Rural Pensions, Intra-household Bargaining, and Elderly Medical Expenditure in China

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Abstract

This paper investigates how cash transfers from a newly introduced social pension program influences intra-household resource allocation towards the elderly in rural China. The program provided windfall payments to those above age 60, which exogenously increased the income and relative bargaining position of elderly household members. A regression discontinuity design based on age of eligibility is applied to estimate the causal effect of the receipt of pension benefits on the utilization of health care and medical expenditure, outcomes which can be clearly assigned to individuals and which significantly influence elderly well-being. Using data from the China Health and Retirement Longitudinal Study, we find that receiving pension benefits increases both the utilization of health care services and health expenditures by the elderly. Females and elderly who do not live with grandchildren benefit more from pension payments.

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1. Introduction

This paper investigates how cash transfers from a newly introduced social pension program influences intra-household resource allocation towards the elderly in rural China. Understanding the dynamics of household decision-making process is essential for policy makers, since it plays an important role in mediating the influences of many policies. Existing literature shows that the intra-household resource distribution is affected by the relative bargaining power of family members (Doss 2013). For instance, intra-household resource allocation often favors more productive family members. However, empirical work has found it difficult to isolate exogenous determinants of relative bargaining power, as many indicators of relative position are endogenously determined. We focus on the recent introduced New Rural Social Pension (NRSP) scheme, which acted as a newly introduced cash transfer program to those above age 60, because such individuals received benefits without having previously contributed to the program. On average the pension benefits amount to about 10% of an average annual income in rural China. It thus serves as an exogenous shock to the income and relative bargaining power of the elderly.

Theory predicts that household resource allocation is more likely to follow the preferences of members who have greater bargaining power. Preferences are not directly observable, which is another common challenge in identifying the impact of changing relative bargaining position. Household consumption decisions are one of the most frequently used outcome variables in the intra-household economics literature, with emphasis on goods that can be assigned to individual members (since one can assumes that individuals prefer more consumption). Unfortunately, many available datasets only collect information on aggregate household expenditures

without indicating which members benefit. We use data from the China Health and Retirement Longitudinal Study (CHARLS), which contains detailed data on individual health care utilization and health expenditure of elderly household members. Due to the insufficient health insurance benefits, rural Chinese still mainly rely on out-of-pocket (OOP) payment to finance health expenditure (You and Kobayashi 2009). Since health expenditure can account for a large proportion of total household expenditure, it is reasonable to expect that household bargaining processes influence how much is spent on medical care of individual household members. Since health is such an important dimension of well-being, it is safe to assume that individuals prefer greater health care utilization and spending on their own health care needs.

The introduction of NRSP is a natural experiment that can provide a window into how household decision-making processes impact the well-being of the elderly. Exploiting special features of the NRSP, we apply a regression discontinuity design based on age of eligibility to identify the causal effects of income changes impact health care utilization. We also examine whether the impacts differ for men and women. As rural households in China often contain multiple generations, household composition also must be taken into consideration since the household bargaining position of the elderly may differ in extended households.

Our study contributes to two literatures. Previous research on intra-household resource allocation has mainly focused on gender differences in consumption. Only a few studies emphasize resource allocation differences on the basis of age (Kochar 1999; Mangyo 2008). They both find that the elderly are less favored. We further account for how demographic characteristics and household composition influence intra-household resource distribution. By investigating the role of income in health

care utilization, our study also contributes to existing literature on healthcare utilization in developing world. Research on medical payments in China mostly focuses on evaluating the health insurance system or the consequences of high health payment burdens (Sun et al. 2009; Wagstaff et al. 2009). As increasing the access and use of health services is one of the main goals of policy makers in developing countries, understanding the social factors influencing health care utilization is essential.

Background

The health system in China has experienced drastic changes in last few decades. Since 1978, the health system has transformed into one of the most market-oriented health system in the world. In 2002 the total health expenditure consists around 5% of the total GDP (National Health and Family Planning Commission of the People's Republic of China 2013). Total health expenditures are financed by three sources: government health expenditure, social health expenditure from the contribution from different health schemes (from employers, employees and residents), and individual out-of-pocket payment. In 2012 the share of individual OOP payment over total health care expenditure was 34% (ibid).

There are three main public health insurance schemes in China: urban employee basic health insurance scheme (UEBMI) for employee in urban areas, New cooperative medical scheme (NCMS) and the urban resident basic health insurance scheme (URBMI). In 2011 they covered 92% of the population (Yip et al. 2012). NCMS and URBI have been initiated in 2003 and 2007, respectively. They cover farmers and low-income groups in cities. They are both voluntary basis. NCMS reached almost universal coverage in rural China by 2007. Initially it focuses on

providing reimbursement for hospitalization. Recently it has been extended to cover outpatient expenditure. The reimbursement rates and coverage varies geographically. NCMS could be described by four figures: high copayment, large deductibles, low ceiling, and high coinsurance rate (Wagstaff and Lindelow 2008).

NCMS aims to improve the accessibility of health care and to protect rural residents from being impoverished by medical payment. There have been numerous studies evaluating the influence of NCMS. In general, NRCM increased health care utilization. But it apparently didn't reduce OOP healthcare expenditures (Wagstaff et al. 2009). Wagstaff and Lindelow (2008) document that the poor use more outpatient care and the rich use more inpatient care. As a consequence, the effects on medical expenses are smaller for the poor and larger for the rich. Moral hazard from the supply side may be a main reason for little effects on health expenditure (ibid). Health service in China is paid fee-for-service, which leads doctors to steer patients to drugs, tests, and services with higher margins. Public facilities dominate the health system, but do not receive sufficient financing from the government. Rather, they must rely mainly on their own revenue, which incentives them to maximize medical payments. Health care facilities tend to shift costs to patients and insurers, resulting in more expensive care.

Health expenditure remains a heavy burden (Tang et al. 2008). You and Kobayashi (2011) find that better-off families tend to spend more on healthcare. But this is mainly due to greater spending by the richest households. At most lower income levels, OOP health payments do not differ significantly among households with different income levels. The low-income group suffers more from high financial burdens (Meng et al. 2004). Public health insurance provides greater benefits for the better-off groups, especially those who work in urban areas. Rural residents are

mostly covered by the NCMS, which has relative low reimbursement rates (Yip et al. 2012). Moreover, the poor are not exempt from health payments. Due to the disproportionate coverage of health insurance, the poor are at greater risk of incurring catastrophic medical expenses (Van Doorslaer et al. 2007). As a consequence, low-income households are less likely to seek health care when diagnosed (Zhang et al. 2007).

Economic growth has reduced poverty in China substantially, but it has benefited the elderly less. The rural elderly have been consistently poorer than the prime-age population (Cai et al. 2012). Due to lack of education, they have been left out of modern development. Until very recently, most rural elderly were not covered by any pension scheme. They most relied upon labor income and the support of family members (ibid). One recent study (Park and Xia 2014) shows that in rural China after age 65 health care expenditure decreases with age even as health problems increase, which is different from the pattern found in urban China and in developed countries (Yang, Norton and Stearns 2003). This suggests potential under-utilization of health services among China's rural elderly. The elderly's relative low income may be one explanation for that.

Intra-household resource allocation

The decision on whether or not an individual member utilizes health care service is made by households. Several economic models have been developed to explain family resource allocation. The unitary model developed by Becker (1991) considers the family to be a single unit. Family members share common preferences, pool resources and allocate them to maximize the utility of the whole family. This model has been challenged due to its unrealistic assumptions. This notion, especially

the prediction, has been challenged by empirical studies. E.g., focusing on the changes of children' benefit scheme in U.K., Lundberg, Pollak and Wales (1997) find that the welfare of children improves when the children's allowances are transfers to mothers instead of fathers. Alternative models argue that family members have individual preferences but may still pool resources. Family decisions may be the result of cooperative or non-cooperative bargaining (Lundberg and Pollak 1996). Bargaining power is often defined by individual characteristics, such as individual income, assets under control, or potential earning ability. The collective model avoids making assumption on the intra-family decision making process, but does assume that household allocations are Pareto efficient (Chiappori, Fortin and Lacroix 2002).

In a typical bargaining model, we expect the allocation of resources to reflect the relative economic contributions of different household members. Household members who have more bargaining power are more likely to achieve their desire outcome in intra-household resource allocation. Bargaining power is often defined by individual characteristics, such as individual income, assets under control, or potential earning ability. Most used outcome variables are consumption and time allocation. As many of bargaining power indicators are endogenous, previous studies tend to rely on external shocks, such as cash transfer programs, environmental changes and legitimate changes (e.g., (Duflo 2003; Qian 2008)).

Most empirical studies examine the allocation of money and time within couples and for children, while only a few articles investigate extended families (Case and Deaton 1998; Duflo 2003). Studies using South African data find that cash transfers to the elderly influence other household members (Duflo 2003). Case and Deaton (1998) find that consumption patterns changes differently depending on the gender of the recipients. Both South African studies examine aggregate household

expenditure data. Thus, it is difficult to link consumption to individuals. Rather, they assume that the preference of men and women are different. It is related to another common challenges of bargaining power literature that preferences are not directly observed. Thus, it is difficult to define what family members bargain for. The effects of changes in bargaining power could not be identified unless the preferences are various among household members. If some outcomes are proved as consequence of improving female bargaining power, they are favored by women. Although this logical line could be misleading, it may be the only solution if preferences are unknown. Only a few studies ask about preferences and perform their studies upon exact preferences. Using experiments in China, Carlsson et al. (2012) find that the joint decisions within couples reflect their both preferences but the husbands' preferences dominant the final decision.

Studies examining resource allocation on the basis of age are rare. Intra-household resource redistribution is expected to favor more productive family members. As the elderly in general have less income than prime-age adults, decreasing medical expenditure with age could just reflect their declining economic contributions. Kochar (1999) finds that in rural Pakistani older males' medical expenditure is positively associated with own income but is not sensitive to increases in household income. In contrast, prime-age males gain from increases in both own income and household income. Thus, the elderly appear to be less favored, although the paper does not directly address the endogeneity of individual incomes. Mangyo (2008) studies nutrition allocation in China. He finds that more productive or favored household members, including prime-age adults and men, have higher income elasticity. He uses rainfall shocks to identify the impact of changes in household

expenditures, but is unable to examine the impact of exogenous changes in individual income.

Introduction of the New Rural Social Pension Insurance (NRSP)

The New Rural Social Pension (NRSP) program was launched in late 2009. It is called "new" to differentiate it from old rural pension schemes that were experimented with in some regions in the 1990s. By scaling up the NRSP as well as a new urban residents' pension program introduced in 2011, the Chinese government for the first time provided Chinese residents without formal employment with old age benefits. However, the amount of monthly pension payments under the new schemes remained much lower than that available to urban employees. In 2009 the NRSP was piloted in 10% of counties throughout the country. NRSP expanded quickly in 2010 and 2011. By the end of 2010, 24% of counties and 143 million persons were covered, and by the end of 2011, 60% of counties and 359 million rural Chinese were covered. NRSP achieved full geographic coverage by the end of 2012.

NRSP consists of a basic social pension financed by the government, and individual accounts financed by both individual premiums and government subsidies. Rural residents who are age 16 and above and without urban employee pension program are eligible to participate in the program. The annual insurance premium ranges from 100 to 500 yuan per year[1]. The government also provides a subsidy to individual accounts. Those who select higher premiums enjoy greater subsidies. NRSP is designed to be a voluntary pension program. Rural residents can choose whether to enroll and select the payment level. The eligible age for pension benefits is

[1] In some richer provinces the categories of premium could be up to 1000 yuan per year.

60[2]. Those who sign up when they are under 45 must pay premiums continuously for at least 15 years before they can claim pension benefits. Residents who are age 45 and above are required to pay the premiums each year until they reach age 60. Participants who are age 60 and over when the program began are entitled to basic pension benefits without paying premium.[3] The CHARLS baseline survey was conducted in 2011 soon after the NRSP was introduced, so that nearly all pension recipients at the time of the survey did not pay any premiums. Thus, elderly at the time the pension payments can be considered to be windfall cash transfers for most elderly.

The government pays the basic social pension for eligible participants. The minimum basic pension was initially set at 55 yuan (9 USD) per month, paid by the central government. Local governments could decide whether they wanted to top up benefits using their own resources. Generally, the basic pension is 55 or 60 yuan per month. Some rich provinces have higher basic pension level; for example, the basic pension is 280 yuan per month in Beijing. The average rural income per capita in China was 6,977 yuan in 2011 (National Bureau of Statistic 2012). Meanwhile, regional differences are large. In rich provinces, rural income per capita is above 12,000 RMB (Beijing, Jiangsu, Zhejiang) while it is below 5000 yuan in western provinces (Gansu, Guizhou). Although NRSP pension benefits seem modest, they still account for 10% of average rural income per capita.

2. Methodology

Data

We analyze data from the baseline wave of the China Health and Retirement

[2] The only exception is Beijing where the eligible age of pension benefit is 55 for women and 60 for men. In some counties in Jiangsu province women above 55 are eligible until 2011.
[3] Receiving benefits was initially made conditional on enrolment by children, but later this rule was abandoned.

Longitudinal Study (CHARLS) conducted in 2011/2012 . The sample is limited to those who live in rural communities that had introduced the NRSP by the time of the survey and are age 50 to 69 at the time of the survey. By the time of the survey, NRSP had been launched in 118 villages in 24 provinces, out of 301 administrative villages surveyed in CHARLS. Since rural residents could only join the NRSP in their place of household registration (*hukou*), we excluded respondents without local *hukou*. Also, respondents who are enrolled in other pension programs are dropped. There are 2,910 individuals left after selection.

The survey records rich health-related information, including the type of health insurance, health status and healthcare utilization. Individuals are asked whether they have experienced an illness in the preceding one month before the interview. Those elderly who reported they have been sick are asked whether they sought health care service, how many times they utilized outpatient services to treat the illness, and the total expenditure spent on the visits, including medicine and doctors' fees. The most recent visit is well documented, including the type and location of the health facility, the total expenditure, and the amount of out-of-pocket expenditure. The individuals are also asked if they utilized in-patient care at a clinic or hospital in the past 12 months, the number of visits, and the total amount spent. Information on the most recent hospitalization is recorded in the same detail as the last outpatient visit.

The New Cooperative Medical Scheme (NCMS) has achieved almost universal coverage in rural China. 94% of our sample of CHARLS respondents have enrolled in the scheme. The reimbursement rates for outpatient care and inpatient care vary among different regions. The average ratios of OOP to total expenditure are 90.6% and 63.6% for outpatient care and inpatient care, respectively. The high OPP

proportion indicates that health care expenditure is mainly financed by the patients and their families. Out of 2919 individuals, 559 persons used outpatient care. The average OOP per visit is 496.3 yuan. 276 persons utilized inpatient care and the average OOP per episode is 6249 yuan. The expenditure per inpatient care episode is almost equivalent to China's average annual rural income per capita.

Fuzzy regression discontinuity design

We use a regression discontinuity approach (RD) to exploit the discontinuity in the probability of receiving treatment (NRSP benefits) when the individual turns 60. The RD design can be viewed as a randomized experiment if candidates have no control over the rating variable near the threshold (Lee 2008). Therefore, it allows us to exam the causal effects of income changes on health care utilization. Given incomplete compliance, a fuzzy RD approach is applied and the two stage least squares estimates are used. We use the exogenous assignment to treatment eligibility (through age) to instrument for the individuals' actual participation in the NRSP. The model can be written as follows:

$$T_i = \alpha + \gamma_0 D_i + f(age_i) + \theta X_i + \varepsilon_i \quad (1)$$

$$Y_i = \alpha + \beta_0 \hat{T}_i + f(age_i) + \theta X_i + \varepsilon_i \quad (2)$$

The first stage equation (1) models actual treatment (NRSP receipt, T_i) as a function of treatment eligibility (D_i). Individuals younger than 60 (older than 60) at the time of the survey are observed with a treatment eligibility of zero (one). In order to interpret the intercept of the estimates, the rating variable age is centered at the cut-off point 60. Hence,

$$\mathrm{D_i} = \begin{cases} 1 \text{ if centered age}_\mathrm{i} \geq 0 \\ 0 \text{ otherwise.} \end{cases}$$

The first stage also controls for age (centered at age 60), as well as a vector of

controls, X_i. The second stage equation (2) predicts the outcome as a function of NRSP receipt, instrumented through $\hat{T}_i$, obtained from the first stage. Otherwise analogous to the first stage, the equation controls for the function of age, a vector of individual characteristics as well as an error term. We use linear interaction model, where age function includes age and the interaction of age and whether the respondent turn age 60. By including the interaction term, we allow for different slopes above and below the cutoff. The vector of control variables is included to generate more robust results, but it is not required for achieving an unbiased RD design (Jacob et al. 2012). Hence, adding control variables should not alter the results greatly.

Variables

Dependent variables are the utilization of health care service and out-of-pocket expenditure. Dummy variables are constructed to indicate whether the individual used outpatient care last month or whether the individual used inpatient care last year. The total OOP on outpatient care last month and total OOP on hospitalization are studied. To add up to other health expenditure OOP on hospitalization are divided by 12 to generate the average monthly expenditure. The total OOP HCE last month is the sum of OOP on outpatient care, inpatient care and the self treated health care. The logarithm form is used when expenses are studied.

To examine the healthcare utilization of those who indeed need healthcare, we further limit the sample to those elderly who ever got sick in the past month. We focus on outpatient care only. In the inpatient care section, the respondents are not

first asked whether they have had any health issues in the past year, so we cannot restrict the sample to those who have had health problems.[4]

A summary of dependent variables is provided table 1. The younger group utilizes more inpatient care and also spends more on hospitalization. In contrast, the older cohort (treated group) is more likely to seek outpatient care. When they fall sick, the older group seeks more health care, but the OOP expenditures are less than those in the control group. This is consistent with earlier research that shows that the rural elderly actually spend less money on health care as they age.

The independent variable we are interested in is receipt of pension, which is instrumented by whether the individual exceeds age 60.

Of particular importance is that we control separately for household income per capita, which includes all pension income received and thus controls for income effects of the new pensions. In a unitary household model, pensions only matter so much as they increase total household income. After controlling for household income, individual incomes should not affect expenditure choices. However, in a bargaining model, those with more income will have greater influence on expenditure choices, so the household may be more likely to spend money on elderly health expenditure if the elderly person receives a pension, even after controlling for household income per capita.

Other control variables include gender, education, marital status, work status, health status (whether the individual has any functional limitations), household size (defined as the number of household members who were at home for at least six months in the past year), number of children above age 18, co-residence with children,

[4] Respondents are first asked if they had inpatient care in the past year. If the answer is no, they are further asked whether they should have used inpatient care due to illness. The likelihood that individuals will rationalize their behavior means that these questions cannot be reliably used to accurately categorize which respondents had health issues that might benefit from in-patient treatment.

and co-residence with grandchildren. Provincial dummy variables are also included to capture the regional variations. A descriptive summary of covariates is shown in table 2.

3. Results

Our main results are shown in Table 3. All the covariates listed in Table 2 are included. Having pension benefits doesn't have significant impact on the usage of outpatient care. It increases the probability of using inpatient care by 13.4%. The OOP on inpatient care and total OOP medical expenditure increase significantly. We further investigate the impacts of NRSP on OOP on outpatient care for the sample people who ever got sick in the last month. Conditional on having an illness, those individuals who received pensions are more likely to seek outpatient care. Specifically, the probability of seeking outpatient cares increases by 31%. Moreover, expenditure on outpatient care also increased. Therefore, the elderly tend to seek health care more often and spend more money on their health. This may be a consequence of low utilization of health care services before the pension reform.

In order to investigate whether the influence of NRSP is different by gender, we estimate the model separately for men and women. The results are shown in Table 4. In general, receiving pension benefits has a larger influence on women than on men. In fact, the results are positive but not statistically significant for the male sample. Women are more likely to use inpatient care in response to receiving pension benefits. Conditional on being sick, the probability of seeking outpatient care is increases by 39%, and the expenditure on outpatient care also increases significantly. Hence, women are the main driver of the large influence of NRSP on health care utilization. To explain the huge sex difference, I further check the pattern of the health care usage.

A higher proportion of women report illness (31.87%) than men (24.5%), and women also visit doctors more often. However, the mean per visit is lower than men. The imbalance of health care expenditure could be one explanation for the greater impacts on women. Probably they were more prone to under-utilized health care before, so they increase health care spending more when they have extra income.

Besides the gender difference, we also investigate how household composition conditions the impact of NRSP. If there are other generations in the household, the elderly may have had less bargaining power before the pension program or might be less willing to spend extra money on themselves. We first divide the sample by whether the elderly live with children. The results are shown in table 5. The elderly who live with children are more likely to use inpatient care when they receive pension benefits. Moreover, receiving a pension also leads to a greater increase in spending on inpatient care. Total out-of-pocket expenditure also increases significantly with pensions. All of the impacts of pensions are larger than for the whole sample. In contrast, NRSP doesn't significantly affect the health care utilization and medical expenditure of those who do not live with children. However, for those who experienced illness in the past month, pensions do significantly increase outpatient spending by the elderly who do not live with children, but not for those who live with children.

The existent of grandchildren also makes difference. As shown in table 6, receiving pension does not change the health care utilization for those who live with grandchildren, except for the likelihood of using inpatient care. The magnitude is similar compared to the results from the whole sample. In contrast, pension benefits significantly increase the OOP expenditure on outpatient care for those who do not live with grandchildren. Conditional on being sick, the magnitudes of the increase in

outpatient care expenditure are larger. It suggests that the elderly who do not live with grandchildren have more power to allocate their income. Another possible interpretation is that the younger generations are prioritized in the household.

The pension benefit not only raises the elderly's contribution to the household, it also results in an increase in the household income. The increase in the elderly's health care utilization may just reflect more health care utilization of the whole household. We follow Deaton (1997)'s regression to extend the Engle curve to include household composition (pp.191). By doing that, we can capture the influences of age and gender structure within a household. To examine the impact of NRSP, the discontinuity term and age function of the respondents are added to the regression.

$$w_{hc} = \alpha + \beta ln\left(\frac{x}{n}\right) + \eta lnn + \sum_{k=1}^{K-1} \gamma_k (n_k/n) + \theta D60 + f(age_i) + u_i$$

where w_{hc} is the share of health care expenditure over total household expenditure, x is total household expenditure, n is household size, n_k is the number of household member in age group k. One of the age groups is omitted to avoid multi-linearity. The household members are classified based on age. More specifically, the age groups are 0-6, 7-17, 18-44, 45-59 and above 60. Men and women are classified separately. As the respondent's age is directly controlled for in the regression, the household size we use is number of other household members (total household member-1). Since we are interested in how total household medical expenditure are affected by the pension benefit, those who do not have any other household members around are excluded (N=131).

We run the model separately for individual's health care expenditure and total household health care expenditure. CHARLS only records the respondent's expenditures on outpatient care and self-treatment for the last month. We add up the

monthly expenditure of those two items to expenditures on inpatient care last year and use it as a rough indicator of the respondent's health care last year. The mean value is 756.5 yuan. The average annual total household health care expenditure is 3832.3 yuan. The average annual total household expenditure is 20247.3 yuan. The average share of individual medical expenditure and household medical expenditure over total household expenditure are 0.048 and 0.175, respectively.

Table 7 lists the coefficients of D60. Turning into age 60 doesn't increase the share of the respondent's health care expenditure, but it increases the total household expenditure on health care by 2.7%. As the individual's annual medical expenditure is not very precious, we will rely more on the result in table 3. Nevertheless, the pension benefits influence the household's expenses on health care, though whether it is proportional to individual's expenditure is not clear.

4. Discussion

Overall, receiving pension benefits increase the probability of seeking health services and OOP on health service. Having more income indeed facilitates health care utilization in Rural China. Moreover, female and those elderly do not live with grandchildren benefit more from the pension benefits. It is consistent with the bargaining power literature, as the medical expenses are positive related to one's economic contribution to the household. With the existent of grandchildren, the elderly does not benefit from the increased income. It indicates that the elderly is not prioritized in the household. Our results suggest that low income is one constraint for the elderly's health care utilization. It highlights the needs of better health insurance coverage in rural China.

Tables

Table 1A: Dependent variables

Variable	Treated (Age 60-69) Percentage (mean)/yuan	Control Group (Age 50-59) Percentage (mean)/yuan
Whether use outpatient care last month	24.40%	17.80%
Whether use inpatient care last year	7.29%	12.34%
Expense on outpatient care last month	104.64	97.29
Expense on inpatient care last year	481.31	683.58
Expense on health care last month	231.84	207.04
Observation	1272	1647

Table 1B: Dependent variables conditional on sick

	Treated (Age 60-69)		Control Group (Age 50-59)	
	Percentage (mean)/yuan	obs	Percentage (mean)/yuan	obs
Whether use outpatient care last month	76.79%	311	70%	294
Expense on outpatient care last month	328.40	405	381.52	420

Table 2: Independent variables

Variable	Treated (Age 60-69) Percentage (mean)	Control Group (Age 50-59) Percentage (mean)
Receiving pension benefits	48.00%	0.00%
Age (distance to age 60)	4.46	-4.56
Gender		
Male	48.90%	49.54%
Female	51.10%	50.46%
Married	86.56%	93.20%
Functional limilation	17.77%	13.60%
Education		
Illiterate	34.98%	30.84%
Elememtary school or under	52.99%	40.50%
Secondary school and above	11.95%	28.60%
Having good insurance	0.09%	2.24%
Working	73.03%	84.21%
Household size	3.26	3.40
Number of adult children		
0	1.89%	3.64%
1	7.23%	16.15%
2	21.38%	42.74%
3	27.36%	25.80%
4	24.76%	8.50%
5 or more	17.37%	3.16%
Coresit with children	45.13%	59.14%
Coresit with grandchildren	45.91%	40.92%
Household income per capita (logarithm)	7.48	7.54
Observations	1270	1640

Table 3: Main models

	Coefficient	obs
2SLS regression discontinuity estimates		
Whether use outpatient care last month	0.063	2910
Whether use inpatient care last year	0.134**	
OOP expense on outpatient care last month	0.539	
OOP expense on inpatient care last year	0.680*	
OOP expense on health care last month	0.804*	
Conditional on sick		
Whether use outpatient care last month	0.310**	822
OOP expense on outpatient care last month	2.292**	822

Notes: Control variables are total household income, gender, education, marital status, work status, health status, household size, number of children above age 18, co-residence with children, and co-residence with grandchildren. *** Indicate statistical significance at the 1% level; ** for the 5% level; * for 10% level

Table 4: RD estimates by sex

	Male		Female	
	Coefficient	obs	Coefficient	obs
2SLS regression discontinuity estimates				
Whether use outpatient care last month	0.043	1434	0.085	1476
Whether use inpatient care last year	0.096		0.134*	
OOP expense on outpatient care last month	0.436		0.714	
OOP expense on inpatient care last year	0.524		0.532	
OOP expense on health care last month	1.028		0.468	
Conditional on sick				
Whether use outpatient care last month	0.220	353	0.391**	469
Expense on outpatient care last month	2.287	353	2.601**	469

Notes: Control variables are total household income, education, marital status, work status, health status, household size, number of children above age 18, co-residence with children, and co-residence with grandchildren. *** Indicate statistical significance at the 1% level; ** for the 5% level; * for 10% level

Table 5: RD estimates by whether respondents live with children

	Co-residence with children		Not co-residence with children	
	Coefficient	obs	Coefficient	obs
2SLS regression discontinuity estimates				
Whether use outpatient care last month	0.023	1544	0.072	1366
Whether use inpatient care last year	0.159**		0.066	
OOP expense on outpatient care last month	0.368		0.614	
OOP expense on inpatient care last year	1.174**		-0.148	
OOP expense on health care last month	1.128*		0.247	
Conditional on sick				
Whether use outpatient care last month	0.227	443	0.362	379
OOP expense on outpatient care last month	1.648	443	3.107**	379

Notes: Control variables are total household income, gender, education, marital status, work status, health status, household size, number of children above age 18, and co-residence with grandchildren. *** Indicate statistical significance at the 1% level; ** for the 5% level; * for 10% level

Table 6: RD estimates by whether respondents live with grandchildren

	Co-residence with grandchildren		Not co-residence with grandchildren	
	Coefficient	obs	Coefficient	obs
2SLS regression discontinuity estimates				
Whether use outpatient care last month	-0.037	1256	0.143	1654
Whether use inpatient care last year	0.136*		0.110	
OOP expense on outpatient care last month	-0.174		1.252**	
OOP expense on inpatient care last year	0.786		0.406	
OOP expense on health care last month	0.540		1.009	
Conditional on sick				
Whether use outpatient care last month	0.179	376	0.423	446
OOP expense on outpatient care last month	0.859	376	4.176**	446

Notes: Control variables are total household income, gender, education, marital status, work status, health status, household size, number of children above age 18, and co-residence with children. *** Indicate statistical significance at the 1% level; ** for the 5% level; * for 10% level

Table 7: Household composition

	Coefficient	obs
Share of respondent's health care expenditure	-0.012	2775
Share of total household health care expenditure	0.027*	2644

Notes: Control variables are logarithm of household expenditure per capita, logarithm of household size, shares of each age groups in household, and age function of the respondents. *** Indicate statistical significance at the 1% level; ** for the 5% level; * for 10% level

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