THE RELATIONSHIP BETWEEN URBAN RESIDENT BASIC MEDICAL INSURANCE AND HEALTH UTILIZATION OF THE URBAN UNEMPLOYED IN CHINA

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By

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ABSTRACT

This paper explores how the launch of the Urban Resident Basic Medical Insurance (URBMI) program is related to the changes in health utilization for the unemployed urban residents. Using repeated cross-sectional data from China Health and Nutrition Survey (CHNS) in 2006 and 2009, this paper conducts the differences-in-differences methodology to analyze how URBMI is associated with the usage rate of several health outcomes, including preventive care, formal medical care, and informal medical care. The key findings include: i) URBMI is associated with a significant increase in the utilization of formal medical care for the unemployed group relative to the employed group; ii) URBMI is insignificantly associated with a relative decrease in preventive care usage and informal medical care usage; and iii) the introduction of URBMI successfully increases more than twice of its enrollment rate for the unemployed group relative to the employed group. However, it does not improve the overall insurance enrollment rate for the unemployed group.
The research and writing of this thesis is dedicated to everyone who helped along the way.

Many Thanks,

Zhu Zhan B.A.
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I. Introduction

The availability of medical insurance is an important indicator in measuring the well-being of people. Medical insurance may have a positive effect in protecting citizens’ health and longevity by lowering the economic threshold for medical treatment and increasing access to healthcare services. Currently, medical expenses paid by uninsured families and individuals account for a large proportion of China’s total cost of health services, which severely inhibits medical utilization (Liu & Zhao, 2012). A universal health insurance system could not only potentially reduce the possibility of health inequities and increase medical utilization, but it could also enhance citizens’ awareness of disease prevention and health maintenance.

In the 1950s, China established a medical insurance system called Free Medical Insurance (GFMI), which provided employees of state-owned enterprises high-benefit medical insurance treatments without having to pay an attached premium. In 1998, China formally established Urban Employee Basic Medical Insurance (UEBMI) for employees of both state-owned and private companies. A new type of rural cooperative medical care system (NRCMS) was re-established solely for the rural population in 2002. However, there is still a large portion of the urban unemployed population in the country that hasn’t received public medical insurance benefits since these people are “unqualified” for any type of insurance program. To achieve universal coverage for all citizens before 2015, China implemented a specific socially-secure system in 2007, called Urban Resident Basic Medical Insurance (URBMI), for the unemployed group and anyone else not covered
by any type of insurance. This system covers citizens who were excluded from previous medical insurance plans, and aims to ensure equitable access to health insurance benefits for all people. This was regarded as the final step towards universal health care.

Urban unemployed residents, the elderly over 65 years of age, teens, children, and anyone else not covered by any type of insurance are all qualified to participate in URBMI. The cost is shared between the government and individuals. Previous studies on URBMI have focused more on the effect of URBMI on medical expenditures for all people participating in this program (Liu & Zhao, 2012). In contrast, I focus more on the relationship between URBMI and health utilization, and specifically for the unemployed group, which URBMI initially targeted for assistance, using data from the China Health and Nutrition Survey (CHNS).
II. Background Information and Literature Review

A. The History of China’s National Health Insurance System Reform

China’s national health insurance history can be generally divided into two phases. The first phase started at the founding of the People’s Republic of China in 1949. For the first roughly 40 years, the system emphasized social welfare policy for government workers. During this time, the system was divided into two separate medical insurance systems. One was called Governmental Free Medical Insurance (GFMI), which is for state officials and members of the Chinese Communist Party; the other was called Employment-Based Medical Insurance, which is for employees of state-owned enterprises. The participants of either system did not have to pay any premiums for the insurance. However, with the reform and open-up economy that replaced the planned economy more recently, the old insurance system could no longer function in the market-orientated economy any longer.

In 1998, the Chinese government launched the second health system reform in the urban area of China, and began including employees of private companies to establish a new insurance system known as Urban Employee Basic Medical Insurance (UEBMI). However, there were estimated 420 million urban residents who had been left uninsured because they lacked formal employment (Yip & Hsiao, 2009). To provide health protection for this growing population who are not covered by the UEBMI, the Decision of the State Council on Establishing the Urban Residents’ Medical Insurance System was issued in 2007. The goal was to establish an affordable national health insurance system that could provide effective health care and achieved
universal coverage for all citizens (Dekkerhoff & Wang, 2009).

**B. Previous Literature: The Effects of Health Insurance on Health Utilization**

Since entering the 21st century, China has encountered several challenges as a result of an aging population. Although aging is an important symbol of social civilization and progress, it also brings a series of social problems. One prominent problem is the substantial increase in medical expenses that inevitably arises as people age, which places a greater strain on the Chinese General Social Fund system. Hence, in July 1998, the State Commission decided to make major health care reforms in China to curtail increasing medical costs and enhance medical utilization for Chinese citizens.

This system shares many similarities with health policy frameworks from several industrialized countries. At the end of the 19th century, Germany’s Bismarck government established the first social insurance and medical insurance system in the world. After World War II, Europe and North America started the formation of the “welfare state” system. The United Kingdom established the National Health System (NHS); Canada created a universal health insurance system Assurance-Maladie provided by the Canada Health Act (CHA); and Nordic countries became prototypical welfare states, with a universal and comprehensive national health security system. In 1989, the South Korean government established the National Health Insurance (NHI) which covered nearly all of the citizens that would be able to benefit from various types of health insurance. Taiwan made a similar reform in 1995 by expanding coverage of medical insurance and improving citizens’ overall health conditions. The
universal health insurance plan in Taiwan was viewed as one of the successful techniques to solve the health inequity problem (Cheng & Chiang, 1997).

In previous literature, rigorous research has been conducted to examine the effect of health insurance programs on health utilization. For example, the RAND health insurance experiment is one of the most influential tests in health economics. Using results from this experiment, Manning et al. (1987) found that for patients who were randomly assigned to a free medical scheme insurance plan, their use of medical service were 45% higher than patients who paid out of pocket. It was found that health insurance has a significant effect on the demand for medical services, which increases medical spending.

In Taiwan, Cheng & Chiang (1997) studied the changes in demand for medical services after the introduction of the Taiwan National Health Insurance Program (NHIP) in 1995. The study shows that the new medical insurance system doubled the utilization of medical care for outpatient treatment and hospital admissions than before 1995.

Yip et al. (2009) conducted a tentative assessment in western Chinese counties in which some counties were randomly assigned to an insurance intervention program Rural Mutual Health Care (RMHC), which offered coverage for inpatient and outpatient service, and others were assigned to control groups. The experiment shows that RMHC increases outpatient service utilization and reduce self-medication for the treatment group.
C. Urban Resident Basic Medical Insurance (URBMI)

URBMI is a voluntary insurance program supported mostly by the government social fund and individuals, which is operated at the city level. Due to differences in the economy and the affordability across provinces and cities, local governments are allowed considerable flexibility in the financing and implementation policies of the program. The current annual premiums range from $20 to $100, which is lower than UEBMI but higher than NRCMS.\(^1\) The ultimate goal of this reform is to achieve universal coverage, reduce inequality in medical service distribution, and increase health utilization for one of the most vulnerable groups: the unemployed urban residents. After its pilot run in 2007, “URBMI rapidly expanded from 79 cities to 229 cities in 2008 and to almost every city by the end of 2009. This program covered 221 million people, amounting to around 16.5% of the Chinese population” (Liu, Zhao 2012).

However, since URBMI was mainly supported by the government with low premiums attached, the program demanded a significant amount of the government’s budget. According to the World Bank 2009 Report on China’s healthcare reform, the government has incrementally spent $125 billion as of 2011 on URBMI, which was a substantial increase from prior years. In 2008, the Chinese government spent approximately $52 billion on health care, which was approximately one-quarter of the country’s total health care costs that year or 1.2% of its GDP\(^2\) (Deckerhoff & Wang 2010).

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\(^1\) The annual premiums for Urban Employee Basic Medical Insurance (UEBMI) range from $100 to $250. The annual premiums for New Rural Cooperative Medical System (NRCMS) range from $20 to $50. (Deckerhoff, Wang 2010)

\(^2\) China’s total health care spending in 2008 was 1453 billion RMB (approximately $213 billion), or about 4.8 percent of its GDP.
The implementation of URBMI received great opposition due to large costs and doubts about its effectiveness in improving health outcomes. Many Chinese health experts voiced concerns that most of the current studies (RAND, Cheng & Chiang) about the effect of insurance on improving health utilization are from developed countries, which cannot be related to specific situations in China. Furthermore, Lei & Lin (2009) studied the impact of the New Rural Cooperative Medical Scheme (NRCMS) on the rural elderly, and found that despite the wide expansion of coverage, the impact of the NRCMS on health outcomes is still limited. Lei & Lin found that participating in the NCMS does not significantly decrease out-of-pocket expenditures nor improve the health status which measured by self-reported health status. Nevertheless, NCMS is associated with an increase utilization of formal medical services (Lei & Lin 2009).

Therefore, my paper studies the relationship of URBMI between health utilization: preventive care usage, formal medical care usage and informal medical care for the treatment group, the unemployed. This analysis will help inform the debate about whether it is a prudent policy decision for the Chinese government to pursue universal health coverage.
III. Conceptual Model and Hypotheses

My hypothesis is that the implementation of health insurance increases the demand for medical services and increases the consumption of medical resources by reducing the private cost of medical care. The purpose of the medical insurance system is to distribute and share risk, and reduce the substantial burden on patients to pay the increasingly high costs for medical care. However, because insurance reduces the marginal cost of care to very low levels, it inevitably induce moral hazards and adverse selection, which can lead to greater demand for services and over-consumption of medical care from a socially optimal standpoint. Both factors provide upward pressure on total medical expenditures for the whole society. However, a universal health insurance system could help distribute resources more equitably amongst the population.

In the case of implementation of URBMI, the program helps distribute medical resources more evenly, especially among vulnerable groups since the program is targeted on the unemployed and people who are not covered by UEBMI. However, moral hazard is a concern as well. First, unlike UEBMI, URBMI does not cover preventive care such as vaccinations and physical examinations. However, it does cover treatment costs for inpatient care and outpatient service. Possessing medical insurance means that the individual price for medical care is lower than not having insurance. Over 70% (CSIS, 2011) of medical institutions (hospitals, clinics, etc.) are state-owned in China. With national health insurance, people receive a larger discount
when using medical service in state-owned hospitals and clinics, which suggests that
the individual treatment cost is lower after having insurance. The target group of
URBMI is comprised of unemployed urban residents and anyone that is not covered
by any type of insurance. A majority part of this population can only be enrolled in
Minimum Livelihood Guarantee Scheme, known as Dibao\(^3\), from the local
government before 2007. Thus once they obtained the real health insurance with
over 90% of medical expense coverage, the demand for medical service should expect
a greater increase relative to the group that was already previously insured. In addition,
it is more likely for the unemployed to use discounted medical service rather than
preventive care with full price. It can be expected a decrease for the treatment group
in using full priced preventive care.

Thus my four hypotheses are that, i) the unemployed living in urban areas will
use less preventive care after they are insured by URBMI; ii) with high percentage of
coverage in formal medical utilization, demand for formal medical utilization will
increase after having URBMI. Since the increased use of formal medical use will
crowd out the need for people to use informal medical care; hence iii) folk doctor
visits and informal medical utilization will be reduced for the unemployed; iv) My
hypothesis for the first-stage analysis is that the introduction of URBMI increases the
URBMI enrollment as well as the overall insurance enrollment for the unemployed
group relative to the employed group.

\(^3\) In 1999, Chinese government established social protection program Urban Dibao to offer monthly subsidy for
the urban unemployed and people whose per capita income falls below local minimum living standards. (Yang,
2012)
IV. Methods and Data

A. Empirical Approach

Urban Resident Basic Insurance is provided for: i) primary, secondary and high school students, ii) young children, iii) unemployed urban residents, iv) the elderly over 65, and v) anyone who lives in the urban areas and is not enrolled in any other social insurance program. Studies show that children and teens are rarely enrolled in this new program because they have better health condition (Lin, Liu & Chen, 2009). Thus, I exclude the first two groups from the model. The treatment group is the unemployed residents and the control group is the employed residents.⁴

<table>
<thead>
<tr>
<th></th>
<th>Unemployed</th>
<th>Employed</th>
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<tbody>
<tr>
<td>Prior 2007</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>Post 2007</td>
<td>B</td>
<td>D</td>
</tr>
</tbody>
</table>

In the control group, I test the difference in three forms of medical utilization (preventive care, formal medical care, folk doctor visit) for all employed (C –D) prior 2007 and post 2007. In the treatment group, I test the difference in medical utilization for all unemployed prior 2007 and post 2007 (A-B). Then, I compare the difference between the treatment and control groups to examine whether a significantly relative change in the likelihood of medical utilization occurs.

⁴ The full sample has 10444 observations. There are 9011 adults and 1433 people are the elderly over 65. The results for health utilization do not vary much whether the elderly is excluded or not.
\[ \Delta \text{URBMI} = (A-B) - (C-D) \]

I use the full sample of the unemployed group prior to and after 2007. I estimate if the unemployed group has an overall greater increase in the likelihood of having insurance after 2007 than the employed comparison group. This is the "first-stage" effect, which is estimated by running the differences-in-differences model with an indicator of whether the person has insurance or not. Because the unemployed only have Dibao or are under-insured prior to 2007 and the new policy was designed towards helping this group, my hypothesis is that the unemployed should have a greater increase in the likelihood of URBMI and overall insurance enrollment.

\[
\begin{align*}
\text{URBMI} &= \alpha_0 + \alpha_1 \text{year2009} + \alpha_2 \text{unemployed} + \alpha_3 \text{year2009} \times \text{unemployed} + \epsilon \\
\text{Insured} &= \beta_0 + \beta_1 \text{year2009} + \beta_2 \text{unemployed} + \beta_3 \text{year2009} \times \text{unemployed} + \epsilon
\end{align*}
\]

In the first two equations, I test how enrollment of both URBMI and overall insurance rate changes for the unemployed relative to the employed. Coefficient \( \beta_0 \) indicates the medical insurance enrollment rate for the employed group in 2006. Coefficient \( \beta_1 \) describes how enrollment rate changes in year 2009 for the employed. The coefficient \( \beta_2 \) describes the difference between enrollment differs between the unemployed and employed groups in year 2006. According to my hypothesis, \( \beta_2 \) might be negative because compared with the employed group because that fewer people in the unemployed group had medical insurance in 2006. Finally, according to the hypothesis, the sign of coefficient \( \beta_3 \) and \( \alpha_3 \) should be positive and statistically
significant because that would indicate the increasing likelihood of the unemployed having medical insurance after the introduction of URBMI in 2007 relative to employed.

(3)\[
\text{PreventiveCare} = \chi_0 + \chi_1 \text{year}2009 + \chi_2 \text{unemployed} + \chi_3 \text{year}2009 * \text{unemployed} + \\
\chi_4 \text{income} + \chi_5 \text{education} + \chi_6 \text{gender} + \chi_7 \text{age}09 + \varepsilon
\]

I control for income, education attainment, gender and age in all regressions. Based on the hypothesis, I expect the sign of coefficient \( \chi_3 \) which indicates how the usage rate for preventive care changes for the unemployed relative to the employed group after the introduction of URBMI to be negative. Relatively fewer unemployed people use preventive care since the insurance program does not cover this part. Coefficient \( \chi_4 \) and \( \chi_5 \) might be positive because people with higher education attainment and income use more preventive care.

(4)\[
\text{FormalCare} = \gamma_0 + \gamma_1 \text{year}2009 + \gamma_2 \text{unemployed} + \gamma_3 \text{year}2009 * \text{unemployed} + \\
\gamma_4 \text{income} + \gamma_5 \text{education} + \gamma_6 \text{gender} + \gamma_7 \text{age}09 + \varepsilon
\]

Based on the second hypothesis, I expect the sign of coefficient \( \gamma_3 \) to be positive. Relatively more unemployed people will begin to use discounted priced formal medical care after insured by URBMI.

(5)\[
\text{FolkDoctorVisit} = \omega_0 + \omega_1 \text{year}2009 + \omega_2 \text{unemployed} + \omega_3 \text{year}2009 * \text{unemployed} + \\
\omega_4 \text{income} + \omega_5 \text{education} + \omega_6 \text{gender} + \omega_7 \text{age}09 + \varepsilon
\]

According to the third hypothesis, I expect the sign of coefficient \( \omega_3 \) to be negative. Relatively fewer people will use informal medical care after insured because that the increase of formal care utilization crowds out the use of informal care, which is not covered by insurance.

**B. Data Description and Key Variables**
In my paper, I use repeated cross-sectional data from the China Health and Nutrition Survey (CHNS) which has eight survey waves since 1989. The national survey was conducted in about 4400 households, covering 19,000 individuals in nine provinces (CHNS, 2012): Guangxi, Guizhou, Heilongjiang, Henan, Hubei, Hunan, Jiangsu and Shandong Province. These provinces vary differently in the level of economic development and public resources. The survey questions are designed to examine various national and local policies related in health, nutrition and family planning fields and how these policies affect health and living status of Chinese citizens (CHNS, 2012).

The three indicators that are included as the key dependent variables to measure health care utilization: i) preventive care, which describes whether people receive any preventive health service, such as a health examination, eye examination, blood test, blood pressure screening, tumor screening in the past four weeks (CHNS, 2012); ii) formal medical service utilization, which describes whether people received a doctor’s home visit, inpatient care and outpatient care at a village, town, country or city-level clinic and hospital during the past four weeks; iii) folk doctor visits describe whether people seek informal medical service in the past four weeks from individuals without credentials or medical institutions with no legitimacy.

In the first stage regression, the key dependent variables are i) an indicator for having URBMI (=1 means that the person is enrolled in the program; =0 otherwise.); and ii) an indicator for whether people are insured (=1 indicates that the person is insured; =0 otherwise.)
The three key independent variables include: i) an indicator of whether the person is in the unemployed or employed group; ii) pre-post time dummy (y2009 = 0 means before the launch of URBMI, =1 means after the launch of URBMI); and iii) an interaction term that interacts the treatment group with time dummy. The other independent variables are age, gender, individual net income, and education attainment\(^5\).

V. Main Results

A. First Stage Analysis

![Figure 1](image-url)

*Figure 1. URBMI enrollment by employed and unemployed condition, CHNS data pooled from 2006 and 2009.*

Figure 1 shows that, in 2006, the URBMI enrollment for both groups is zero because the program was launched in 2007. After the introduction of URBMI, the medical insurance enrollment rate for the employed group increased by 5.63%. For the

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\(^5\) Three dummies are created from the variable education attainment (graduating from primary school, receiving a high school degree, receiving a college degree and higher degree).
unemployed group, the URBMI enrollment rate significantly increased by 12.59% compared to that in 2006. The relative increase for the unemployed in URBMI enrollment is more than twice than that for the employed. The finding suggests that URBMI is successful in improving its enrollment among the unemployed group since this program is mainly designed to help the unemployed.

![Insurance enrollment by employed and unemployed condition, CHNS data pooled from 2006 and 2009.](image)

**Figure 2.** *Insurance enrollment by employed and unemployed condition, CHNS data pooled from 2006 and 2009.*

Figure 2 shows that however, when examining the relationship between the introduction of URBMI and overall insurance enrollment for the unemployed, URBMI does not show effectiveness in improving the overall insurance coverage. In 2006, insurance enrollment for the unemployed is higher than for the employed by 2.24 percentage points. The reason for this might be that the number of unemployed people insured by Dibao is more than the number of employed people insured by national medical insurance. In 2009, the relative increase in having insurance for the
unemployed is still 2.65% smaller than the employed, which is not statistically significant. The finding does not confirm my hypothesis and suggests that URBMI only affects a small percentage of population and does not have universal aspect in improve insurance coverage. This result may be interpreted as a crowd-out effect, which suggests that some people in the unemployed group moved from insured by Dibao with minimum medical coverage or uninsured to URBMI which offers 90% of the medical coverage, however others remained their original status because the inability to afford URBMI premium.

**B. Preventive Care Utilization**

![Bar Chart](image)

**Figure 3.** Preventive care utilization by employed and unemployed condition, CHNS data pooled from 2006 and 2009.

Figure 3 shows the result of estimating the first hypothesis, how having medical insurance is related to the usage of preventive care. From the graph it can be seen that in 2006, the percentage of employed receiving preventive care is 2.66%. In 2009, although this group was not influenced much by the launch of URBMI, their use of
preventive care reached 2.74%, an increase of 0.08% compared to that in 2006. This increase might arise for various reasons such as the awareness of using preventive medical service, or worsening health conditions than three years earlier.

For the unemployed group in 2006, their use of preventive care is 4.07%, which is larger than the employed group. The rise may be due to the lack of medical insurance, which can lead to a higher usage of preventive care than the employed group. If people use more preventive care such as vaccinations and physical examinations, they are less likely to get sick in the future. In 2009, it drops to 3.61%.

The main DID finding in the above regression is that, after the launches of URBMI, the usage rate of preventive care in the unemployed group decreased by 0.46% relative to the employed group. However it is not statistically significant. The result confirms the first hypothesis. The reason for the drop might be because that, unlike UEBMI, URBMI does not cover preventive care for the unemployed group, but it does cover actual inpatient treatment and outpatient treatment when people are sick. The adverse selection leads to sicker people spending more on treatment care, which is covered by the insurance, and healthier people to spend less on preventive care, which is not covered by the insurance. When control variables are added (gender, age, education level and individual net income), we can see that by holding control variables constant, DID finding suggests that the unemployed group decreases their use of preventive care by 0.60% relative to the employed group in 2009.
C. Formal Medical Care Utilization

![Bar chart showing formal medical care utilization by employed and unemployed condition, CHNS data pooled from 2006 and 2009.]

Figure 4. Formal medical care by employed and unemployed condition, CHNS data pooled form 2006 and 2009.

As figure 4 shows, compared to 2006 data, the employed group is 0.08% more likely to use formal medical care in 2009. Since this group is covered by the same employed-based medical insurance in both periods, this rise is relatively small as expected. In 2009, we see there is a significant increase in using formal care for the unemployed group, presumably because of the launch of URBMI (increase is significant at the 99% level). The main DID finding suggests the unemployed is 1.55% more likely to use formal care relative to the employed after the introduction of URBMI. This finding also confirms our previous assumption, that the increase in formal medical utilization is larger for the unemployed group once they have medical insurance than the employed group who has insurance in both periods. Having medical insurance means that the individual price for medical care is lower than
without insurance. Thus the unemployed group might have kept themselves away from formal medical care before and waited until there was a discounted price for the medical service for the medical service. When control variables are added, it is statistically significant that the unemployed increase their use of formal care by 1.49% relative to the employed in the same period.

**D. Informal Medical Care Utilization (Folk Doctor Visit)**

![Figure 5](image-url)

Figure 5. *Folk doctor visits by employed and unemployed condition, CHNS data pooled from 2006 and 2009.*

The third hypothesis is that having medical insurance reduce the likelihood of people using informal medical care, which can be measured by using the binary variable “whether visit a folk doctor”. Folk doctors, refers to a group of doctors without a formal medical school degree, who practicing illegal traditional Chinese medicine, and prescribe unorthodox treatment plans. People often choose to visit folk doctors because: i) lower price compared to formal medical care, and ii) when orthodox medical services don’t improve their health conditions. As figure 4 shows,
for the unemployed group, they are 0.31% more likely to visit folk doctors than the
employed group in 2006 which is as expected. And in 2009, after the launch of
URBMI, the likelihood of visiting folk doctors is still increased by 0.31%. However,
this increase is smaller than that of the employed group. The main DID finding
indicates that the unemployed group decreases their use of informal medical care by
0.07% relative to the employed group. When control variables are added, the
unemployed group decreased the use of informal medical care by 0.03% relative to
the employed group.

VI. Conclusion

One limitation of this study is the large amount of missing values in CHNS data.
Due to the large amount of missing values in many potential dependent variables of
the CHNS data, I was not able to look into more aspects of health outcomes such as
treatment costs, out-of-pocket costs and self-reported health. Most of the missing
values in the CHNS data occur because of nonresponse: no information is provided for
several survey questions. However, a lack of documentation in the CHNS data explains
why these values are missing and why people choose not to answer these questions.
Thus it is difficult to decide whether the missing values are random. If the missing is not
random, for example, if people with high education attainment and income are most
likely to answer survey questions, then the missing values could produce biased
estimates.

Also, I am concerned with the selection of the treated group and control group.
The treatment group contains the people who are currently unemployed and the
control group is people who have jobs all along. Compared with the control group, it is noticed that the control group has higher education attainment, higher annual family income and older age. And these factors can all be influencing the health outcome results besides the introduction of URBMI. To solve this problem, I control for education attainment, annual family income, and age in the regression to address these problems, but there still may be other important factors that are unobservable in the estimated model, which increases the risk of omitted variable bias.

The third limitation is the outcomes of the results. Ultimately, health insurance is about improving the health outcomes of people, for example, living longer and being disease free. Whether this system is successful or not depends on how it compares to alternative systems. This paper does not look at the cost effectiveness of this program, or compare it to alternative financing systems or alternate policies to provide coverage to these uninsured people. For example, the Rural New Cooperation Medical Scheme (RNCMS), which has a much lower premium than URBMI. This issue is worth studying in future research.

The last limitation is whether the result of the preventive care hypothesis and formal care hypothesis is consistent. The findings show that the usage rate of preventive care is higher for employed group with Urban Employed Based Medical Insurance than for the unemployed group that was later covered by Urban Resident Basic Medical Insurance. The usage rate of formal medical care is higher for the unemployed group with URBMI than the employed group with UEBMI. However, these results do not necessarily suggest a causal relationship between URBMI and
health utilization. Due to the small magnitude and size of the data and short period of time (whether use preventive care/formal care in the past four weeks?) The results do not necessarily lead to a reduction in preventive care and over consumption in formal medical care from a long-term perspective for the unemployed group. I hypothesize that the reason for this decrease in preventive care and increase in formal medical care is because of temporary adverse selection since URBMI was a newly launched in 2007. The potential medical demand for the insured people might possibly be magnified in the first few years from the transformation of not having insurance to having insurance, which leads to temporary negligence of preventive care. Thus, the findings should be interpreted with cautions. And it will be more precise to wait for longer periods to evaluate the effect of URBMI on health utilization.

In summary, through using a differences-in-differences methodology, the analysis suggests that URBMI causes relative and statistically significant increases in the utilization of formal medical care and URBMI enrollment for the unemployed group relative to the employed group. However, the introduction of URBMI does not seem to have effectiveness in improving overall insurance coverage for the unemployed. The results also show a relatively insignificant decrease in the use of informal medical care as well as preventive care utilization for the unemployed group relative to the employed group. The policy implication for future program improvement is that first, URBMI should include preventive care as a part of coverage because that it would reduce the overall possibility of people having disease; and spending on preventive care is less than formal medical treatment expenditure.
hence may reduce overall medical costs in long term. Furthermore, income and education attainment both have a significant positive effect in improving health utilization. It is of great importance for the government to promote economic welfare program in mid-low income families. The government should focus on improving education graduation rate, especially for primary and high school education. Last, future URBMI financing and implementation policies should be adjusted to aim at improving the effectiveness of URBMI in securing more insurance coverage for its target population.
## APPENDIX: SUPPORTING TABLES

### Table 1.

**CHNS Summary Statistics, Year 2006 and 2009**

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<th>Unemployed</th>
<th>Employed</th>
<th>Unemployed</th>
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<td>Mean</td>
<td>S.D</td>
<td>Mean</td>
<td>S.D</td>
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<td>2006:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have URBMI?</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>Do you have insurance?</td>
<td>0.5494</td>
<td>0.4976</td>
<td>0.5737</td>
<td>0.4947</td>
</tr>
<tr>
<td>Preventive Care</td>
<td>0.0266</td>
<td>0.1610</td>
<td>0.0407</td>
<td>0.1977</td>
</tr>
<tr>
<td>Formal Medical Care</td>
<td>0.0082</td>
<td>0.0901</td>
<td>0.0108</td>
<td>0.1031</td>
</tr>
<tr>
<td>Folk Doctor Visit</td>
<td>0.0292</td>
<td>0.1684</td>
<td>0.0322</td>
<td>0.1768</td>
</tr>
<tr>
<td>Income</td>
<td>12394.38</td>
<td>16853.47</td>
<td>8456.66</td>
<td>9692.55</td>
</tr>
<tr>
<td>Gender</td>
<td>0.5476</td>
<td>0.4978</td>
<td>0.4147</td>
<td>0.4928</td>
</tr>
<tr>
<td>Age</td>
<td>43.0861</td>
<td>11.7610</td>
<td>57.9470</td>
<td>13.0200</td>
</tr>
<tr>
<td>Graduate from Primary School</td>
<td>0.8212</td>
<td>0.3832</td>
<td>0.7028</td>
<td>0.4572</td>
</tr>
<tr>
<td>Graduate from High School</td>
<td>0.2715</td>
<td>0.4447</td>
<td>0.2210</td>
<td>0.4157</td>
</tr>
<tr>
<td>Graduate from College</td>
<td>0.1388</td>
<td>0.3458</td>
<td>0.1137</td>
<td>0.3175</td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have URBMI?</td>
<td>0.0563</td>
<td>0.2306</td>
<td>0.1260</td>
<td>0.3319</td>
</tr>
<tr>
<td>Do you have insurance?</td>
<td>0.9433</td>
<td>0.2311</td>
<td>0.9430</td>
<td>0.2318</td>
</tr>
<tr>
<td>Preventive Care</td>
<td>0.0274</td>
<td>0.1633</td>
<td>0.0369</td>
<td>0.1886</td>
</tr>
<tr>
<td>Formal Medical Care</td>
<td>0.0089</td>
<td>0.0939</td>
<td>0.0269</td>
<td>0.1619</td>
</tr>
<tr>
<td>Folk Doctor Visit</td>
<td>0.0330</td>
<td>0.1787</td>
<td>0.0354</td>
<td>0.1848</td>
</tr>
<tr>
<td>Income</td>
<td>18503.87</td>
<td>29420.87</td>
<td>14283.30</td>
<td>14164.25</td>
</tr>
<tr>
<td>Gender</td>
<td>0.5655</td>
<td>0.4958</td>
<td>0.4069</td>
<td>0.4914</td>
</tr>
<tr>
<td>Age</td>
<td>45.6724</td>
<td>11.5943</td>
<td>60.9446</td>
<td>12.3639</td>
</tr>
<tr>
<td>Graduate from Primary School</td>
<td>0.8286</td>
<td>0.3769</td>
<td>0.7115</td>
<td>0.4532</td>
</tr>
<tr>
<td>Graduate from High School</td>
<td>0.2364</td>
<td>0.4249</td>
<td>0.2215</td>
<td>0.4154</td>
</tr>
<tr>
<td>Graduate from College</td>
<td>0.1313</td>
<td>0.3378</td>
<td>0.1223</td>
<td>0.3278</td>
</tr>
</tbody>
</table>

Note. Employed = control group mean; Unemployed = treatment group mean; Twelve variables were tested in total, including URBMI, insured, preventive care, formal care, folk doctor visit, age, gender, income, and education of individuals. CHNS data from 2006 and 2009 are pooled together.
Table 2.  First Stage Regression

*Difference-in-Difference Estimate of Changes in Insurance and UBM*I Enrollment

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Insured</th>
<th>URBMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>DID (Unemployed*Time)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>0.393***</td>
<td>0.0563***</td>
</tr>
<tr>
<td></td>
<td>(0.00879)</td>
<td>(0.00370)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>0.0243</td>
<td>-0</td>
</tr>
<tr>
<td></td>
<td>(0.0159)</td>
<td>(0)</td>
</tr>
<tr>
<td>2009*Unemployed</td>
<td>-0.0256</td>
<td>0.0697***</td>
</tr>
<tr>
<td></td>
<td>(0.0176)</td>
<td>(0.0100)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.549***</td>
<td>0***</td>
</tr>
<tr>
<td></td>
<td>(0.00796)</td>
<td>(0)</td>
</tr>
</tbody>
</table>

R-squared                0.199                      0.051

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.
### Difference-in-Difference Estimate of URBMI Effect, by Preventive Care, Formal Medical Care and Folk Doctor Visit.

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1) Preventive care</th>
<th>(2) Preventive care</th>
<th>(3) Formal care</th>
<th>(4) Formal care</th>
<th>(5) Folk doc visit</th>
<th>(6) Folk doc visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Unemployed*Time)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>0.000786 (0.00366)</td>
<td>0.00154 (0.00368)</td>
<td>0.000691 (0.00208)</td>
<td>0.000990 (0.00208)</td>
<td>0.00381 (0.00392)</td>
<td>0.00483 (0.00394)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>0.0141** (0.00605)</td>
<td>0.0102 (0.00633)</td>
<td>0.00256 (0.00320)</td>
<td>-0.00147 (0.00351)</td>
<td>0.00306 (0.00559)</td>
<td>-0.00153 (0.00598)</td>
</tr>
<tr>
<td>2009*unemploy</td>
<td>-0.00457 (0.00841)</td>
<td>-0.00601 (0.00571)</td>
<td>0.0155*** (0.00571)</td>
<td>0.0149*** (0.00571)</td>
<td>-0.00684 (0.00810)</td>
<td>-0.000264 (0.00809)</td>
</tr>
<tr>
<td>Income</td>
<td>1.01e-07* (5.64e-08)</td>
<td>4.48e-08 (3.49e-08)</td>
<td>-1.99e-07*** (4.13e-08)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.00654* (0.00340)</td>
<td>0.00591*** (0.00218)</td>
<td>0.00481 (0.00353)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.000342** (0.000170)</td>
<td>0.000261** (0.000104)</td>
<td>-6.76e-05 (0.000157)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary school</td>
<td>0.000969 (0.00459)</td>
<td>0.000381 (0.00314)</td>
<td>-0.0289*** (0.00590)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>0.0212*** (0.00625)</td>
<td>0.00261 (0.00333)</td>
<td>-0.00974** (0.00448)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>0.00520 (0.00840)</td>
<td>0.00118 (0.00441)</td>
<td>-0.00786* (0.00468)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.0266*** (0.00258)</td>
<td>-0.00746 (0.0120)</td>
<td>0.0082*** (0.00144)</td>
<td>-0.0144* (0.00803)</td>
<td>0.0292*** (0.00270)</td>
<td>0.0553*** (0.0127)</td>
</tr>
<tr>
<td>Observations</td>
<td>10,444</td>
<td>10,444</td>
<td>10,444</td>
<td>10,444</td>
<td>10,444</td>
<td>10,444</td>
</tr>
<tr>
<td>F-test*a</td>
<td>4.02***</td>
<td>1.42*</td>
<td>7.58**</td>
<td>4.02*</td>
<td>0.23</td>
<td>0.06</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.001</td>
<td>0.005</td>
<td>0.003</td>
<td>0.005</td>
<td>0.000</td>
<td>0.009</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

Note: *** p<0.01, ** p<0.05, * p<0.1

a. Joint significance of variable unemployed and 2009*unemployed
REFERENCE LIST


Lei & Lin. (2009), The New Cooperative Medical Scheme in rural China: does more coverage mean more service and better health? *In Health Economics*, Volume 18, Issue Supplement 2


