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Economic Transfers from Adult Children

and Healthcare Utilization by Older Chinese

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Bachelor of Science

Canisius College

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An abstract of

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Abstract

Economic Transfers from Adult Children and Healthcare Utilization by Older Chinese
By George Arnott

Family support has long been a staple of old-age security in China, however rapid population ageing in recent decades has left the nation with fewer young people to care for a large cohort of older people. At the same time, as this older generation continues to age, and their health begins to decline, their medical needs are likely to put a strain on China's healthcare system. In this study we endeavored to explore the relationship between economic transfers from adult children to their parents, and whether these transfers might be associated with the healthcare utilization of these older people, using data from the nationally representative China Health and Retirement Longitudinal Study (CHARLS). Our results suggest that health needs are more important to the decision to seek care than economic supports from adult children, however children themselves are associated with a greater probability of utilizing care; the findings of this study also point to gaps in health services and facilities between urban and rural areas, particularly with regard to inpatient care. Taken together, we believe that this study supports the conclusion that family support will remain a key element of old-age security in China even in the face of population ageing, and would suggest that meeting the health needs of the nation's elderly remain a priority.

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Introduction

The notion that fertility and old-age security are linked through the upward transfer of resources from children to their parents is something that many diverse peoples from across the globe all consider to be a fact of life. For this reason, that same notion happens to be a core element of what has come to be called the wealth-flows model of intergenerational exchange (Caldwell, 1976; Caldwell, 2005). China is one such place where the link between fertility and old-age security has been a central tenet of philosophy and culture for centuries, and where phrases such as "养儿防老" ("raise sons to defend against age") and "多子多福" ("more children, more happiness") can still be readily heard from those of older generations (Wei, 2010). Rapid changes in China's demographic structure over the last half-century, however, have made the validity of these statements tenuous.

China's Ageing Population

The most recent estimates available for the size of China's elderly population put the number of Chinese over sixty-five years of age at a whopping 122.88 million, comprising a full 9.1 percent of the total national population as measured at the end of 2011 (United Nations Development Programme China, 2013). This puts China in the unique position of being the only country in the world to currently have an elderly population in excess of 100 million individuals, with this number projected to grow at a rate of 3.2% annually (Zhang, Guo, & Zheng, 2012). According to UN standards, with more than seven percent of its population over the age of sixty-five, China is now considered an "aged society," and the only country in the world ageing at a faster rate is Japan (United Nations Development Programme China, 2013). Taking into account continued advances in healthcare for the aged and assumptions about how fertility rates may or

may not change, China's over sixty-five population is projected to peak around either 2050 or 2100, the former assuming normalization of fertility to replacement level (2.1 births per woman) within thirty years and the latter that fertility will never increase dramatically from the current level of 1.4 to 1.6 births per woman (Feng, 2011). At this peak, China's old-age population is expected to account for as much as a full one-third of total population (Zhang et al., 2012).

These changes in population structure are key factors behind China's current problems related to population ageing. In economic terms, the ageing of China's population will bring about the end of an era of growth driven in large measure by the young and productive workforce that was born in the 1960s and 1970s (Feng, 2011). As this generation approaches retirement, and the nation's workforce shrinks, increases in labor costs and slower economic growth may just be the tip of the iceberg in terms of problems (Zhang et al., 2012). While the government has put a lot of work into updating and reforming national pension and insurance systems in recent decades, much of the funding for these systems continues to come from contributions by the working population – and as the population continues to age, and more exit the workplace than enter, the solvency of these systems will be put to the test (Zhang et al., 2012; Herd, Hu, & Koen, 2010). Increasing at an annual compound rate of 25% over the past five years, the national pension system's deficit is just one illustration of this point (United Nations Development Programme China, 2013).

More to the point of the work at hand, China's ageing population is also likely to place an enormous strain on the nation's healthcare system. Steps have been taken to deal with some of the health problems anticipated to accompany population ageing – the study of non-communicable diseases having become a major focus, for example, with the

development of television programs and other media promoting active and healthy ageing being another priority – however there is still a considerable lack of facilities dedicated to care for the elderly (Zhang et al., 2012). In 2000, only about 1 in every 50,000 elderly adults resided in a government-run institutional care facility, and less than one percent received community home care (Lin, 2002). Ten years later, this situation had improved very little, with nearly 12 million elderly individuals expressing interest in institutionalized care, but only 3.19 million beds available nationwide (Zhang et al., 2012). As institutionalized care is still a relatively new phenomenon in China, and because the industry emerging around it is a recent development, as of yet there are no administrative or management standards in place, and staffing and services therefore vary considerably from facility to facility (Zhang et al., 2012). Nursing homes in China also tend to rely heavily on out-of-pocket payments from residents to support the salaries of their employees, the result being that many elderly are priced out of long-term care in these facilities (Zhang et al., 2012).

While the Chinese government has taken some measures to address these issues, much of its response has been to reinforce the traditional role that families have played in providing for the old-age security of their elderly members (Wei, 2010). Recently enacted "elder laws" have served to formalize the traditional cultural ideal of filial piety within the nation's legal framework – criminalizing any lack of emotional or financial support from the family perceived by an elderly individual – and government spending on health as a proportion of GDP has remained at a relatively low 2.9%, compared to the 5% to 6% of GDP that most other countries with universal access to care spend (Zhang et al., 2012; Rao et al., 2014). Even with dramatic expansion of insurance coverage in

recent years, because China's universal medical insurance only partially covers what are increasingly expensive healthcare costs around the nation, the most recent data available shows that out-of-pocket payments account for a whopping 34% of China's total spending on health (Rao et al., 2014). Family support for the old-age security of the elderly is certainly something to be praised, but at a time when fertility has fallen below replacement, and families are having fewer children, it becomes a serious question as to whether families can continue to provide an adequate level of this support on their own.

Aims and Objectives

The aim of the current study is to determine whether support from adult children remains a significant factor in the lives of those Chinese reaching old age in this time of change. First, we will investigate the relationship between various demographic factors and the receipt of economic support from adult children, and we will then determine whether the receipt of this support is associated with the healthcare utilization of older Chinese. Healthcare utilization was chosen as an indicator of old-age security because it links back to the notion of familial support being the first line of defense in providing services and care for the elderly. Focusing on healthcare utilization as an outcome will allow for a better picture to be drawn of the actual role that family and familial support play in day-to-day decisions regarding elder care in China.

The specific kind of familial support that we will address is economic transfers. In the context of this study, the exchange of a large amount of money or assets to respondents from their adult children is considered an economic transfer. Instrumental support – consisting of any assistance the elderly might receive with everyday activities including shopping, cooking meals, and managing personal finances – is another important form of familial support, but we will not

investigate it in detail here due to limitations in the available survey data. We will measure healthcare utilization as a simple yes or no for a respondent's utilization of outpatient services within the previous month, and inpatient services over the previous year.

Hypotheses

Using a rich dataset that is nationally representative of older Chinese adults, this study will address the following specific hypotheses:

Hypothesis 1 – Older Chinese have a greater probability of receiving economic support from their adult children if they have more children, less education, and are unmarried.

Hypothesis 2 – Economic supports received by older Chinese predict differences in their utilization of healthcare services.

Background

Conceptual Framework

As intergenerational exchanges are central to this study, our framework makes use of concepts found in the wealth-flows and the altruistic models of exchange within families. As mentioned prior, the wealth-flows model of intergenerational exchange posits that the net flow of resources within the family is towards the older generations, an idea in line with both China's long history of filial piety and the recent choice to emphasize familial support as one of the nation's major means of providing old-age security to its elderly (Caldwell, 1976; Caldwell,

2005; Wei, 2010). The altruistic model frames the family as a "corporate unit," with individual family members pooling their resources for the benefit of the whole; resources are distributed to guarantee the survival of the family head, but also on the basis of need, both of these factors serving to enshrine familial support for older family members (Lee, Parish, & Willis, 1994). There is support for both of these models within the Chinese context, the details of which we will discuss at greater length in the following section.

The Andersen healthcare utilization model provides inspiration for this study's framing of familial support within the context of healthcare. This model views healthcare utilization as the result of interplay between societal and structural determinants, with an individual's choice to utilize or put off care being the confluence of predisposing characteristics, enabling resources, and the urgency of their need for care. Societal determinants of utilization include demographic characteristics and cultural norms, while structural determinants include the organization of the local health system and the resources available within it. Characteristics that make one individual more or less likely to utilize healthcare than another are considered predisposing variables, with many standard demographic variables like age and gender being labeled as such. Enabling variables seek to address an individual's means of actually obtaining care, for instance by accounting for income or access to healthcare. Need variables address the most immediate causes of healthcare utilization, including an individual's functional capabilities and the current state of their health. (Andersen & Newman, 1973)

In the context of this study, we will consider economic support from adult children an enabling variable – the relative importance of this variable for economic support will help to make more obvious the current role of family support in providing old-age security for China's elderly. These familial supports serve to remove barriers to healthcare utilization, and the

prediction is therefore made that receipt of these supports will lead to greater utilization on the part of the elderly Chinese who receive them. We will also investigate whether variables such as education level, marital status, and number of children are associated with an older Chinese individual's probability of receiving economic support. Together these insights will inform understanding of the staying or waning importance of family on old-age security; a visualization of this conceptual framework can found in Figure 1.

Intergenerational Exchanges in the Chinese Context

Intergenerational exchanges fall within the sphere of the societal determinants of healthcare utilization, often nestled firmly within the cultural norms of a people, and tied to the demographic characteristics of the parents and children involved. Beginning with norms, Chinese culture and philosophy have long emphasized the importance of the family, particularly with regard to familial support and old-age security. With origins in the veneration of ancestors in ancient times, an ideology developed that established the family as the central element of society. The traditional philosophies of Confucius and others further emphasized the importance of the family by extending the characteristics of family to politics and government, respect for the authority of government mirroring respect for fathers and ancestors in the home. This ideology is what created the strongly rooted social expectation that families are obligated to take care of and provide for their elderly members. (Wei, 2010)

As described previously, this ideology is also in line with the tenants of both the wealth-flows and altruistic models of intergenerational exchange. Following the wealth-flows model, the emphasis on the father as head of the family, holding the greatest power and commanding the greatest respect, necessarily means that he will be able to extract resources and care from his

children to support himself in old age (Caldwell, 1976). In the same vein, according to the altruistic model, a father who uses his control of the family resources to ensure all his children receive enough support to be successful can expect to see the returns on his investments maximized in old age, with support and care from these successful children (Lee et al. 1994). With the rapid economic growth and demographic change that China has seen in past several decades, however, these two models predict different outcomes. The wealth-flows model predicts that with decreasing fertility and offspring with more resources of their own, transfers to parents will decrease unless the parents have property or other strategic resources that they can leverage to their advantage (Caldwell, 1976). Conversely, emphasizing its understanding of the family as a "corporate unit," the altruistic model predicts that no significant shifts in transfers will occur – parents may invest in fewer children if they are more expensive to raise, but they can still expect to see returns on this investment even if these children amass greater wealth and resources than them (Lee et al. 1994).

While many modern, Western countries seem to have followed the path of the wealth-flows model, multiple studies conducted in China and Taiwan have lent greater support to the altruistic model of intergenerational exchange in the Chinese context. Lee, Parish, and Willis (1994) found that, among Taiwanese with at least one surviving parent, 79% of sons and 70% of daughters made economic transfers in the past year despite only 14% and 21% respectively receiving anything in return. Utilizing data from a national survey of urban and rural areas within twelve Chinese provinces, Pei and Pellai (1999) found that about 60% of all Chinese over the age of sixty received economic support from an adult child, with 72.93% of those residing in rural areas and 46.52% of those in urban areas receiving such transfers. Sun (2002) found that for elderly residents of the city of Baoding, China, children were the main providers of both

economic transfers and instrumental support, with about 80% of economic transfers and over 50% of instrumental support coming from adult children – more than any other source in either category. Working with a nationally representative sample of elderly Chinese, Zimmer and Kwong (2003) found that children provide for the greatest proportions of economic and instrumental support across both urban and rural areas of China, accounting for 33.5% and 43.8% of respective economic transfers, and 53.3% and 60.8% of respective instrumental support.

Beyond appearing to show the resiliency of the traditional ideals of filial piety and familial support, these studies also serve to highlight some of the key factors influencing why and when intergenerational transfers take place. In their investigation of transfers in Taiwan, Lee, Parish, and Willis (1994) found that parental investment in the success of their children, parental need, the provision of services to adult children by parents, and the income and other resources available to adult children all increased the probability of parents receiving economic support. They identified gender differences in the provision of economic support as well, with sons providing more regular transfers than daughters, and noticed that co-residing children tended to provide less economic support than those living outside the parents' household – thought to be a tradeoff for the instrumental support that these co-residing children are presumed to be providing (Lee et al., 1994). Sun (2002) arrived at similar conclusions in his study of transfers within a mainland China city, also finding that increases in support with greater parental need, parental investment, and adult child resources, as well as effects from co-residence with adult children, a child's distance from the family home, and the gender of the child. Specifically, Sun found that older parents were more likely to receive both economic and instrumental support, parents in poorer health were more likely to receive instrumental care,

unmarried parents and parents with low incomes were more likely to receive economic transfers, parents with more children were also more likely to receive economic transfers, parents living with a married child were more likely to receive instrumental care while those living with an unmarried child were likely to receive less economic support, children who lived further from the household were more likely to provide economic than instrumental support, and that generally sons provided more economic support and daughters more instrumental care (2002).

Focusing on the impact of family size on support in urban and rural areas of China, Zimmer and Kwong (2003) found that parents with more children were also more likely to receive instrumental care in addition to economic support, the caveat being that while more children led to a progressively greater probability of economic support, the probability of receiving instrumental care largely stagnated after one or two children in both urban and rural areas. In line with the findings of Lee, Parish, Willis, and Sun, they also noticed increases in parental need leading to greater support – unmarried parents were more likely to receive both economic and instrumental support, parents in poor health were more likely to receive instrumental care, and those with low incomes and without access to pensions were more likely to receive economic transfers – and co-residence with an adult son lead to a greater probability of instrumental support in both urban and rural areas, in addition to a greater probability of economic support in rural areas (Zimmer & Kwong, 2003). They also observed that across all areas, older age and female gender increased the probability of receiving both forms of familial support (Zimmer & Kwong, 2003). Having looked at intergenerational transfers in China through the lens of well-being, Pei and Pillai (1999) also found interesting evidence to cement the importance of some of these factors to familial support and old-age security. They found that having more children, receiving economic support from children, and co-residing with a married

son all led to greater feelings of well-being among the elderly Chinese in their sample (Pei & Pellai, 1999). These results, and all of those above, help to clarify the role that family and familial support have typically played in China over the course of the past several decades. With an understanding of the importance that familial support has held in regard to old-age security, and when and why the intergenerational transfers that make up this support have taken place, this study is prepared to evaluate what changes may have occurred to intergenerational exchanges and the healthcare utilization of the nation's elderly in lieu of the rapid ageing of China's population.

China's Health System and Other Structural Influences

Just as important to understanding old-age security in China as knowing why and when intergenerational exchanges occur is having a thorough knowledge of the greater context within which these exchanges occur. As a country that has seen rapid development and urbanization within the last half-century, China is a nation where significant urban-rural differences still exist in the distribution of economic and educational opportunities, quality healthcare, and other resources. With the emphasis of this study being the potential impact of population ageing on healthcare utilization, this section will begin with a description of the Chinese healthcare system and move on to discuss other big-picture issues related to old-age health and security, including the provision of medical insurance and pension availability.

Around the turn of the twentieth century, modern public health measures began to be implemented in large cities like Beijing and Tianjin, leading to the adoption of new standards of care and common practice that would be spread nationwide with the socialist policies that China developed in the later half of the century (Feng, 2011). These measures were codified by the

First National Health Conference of 1950 as "serving workers, peasants, and soldiers; putting prevention first; and developing both Western and traditional medicine" (Shi, 1993). Beyond simply spreading modern health and medical knowledge, new health policies rebuilt the healthcare system as well, providing basic medical care at negligible cost to thousands around the nation through the establishment of a national healthcare system that mirrored the structure of the administrative system – national hospitals being at the top, followed by provincial hospitals, county hospitals, and township health centers, with village clinics providing care at the most local level – and urban work units and rural cooperative systems that took on most of the financial burden of providing healthcare (Shi, 1993). Starting in 1965, concerted efforts were also made to enhance quality and access to care in rural areas, with a cadre of "barefoot doctors" being trained to provide basic preventative care at the grass roots level, and regular rotations of urban doctors through rural areas (Shi, 1993). Combined with the reductions in poverty and increases in economic equality that accompanied other socialist reforms, these health system changes served to increase nationwide life expectancy by nearly twenty years in the two decades between 1950 and 1970 (Feng, 2011).

Since China's Reform and Opening in 1978, however, some aspects of the national health system have changed dramatically. In line with the economic and social changes occurring at this time, the work unit and cooperative systems of the previous decades were phased out in favor of a new responsibility system that, through an emphasis on individual effort in labor production, removed the revenue streams that had previously allowed rural cooperatives to provide medical insurance and other benefits to their members (Shi, 1993). While, even with these changes, urban workers were largely able to rely on their employers to provide them with access to medical insurance, these changes forced the majority of rural agricultural workers into

paying for their medical care primarily out-of-pocket (Shi, 1993). Further acerbating the healthcare situation in rural areas, changes made to the financing of the national medical system led to significant reductions in funding for county, township, and village care, resulting in reductions in the number of facilities and healthcare professionals at these levels for the first time since 1950 (Shi, 1993). Attempts to create a modernized medical care insurance system in recent years have allowed more than 430 million urban and 830 million rural residents to receive coverage under new urban and rural insurance programs, adding up to mean that 90% of China's total population is now covered under the national system (Zhang et al., 2012). At the same time, China's State Council Health-Care Reform Leading Group has announced plans to further reform the national healthcare system and to achieve universal coverage by 2020 (World Health Organization, 2009). Despite the overwhelming success of this expansion in coverage, however, significant gulfs exist in the quality and availability of care, and with out-of-pocket payments yet accounting for a massive 34% of China's total spending on health, familial support is undoubtedly still very important to ensuring the provision of care in old age (Rao et al., 2014).

Healthcare services for the elderly are another area where inroads have been made in recent decades, but where more could certainly be done. As mentioned earlier, national efforts to ensure quality care for the elderly in the face of population ageing have largely focused on building expertise in the treatment of chronic disease and developing robust messaging around healthy ageing (Zhang et al., 2012). The issue of facilities for the elderly has largely been left to local governments, however, with little being done at the national level by such bodies as the National Committee on Ageing or Office of Elderly Health Care beyond limited efforts to coordinate and promote local solutions (Bartlett & Phillips, 1997). With the southern city of Guangzhou serving as a case study, Bartlett and Phillips observed some of the efforts that local

governments and organizations have taken to fill gaps that existed in healthcare for the elderly (1997). With city administrators taking an active interest in developing a more comprehensive network of facilities for the elderly, support became available to help community groups to tackle these needs (Bartlett & Phillips, 1997). Through a mix of private and public funding, a number of recreational and social centers were founded for elderly across the city, and specialized welfare programs came into being that offered easier access to medical care, assistance with preparing meals, and other services (Bartlett & Phillips, 1997). Public-private funding also helped to establish a number of long-term, residential care facilities, although the quality of these facilities varied considerably based on the means of the communities and private partners who funded them (Bartlett & Phillips, 1997). These were local solutions put forth in just once city, however, the national agenda on healthcare having largely sidestepped the topic of facilities for the nation's aged.

In the same vein as the health system, the pension system is another structural influence on old-age security that has seen similar changes with Reform and Opening. As with medical insurance, pensions for retired laborers were typically provided by their work unit or cooperative prior to 1978, but as economic and social policy changed, many rural workers came to lose their pension benefits as well (Tang & Ngan, 2001). For the most part, pensions for urban workers, especially those in state-owned enterprises, remained secure through contributions by employers and government subsidies; however as the costs of providing these pension benefits steadily rose throughout the following years, steps were taken to reform the system, with trials in the consolidation of pension systems between different enterprises and across provinces having occurred since the mid-1990s, and a new emphasis being placed on individual employee contributions into personal retirement funds (Tang & Ngan, 2001; Herd, Hu, & Koen, 2010).

New attempts have also been made to create and sustain rural pension systems, and the overall outcome of all these reform efforts has been to increase coverage of basic pension benefits across the nation (Tang & Ngan, 2001; Herd, Hu, & Koen, 2010). Issues regarding the solvency of these systems, in addition to inequalities in coverage and access to pension benefits between urban and rural workers, remain to be resolved, and further challenges will be faced in addressing the fact that many of those reaching retirement age have yet to make many financial preparations for their retirement, still believing that between the government and their children they will have enough to support themselves in old age (Herd, Hu, & Koen, 2010; Choua, Chow, & Chi, 2008). Just as it seems that familial support will remain the cornerstone to ensuring the provision of medical care for the elderly, so it appears that families will continue to be relied upon to provide these other aspects of support as well.

Data and Methods

Data

This study makes use of data from the national baseline survey of the China Health and Retirement Longitudinal Study (CHARLS), collected between May 2011 and March 2012. Modeled after the U.S. Health and Retirement Study, CHARLS seeks to provide high-quality data on a wide range of demographic, socioeconomic and health-related information, drawn from representative samples of Chinese over the age of 45 sampled biennially. Survey modules include: (A) Household Roster; (B) Demographic Background; (C) Family; (D) Health Status and Functioning; (E) Health Care and Insurance; (F) Work, Retirement, and Pension; (G and H) Income, Expenditures, and Assets; (I) Housing Characteristics; and (J) Interviewer Observation.

These details and others are described in the CHARLS, 2011-2012 National Baseline User's Guide (Zhao, Strauss, Yang, Giles, Hu, Hu, Lei, Park, Smith, & Wang, 2013).

While the 2008 pilot of CHARLS covered only Gansu and Zhejiang provinces, the subsequent 2011-2012 national baseline survey gathered a representative sample of people aged forty-five years or older, and their spouses, living in households across all of China. Sampling was conducted in four stages, from the county level down to the individual level. In the first stage of sampling, 150 counties and districts from 28 provinces were randomly selected by systematic selection, with all county-level units besides those from Tibet stratified by National Bureau of Statistics region (NBS), urban or rural NBS designation, and GDP per capita. Within each of these counties, 3 neighborhood-level units – administrative villages in rural areas and neighborhoods in urban areas – were randomly selected by Probability Proportional to Size (PPS); these neighborhood-level units serve as the study's Primary Sampling Units (PSUs). From each PSU, 80 dwellings were randomly selected from a complete list of all dwellings, enumerated through analysis of satellite images and geospatial data in a specially developed geographic information system, with the goal of finding at least 24 households with age-eligible respondents. When an age-eligible respondent was identified within a household, and after consent was given, they and any spouse they might have would then be administered the survey instrument. From the 23,422 dwellings sampled, a total of 17,708 age-eligible respondents from 10,257 households agreed to participate (Zhao et al., 2013).

As CHARLS data is publicly available, and no respondents were approached directly, IRB approval was not needed for this study.

Analytical Sample

From the overall 17,708 participating respondents an analytical sample of 9,163 complete cases was drawn. As intergenerational transfers are central to our research question, we were only interested in those respondents with at least one child who would be old enough to conceivably make financial contributions to the family. To ensure that we focused squarely on this population of interest, we limited the analytical sample to respondents with at least one child over the age of twenty. A dummy variable was created for the presence or absence of an adult child in the family by first determining if the respondent had any children – explained in greater detail below – and then using follow-up questions from CHARLS asking "When (month and year) was [child's name] born?" to determine whether these children were born prior to 1992, as that would make them at least twenty years old by the time of this 2012 survey. Using this variable to restrict our sample left us with 9,391 respondents confirmed as having adult children, of whom 9,163 respondents answered all questions related to the other variables used in this study's analysis. Through listwise deletion of incomplete cases, we created our final analytical sample from these 9,163 complete cases. Used consistently across all subsequent analyses, this analytical sample is nationally representative of Chinese over the age of forty-five with at least one child aged twenty years or older: our population of interest.

Measurements

Dependent Variables

The dependent variables in this study focused on the receipt of intergenerational transfers and the utilization of healthcare by older Chinese with at least one adult child. The following measures were considered: (A) the probability of receiving economic support from adult children

in the past year; (B) the probability of utilizing outpatient care during the month preceding survey participation; and (C) the probability of utilizing inpatient care in the year preceding survey participation. Economic support from adult children (A) was represented by a dichotomous, yes/no variable drawn directly from CHARLS wherein respondents were asked "Have you or your spouse ever received a large amount of money or major assets (worth more than 5000 yuan) including cash, land, or property from any of your children? This includes paying for medical expenses or other emergencies, paying for housing, or for any other reason." Information on utilization of outpatient and inpatient care (B and C) again came directly from CHARLS, through another set of yes/no questions asking, "In the last month have you visited a public hospital, private hospital, public health center, clinic, or health worker's or doctor's practice, or been visited by a health worker or doctor for outpatient care?" and "Have you received inpatient care in the past year?" respectively. It should be noted that, in determining the probabilities of outpatient and inpatient care utilization (B and C), the probability of receiving economic support (A) was treated as an independent variable.

Independent Variables

Following the example set by Li and Zhang (2013) in their analysis of the impact of health insurance type on healthcare utilization among participants in the 2008 CHARLS pilot, the independent variables in this study were chosen based on the Andersen healthcare utilization model described in the background. As such, independent variables were subcategorized as predisposing, enabling, or need variables.

Predisposing Variables

This study considered age, gender, marital status, number of children, and level of education as predisposing variables. Self-reported age in years was recorded as its own variable in CHARLS, respondents being asked, "What is your age?" In light of a number of missing responses to this question, a new variable for age was created by using responses to the question, "When were you born?" to manually determined respondent age where self-reported age was missing. Interviewers recorded respondent gender as "male" or "female" on the questionnaire cover screen. Marital status was assessed through asking respondents, "What is your marital status?" with response options of: married with spouse present, married but not living with spouse temporarily for reasons such as work, separated, divorced, widowed, and never married. For the purposes of this study, a dummy variable was created simplifying these responses to "married" or "unmarried." Number of children refers to both biological and adopted children, this variable also created for the study by summing counts of both the resident and non-resident biological and adopted children of a respondent; the questions tied to these responses were worded as, "Have [you/your partner] ever [given birth to/adopted or fostered] any child [or step child]?" Level of education came directly from a CHARLS question, respondents being asked, "What is the highest level of education you have attained?" with response options of: no formal education (illiterate), no formal education but capable of reading and/or writing, home school, elementary school, middle school, high school, vocational school, two-/three-year college/associate degree, four-year college/bachelor's degree, master's degree, and doctoral degree/Ph.D. This study collapsed several of these levels to create a new dummy variable with the following levels: "no formal education;" "some education," comprised of the former levels of no formal education but

capable of reading/writing and home school; “elementary;” “middle;” “high;” and “college or vocational,” encompassing all prior higher educational levels.

Enabling Variables

Place of residence and health insurance type were considered as enabling variables in this study, in addition to the key variable related to economic support received from adult children. Place of residence refers to the province and county within which an individual’s neighborhood is located, as well as to the neighborhood’s designation by the NBS urban or rural; built-in community ID numbers were used to account for provincial and county level differences, and urban/rural designation was represented by a dummy variable with rural being its reference group. Health insurance type was determined by CHARLS through a question asking, “Are you the policy holder/primary beneficiary of any of the types of health insurance listed below?” with response options of: urban employee medical insurance, urban resident medical insurance, new cooperative medical insurance, urban and rural resident medical insurance, government medical insurance, medical aid, private medical insurance purchased by the respondent’s union, private medical insurance purchased by the respondent, other medical insurance, and no insurance. For the purposes of this study, health insurance was collapsed into a yes/no, dichotomous dummy variable with respondents being classified as either having “no insurance” or “any insurance.” As stated above, economic support from adult children (A) was represented by a dichotomous, yes/no variable drawn directly from CHARLS wherein respondents were asked “Have you or your spouse ever received a large amount of money or major assets (worth more than 5000 yuan) including cash, land, or property from any of your children?”

Need Variables

This study considered disabilities, chronic conditions, and limitation to be need variables. Three dichotomous, yes/no dummy variables were created to represent self-reported disability, chronic condition, and limitation. The dummy variable for disability was created from the question, "Do you have one of the following disabilities?" with response options of: physical disabilities, brain damage/mental disability, vision problem, hearing problem, and speech impediment. Reporting the presence of any of these disabilities led the respondent to receive a "yes" for the disability dummy variable. The dummy variable for chronic condition was created from a series of yes/no questions asking, "Have you been diagnosed with [the chronic conditions listed below, read one by one] by a doctor?" with the listed chronic conditions being: hypertension; dyslipidemia; diabetes or high blood sugar; cancer or malignant tumor; chronic lung diseases, such as chronic bronchitis or emphysema; liver disease; heart attack, coronary heart disease, angina, congestive heart failure, or other heart problems; stroke; kidney disease; stomach or other digestive disease; emotional, nervous, or psychiatric problems; memory-related disease; arthritis or rheumatism; and asthma. A response of "yes" to any of these questions led the respondent to receive a "yes" for the chronic disease dummy variable. The dummy variable for limitation was similarly created from a series of questions structured as follows: "Because of health and memory problems, do you have any difficulty with [an everyday activity]?" The everyday activities these questions asked about included doing household chores, preparing hot meals, shopping for groceries, managing money, and taking medications, with response options of: no, I don't have any difficulty; I have difficulty but can still do it; yes, I have difficulty and need help; I can not do it. A response of "yes, I have difficulty and need help" or "I can not do

it" to any of these questions led the respondent to receive a "yes" for the limitations dummy variable.

Descriptive Statistics

Weighted frequencies and percents were calculated for all categorical variables while means, standard errors, minimums, and maximums were calculated for all continuous variables. These measurements were computed and recorded for the population as a whole, as well as for male and female subpopulations. A Wald's F-test was also conducted for each variable to determine if any meaningful gender differences existed.

Econometric Models

To explore the associations of demographic factors with the receipt of economic supports from adult children, this study followed the examples set by the previously mentioned studies of Zimmer and Kwong (2003), Sun (2002), Pei and Pillai (1999), and Lee, Parish, and Willis (1994). Regression analysis allowed for determination of whether a particular factor appeared to increase or decrease the probability of receiving economic support. As outlined in Figure 1, and based on the findings of the above-named authors, we investigated connections between economic transfers and marital status, number of children, and education level. To account for the influence that gender may have on the receipt economic support, regression analysis was conducted on the analytical sample as a whole, as well as within stratified samples of male and female respondents, with controls for counties and neighborhoods in addition to the application of individual sampling weights.

In order to select an appropriate model to estimate the effects of economic and instrumental support from adult children on utilization of healthcare services, it was once again decided to follow the examples set by Li and Zhang (2013), and others like Zhong (2011), who also worked with CHARLS pilot data in the context of healthcare utilization. As in these studies, logistic regression models were used here to predict the probability of utilizing any outpatient service or inpatient visits. To account for the complex sampling design of CHARLS, and to produce estimates representative of China's forty-five and over population with at least one adult child, individual sample weights were applied in the process of modeling, and county (strata) and neighborhood (PSU) considerations were controlled for. With gender likely to have an influence on healthcare utilization, separate models were created for utilization by males and females, in addition to a model for the whole population.

All regression models were adjusted for age, marital status, number of children, education level, province and county of residence, the residence's urban or rural NBS designation, health insurance, disability, chronic condition, limitation, and the receipt of economic support from adult children. Analysis was conducted in SAS 9.4, with survey procedures accounting for the complex sampling design employed by CHARLS; individual sample weights were used, provided by CHARLS and adjusted for both individual and household level non-response.

Results

Descriptive Statistics

Within our population of interest, Chinese over the age of forty-five and with at least one adult child, 46.95% were male and 53.05% were female (Table 1). On average, they were in their late fifties or early sixties, with at least two or more children. While no gender differences were observed in the distribution of age, a difference was observed in number of children, females having more children than males. Most of those in this population attended school in their youth, but close to a quarter reported having received no formal education. Gender differences were observed in education, with males tending to have attained higher education levels than their female counterparts. Gender differences were also noted in place of residence, 52.59% of females living in urban areas, but only 46.29% of males living in urban areas. Marital status was another factor within which gender differences were seen, with many more males married at the time of surveying than females. Males and females received nearly identical levels of economic support from their adult children, with an overall 4.93% reporting the receipt of a large sum of money from these children in the past year. Males and females also reported similar levels of disability, 17.24% overall reporting at least one type of diagnosed disability. Gender differences were seen, however, in reports of chronic conditions and limitations. While the vast majority of the population had at least one chronic condition and a small minority reported any limited ability to carry out daily activities, fewer males reported either. Over 90% of the population had some form of medical insurance, however analysis suggested that a gender difference exists, a smaller portion of females having insurance than males. Only about 20% of the population utilized any outpatient healthcare services in the month prior to the survey, and less than 10% utilized any inpatient healthcare services in the past year. Gender differences were

found in outpatient care utilization, with males reporting less usage and females more. The opposite pattern was seen with inpatient care utilization, with males reporting marginally more utilization than females.

Analysis of Econometric Models

In investigating how number of children, marital status, and education level relate to the receipt of economic transfers from adult children, marital status was the only factor to display any meaningful association with transfers (Table 2). Looking at the population as a whole, being married was strongly associated with a greater probability of receiving economic support from an adult child. While a strong, positive association between these two variables was also observed within the male subpopulation, no meaningful association was noted among the female subpopulation. Education level – serving as an indicator of socioeconomic status – and number of children did not display any meaningful associations with receipt of economic support from adult children within the population as a whole, however a moderate, positive association was noted between middle school education level and receipt of economic support within the male subpopulation, and a marginal, negative association between number of children and receipt of economic support was seen in the female subpopulation.

Examining the utilization of outpatient healthcare services within our population of interest, having any chronic condition was strongly and positively associated with outpatient care utilization in the past month both within the population as a whole and within both male and female subpopulations (Table 3). Having any limitation was also found to be moderately and positively associated with outpatient care utilization within the population as a whole, however only the female subpopulation displayed a marginal, positive relationship between these factors.

A similar pattern was observed with regard to number of children and utilization of outpatient services, a moderate association was seen between having more children and greater utilization of care within the population as a whole, but this relationship was only marginally positive within the female subpopulation. Besides a moderate, negative association between outpatient care utilization and age within the female subpopulation, no other meaningful associations were observed between outpatient care utilization and education level, urban/rural residence, marital status, receipt of any economic transfers from adult children, the presence of any disability, medical insurance coverage, nor age.

In analyzing inpatient healthcare utilization, chronic conditions and limitations were found to be strongly and positively associated with inpatient care utilization in the previous year within the population as a whole and across both male and female subpopulations (Table 4). Having more children was also found to be positively associated with utilization of inpatient care, the relationship being strong within the population as a whole and moderate within the male and female subpopulations. Associations of inpatient care utilization with urban/rural residence and medical insurance coverage were observed as well, living in an urban area and having insurance both positively associated with greater inpatient care utilization, these relationships strong within the population as a whole and moderate across the two subpopulations. Increasing age was strongly associated with greater inpatient care utilization within the population as a whole as well, however only the male subpopulation also displayed a strong, positive association. None of the other factors analyzed – education level, marital status, receipt of economic transfers from adult children, nor disability – had any meaningful association with inpatient healthcare utilization within the population as a whole, but several other interesting relationships should to be noted: within the population as a whole, a marginally positive

association between middle school education level and utilization can be seen; within the male subpopulation, elementary school education not only displays a marginally negative association with inpatient care utilization, but middle school education is also moderately and positively associated with utilization; within the female subpopulation, receipt of economic transfers holds a marginally positive association with inpatient care utilization.

Discussion

Interpretation of Results

This study endeavored to improve understanding of the role familial supports play in the healthcare utilization of older Chinese by investigating the relationships between demographic and social factors, economic transfers between generations, and data on both inpatient and outpatient healthcare utilization. Utilizing the wealth of nationally representative data provided by the CHARLS survey, we shed light on these connections, which – in the face of changing economics and demographics – have the potential to be increasingly important to China's ability to provide care for its elderly in coming decades. In the end, our hypotheses were not supported: education level and number of children were not meaningfully associated with receipt of economic transfers from adult children, while being married was strongly associated with a higher probability of receiving a transfer; and receipt of transfers displayed no meaningful association with the utilization of either inpatient or outpatient healthcare services. Nevertheless, other important implications are drawn from our results.

Overall, health-related factors were much more strongly associated with healthcare utilization than the receipt of economic transfers. This is evident through the strong, positive

associations seen across the whole population between diagnosis with any chronic condition and utilization of both inpatient and outpatient care, and between having of any limitation, holding any type of medical insurance, and being of older age and utilization of inpatient care, in addition to the moderately positive association between having any limitation and utilization of outpatient care. In the context of the Anderson model of healthcare utilization, most of these factors are classified as need variables, and taken together these findings would appear to suggest that the health needs of older Chinese with adult children are very important in their decisions to seek or put off seeking care.

Another interesting finding is the strong, positive association between utilization of inpatient care and urban residence. Given the known disparities between urban and rural areas in terms of quantity and quality of healthcare facilities, as well as the funding of health and pension benefits, this does not come as a big surprise (Shi, 1993; Tang & Ngan, 2001; Herd, Hu, & Koen, 2010). While Chinese are able to seek care at any medical facility, regardless of urban or rural residence, with fewer of the higher-tier healthcare facilities capable of performing the complex procedures that necessitate inpatient care being located in rural areas, and with the rural elderly generally having a less secure financial foundation that their urban counterparts, this finding would suggest that urban-rural disparities are indeed an important factor limiting access to inpatient care for a large number of the nation's elderly.

Positive associations between number of children and utilization of both inpatient and outpatient care – strongly for the former and moderate for the latter – should also not be overlooked. Given that we found no association between receipt of economic transfers and healthcare utilization, and in light of the finding of Zimmer and Kwong (2003) that having more children increases the probability of receiving instrumental support, these findings may show the

impact of instrumental care provided by adult children in the decision to utilize care. The fact that we see older Chinese in our population with more children being more likely to utilize care supports the notion that instrumental care from children might act as an enabling or pre-disposing factor in making the process of accessing healthcare easier.

Limitations

This analysis is not without its limitations. While the CHARLS sample itself is nationally representative of the entirety of China's over forty-five population, our results are generalizable only to those over the age of forty-five with at least one child twenty or more years old. Other limitations pertain to the nature of the data available to us. Many of the variables we analyzed were self-reported, such as those related to determination of any limitations, and issues with poorly designed skip patterns and other data completeness problems restricted the scope of what data we were able to use. It had been our intention, for example, to investigate connections between healthcare utilization and instrumental support from adult children in the same way we investigated those between utilization and the receipt of economic transfers, but a consistent 33% and 85% of responses to two variables constructed to measure instrumental support from adult children were missing. Similar problems dictated our choice of the variable used to represent economic transfers; a question existed within CHARLS that asked much more broadly about the receipt of "any economic supports" from adult children in the past year, but we were prevented from utilizing it because it was limited in scope to only those transfers from adult children living outside the household.

Conclusions

Our findings do not support any meaningful association between the receipt of economic transfers from adult children and any change in healthcare utilization by elderly Chinese, and they instead would appear to support the assertion of Zimmer and Kwong (2003) that China's population ageing will not significantly change the role of familial support in providing old-age security. Zimmer and Kwong (2003) found that the probability of receiving support was not substantially different if a family had one to two children, or more than two children, and that those without any children were the most disadvantaged. This led them to conclude that the ageing of China's population would likely only result in moderate reductions in family support that would primarily be felt in terms of a greater burden of support being placed on children in smaller families (Zimmer and Kwong, 2003). Coupled with our findings that health-related issues appear to be more influential in the decision to utilize care than receipt of economic transfers, it would seem that population ageing will have a greater impact in increasing the need for care and facilities than it will in changing the role that familial supports play in this process.

Building off this point, and keeping in mind the difference in utilization of inpatient care that our study found between urban and rural residents, investments in building capacity and increasing access to healthcare for China's elderly should be a priority. China has already made great efforts to increase insurance coverage nationwide and keep both urban and rural pension systems solvent, but solutions to address access to care have been lacking in comparison (Zhang et al., 2012; Tang & Ngan, 2001; Herd, Hu, & Koen, 2010). While increasing funding to establish new facilities or help local welfare programs operate more effectively would certainly be a viable means of addressing what is likely to be an increasing need for both outpatient and inpatient care services, Bartlett and Phillips suggest leveraging the talents of the elderly to build

better networks of support (1997). Working with the realistic notion that government funding to support long-term care facilities and programs for the elderly is meager and limited, they promote the local provision of care and services for the elderly, by the elderly through community-organized groups, committees, and centers, with the younger old helping to provide support to the oldest old through these organizations (Bartlett & Phillips, 1997). If community groups like these could help to build stronger networks of support in both urban and rural areas across China, the healthcare needs of the elderly could be met in a meaningful way that would not increase the burden placed on families for old-age security.

While economic transfers from adult children may not be an important factor in the decision to seek care, and population ageing may not change the primacy of family support in providing for the needs of the nation's elderly, action ought to be taken to address what will likely be a drastic increase in need and demand for healthcare services as China's population continues to age. Solutions aimed at mitigating the impact of population ageing should seek creative ways to build better and more accessible care networks. More than family support, individual health needs appear to be associated with utilization of both inpatient and outpatient healthcare services in China, and with greater needs and smaller families as demographics shift, more will need to be done to address the associated problems.

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Tables and Figures

Table 1 – Characteristics of older Chinese with at least one adult child: Percentages and means derived from weighted frequencies for whole population (n=9163), male subpopulation (n=4358), and female subpopulation (n=4805), in addition to F-values from a Wald's F-test for gender differences.

Variable	Whole Population	Male Subpopulation	Female Subpopulation	Gender Difference
Male	46.9%			
Education level				
None	25.0%	11.4%	37.1%	
Some	17.1%	18.4%	15.9%	
Elementary	22.3%	26.8%	18.3%	161.11**
Middle	21.3%	26.2%	17.0%	
High	8.0%	8.6%	7.4%	
College	6.3%	8.6%	4.3%	
Urban residence	49.6%	46.3%	52.6%	11.01**
Currently married	76.8%	85.0%	69.5%	134.76**
Child provided economic support	4.9%	5.7%	4.3%	1.80
Disabled	17.2%	17.1%	17.4%	0.09
Any diagnosed chronic condition	69.0%	66.8%	70.9%	8.52**
Any limitations	13.1%	10.2%	15.7%	38.53**
Any medical insurance	92.7%	93.9%	91.7%	4.54*
Age, in years	60.8 (0.24)	61.1 (0.35)	60.6 (0.32)	1.51
Number of children	2.7 (0.04)	2.7 (0.04)	2.8 (0.04)	6.45*
Utilized outpatient care in last month	20.7%	18.1%	23.1%	8.68**
Utilized inpatient care in last year	9.5%	10.2%	8.9%	2.86^

Notes: Individual sample weights have been applied, adjusted for both individual and household level non-response. Standard errors are shown in parentheses for continuous variables (age, and number of children).
^: $p \leq 0.10$; *: $p \leq 0.05$; **: $p \leq 0.01$

Table 2 – Probability that older Chinese with at least one adult child will receive economic support from an adult child: Coefficients from survey-adjusted regressions for whole population (n=9163), male subpopulation (n=4805), and female subpopulation (n=4358).

Variable	Whole Population	Male Subpopulation	Female Subpopulation
Education level *Some*	0.0032 (0.25)	0.0125 (1.14)	0.0001 (0.01)
Elementary	0.0050 (0.27)	0.0239 (0.85)	-0.0104 (-0.63)
Middle	0.0162 (1.16)	0.0328* (2.48)	0.0028 (0.16)
High	-0.0032 (-0.22)	0.0099 (0.64)	-0.0109 (-0.55)
College	-0.0037 (-0.23)	0.0068 (0.44)	-0.0093 (-0.40)
Currently married	0.0273** (3.12)	0.0373** (3.20)	0.0195 (1.59)
Number of children	-0.0017 (-0.60)	-0.0002 (-0.04)	-0.0040^ (-1.69)

Notes: Models control for county (strata) and neighborhood (PSU), and individual sample weights have been applied – adjusted for both individual and household level non-response. T-statistics are shown in parentheses.
^: $p \leq 0.10$; *: $p \leq 0.05$; **: $p \leq 0.01$

Table 3 – Probability that older Chinese with at least one adult child will utilize outpatient healthcare services: Coefficients from survey-adjusted logistic regressions for whole population (n=9163), male subpopulation (n=4805), and female subpopulation (n=4358).

Variable	Whole Population	Male Subpopulation	Female Subpopulation
Education level			
Some	0.0425	0.0436	-0.0419
	(0.50)	(0.43)	(-0.30)
Elementary	0.0161	-0.0941	0.0727
	(0.17)	(-0.90)	(0.51)
Middle	-0.0797	-0.0106	-0.1195
	(-0.77)	(-0.08)	(-0.80)
High	-0.0421	0.2074	-0.2355
	(-0.32)	(1.29)	(-1.16)
College	0.0716	-0.1135	0.4316
	(0.30)	(-0.53)	(1.21)
Urban residence	0.0451	-0.0443	0.0761
	(0.80)	(-0.69)	(1.00)
Currently married	-0.0432	-0.1152	0.0012
	(-0.94)	(-1.19)	(0.02)
Received economic support from child	-0.0888	-0.0136	-0.1383
	(-0.84)	(-0.10)	(-1.15)
Disabled	0.0205	-0.0245	0.0737
	(0.50)	(-0.39)	(1.34)
Any diagnosed chronic condition	0.5175**	0.5241**	0.5067**
	(10.36)	(8.22)	(7.30)
Any limitations	0.1080*	0.0912	0.1106^
	(2.21)	(1.10)	(1.81)
Any medical insurance	0.1589	0.2641*	0.1049
	(1.17)	(1.97)	(0.70)
Age, in years	-0.0131	0.0091	-0.0230*
	(-1.60)	(1.34)	(-2.19)
Number of children	0.0879*	0.0538	0.1133^
	(2.06)	(1.46)	(1.80)

Notes: Models control for county (strata) and neighborhood (PSU), and individual sample weights have been applied – adjusted for both individual and household level non-response. T-statistics are shown in parentheses.
^: $p \leq 0.10$; *: $p \leq 0.05$; **: $p \leq 0.01$

Table 4 – Probability that older Chinese with at least one adult child will utilize inpatient healthcare services: Coefficients from survey-adjusted logistic regressions for whole population (n=9163), male subpopulation (n=4805), and female subpopulation (n=4358).

Variable	Whole Population	Male Subpopulation	Female Subpopulation
Education level			
Some	0.0044	0.0722	-0.0572
	(0.05)	(0.54)	(-0.41)
Elementary	-0.1210	-0.2326^	0.0194
	(-1.16)	(-1.79)	(0.11)
Middle	0.2527^	0.3984*	0.0284
	(1.92)	(2.29)	(0.17)
High	0.0466	-0.1312	0.2204
	(0.29)	(-0.61)	(0.93)
College	-0.0588	-0.0193	-0.2211
	(-0.34)	(-0.08)	(-0.76)
Urban residence	0.1514**	0.1688*	0.1871*
	(2.79)	(2.21)	(2.40)
Currently married	0.0090	-0.1087	0.0256
	(0.10)	(-0.71)	(0.34)
Received economic support from child	0.0166	-0.2390	0.2753^
	(0.14)	(-1.46)	(1.80)
Disabled	-0.0006	0.0108	-0.0130
	(-0.01)	(0.13)	(-0.14)
Any diagnosed chronic condition	0.4579**	0.4847**	0.4571**
	(6.82)	(4.90)	(4.96)
Any limitations	0.2602**	0.2670**	0.2622**
	(4.03)	(3.00)	(3.17)
Any medical insurance	0.3927**	0.5467*	0.3033*
	(3.20)	(2.30)	(2.04)
Age, in years	0.0223**	0.0279**	0.0142
	(3.74)	(3.28)	(1.62)
Number of children	0.0933**	0.0902*	0.1040*
	(2.75)	(1.97)	(2.08)

Notes: Models control for county (strata) and neighborhood (PSU), and individual sample weights have been applied – adjusted for both individual and household level non-response. T-statistics are shown in parentheses.
^: $p \leq 0.10$; *: $p \leq 0.05$; **: $p \leq 0.01$

Figure 1 – Framework for viewing healthcare services utilization by older Chinese with at least one adult child.