the increase of reported sickness, which may suggest that some people chose self-care rather than formal care when they got sick. As with health service utilisation, the utilisation of preventive health care increases dramatically as well, though, from a very low base: in 2004, 2% of the sample used preventive health care in the last four weeks compared with 0.4% in 1997. Finally, we see that the average real total out-of-pocket medical expenditure increased by 351%, from 17.31 to 78.06 yuan. Using data from the National Health Survey (NHS), we see that this dramatic jump is not only in our data set. The NHS reports that the out-of-pocket expenses increased from 70% to 80% of per capita income in 1993 to more than 200% in 2003 (Yip, Wang & Hsiao 2008). The remaining variables in Table 1 will

Table 2: Average Insurance Coverage (DDD)

	Non-SOE Sample			Unemployed Sample			
	Before the reform 1997	After the reform 2004	% point change	Before the reform 1997	After the reform 2004	% point change	DD effect After - Before, NonSOE-SOE
Urban	0.134	0.295	0.161***	0.137	0.142	0.005	0.156***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.03)
Rural	0.109	0.181	0.072***	0.120	0.122	0.002	0.070***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
DDD effect of Urban Health Insuanrce Reform							0.086**
Difference in Urban-Rural, after-before, Non SOE-SOE							(0.04)

Standard errors in parentheses
* Significant at 10% confidence level
** Significant at 5% confidence level
*** Significant at 1% confidence level

serve as our control variables: the average age of the sample is 42; the average person has 6 years of schooling; 53.4% of the sample is female; and 77% of the sample comes from rural areas.

We will now examine the trends in insurance coverage we saw in Figure 1. Table 2 presents the simple difference-in-differences results. The table shows insurance coverage significantly increased by 16.1 percentage points in the urban area while there was no significant change among the unemployed. As we saw in the figure, insurance coverage did increase in rural areas for Non-SOE employees, by 7.2 percentage points, but the triple difference (Urban-Rural, After-Before, Non-SOE-SOE) is 8.6 which is significant at 5 percent confidence level. This suggests that if the difference in health insurance coverage between Non-SOE and the unemployed was increasing even before the introduction of UEBMI, the increase in the urban area was more than double the rate that is predicted by the trend from the rural area showing that the provision of UEMBI had a large effect. Indeed it is much more likely that NCMS was what caused insurance coverage to go up in the rural Non-SOEs and the effect of the UEMBI on insurance coverage is even higher than the triple difference estimate suggests.

We now have strong evidence that UEMBI increased the coverage rate in urban areas, even above and beyond any trend that was occurring before the policy came into place. However, we will now push this assertion even further by seeing if it holds up when we control for individual covariates and if we run some placebo regressions.

Table 3 is a robustness check that shows the effects the reform on health insurance coverage. Columns (1), (2) and (3) use the urban sample. Even when we control for individual characteristics,[9] health insurance coverage is estimated to have increased by 13.5 percentage points after the reform. However, including district fixed effects[10] and individual characteristics causes our point estimate to decrease to 0.064, though, it is still significant at the 10% level. In the rural areas, though, we see that when individual controls and district fixed effects are included, as in column (6), there is no estimated impact of NSOE*After. The change in the coefficient when we use district fixed effects suggests that there was a lot of variation in how districts implemented the program, perhaps with some starting earlier and some later.

Columns (7), (8), and (9) of table 3 use the whole sample. While columns (7) and (8) show that there was an increase in health insurance coverage for both rural and urban areas after the reform, column (9) shows that when controlling for district fixed effects and individual characteristics, that result was is only significant for the urban areas. Therefore, columns (3), (6), and (9) all provide a clear picture: UEMBI only significantly increased the health insurance coverage rate for non-SOE employees in urban areas.

One final potential problem of the DD estimate that we will now look at is the fact that the method is based on the assumption that the "underlying trends" in the outcome variables are the same for both treatment and control group. A test to determine whether

[9]The control variables include gender, age, years of schooling in the form of dummy variables.

[10]The reform allowed local flexibility in how it was implemented. Therefore the district fixed effects are important to use when looking at the whole sample

Table 3: The Effect of Urban Health Insurance Reform on Insurance Coverage Rate

	Urban			Rural			Urban&Rural		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
NonSOE	-0.003	0.0075	0.0536*	-0.0109	-0.0088	0.0168	-0.003	0.0016	0.0583**
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)
NSOE*After	0.1561***	0.1351***	0.0641*	0.0698***	0.0654***	0.008	0.1561***	0.1449***	0.0581*
	(0.04)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)	(0.03)
After	0.0048	-0.0188	0.0067	0.0024	0	0.0345**	0.0048	-0.0068	0.0161
	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Rural*NSOE*After							-0.0863**	-0.0788*	-0.0451
							(0.04)	(0.04)	(0.04)
NSOE*Rural							-0.0079	-0.008	-0.0445
							(0.03)	(0.03)	(0.03)
Rural*After							-0.0023	0.0022	0.0125
							(0.03)	(0.03)	(0.03)
Rural							-0.0177	-0.0139	-0.0293
							(0.02)	(0.02)	(0.02)
Baseline Controls?	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
District FE?	No	No	Yes	No	No	Yes	No	No	Yes
Observations	2444	2444	2444	8189	8189	8189	10633	10633	10633
R squared	0.0326	0.0796	0.1743	0.0091	0.0292	0.2425	0.0181	0.0348	0.211

Robust standard errors clustered at household level. Baseline control variables include i.age, i.school and female.Seven district fixed effects included in column 3,6 and 9

* Significant at 10% confidence level

** Significant at 5% confidence level

*** Significant at 1% confidence level

there is a trend before the reform among the groups is necessary. Since CHNS has many waves, tests of the trend are possible. As China started strong economic open policy reform in 1992, the waves before 1992 are not considered in order to simplify analysis. The placebo experiments use 1993, 1997, 2000 and 2004 waves. The key idea of placebo experiments is to see whether there is any significant change for the groups that we are interested in when the reform could not plausibly be the explanation. For example, we could assume a reform occurred between 1993 and 1997 and run the same regressions as we did in table 3 above. If the estimate on NSOE*After is significant that would suggest the results we have above could be due to different underlying trends that were present between the two groups before the policy was implemented. If the estimate is insignificant or close to zero we will say there is no evidence of underlying trends.

The results of the placebo experiment are given in table 4. Columns (1) - (3) show the results of using the 1993 survey as the pre-treatment wave and the 1997 survey as the post-treatment wave. At no point is the coefficient of interest, the NSOE*After estimate, significant and, furthermore, the estimated coefficient is nearly zero. This means we find no evidence of a pre-intervention trend that could explain the results we found in the preceding tables. Columns (4) - (6) use the 1997 survey as the pre-treatment wave and the 2000 survey as the post-treatment wave. As in the preceding columns the coefficient of interest, the NSOE*After estimate, is insignificant suggesting that there is no evidence that trend differences before 2000 could explain the results we find in the preceding tables. Finally, in columns (7) - (9) we use the 2000 survey as the pre-treatment wave and the 2004 survey as the post-treatment wave. Given that the reform took place in 1999 and there was flexibility in implementing the program, these last three columns show that using 2000 as the base year provides roughly the same results as using 1997. Indeed the

estimated increase in health insurance coverage is 16.80 percentage points even when using district fixed effects and individual controls, more than we found previously. This suggests that our preferred specification could even be underestimating the effect of UEBMI on health insurance coverage. In summary, table 4 shows that there is no evidence of a differential pre-intervention trend that could explain our results and that the effects of reform are even robust to using a different pre-treatment survey closer to the 1999 start date.

Figure 1 along with tables 2-4 provide strong evidence that the UEBMI reform increased insurance coverage for Non-SOE employees in the urban area anywhere from 7 to 16 percentage points. Initial coverage for Non-SOE employees in 1997 was 14% which means the reform increased coverage anywhere from 50% to over 100% for the target population. Despite this success, the programme still did not reach its goal of bringing universal coverage to Non-SOE employees in urban areas. Liu (2012) discusses the factors that influenced health insurance coverage under the UEBMI and shows why UEBMI did not accomplish its goal. However, given the large and significant effect UEBMI had on insurance coverage we can use it as an exogenous shock to examine what effect an expansion of health coverage has in a large, developing country on many key outcome variables.

4.2 Difference-in-Differences Results

We now want to see what effect the government imposed expansion in health insurance coverage had on standard health related outcomes that have been examined for other countries. We will focus on four key variables that we have already discussed: self-reported health (whether one reports having been sick in the last four weeks); health

Table 4: Placebo Experiments

	93&97			97&00			00&04		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rural*NSOE*After	0.0505	0.0445	0.0609	-0.0145	-0.0078	0.0169	-0.1251*	-0.1276*	-0.1465**
	(0.0687)	(0.0662)	(0.0648)	(0.0706)	(0.0706)	(0.0710)	(0.0716)	(0.0708)	(0.0701)
NSOE*After	-0.0006	0.0019	-0.0157	0.0243	0.0194	-0.0175	0.1850***	0.1780***	0.1680**
	(0.0657)	(0.0630)	(0.0618)	(0.0681)	(0.0682)	(0.0688)	(0.0692)	(0.0684)	(0.0679)
NSOE*Rural	-0.0866*	-0.0699	-0.0913**	-0.0361	-0.0256	-0.0233	-0.0506	-0.0365	0.0083
	(0.0517)	(0.0489)	(0.0462)	(0.0515)	(0.0506)	(0.0498)	(0.0560)	(0.0547)	(0.0540)
Rural*After	-0.0041	0.0106	0.0121	-0.0645	-0.0678	-0.0671	0.0509	0.0567	0.0616
	(0.0438)	(0.0432)	(0.0438)	(0.0447)	(0.0451)	(0.0456)	(0.0424)	(0.0424)	(0.0423)
NSOE	0.0259	0.0173	0.0556	0.0252	0.0187	0.0406	0.0495	0.0436	-0.0163
	(0.0500)	(0.0473)	(0.0448)	(0.0491)	(0.0488)	(0.0480)	(0.0547)	(0.0534)	(0.0525)
Rural	-0.0162	-0.0189	-0.0318	-0.0203	-0.0118	-0.0294	-0.0848**	-0.0755**	-0.0874**
	(0.0286)	(0.0282)	(0.0289)	(0.0341)	(0.0333)	(0.0342)	(0.0368)	(0.0363)	(0.0364)
After	0.038	0.0246	0.0229	0.0267	0.025	0.0348	-0.0107	-0.0114	-0.0035
	(0.0395)	(0.0387)	(0.0398)	(0.0417)	(0.0422)	(0.0429)	(0.0394)	(0.0391)	(0.0392)
Control	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Control FE	No	No	Yes	No	No	Yes	No	No	Yes
Observations	9000	9000	9000	9200	9200	9200	8759	8759	8759
R Squared	0.0253	0.0473	0.1293	0.0061	0.024	0.1593	0.0307	0.0507	0.3084

Column 1 to 3 using the data wave 1993 and 1997,after=1 if year==1997
Column 4 to 6 using the data wave 1997 and 2000,after=1 if year==2000
Column 7 to 9 using the data wave 2000 and 2004,after=1 if year==2004
* Significant at 10% confidence level
** Significant at 5% confidence level
*** Significant at 1% confidence level

Table 5: The Effect of Urban Health Insurance Reform on Health Outcomes (1997 and 2004)

	Sick			Health Service Utilization		
	Urban	Rural	All	Urban	Rural	All
	(1)	(2)	(3)	(4)	(5)	(6)
NonSOE	0.0262	-0.0008	0.0214	0.0105	-0.0001	0.0058
	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)
NSOE*After	-0.0620**	0.0138	-0.0482*	-0.0234	0.0034	-0.0181
	(0.03)	(0.02)	(0.03)	(0.02)	(0.01)	(0.02)
After	0.1587***	0.0641***	0.1644***	0.0645***	0.0328***	0.0651***
	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)
Rural*NSOE*After			0.0574*			0.0189
			(0.03)			(0.03)
NSOE*Rural			-0.0197			-0.0024
			(0.02)			(0.02)
Rural*After			-0.0980***			-0.0304
			(0.02)			(0.02)
Rural			0.0037			-0.0021
			(0.01)			(0.01)
Baseline Controls?	Yes	Yes	Yes	Yes	Yes	Yes
District FE?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2444	8189	10633	2444	8189	10633
R Squared	0.1127	0.0702	0.0748	0.0948	0.0475	0.0473

Column 1 and 4 using the data from urban area.
Column 2 and 5 using the data from urban area.
Column 3 and 6 using the data from both urban and rural area.
* Significant at 10% confidence level
** Significant at 5% confidence level
*** Significant at 1% confidence level

service utilisation (whether one went to formal care in the last four weeks); the use of preventative care (whether one received preventive health care in the last four weeks); and out-of-pocket medical expenditure (the total medical expenditure in the last four weeks for which one had to pay out-of-pocket). We will regress all four variables on the same set of covariates in the previous tables and focus on the same variable of interest, NSOE*After. The idea is that the estimated coefficient on NSOE*After will represent the effect of UEBMI, the health care expansion in urban China, on the key variables.

Table 5 shows the effect of UEBMI on self-reported health status (sick equals one if a person reports being sick in the last four weeks) and health service utilization (which

equals one if a person reports having used a formal health care facility in the last four weeks). Column (1) shows that that urban employees who worked in Non-SOEs were 6.2 percentage points less likely to report being sick after the reform even when we include individual controls and district fixed effects. This represents a 41% decrease in the reporting rate for 2004. For comparison we include the rural sample in column (2) and see that there was no effect of the on self-reported health. Finally in column (3) we use the overall sample and all controls and again find that the effect is only present for the Non-SOE employees in urban areas after the reform took place. Columns (4) - (6) show the effect on health service utilization in the urban and rural areas. In all three specifications there is no evidence that the program increased the use of formal health care facilities; the estimated effect varies between -0.023 and -0.018 for the variable of interest. While the UEBMI does not seem to have increased health service utilization it does appear that in our timeframe, for all of China, utilization was increasing by over 6 percentage points demonstrated by the estimated coefficient on the After variable.

Table 6 examines the effect of UEBMI on preventative health care (which equals one if a person reports having received preventative health care in the previous four weeks) and medical expenditure (which is the total amount a person had to pay out-of-pocket, in RMB, for medical expenditures during the past four weeks). As shown in the summary statistics few people use preventative health care, less than one percent. In column (7) we have an estimated increase of two percentage points - which would represent a more than 200% increase in utilization of preventative care - due to the programme however the point estimate is not significant at the 10% level (it is only significant at the 12% level). However, when we look at column (8) we see that in the rural area we have an extremely small estimate that is far from significant. When we combine the sample and use all

Table 6: The Effect of Urban Health Insurance Reform on Health Outcomes (1997 and 2004)(Cont.)

	Preventive Health Care			Medical Expenditure		
	(7)	(8)	(9)	(10)	(11)	(12)
NonSOE	0.0059	-0.0017	0.001	-65.2114	-10.3722	-22.1368
	(0.01)	(0.00)	(0.01)	(55.73)	(11.26)	(30.97)
NSOE*After	0.0209	0.0006	0.0267**	-61.2677	-59.9518	-96.8474
	(0.01)	(0.01)	(0.01)	(68.46)	(52.03)	(87.34)
After	0.0228**	0.0112**	0.0213**	141.5975**	80.5977	177.4785**
	(0.01)	(0.01)	(0.01)	(63.52)	(55.16)	(82.21)
Rural*NSOE*After			-0.0278*			50.0866
			(0.01)			(107.01)
NSOE*Rural			-0.0003			-2.1029
			(0.01)			(30.00)
Rural*After			-0.0083			-109.792
			(0.01)			(100.53)
Rural			-0.0035			-0.8328
			(0.01)			(28.29)
Baseline Controls?	Yes	Yes	Yes	Yes	Yes	Yes
District FE?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2444	8189	10633	2444	8189	10633
R Squared	0.0492	0.022	0.028	0.0376	0.014	0.0126

Column 7 and 10 using the data from urban area. Column 8 and 11 using the data from urban area. Column 9 and 12 using the data from both urban and rural area.

* Significant at 10% confidence level

** Significant at 5% confidence level

*** Significant at 1% confidence level

controls in column (9) we again get an estimated increase in over two percentage points for Non-SOE employees in urban areas and no effect for employees in rural areas. In this case the point estimate is significant; we are gaining precision because the larger sample is being used to identify the same number of baseline controls. This suggests that we have some evidence that the program did have a large effect on the use of preventative care. However, as seen in column (10) - (12) we find no effect of the program on out-of-pocket expenditures. We do find that over time out-of-pocket expenditures were increasing quite significantly, by over RMB 177.

Therefore, we get a clear picture from the DD estimates: the rollout of the UEBMI led Non-SOE employees in urban areas to use more preventative care and be less likely to report they had been sick. However there was no increase in the use of formal health facilities or out-of-pocket expenditure caused by the UEMBI. Therefore, there is evidence that UEMBI had a positive effect on the health of some urban Chinese workers while not raising direct costs to patients or increases demand for formal services. This improvement in health seems to have come through the increased use of preventative care.

4.3 Instrumental Variables

In this section we will look at the effect of providing health insurance to a Non-SOE worker in urban China using an instrumental variable (IV) technique. Since the reduced form (the DD estimates) shows that the UEMBI had an effect on health insurance coverage we can use the reform as an instrument for health insurance. The choice to have health insurance is endogenous, people who need insurance are more likely to choose to become covered. Therefore when we regress health insurance coverage on our outcomes of interest we may find that having health insurance coverage causes an *increase* in sickness for instance.

This could very easily be due to adverse selection and not the program though.

UEBMI did increase insurance coverage but it was only by 6 percentage points. We know that the likelihood of reporting sickness decreased by two percentage points in urban areas, but what was the overall effect on workers who actually got coverage? The instrumental variable approach will scale our results and show us the causal effect of health insurance coverage on someone who actually received coverage. These estimated effects will obviously be larger than the DD estimates but so will the standard errors. Therefore, it is unclear if we will have enough precision to estimate all effects of the UEBMI.

The main IV regressions are presented in the Table 7 and Table 8 and examine the same four outcomes of interest we looked at in the preceding subsection. Columns (1) and (3) show the OLS results. Consistent with a story of adverse selection, we find that people who have health insurance are more likely to report being sick in the past four weeks. However, when we instrument for insurance using UEMBI, we find that the causal effect of insurance: a person with health insurance is, roughly, 20 percentage points less likely to report being sick in the past four weeks. This number is large but is imprecisely estimated. What we can clearly say, though, is that there is evidence that having health insurance leads to a decrease in sickness. However, we need to be consider the strength of the instrument.

At the bottom of table 7 and table 8 we see the F-Stats for the excluded instrument, NSOE*After. The first stage regressions are the same as those showed in columns (7) and (8) in table 3 above. When the F-stat is below 10 there is the potential for weak instruments which is also when the standard errors get even larger. For the IV estimates where district fixed effects are not used we have a strong instrument and a large F-stat of

Table 7: The Effect of Health Insurance on Health Outcomes(IV)

	Sick				Health Service Utilization			
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Insurance	0.0284***	-0.2388*	0.0220**	-0.2851	0.0057	-0.1606	0.0036	-0.1504
	(0.01)	(0.13)	(0.01)	(0.19)	(0.01)	(0.11)	(0.01)	(0.15)
Non SOE	0.0165**	0.0293***	0.0016	0.0148	0.0104*	0.0184**	0.001	0.0076
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
After	0.1384***	0.1574***	0.1369***	0.1494***	0.0558***	0.0677***	0.0555***	0.0617***
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Rural	-0.0127	-0.0201*	-0.0083	-0.0278*	-0.0062	-0.0108	-0.0032	-0.013
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Rural*After	-0.0655***	-0.0714***	-0.0644***	-0.0644***	-0.0205*	-0.0242**	-0.0205*	-0.0205*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Baseline Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE?	No	No	Yes	Yes	No	No	Yes	Yes
Observations	10633	10633	10633	10633	10633	10633	10633	10633
First Stage F statistics		15.14		8.4		15.14		8.4
R squared	0.0639	-0.0329	0.0749	-0.0295	0.0385	-0.0174	0.0472	0.0081

* Significant at 10% confidence level

* Significant at 5% confidence level

*** Significant at 1% confidence level

15.14. However, since the district fixed effects explain a lot of the variation in insurance coverage, when we include them in the IV estimates, the F-stat drops to 8.4. When we include district fixed effects our point estimates in the IV do not change much but the standard errors do get larger suggesting that we are losing precision but likely getting at the same estimated causal effect as when we had the F-stat of 15.14. Therefore, even though the F-stat is below 10, we are not too worried about weak instruments in our results.

In columns (5) and (7) of table 7 we see the OLS regressions for health service utilization. In columns (6) and (8) we see their IV counterparts. In all four specifications we find no effect of health insurance on the use of formal health care facilities. The F-stats for the IV regressions are the same as when we looked at sickness because we are using the same sample.

In table 8 we present the results of the OLS and IV regressions of having health insurance on the use of preventative health care and out-of-pocket medical expenditures. The OLS results in columns (9) and (11) show that a person with health insurance is more likely to use preventative care. However when we look columns (10) and (11) we see that the IV estimates are magnitudes larger and significant at the 1% level. Indeed the IV estimates suggest that someone with health insurance is 27 percentage points more likely to use preventative health care than someone without coverage. This large effect could easily be due to moral hazard in the health market as discussed by Zeckhauser (1970); if individuals do not bear the full cost of medical expenses they will use a service more than if they did bear the full costs. While we did not see this with regards to formal medical care this increase in preventative care could be due to the 2003 breakout of SARS, which was shortly before the second survey wave. When SARS hit people may not have

Table 8: The Effect of Health Insurance on Health Outcomes(IV Cont.)

	Preventive Healthcare				Medical Expenditure			
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Insurance	0.018***	0.183***	0.013***	0.266***	24.246	-685.177*	20.959	-695.606
	(0.00)	(0.05)	(0.01)	(0.09)	(30.72)	(353.42)	(39.03)	(520.50)
Non SOE	0.004	-0.004	0.005	-0.006	-57.720**	-23.631	-60.608**	-29.896
	(0.00)	(0.00)	(0.00)	(0.01)	(28.82)	(26.44)	(27.73)	(30.47)
After	0.035***	0.023***	0.034***	0.024***	122.998***	173.579***	123.475***	152.588***
	(0.01)	(0.01)	(0.01)	(0.01)	(46.37)	(42.84)	(45.74)	(40.43)
Rural	-0.002	0.003	-0.004	0.012*	3.057	-16.393	4.796	-40.772
	(0.00)	(0.01)	(0.00)	(0.01)	(13.21)	(29.77)	(14.57)	(43.39)
Rural*After	-0.023***	-0.019***	-0.022***	-0.022***	-94.134*	-109.790***	-94.376*	-94.284**
	(0.01)	(0.01)	(0.01)	(0.01)	(49.19)	(39.56)	(49.02)	(38.51)
Baseline Contr.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE?	No	No	Yes	Yes	No	No	Yes	Yes
Observations	10633	10633	10633	10633	10633	10633	10633	10633
First Stage F statistics		15.14		8.4		15.14		8.4
R squared	0.0249	-0.2281	0.0278	-0.4577	0.0117	-0.0842	0.0124	-0.0674

* Significant at 10% confidence level

** Significant at 5% confidence level

*** Significant at 1% confidence level

gone to formal health care facilities but instead likely became more consciousness and started using preventative care. What these regressions show us is that those with health insurance used preventative care at that period *much more* than those without insurance.

Columns (13) to (16) in table 8 examine the effect of health insurance on out-of-pocket expenditures. The OLS estimates in (13) and (15) show a very small, insignificant increase in expenditure due to health insurance. Columns (14) and (16) show a large, negative effect of having health insurance, however, the effect is only marginally significant in column (14). These results are consistent with the other results in this section: out-of-pocket costs for medical care have gone down and as a result people use preventative care more. However, the estimated effects on expenditure are imprecise and only significant in one specification.

The instrumental variable regressions shows us that a person with health coverage is over 20 percentage points less likely to report being sick and nearly 19 percentage points more likely to use preventative health care, an immense improvement over the average 2% usage rate observed in the population. This implies there are large benefits to those individuals who were newly covered by health insurance due to UEMBI. These results are consistent with the DD estimates but provide a rescaling of the results to see the causal effect of having health insurance on the newly insured.

5 Conclusion

In this paper, we analyse the impact of the UEBMI health insurance reform in China on coverage and health outcomes. The results show that the insurance reform significantly increased health insurance coverage among the target group in urban areas. However, the coverage was only around 30% for all eligible citizens in 2004, which suggests it was

still far from reaching its stated goal of helping to achieve universal coverage. Although the insurance programme was meant to be mandatory for all urban employees, during the first five years of the reform, there were some enterprises and individuals who chose not participate. There was poor monitoring of the programme and punishments were not strict enough in the early years of the reform. Therefore, with high worker turnover, employers chose to underinvest in health (Fang & Gavazza 2007).

Despite the failure of UEMBI to make health care universal, the DD results show it did play a large part in causing Non-SOE employees to become insured: insurance among the target group increased by more than 50%. The jump in insurance coverage led to an increase in the use of preventative health care and a decrease in the likelihood of being sick. The IV estimates show us that individuals who were newly covered due to UEMBI were less likely to report being sick and that 21% of them used preventative health care. These benefits accrued without causing out-of-pocket medical expenditures or demand on services from formal medical facilities increase.

These results show that large, developing countries, like China, can introduce health insurance without appearing to drive up out-of-pocket expenditures or demand for formal services.

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