Are the Chinese Altruistic? Explaining Motives behind Chinese Intergenerational Transfers using the Strategic Bequest Motive

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Abstract

Two main competing theories regarding intergenerational transfers from adult children to elderly parents exist: the altruism model and the exchange model. The strategic bequest motive supports the exchange model in claiming parents with bequeathable wealth will incentivize children to devote more resources to parents in order to receive a larger bequest. I use data from the Chinese Longitudinal Healthy Longevity Survey to assess whether children increase monetary or time transfers to elderly parents with bequeathable property ownership. My findings suggest an altruistic model at play, which contradicts most findings in East Asian countries but may be a trend found in other developing countries.

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Introduction

China's population is aging at breakneck speed right now due to the fact that life expectancy has almost doubled from 1950 to 2000 and implementation of the one child policy has drastically reduced the number of births. The size of the Chinese elderly population continues to grow while the number of current workers supporting each pensioner will continue to decrease. China has rather shallow social safety nets to support its elderly and does not have developed political and financial institutions to cover the elderly in need. This all indicates that the reliance of the elderly on the younger generation will increase, in terms of financial support and time spent caring for parents. Confucian ethics of "filial piety" have long been pillars of Chinese culture (Fricke, Chang, & Yang, 1994). These ideals result in cultural norms such as caring for the elderly, co-residing with multiple generations, and male dominance in carrying the family lineage. These themes should affect the transfer of resources between generations. However with increasing population mobility and smaller households, this set of morals may be waning. Therefore, it is important to better understand the mechanisms behind transfers that occur between children and the elderly. This can aid policy makers in deciding how to best address the pressing needs of the growing elderly population.

Much research has been done on recent Chinese social welfare program policies and the effects of their financial structure and provided incentives on the population. However, the lack of reliable data has made the study of intergenerational transfers to the elderly difficult even though many social welfare programs are directed to the elderly. This paper studies the intergenerational transfer of time and money from children to parents, using the strategic bequest motive theory to infer an altruistic or exchange model for transfers. This paper first examines the surrounding theoretical frameworks and literature for intergenerational transfers and integrates

them into the landscape of China's modern economic state. Data from the Chinese Longitudinal Healthy Longevity Survey (CLHLS) are then used to analyze patterns and relationships between elderly bequeathable wealth and the occurrence, as well as size, of monetary and time transfers.

Theoretical Framework

Altruism Model

Gary Becker is known to be the pioneer of the altruism model in household economics (Secondi, 1997). In Becker's model, an altruistic relationship is defined by the donor's utility or happiness being dependent on the recipient's utility and well-being. Essentially, a donor transfers to a recipient because it will increase the recipient's utility, causing an increase in the donor's utility. According to the hypothesis, if the donor's income were to increase, this would result in more transfers to the recipient in order to increase both individuals' utilities. In a similar vein, an increase in the recipient's income will result in a decrease in the likelihood of the donor transferring. In summary, the occurrence probability and size of transfers increases with the size of the income gap between donor and recipient (Secondi, 1997).

In terms of policy implications, the altruism model indicates that increased public social welfare benefits have the potential to crowd out private transfers. Increased government aid would inherently shift the consumption patterns of donors, who would decrease the amount of time and money spent on transfers to recipients and presumably stimulate saving or spending in other markets of the economy. Assuming a dollar-for-dollar crowding out effect, recipients would have stable consumption patterns, with government aid perfectly replacing private transfers.

Exchange Model

A counterargument for the altruism model is the exchange model, brought forward by Donald Cox (Secondi, 1997). This model sees transfers as an exchange of one resource from the donor, whether it be temporal or financial, for another such resource from the transfer recipient (Cox, 1987). For example, if a donor transfers money to a recipient in exchange for a service, such as caring for grandchildren, then an increase in the donor's income will result in a greater likelihood of transfers to the recipient, as well as a larger size of each individual transfer. If all goods and services are assumed to be normal, an increase in donor income makes financial resources relatively cheaper than other resources to the donor and the donor can now afford to pay or consume more. However, if the recipient's income increases, then a higher price will be demanded for the allotted services and depending on the donor's elasticity of supply and demand for the services, the amount exchanged for, if exchanged at all, will vary. If the donor's demand for the service is rather inelastic, then the donor will be forced to transfer more. In this case of inelastic demand, the exchange model differs from the altruistic model in that if a recipient's income increases, the size of individual transfers will also increase (Cox, 1987).

If the exchange model is taken into consideration, social safety net policy affects the market in a similar way that subsidies affect the market for consumer goods and services. The effect of additional monetary government support for the elderly on transfers is dependent on the elasticity of the demand for the service for which the transfer is exchanged. If the service provided by the transfer recipient is easily substitutable, such as grandparent child care responsibility being substituted rather painlessly for non-family day care, then donors will simply reallocate their transfer money to the substitute if recipient income increases. In contrast, if the service being exchanged for is relatively non-substitutable, then increased public welfare

support will not decrease the amount of private transfers. Thus, the overall effect on consumption behavior in the economy is less straightforward in the exchange model and requires elasticity information, making the effects of increased government welfare support harder to predict.

In conclusion, one can discredit the altruism model if one finds a positive correlation between recipient income and quantity of transfers. However, a negative correlation between the two variables does not necessarily disprove the exchange model. Furthermore, the dependency of the exchange model on the elasticity of supply and demand for the recipient's services adds additional complexity to the interpretation of the intergenerational transfer market

Strategic Bequest Motive

This study will utilize Douglas Bernheim's strategic bequest motive model to shed light on the altruistic and exchange mechanisms at play in intergenerational transfers (Bernheim, Shleifer, & Summers, 1985). Bernheim et al. (1985) claim that parental holders of bequeathable wealth are affected by the actions of potential inheritors. In the case of intergenerational intra-family transfers, the main potential inheritors of parents' bequeathable wealth are their children. If parents have a strategic bequest motive, they are more likely to bequeath greater amounts of their wealth to the children that are the most attentive to them. This motive only applies to families with more than one child, since only children need not compete with other siblings for a share of parental bequeathable assets. Thus, in the context of the strategic bequest motive, children exchange time or monetary transfers to parents for bequests. If transfers to a parent increase as parent's bequeathable wealth increases, then the strategic bequest motive holds and the exchange model dominates intergenerational transfers. If the relationship between transfers and parental bequeathable wealth is negative, then an altruistic model may be claimed. Normally,

if transfers decrease as a parent's wealth increases, then the result is ambiguous and an altruistic or an exchange model may be touted. However, through the lens of the strategic bequest motive, the service being exchanged for the child's transfers is the parent's future bequest to the child. If the child is not increasing transfers according to their parent's bequeathable wealth, then an exchange model is not at play in that respect. Thus, the use of the strategic bequest motive in this study is essential in paring out the forces of the altruism and the exchange model.

Literature Review

There has been extensive research completed on the demographic transition China is currently experiencing. It has been shown that as the elderly population grows increasingly large, the current pension system will not be able to sustain the current ratio of workers to pensioners (Lei, Strauss, Tian, & Zhao, 2011). This further stresses the future importance of intra-family intergenerational transfers from adult children to their elderly parents, especially given the undeveloped state of Chinese welfare programs.

Research on the patterns and correlates of intergenerational transfers is also quite developed. However, most empirical research has been completed in countries with developed political and economic systems, likely due to the availability of data. In many developed Western countries, the pattern of intergenerational transfer occurs from parents to children. For example in the U.S., over one-third of parents give money to children in the U.S. (Hurd, Smith, & Zissimopoulos, 2007). American parents are more likely to give to their less well-off children (Hurd et al., 2007). Similarly, McGarry and Schoeni (1995) find a negative relationship between transfer recipient income and amount of transfer. This supports the altruism model or the exchange model because donors are decreasing the number of their donations when the

recipient's income increases. The negative relationship could indicate an altruistic model because a richer recipient has less marginal utility from additional transfers. However, the negative relationship could also support the exchange model because a richer recipient's resources would be comparatively more expensive for the donor to trade for, causing the donor to transfer less and perhaps substitute the parent's services. Other studies have found the exact opposite correlation between income and transfer quantity using different methods and data sets, which would negate the altruism model and favor the exchange model (Cox, 1987). In addition, Bernheim's (1985) strategic bequest motive, which is supported within the exchange model, finds that parents with greater bequeathable wealth receive more time transfers from their children in the U.S. Evidence for the strategic bequest motive is found in Canadian populations as well, with level of wealth holdings being positively correlated to having children (Di Matteo, 2008). Thus, although studies of Western countries find evidence for both altruism and exchange models, the exchange model appears to be the dominant framework motivating intergenerational transfers.

It is common in many Asian countries for transfers to occur from children to parents. For example, 40-60% of children will provide financial aid to parents in Korea (Kim, 2010). Kim (2010) finds a negative relationship between the recipient's income level and transfer amount, which, again, could imply either an altruistic or exchange motive or even both, behind intergenerational transfers. There is also an observed dollar-for-dollar crowding-out of private transfers due to government assistance benefits, possibly leaning the results toward an altruism model. However, there is evidence of the exchange model in Korean intergenerational transfers as well because more transfers are delegated to parents that aid in the care of their grandchildren (Kim, 2010). A Japanese study focusing on factors that determine whether a parent will co-reside

with their child or not find that relatively wealthy parents are more likely to live with their children and parents are more likely to live with less educated children (Wakabayashi & Horioka, 2009). Although the study found evidence for both altruism and exchange models, the exchange model was found to be more dominant. Ladusingh (2013) finds that Indian elderly put more into intra-family transfers, usually via care for grandchildren, than the benefits they receive from them. This contradicts the theory in the exchange model that children transfer to parents in exchange for services like child care and could imply an altruistic model. Furthermore, although more culturally separated from China than Korea and Japan, India has an economic profile of a booming economy with comparatively undeveloped welfare programs that may be a better match to China's economic profile. To sum, while many East Asian countries seem to exhibit more dominant exchange model influences for intergenerational transfers, developing economies appear to show more signs of an altruistic model.

Previous studies concerning Chinese intergenerational transfers rely on smaller, less representative data and focus on the relationship between co-residence and transfers. For example, Secondi (1997) uses a data set restricted to rural respondents and finds that even while controlling for donor income, higher income families receive larger transfers, implying the exchange model. Chu and Yu (2010) find that of the 1,676 interviewed Taiwanese adult children co-residing with their parents, almost a quarter had already received their divided share of bequeathable parental wealth. This lends strongly to altruistic motives. Yet Chu and Yu (2010) also find evidence for the exchange model via a strong positive correlation between parental services and child to parent transfers. Yin (2010) finds that Chinese children are more likely to co-reside with their parents if the parent has bequest motives such as home ownership or a higher value house. Yin (2010) concluded that bequest motives are strong in China due to the fact that

over 60% of respondents in the dataset have a bequest motive, meaning they have bequeathable wealth, and around 60% of respondents co-reside with their children. The Chinese Health and Retirement Longitudinal Study (CHARLS) is a new comprehensive survey beginning in 2008, that includes information on over 17,500 individuals over the age of 45 regarding demographic, economic and health attributes. Using CHARLS, it has been shown that children are likely to remain the major source of support to the elderly in China and that financial transfers from Chinese children to parents are large when compared to other countries (Lei et al., 2012). Lei et al. (2012) also find a strong correlation between the donor child's income and monetary transfers to the elderly parent, an ambiguous result that could imply the altruism or exchange model. Their relationships between parental wealth and transfers are insignificant, most likely due to their small sample sizes from the CHARLS pilot.

Although several Chinese and East Asian studies have utilized the strategic bequest motive to determine motives behind intergenerational transfers, the methods often involve using co-residence as the transfer provided by children in exchange for larger bequests from parents (Wakabayashi & Horioka, 2009; Chu & Yu, 2010; Yin, 2010). Solely focusing on whether a parent is co-residing with a child or not is restricting when investigating the strategic bequest motive because it is a non-scalar characteristic that does not relay the amount of resources actually being transferred to a parent. Using co-residence also automatically assumes that a transfer is occurring and essentially only relays the information that some type of transfer, either time or monetary, has occurred. Moreover, it is difficult to accurately record the transfers occurring in co-residing families because the costs of certain household resources are shared and hard to differentiate between household members. Chinese studies using actual sizes of transfers to parents are much rarer. Lei et al. (2012) only utilize monetary transfer sizes and are not able to

find any significant relationship between parental wealth and child transfer size within the CHARLS pilot data set, most likely because of their small sample size. My model will use recorded values of monetary as well as time transfers in order to gain a clearer picture of what type of elderly parent, one with or without bequeathable wealth, is receiving transfers. I use the Chinese Longitudinal Healthy Longevity Survey (CLHLS) which is large enough to allow me to include only parents that do not co-reside with their children, ensuring a relative amount of accuracy in my recorded transfer size values. In addition, CLHLS is comprehensive enough to enable me to simultaneously control for a host of demographic, economic, health, and child attributes to further elucidate the relationship between transfers and parental wealth. Most uniquely, I will solely be using parental ownership of bequeathable property as an indicator of the parent having a bequest motive because alternatively using recorded values of parental bequeathable wealth and property value may result in endogeneity issues. For example, parents may acquire more bequeathable wealth for children with whom they have a stronger personal relationship. Using only house ownership greatly decreases endogeneity risks as a house is an essential living necessity. My goal is to compare scalar recorded values of intergenerational monetary and time transfers to an elderly parent's bequeathable property ownership, controlling for various demographic, economic, and health factors in order to determine underlying mechanisms that dictate transfer occurrence and size. As China looks to increase its social safety nets and public transfers to the elderly, knowledge of explanatory frameworks behind intergenerational transfers is crucial to understanding the implications of social welfare programs. The dominant transfer model will dictate whether private transfers have the potential to be crowded out by increased social welfare. This has massive implications for the future of private transfers and thus savings patterns of Chinese citizens.

Data

The data I use is from the Chinese Longitudinal Healthy Longevity Survey (CLHLS). CLHLS is headed by the Center for the Study of Aging and Human Development at Duke University and is additionally supported by the United Nations Population Fund and the China Social Sciences Foundation. The survey has conducted 78,658 interviews of Chinese elderly aged 65-110 since its first wave in 1998. I will be using the 2005 and 2008 waves which contain 30,231 observations for 24,703 respondents, meaning 5,528 respondents were surveyed both years. The data set is considered to be the largest sample of centenarians in the world according to *Science*.

The four dependent variables that will be regressed against the set of explanatory variables are monetary transfer occurrence, monetary transfer size, time transfer occurrence, and time transfer size. Transfer sizes will be recorded per child with monetary transfers including transfers within the past year and time transfers occurring within the past week from the time of survey. Occurrence will assign a value of 1 if a transfer occurred and 0 otherwise. In regressions of transfer size, individuals that did not receive a transfer in that category will not be included due to inconsistencies between waves in recording transfers of 0. The average annual monetary transfer size per child is 510 RMB (82 USD) with a standard deviation of 1,350 RMB. The average weekly time transfer per child is 19 hours with a standard deviation of 29 hours.

CLHLS records a multitude of demographic, health status, and transfer-related variables concerning the elderly respondent. In this analysis, the framework focuses on explanatory characteristics of parents and children that are most likely to affect the occurrence and frequency

of intergenerational transfers. These characteristics can be divided into four general areas of independent variables: wealth, demographic, health, and child attributes.

Wealth status variables to be considered are ownership of bequeathable property, receiving of pension payments, and household income per capita. In the case of a functioning strategic bequest motive supported by the exchange model, an elderly parent's bequeathable wealth is crucial. Without it, a parent has no leverage over the transfer actions of his or her children. A positive relationship between transfer occurrence or size and elderly ownership of bequeathable wealth points strongly towards an exchange model because children are being incentivized to transfer more in order to gain a larger bequest. However, a negative relationship, although less clear, may indicate an altruistic model due to the lack of exchange of transfer for another resource. Upon my own analysis of data from the Chinese Health and Retirement Longitudinal Study (CHARLS), it has been shown that the current Chinese elderly population holds the majority of their wealth in terms of residential property. Data from CHARLS states that over 85% of households completely own their residence, with the rate even higher at 87% in rural areas and slightly lower at 82% in urban settings. Moreover, the median amount of wealth stored in a bank deposit for CHARLS respondents is only 10,000RMB (1,612USD), leading to the value of a Chinese individual's house being a median of 68.3 times the value of held cash and bank deposits. This makes residential property ownership a strong indicator of an individual's bequeathable wealth. Since Chinese elderly hold the great majority of their wealth in residential property, ownership of bequeathable property is a reliable indicator that a parent has the ability to provide bequests to children. In addition, housing is a basic necessity for humans and the top motive for general property ownership is likely not to be bequest-oriented. This means property ownership has a lower probability of being determined endogenously by factors

such as strength of parent-child relationship, an effect that would be largely captured by residual u_i since my model does not account for personal relationship quality. Thus, housing ownership can be uncorrelated with residuals, allowing for more consistent OLS estimates. Possession of a pension and household income per capita are non-bequeathable wealth indicators that control for spurious factors that may encourage more transfers, such as wealthier parents paying for phone calls or visits.

Demographic characteristics used when comparing individuals are age, years of education, province of residence, and whether the individual lives in a rural or urban setting. The average age for the 2005-2008 data set is 86.65 years old, with a standard deviation of 11.60. The high average age is particularly useful because the older an individual is, the more likely it is that he or she will need transfers from their children, due to dwindling individual wealth or deteriorated health status. In addition, bequest motives are likely to be clearer later in life as the potential timeline for receiving bequests becomes shorter. Disparities in Chinese health care quality and availability between urban and rural environments make setting especially important.

Health status variables included that are likely to influence transfers are annual cost of medical services, possession of medical insurance, number of serious illnesses in the past two years, and being bedridden year round. In addition, due to the fact that time and monetary transfers are recorded as being within the past week or past year respectively at the time of survey, status of certain common illnesses provided in CLHLS such as hypertension, heart disease, stroke, respiratory illnesses, cataracts, and arthritis are also controlled for in the model. Need of assistance in Activities of Daily Living index is also factored into the model. The six activities of daily living (ADL) include eating, bathing, dressing, transferring between spaces, and continence and are important in determining how much care and assistance an elderly person

requires. The ADL index records how many of the six ADLs for which the elderly parent requires any type of assistance. This combination of health status characteristics will attempt to imitate the complex and dynamic health profiles of respondents that invariably affect transfers.

Child attributes controlled for include if the respondent has a child living in the same town, the age of the youngest and oldest child, ratio of male children, and number of children currently alive. Distance of the closest child from the parent should greatly affect time transfers, with children living further away conducting more monetary transfers. The number of children currently alive may shed light onto the competitive behaviors of children, such as whether having more siblings compete for bequests decreases or increases bequests. Controlling for the age of children will offset differences due to a child being too young or too old to transfer time or money to their parent. Although there could be concern over the lack of data regarding child income, the insignificance of the majority of province coefficients in final regressions may act as a rough proxy for child income. Child income is not given in CLHLS, but the province variables can act as a rough correlate to the child's income since children are very likely to live in the same province as their parent.

The model's sample pool includes observations from years 2005 and 2008, with clustering of respondent's observations that were surveyed in both years. This is done to lessen the effect of a respondent with two observations skewing standard errors of estimates, resulting in more robust estimates.

Model Structure:

Monetary or Time Transfer Occurrence $_i$ or Size$_i$ = β_0 + β_1 Ownership of Bequeathable wealth$_i$+ $\beta_{2\text{-}3}$ Non-bequeathable wealth controls$_i$ + $\beta_{3\text{-}26}$ Demographic controls$_i$ + $\beta_{27\text{-}37}$ Health controls + $\beta_{38\text{-}42}$ Child attribute controls+ u_i

Descriptive Statistics for Key Variables

	# Obs.	Mean	Std. Dev.	Min.	Max.
Money Transferred per Child	21068	510.35	1350.12	-49949	40000
Money Transfer Occurrence	26215	0.89	0.31	0	1
Time Transferred per Child	6316	19.03	28.98	0.11	720
Time Transfer Occurrence	17470	0.36	0.48	0	1
Owns Bequeathable Property	29600	0.42	0.49	0	1
Receives Pension	30229	0.06	0.23	0	1
Household Income per Capita	30206	17401.04	25930.35	0	99998
Age	29908	86.65	11.60	63	120
Rural Setting	30231	0.59	0.49	0	1
Has Medical Insurance	30229	0.12	0.32	0	1
Annual Medical Costs	29499	1492.60	4852.08	0	99998
# of ADLs Needing Assistance	30225	0.66	1.50	0	6
Closest Child lives in Same Town	30020	0.82	0.38	0	1
# of Children Currently Alive	30231	3.92	1.80	1	13

Findings

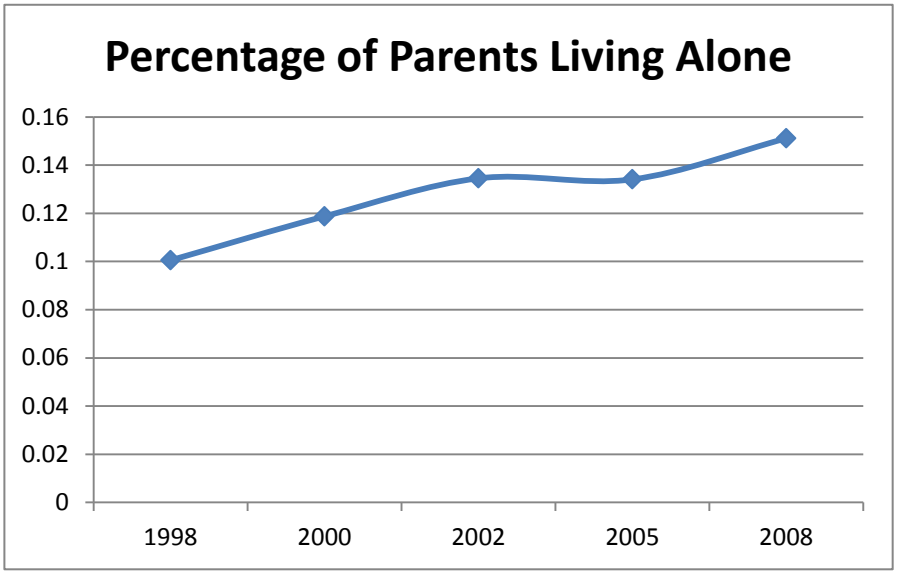
Monetary transfers

I begin my analysis with an OLS regression examining the relationship between bequeathable wealth and monetary transfer size per child. The pool of respondents is restricted to multiple-child families due to the requirements of the bequest model. Looking at the results listed as model (1) in Table 1, one can see that the coefficient for owning property, the bequeathable wealth indicator, is negative and significant at the 1% level. However, its effect is

greatly overshadowed by the estimates for different provinces which are also significant but up to sixteen times larger.

There is reason to believe that the monetary transfers reported in model (1) may be inaccurate for respondents co-residing with their children. It is difficult to correctly calculate the actual amount of money transferred to the parent from the child when co-residing due to jointly shared household resources such as utilities, appliances, etc. Furthermore, elderly respondents that live with other relatives or individuals may also be receiving resource benefits from them, putting such respondents in a different financial situation from elderly parents that live alone. Restricting the sample pool to respondents that live alone drastically decreases the sample size, as most elderly in China will live with relatives, especially their children. However, there is reason to believe that the trend of elderly living on their own will increase as China bolsters its social safety net initiatives and the number of children decreases. Data from each wave of CLHLS since 1998,seen in Figure 1, show that the percentage of parents living alone has increased over time. Thus, this small sample size may be reflective of the Chinese elderly population in years to come.

Figure 1



The results of modeling monetary transfer quantity as a function of bequeathable wealth including only multiple-child families and respondents living alone are shown in model (2) of Table 1. One can see that while the effects of province become insignificant upon excluding co-residing parents, so has house ownership at the 10% significance level. With the house ownership coefficient having a p-value of 0.16, it is not quite significant. Secondly, the R-squared has risen from 0.05 to 0.15, possibly indicating the more accurate recording of transfer size for respondents that live alone. It seems that excluding co-residing parents has taken out the significance of province, possibly because parents living alone share certain unifying qualities making province differences less important. This is an important finding because if China is moving towards more solo resident parents, then the elderly population is becoming more homogeneously affected by transfer factors, making generalizations applied to the group more accurate. However, one must approach this interpretation with caution, as the insignificance of province when co-residing parents are excluded may also be due to the drastic decrease in sample size, especially since some of the estimates in model (2) are even bigger than those in model (1) of Table 1.

Although CLHLS was originally intended to focus on the “oldest old”, considered by CLHLS to be eighty years of age and older, approximately 20% of the respondents are under the age of seventy-five. Only including parents that are the “oldest old” or nearly the “oldest old” may be beneficial because bequest motives should be strongest closer to the end of an individual’s life. Motives for bequest may be unclear when a parent is further from their end of life because rewards from bequest-motivated transfers are more uncertain: potential inheritances are less secure. Further restricting the regression model sample to respondents aged seventy-five years and older focuses it on transfers that have the highest probability of being bequest-

Table 1: Monetary Transfer Size Factors for Multiple-Child Families

Parent Characteristic		>1 Child	>1 Child & Lives alone	>1 Child, Lives alone, ≥75yrs
		(1)	(2)	(3)
Bequeathable Wealth	Owns bequeathable property	-48.86***	-85.95	-158.64***
		(16.34)	(60.60)	(53.20)
Non-bequeathable Wealth Attributes	Receives pension	-63.58	115.49	219.68
		(47.29)	(193.80)	(199.59)
	Household income per capita	0.00	0.00	-0.00
		(0.00)	(0.00)	(0.00)
Demographic	Age	-3.27**	-3.04	-6.64
		(1.48)	(4.40)	(4.18)
	Years of education	-14.10**	-4.22	4.83
		(5.80)	(15.83)	(14.13)
	Rural setting	-26.15	2.36	-18.01
		(18.86)	(53.16)	(43.74)
Province (compared to Beijing)	*Tianjin*	-583.11**	-330.48	-362.41
		(245.02)	(367.20)	(579.49)
	Shanghai	-384.17	2.81	-252.60
		(245.48)	(528.32)	(523.76)
	Jiangsu	-790.75***	-448.10	-444.23
		(221.32)	(346.27)	(491.02)
	Chongqing	-623.38***	-442.33	-447.05
		(218.76)	(332.18)	(493.95)
	Sichuan	-681.46***	-399.83	-418.88
		(216.33)	(328.69)	(494.87)
Health Attributes	Annual medical costs	0.01	0.06	0.03*
		(0.01)	(0.04)	(0.02)
	Has medical insurance	-1.35	-285.14	-72.65
		(43.44)	(227.94)	(195.98)
	Stroke	-99.77**	-82.42	8.17
		(46.67)	(138.69)	(118.21)
	# of ADLs needing assistance	43.13***	121.19***	127.04***
		(7.69)	(32.99)	(29.46)
Child Attributes	Closest child in same town	-83.88**	-176.14***	-175.15***
		(35.71)	(52.50)	(55.51)
	Age of youngest child	5.93***	11.07**	7.11
		(1.54)	(4.91)	(4.37)
	Age of oldest child	2.11	-6.38	2.50
		(1.83)	(6.22)	(5.66)
	Ratio of male children	12.19	42.20	142.08
		(45.97)	(110.33)	(112.59)
	# of children currently alive	-54.28***	-51.06***	-65.49***
		(6.84)	(18.77)	(16.95)
	Constant	1293.80***	1304.44***	1328.71**
		(254.94)	(402.30)	(596.83)
N		17,960	1154	932
R^2		0.05	0.15	0.21

p<0.10 = * p<0.05= ** p<0.01 = ***

*Includes other province and health fixed effects not shown (App. 1)

motivated to truly test the bequest motive theory. Younger respondents in their sixties and early seventies may very well still be in the workforce and have no need for transfers from their children, adding further reason to restrict the respondent pool. Results from this third model are listed in model (3) of Table 1. House ownership is negative and the second largest significant coefficient in the model just behind the effect of a child living in the same town as the parent. Needing more assistance in ADLs also greatly increased monetary transfer size while having more children alive decreased monetary transfer size. The R-squared value has increased to 0.21. The rise in the R-squared value over the course of models (1) to (3) may imply that there is increased accuracy in predicting transfers. Moreover, the continued significance of owning bequeathable property even after the sample size has been drastically reduced from 17,865 to 926 respondents is impressive.

Although there could be concern over the lack of data regarding child income, the insignificance of the majority of province coefficients in final regressions, including model (3) of Table 2, may act as a rough proxy for child income. The province variables refer to the province that the elderly respondent lives in, but 98% of Chinese children in the CLHLS data set live in the same county or municipality as their parent. Since there is marked striation of income between provinces and there is a correlation between income and province of residence, the province variables can act as a rough correlate to the child's income. Certainly there are wide disparities within provinces in terms of income, and future studies may benefit from checking models with specific child income. This is especially so because previous studies have found significant relationships between child income and financial transfers to parents (Lei et al., 2012).

Modeling monetary transfer occurrence as an OLS function of bequeathable wealth and the other explanatory variables, while excluding single-child families, individuals co-residing

Table 2: Monetary & Time Transfers Factors of Multiple Child Families

		Monetary		Time	
		Size	**Occurrence**	**Size**	**Occurrence**
		(1)	(2)	(3)	(4)
Bequeathable Wealth	Owns bequeathable property	-158.64***	-0.01	-3.38*	0.00
		(53.20)	(0.02)	(1.88)	(0.01)
Non-bequeathable Wealth Attributes	Receives pension	219.68	0.03	0.11	0.01
		(199.59)	(0.03)	(2.64)	(0.04)
	Household income per capita	-0.00	-0.00	-0.00	-0.00*
		(0.00)	(0.00)	(0.00)	(0.00)
Demographic	Age	-6.64	0.00	0.03	0.00**
		(4.18)	(0.00)	(0.19)	(0.00)
	Years of education	4.83	-0.01**	0.24	-0.00
		(14.13)	(0.00)	(0.45)	(0.00)
	Rural setting	-18.01	0.03*	4.40**	-0.01
		(43.74)	(0.02)	(1.94)	(0.02)
Province (compared to Beijing)	*Tianjin*	-362.41	-0.34	14.22	0.17
		(579.49)	(0.23)	(9.04)	(0.14)
	Shanghai	-252.60	0.14	7.28*	-0.02
		(523.76)	(0.10)	(4.10)	(0.08)
	Jiangsu	-444.23	-0.07	8.00**	0.09
		(491.02)	(0.10)	(3.89)	(0.08)
	Chongqing	-447.05	0.02	46.57	0.03
		(493.95)	(0.11)	(32.59)	(0.07)
	Sichuan	-418.88	0.05	12.83*	0.07
		(494.87)	(0.10)	(7.10)	(0.07)
Health Attributes	Annual medical costs	0.03*	-0.00***	-0.00	-0.00
		(0.02)	(0.00)	(0.00)	(0.00)
	Has medical insurance	-72.65	-0.08*	5.07	0.02
		(195.98)	(0.04)	(5.21)	(0.04)
	# serious illnesses past 2 yrs	-15.91	0.03**	-0.73	0.05***
		(36.17)	(0.01)	(1.07)	(0.02)
	Bedridden	-565.95	0.19***	-9.20	-0.19
		(572.81)	(0.05)	(5.68)	(0.17)
	Stroke	8.17	-0.01	6.25	-0.07
		(118.21)	(0.04)	(8.41)	(0.05)
	# of ADLs needing assistance	127.04***	-0.01	1.60**	0.17***
		(29.46)	(0.01)	(0.63)	(0.01)
Child Attributes	Closest child in same town	-175.15***	0.02	-2.86*	0.02
		(55.51)	(0.02)	(1.63)	(0.02)
	Age of youngest child	7.11	0.00	-0.00	-0.00
		(4.37)	(0.00)	(0.15)	(0.00)
	Age of oldest child	2.50	-0.00	-0.20	0.00
		(5.66)	(0.00)	(0.15)	(0.00)
	Ratio of male children	142.08	-0.03	-2.31	-0.04
		(112.59)	(0.03)	(3.58)	(0.03)
	# of children currently alive	-65.49***	0.01**	-0.62	-0.01
		(16.95)	(0.01)	(0.54)	(0.01)
	Constant	1328.71**	0.73***	9.79	-0.28**
		(596.83)	(0.15)	(13.44)	(0.12)
N		932	1199	145	1206
R^2		0.21	0.15	0.37	0.45

p<0.10 = * p>0.05= ** p>0.01 = *** *Includes other province and health fixed effects not shown (App. 2)

with others, and individuals under age 75, shows that there is no significant relationship between bequeathable wealth and whether or not a financial transfer occurs. A particularly significant and strong factor affecting financial transfer occurrence is whether an individual is bedridden or not. The results are shown in model (2) of Table 2. There is a significant negative relationship between transfer occurrence and whether the elderly parent has medical insurance or not, possibly hinting that if a parent has insurance then they do not need monetary transfers to cover health costs. Having suffered from a greater number of serious illnesses in the past two years, having a greater number of children alive, and being in a rural setting also increased the probability of a transfer occurring marginally, as one would generally expect. Greater years of education marginally decreased the chance of a transfer occurring. Although not as strong evidence as a significant negative coefficient, the lack of significance for property ownership demonstrates how the amount of bequeathable wealth an elderly parent owns does not necessarily dictate if a child transfers money to a parent. Only 8% of the sample pool did not receive a monetary transfer, indicating most children in China will probably make some sort of financial donation to their parents

Time Transfers

Looking at the OLS of time transfer size per child against bequeathable wealth for multiple-child parents that live alone and are over age seventy-five, the effect of house ownership is significant and negative in model (3) of Table 2, although not quite as large as the geographic effects from province. Being in a rural setting and having a greater number of Activities of Daily Living needing assistance increases the size of time transfers. Curiously, the size of time transfer decreases if the closest child is living in the same town as the parent. This is technically not consistent with expectations that a child living closer would transfer more time to

a parent because the transaction costs are lower. Possible reasons for this result are child distance is not an accurate predictor of time transfer size or the trait of a child living in the same town is too small in scope and should be expanded to same county or city.

For the OLS of time transfer occurrence in model (4) of Table 2 with the same restrictions as the other models in Table 2, there is no significant relationship between a time transfer occurring and the parent owning property. Household income per capita also has a negative, significant, and nearly zero estimate, showing no real correlation between non-bequeathable wealth and transfers. Age has a positive, significant, and nearly zero estimate. Province estimates are not as prominent as in model (3), but are still present, positive and significant. Having more illnesses in the past two years and more ADLs needing assistance increased the probability of a time transfer occurring.

Comparison to Single-Child Families

Since the bequest motive for exchange is only plausible if there are multiple children in a family vying for a bequest, empirically testing behavior in single-child families can help confirm the results found in multiple-child families. Due to the extremely low number of single-child parents that live alone, parents that co-resided with relatives were also included in the sampling pool. This may bias comparisons to multiple-child families. However, excluding co-residing parents from the sampling pool did not drastically change results and did not affect the significance of wealth indicators. Results for these regressions can be found in Table 3. None of the bequeathable or non-bequeathable wealth estimates are significant, which does not disprove the bequest motive exchange theory but also does not disprove our evidence in multiple-child families of altruism.

Table 3: Monetary & Time Transfer Factors of Single-Child Families

		Monetary		Time	
		Size	**Occurrence**	**Size**	**Occurrence**
		(1)	(2)	(3)	(4)
Bequeathable Wealth	Owns bequeathable property	-55.65	0.01	-1.34	0.00
		(336.74)	(0.02)	(6.03)	(0.02)
Non-bequeathable Wealth Attributes	Receives pension	-283.14	-0.05	11.35	-0.04
		(444.62)	(0.05)	(11.74)	(0.04)
	Household income per capita	0.01	-0.00	0.00	-0.00
		(0.01)	(0.00)	(0.00)	(0.00)
Demographic	Age	58.69**	-0.00	0.03	0.01***
		(27.10)	(0.00)	(0.37)	(0.00)
	Years of education	-103.40	-0.01***	1.29	0.00
		(76.05)	(0.00)	(0.99)	(0.00)
	Rural setting	-121.84	0.04*	-14.58***	0.03
		(298.11)	(0.02)	(4.38)	(0.02)
Province (compared to Beijing)	*Tianjin*	359.87	0.08	-16.47	0.06
		(1115.38)	(0.16)	(28.93)	(0.11)
	Shanghai	1299.18	0.36***	-49.07***	-0.08
		(1205.43)	(0.12)	(17.65)	(0.09)
	Jiangsu	-353.47	0.15	-36.38*	-0.11
		(986.03)	(0.12)	(18.61)	(0.08)
	Chongqing	-2102.54	0.26*	-43.15**	-0.09
		(1304.97)	(0.14)	(18.11)	(0.10)
	Sichuan	-327.29	0.26**	-44.70***	-0.20***
		(1171.37)	(0.12)	(17.29)	(0.08)
Health Attributes	Annual medical costs	0.04	0.00***	0.00	-0.00
		(0.06)	(0.00)	(0.00)	(0.00)
	Has medical insurance	-519.84	-0.10**	-2.87	0.07**
		(455.25)	(0.04)	(10.97)	(0.03)
	Bedridden	352.36	0.00	-11.20	-0.18***
		(1599.64)	(0.09)	(11.85)	(0.05)
	# of ADLs needing assistance	338.19***	-0.01**	8.15***	0.16***
		(121.04)	(0.01)	(1.41)	(0.00)
Child Attributes	Closest child in same town	-232.23	-0.01	6.81	0.10***
		(389.07)	(0.02)	(5.17)	(0.02)
	Age of youngest child	-29.29	0.00*	0.27	0.00
		(22.60)	(0.00)	(0.36)	(0.00)
	Ratio of male children	46.86	-0.02	-1.02	-0.04*
		(349.01)	(0.02)	(4.44)	(0.02)
	Constant	-1929.93	0.50***	36.48	-0.77***
		(1883.99)	(0.18)	(39.00)	(0.14)
N		426	1327	604	1354
R^2		0.21	0.13	0.16	0.59

p<0.10 = * p>0.05= ** p>0.01 = *** *Includes other province and health fixed effects not shown (App. 3)

An important transfer factor again is province, especially for financial transfer occurrence and time transfer size. In addition, having a higher number of ADLs needing assistance continues to significantly increase transfers, except for monetary transfer occurrence, although the estimate is fairly small. Overall, the estimates are similar to multiple-child families in terms of significance. However, the sign of some single-child estimates differ from those of multiple-child families. Most notably in monetary transfer occurrence model (2) and time transfer size model (3) in Table 3, many of the demographic variables have the opposite sign as those of multiple-child families. One would expect province variables to be negative in monetary transfer occurrence model (2) and positive in time transfer size model (3) because most provinces listed are less wealthy than Beijing, the dropped province, and would have less wealth for monetary transfers but lower opportunity costs for children to transfer time to parents. This reversal could be due to the inclusion of co-residing parents in the regression, which regretfully limits the power of the single-child family to multiple-child family comparison.

In another light, the opposite province effects could be due to the reduction of wealth disparities between provinces in single-child families. There is extensive research on the human capital investment increases due to the one-child policy in China. Although the children in these single-child families were most likely not born when the one-child policy took effect, the same benefits should apply. Rosenzweig and Zhang (2009) find that the children of a double or triple-child family have decreased schooling progress, grades in school, and overall assessed health when compared to children in a single-child family. Thus, if parents of single-child families are able to invest more in their child compared to multiple-child parents, then these children may be able to break through the inter-province wealth barrierss and achieve higher levels of income. This may be a possible explanation for the opposite signs found in province estimates. The same

notion could be applied as a reason for the reversal of effect in living in a rural setting in model (3) of Table 3 as well. The effect is negative in time transfer size of single-child families, but positive in multiple-child families. One would expect living in a rural setting would correlate to lower overall income and thus a lower opportunity cost for more time transfers. However, if single-child family children receive more human capital investment from parents, they may not fall under such rural versus urban dichotomies.

Discussion

The large, negative, and significant coefficient for house ownership in the monetary transfer size model (1) in Table 2 indicates that house ownership, the main indicator of wealth in the Chinese elderly population, decreases the amount of money given to a parent per child. This directly conflicts with the strategic bequest motive that states a parent with greater wealth should receive greater sized transfers in an attempt by the child to garner a greater inheritance. In addition, the positive and significant, albeit small, coefficient for annual medical costs in the monetary transfer size model indicates children are adjusting their transfer in accordance with the parent's medical needs.

The strategic bequest motive model supports the exchange model of transfers because as a parent's wealth increases, the child will transfer more, directly contradicting the altruism model, which predicts a child will transfer more to a less wealthy parent whose marginal utility from additional transfers is greater. When the relationship is negative between parental wealth and transfers and the strategic bequest motive is invalidated, as is the case in this Chinese-focused study, it is normally difficult to distinguish between whether the altruism model or the exchange model is supported. If altruistic mechanisms are said to be responsible, children may transfer less

because the parent's marginal utility from each dollar is less: the parent is wealthier and does not need the transfer. If an exchange model is touted, the child may transfer less to the parent because the resource the child is receiving in exchange for the transfer is now more expensive because the parent's services are more expensive, as dictated by their greater wealth. The resource exchanged for a transfer is often cited as child care. However, since this study focuses on the "oldest old", who are likely too old to provide child care or most other types of service, the idea of an exchange for service is less likely. Moreover, the possibility of a child substituting the resource provided by the elderly parent for something else if the parent has more wealth is less likely as well. If the resource being exchanged for a transfer is not tangible, such as emotional support, then it verges closely on the altruistic model and probably lends close to the altruistic theory that the child transfers to the parent because they care for the parent and wants to increase their utility and happiness. In this situation, although the exchange model is at play, it is very likely to be affected by policy in a similar way as the altruism model because the value of the intangible resource traded for is not more expensive with increasing parental wealth. Policies that increase elderly wealth will be partially offset via the decreasing marginal utility the parent receives from additional transfers.

The fact that ownership of bequeathable residential property does not appear to have a significant effect on the occurrence of monetary transfers also indicates that the strategic bequest motive is not at play in Chinese intergenerational transfers to the elderly. A strong, significant and positive increase in transfer size if a recipient has more ADLs needing assistance shows that transfers may be need-motivated according to the parent's health status. Given that 92% of elderly parents in model (2) of Table 2 received a financial transfer, it may be that most Chinese adult children either want or feel obligated to transfer monetary resources to their parents due to

the bulk of their wealth being mainly held in the form of residential property. Other social factors at play may be traditional Chinese morals of filial piety which have been integral to Chinese family dynamics for centuries and preach taking care of parents (Fricke, Chang, & Yang, 1994). The pressures of Chinese traditional morals may cause guilt if a child is not residing with the parent as most adult Chinese children will do with an elderly parent. Overall, the factors of health, traditional morals, and guilt causing transfers point more towards an altruistic model as well for a mechanism of transfers.

Province of residence for individuals is much more important for the time transfer models than for the financial transfers, perhaps reflecting regional differences in culture and wealth playing an important role in how much time a child spends with their parent. Another likely possibility is that since all provinces are compared to Beijing, one of the wealthiest municipalities, children in poorer regions substitute time transfers for monetary transfers. This seems to be supported by the fact that all province estimates of monetary transfer size model (1) of Table 2 are negative, but all province estimates in time transfer size model (3) are positive except for Jilin. Overall, sicker parents received more time transfers than healthy transfers, most likely because they needed more assistance in ADLs, as indicated by the significant positive coefficients for number of ADLs needing assistance. Still, house ownership is negative and significant for time transferred per child model (3) in Table 2, agreeing with the results for money transferred per child. Because parents with bequeathable wealth received less hours of help per week from their children, this again contradicts the strategic bequest motive where children will devote more time to parents with more bequeathable wealth in order to receive a larger bequest. Thus, since this exchange does not seem to occur, evidence for an altruistic model exists.

Comparing multiple-child and single-child families in Tables 2 and 3 shows that, aside from bequeathable property ownership being significant in some multiple-child family models, the majority of wealth estimates are insignificant for both types of families. Furthermore, several demographic and health variables are significant and comparable in size in both multiple and single-child families, such as years of education in model (2) and number of ADLs needing assistance in models (1), (2), and (4) of both Tables 2 and 3. The relative similarity between multiple and single-child family estimates suggests that there is not a strategic bequest motivated exchange model only at play in multiple-child families affecting transfers. This further enforces evidence for the dominance of the altruism model. Although there are some discrepancies between directions of province effect in monetary transfer occurrence and time transfer size when compared to multiple-child families, this may be due to the inclusion of co-residing parents or to the fact that single-child family children may have received higher human capital investments from their parents, allowing them to break province wealth stereotypes. Again, wealth, demographic and health factors seem to indicate that sicker, less wealthy parents in greater need of assistance are receiving more transfers, a correlation consistent with the altruism model.

My results seem to largely contradict the findings of other studies focusing on bequest motives that find an exchange model dominating transfer motives. Yin's (2010) finding of a strong selfishly-motivated exchange model in Chinese families differs slightly from those of other East Asian models. Studies based in Korea point to evidence for both exchange and altruism models while Japanese results also find potential evidence for both models but claim the exchange model is more dominant (Kim, 2010; Wakabayashi & Horioka, 2006). As China becomes a wealthier nation, the trend of more exchange-motived transfers may occur. Chinese

elderly can be expected to be poorer than their counterparts in Korea and Japan due to the relatively recent transformation of China's economy that most likely did not increase the wealth of elderly aged 75 and above as much as it is increasing the wealth of younger generations. Perhaps as the percentage of Chinese elderly with bequest motives increases, evidence of the exchange model in China will increase as well. In addition, indication of an altruistic motive behind intra-familial transfers in India, a country with comparable economic growth to that of China, may also imply that developing economies have more altruistic transfers due to fewer social safety nets and less wealthy elderly parents (Ladusingh, 2013).

Although my model includes several demographic, wealth, health, and child attribute controls to account for the different transfer environments parents may experience, an intangible characteristic much harder to control for are the psychological and personal qualities of the parent and child. Exchange model champions Cox and Soldo (2013) investigate economic as well as sociological motivations behind intergenerational transfers. For example, intra-family relationships and traditions across generations were demonstrated to have profound impacts on transfers. Expectations from other relatives and feelings of obligation were found to be important, showing traditional economic methods of utility interdependence and exchange are not enough to fully understand transfers (Cox & Soldo, 2013). Thus, my findings are limited to an economic field of vision. Perhaps measures of parent-child relationship strength as well as adjustments for individual family expectations and pressure to transfer could serve as proxies for sociological transfer motivations in future studies. Inclusion of sociological transfer motives may be especially helpful in accounting for the traditional Chinese filial piety morals and add more depth to an explanation that simply declares altruistic motives. In fact, the reality of Chinese exchanges may be a mixture of altruism with traditional expectations and pressure from relatives. Later

studies that employ sociological and economic techniques to study intergenerational transfers can produce more accurate and thorough frameworks, allowing social welfare policy to find and address the correct aspects of motives to increase policy effectiveness.

Understanding motives behind transfers to the elderly is helpful in predicting the implications of social safety nets, especially those aimed towards the elderly. Knowing that an altruistic model plays a dominant role in Chinese intergenerational transfers is important to realizing public transfers may crowd out private transfers. As social welfare given to the elderly is increased, which the Chinese government is expected to do, the size of transfers to elderly parents from children will decrease. This is because the marginal utility elderly parents gain from private transfers will decrease due to public transfers increasing overall elderly parent utility. Consumption and savings of the elderly parent should stay stable as intergenerational private transfers are crowded out by public government transfers. However, the consumption and savings patterns of adult children should change as they now have to transfer fewer resources to their parents. Savings and consumption of adult children of the elderly may increase, leading to vast macroeconomic implications for China. Evidence of an altruistic model could support welfare policy targeted more to the poor elderly instead of the elderly as a whole because wealthy elderly are more likely to have wealthy children whose transfers will be crowded out with additional government support. In contrast, social welfare policy that crowds out transfers from children and increases their savings could also have positive impacts on the economy.

It is important to understand that my study focuses on the “oldest old” or near “oldest old” individuals of age 75 and higher. Findings of exchange motives in other studies may be due to the inclusion of younger elderly parents that have more bequeathable wealth and bequest motives due to China’s overall increase in wealth. Yin’s (2010) data include elderly parents from the age

of 50, putting them in an entirely separate generation and circumstance from elderly aged 75 and above. This transfer motive difference between the "oldest old" and the new generation of elderly is crucial because it may be evidence that China is transitioning from altruistic transfers to exchange transfers, a process that has not been clearly documented in any country. Knowing this transition is occurring is also extremely helpful to policy makers, as adjustments to elderly welfare policies can be made as the elderly population demographic changes.

Conclusion

In this paper the theoretical frameworks underlying motives for Chinese intergenerational transfer from adult children to elderly parents are examined. Econometric evidence from CLHLS data demonstrate a large, negative, and significant relationship between parental ownership of bequeathable property wealth and the size of financial and time transfers per child to elderly parents. This negates the strategic bequest motive of the exchange model that states children will transfer more time and money to parents with more bequeathable wealth. Furthermore, whether a time or monetary transfer will occur does not have a significant relationship with whether the parent has a bequeathable residential property. All of these factors point to a stronger altruistic mechanism motivating transfers. In any situation it is most likely that transfers are motivated by a mix of altruistic and exchange mechanisms. However, it is unclear how dominant each framework is. The evidence provided in this study clearly demonstrates a dominant altruistic model in Chinese intergenerational transfers. These findings of a dominant altruistic model can be used to create more efficient social welfare programs that understand the crowding out effects on private transfers of increased public transfers.

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Appendix

App. Table 1: Monetary Transfer Size Factors for Multiple-Child Families

Parent Characteristic		>1 Child	>1 Child & Lives alone	>1 Child, Lives alone, ≥75yrs
		(1)	(2)	(3)
Bequeathable Wealth	Owns bequeathable property	-48.86***	-85.95	-158.64***
		(16.34)	(60.60)	(53.20)
Non-bequeathable Wealth Attributes	Receives pension	-63.58	115.49	219.68
		(47.29)	(193.80)	(199.59)
	Household income per capita	0.00	0.00	-0.00
		(0.00)	(0.00)	(0.00)
Demographic	Age	-3.27**	-3.04	-6.64
		(1.48)	(4.40)	(4.18)
	Years of education	-14.10**	-4.22	4.83
		(5.80)	(15.83)	(14.13)
	Rural setting	-26.15	2.36	-18.01
		(18.86)	(53.16)	(43.74)
Province (compared to Beijing)	*Tianjin*	-583.11**	-330.48	-362.41
		(245.02)	(367.20)	(579.49)
	Hebei	-760.57***	-491.11	-512.08
		(228.69)	(325.63)	(492.67)
	Shanxi	-848.44***	-625.73*	-688.61
		(232.41)	(329.28)	(492.06)
	Liaoning	-672.55***	-624.75*	-566.81
		(221.58)	(339.63)	(499.68)
	Jilin	-632.97***	-332.46	-345.49
		(237.58)	(355.31)	(506.67)
	Heilongjiang	-674.04***	-791.43*	-490.52
		(223.85)	(468.96)	(506.22)
	Shanghai	-384.17	2.81	-252.60
		(245.48)	(528.32)	(523.76)
	Jiangsu	-790.75***	-448.10	-444.23
		(221.32)	(346.27)	(491.02)
	Zhejiang	-351.81	-91.99	-143.16
		(217.20)	(336.22)	(493.87)
	Anhui	-780.51***	-629.38*	-682.43
		(213.76)	(328.57)	(488.04)
	Fujian	-360.22	-344.75	-245.15
		(221.71)	(341.08)	(503.56)
	Jiangxi	-604.34***	-444.24	-411.25
		(218.54)	(329.56)	(489.77)
	Shandong	-620.31***	-618.65*	-618.48
		(217.68)	(335.30)	(496.26)
	Henan	-713.74***	-505.12	-480.35
		(216.25)	(322.04)	(485.48)
	Hubei	-769.71***	-523.65	-588.72
		(215.63)	(336.17)	(489.63)
	Hunan	-534.29**	-450.00	-441.01
		(215.90)	(324.68)	(485.21)
	Guangdong	-334.62	-125.16	-156.25
		(226.61)	(341.27)	(498.44)
	Guangxi	-753.84***	-400.70	-402.75
		(215.65)	(349.98)	(505.24)
	Chongqing	-623.38***	-442.33	-447.05
		(218.76)	(332.18)	(493.95)
	Sichuan	-681.46***	-399.83	-418.88
		(216.33)	(328.69)	(494.87)
	Shaanxi	-928.47***	-168.93	-150.63
		(247.72)	(361.08)	(514.41)
Health Attributes	Annual medical costs	0.01	0.06	0.03*
		(0.01)	(0.04)	(0.02)
	Has medical insurance	-1.35	-285.14	-72.65
		(43.44)	(227.94)	(195.98)
	# serious illness past 2 yrs	1.27	-13.37	-15.91
		(20.54)	(37.50)	(36.17)
	Bedridden	79.29	-618.64	-565.95
		(159.34)	(530.50)	(572.81)
	Hypertension	1.68	1.51	4.43
		(23.89)	(84.68)	(65.89)
	Heartdisease	37.10	52.98	148.42
		(42.03)	(134.58)	(102.54)
	Stroke	-99.77**	-82.42	8.17
		(46.67)	(138.69)	(118.21)
	Respiratory illness	-30.07	-48.47	-93.62
		(35.19)	(118.63)	(87.46)
	Cataracts	52.20	-72.31	-56.85
		(35.10)	(83.14)	(78.06)
	Arthritis	24.25	-76.09	-74.86
		(23.13)	(56.91)	(58.59)
	# of ADLs needing assistance	43.13***	121.19***	127.04***
		(7.69)	(32.99)	(29.46)
Child Attributes	Closest child in same town	-83.88**	-176.14***	-175.15***
		(35.71)	(52.50)	(55.51)
	Age of youngest child	5.93***	11.07**	7.11
		(1.54)	(4.91)	(4.37)
	Age of oldest child	2.11	-6.38	2.50
		(1.83)	(6.22)	(5.66)
	Ratio of male children	12.19	42.20	142.08
		(45.97)	(110.33)	(112.59)
	# of children currently alive	-54.28***	-51.06***	-65.49***
		(6.84)	(18.77)	(16.95)
	Constant	1293.80***	1304.44***	1328.71**
		(254.94)	(402.30)	(596.83)
N		17,960	1154	932
R^2		0.05	0.15	0.21

p<0.10 = * p<0.05= ** p<0.01 = ***

App. Table 2: Monetary & Time Transfers Factors of Multiple Child Families

		Monetary		Time	
		Size	**Occurrence**	**Size**	**Occurrence**
		(1)	(2)	(3)	(4)
Bequeathable Wealth	Owns bequeathable property	-158.64***	-0.01	-3.38*	0.00
		(53.20)	(0.02)	(1.88)	(0.01)
Non-bequeathable Wealth Attributes	Receives pension	219.68	0.03	0.11	0.01
		(199.59)	(0.03)	(2.64)	(0.04)
	Household income per capita	-0.00	-0.00	-0.00	-0.00*
		(0.00)	(0.00)	(0.00)	(0.00)
Demographic	Age	-6.64	0.00	0.03	0.00**
		(4.18)	(0.00)	(0.19)	(0.00)
	Years of education	4.83	-0.01**	0.24	-0.00
		(14.13)	(0.00)	(0.45)	(0.00)
	Rural setting	-18.01	0.03*	4.40**	-0.01
		(43.74)	(0.02)	(1.94)	(0.02)
Province (compared to Beijing)	*Tianjin*	-362.41	-0.34	14.22	0.17
		(579.49)	(0.23)	(9.04)	(0.14)
	Hebei	-512.08	0.15	11.86*	0.05
		(492.67)	(0.10)	(6.29)	(0.13)
	Shanxi	-688.61	0.11	6.36	0.18
		(492.06)	(0.10)	(6.95)	(0.13)
	Liaoning	-566.81	-0.03	10.72**	0.15*
		(499.68)	(0.11)	(4.93)	(0.09)
	Jilin	-345.49	0.11	-0.84	0.10
		(506.67)	(0.11)	(4.93)	(0.11)
	Heilongjiang	-490.52	-0.47***	12.41***	0.18
		(506.22)	(0.17)	(4.55)	(0.12)
	Shanghai	-252.60	0.14	7.28*	-0.02
		(523.76)	(0.10)	(4.10)	(0.08)
	Jiangsu	-444.23	-0.07	8.00**	0.09
		(491.02)	(0.10)	(3.89)	(0.08)
	Zhejiang	-143.16	0.09	6.48*	0.08
		(493.87)	(0.10)	(3.77)	(0.07)
	Anhui	-682.43	0.06	13.71**	0.17**
		(488.04)	(0.10)	(5.32)	(0.08)
	Fujian	-245.15	0.02	8.08**	0.12
		(503.56)	(0.11)	(3.75)	(0.07)
	Jiangxi	-411.25	0.07	16.67***	0.05
		(489.77)	(0.10)	(3.85)	(0.07)
	Shandong	-618.48	0.01	4.77	0.17**
		(496.26)	(0.10)	(4.18)	(0.08)
	Henan	-480.35	0.10	15.97***	0.17**
		(485.48)	(0.10)	(5.96)	(0.09)
	Hubei	-588.72	-0.01	4.25	0.09
		(489.63)	(0.11)	(3.86)	(0.07)
	Hunan	-441.01	0.04	13.39	0.08
		(485.21)	(0.10)	(10.57)	(0.07)
	Guangdong	-156.25	0.07	10.56**	0.06
		(498.44)	(0.10)	(4.45)	(0.08)
	Guangxi	-402.75	0.02	6.93	0.05
		(505.24)	(0.10)	(4.61)	(0.07)
	Chongqing	-447.05	0.02	46.57	0.03
		(493.95)	(0.11)	(32.59)	(0.07)
	Sichuan	-418.88	0.05	12.83*	0.07
		(494.87)	(0.10)	(7.10)	(0.07)
	Shaanxi	-150.63	0.12	10.33	0.15
		(514.41)	(0.10)	(6.36)	(0.10)
Health Attributes	Annual medical costs	0.03*	-0.00***	-0.00	-0.00
		(0.02)	(0.00)	(0.00)	(0.00)
	Has medical insurance	-72.65	-0.08*	5.07	0.02
		(195.98)	(0.04)	(5.21)	(0.04)
	# serious illnesses past 2 yrs	-15.91	0.03**	-0.73	0.05***
		(36.17)	(0.01)	(1.07)	(0.02)
	Bedridden	-565.95	0.19***	-9.20	-0.19
		(572.81)	(0.05)	(5.68)	(0.17)
	Hypertension	4.43	0.02	-1.19	0.01
		(65.89)	(0.02)	(1.74)	(0.02)
	Heartdisease	148.42	0.00	-1.40	0.01
		(102.54)	(0.03)	(2.28)	(0.04)
	Stroke	8.17	-0.01	6.25	-0.07
		(118.21)	(0.04)	(8.41)	(0.05)
	Respiratory illness	-93.62	0.03	2.19	-0.00
		(87.46)	(0.03)	(3.36)	(0.03)
	Cataracts	-56.85	-0.00	2.09	0.05
		(78.06)	(0.02)	(1.72)	(0.03)
	Arthritis	-74.86	0.02	-2.66	0.03
		(58.59)	(0.02)	(1.92)	(0.02)
	# of ADLs needing assistance	127.04***	-0.01	1.60**	0.17***
		(29.46)	(0.01)	(0.63)	(0.01)
Child Attributes	Closest child in same town	-175.15***	0.02	-2.86*	0.02
		(55.51)	(0.02)	(1.63)	(0.02)
	Age of youngest child	7.11	0.00	-0.00	-0.00
		(4.37)	(0.00)	(0.15)	(0.00)
	Age of oldest child	2.50	-0.00	-0.20	0.00
		(5.66)	(0.00)	(0.15)	(0.00)
	Ratio of male children	142.08	-0.03	-2.31	-0.04
		(112.59)	(0.03)	(3.58)	(0.03)
	# of children currently alive	-65.49***	0.01**	-0.62	-0.01
		(16.95)	(0.01)	(0.54)	(0.01)
	Constant	1328.71**	0.73***	9.79	-0.28**
		(596.83)	(0.15)	(13.44)	(0.12)
N		932	1199	145	1206
R^2		0.21	0.15	0.37	0.45

p<0.10 = * p>0.05= ** p>0.01 = ***

App. Table 3: Monetary & Time Transfer Factors of Single-Child Families

		Monetary		Time	
		Size	**Occurrence**	**Size**	**Occurrence**
		(1)	(2)	(3)	(4)
Bequeathable Wealth	Owns bequeathable property	-55.65	0.01	-1.34	0.00
		(336.74)	(0.02)	(6.03)	(0.02)
Non-bequeathable Wealth Attributes	Receives pension	-283.14	-0.05	11.35	-0.04
		(444.62)	(0.05)	(11.74)	(0.04)
	Household income per capita	0.01	-0.00	0.00	-0.00
		(0.01)	(0.00)	(0.00)	(0.00)
Demographic	Age	58.69**	-0.00	0.03	0.01***
		(27.10)	(0.00)	(0.37)	(0.00)
	Years of education	-103.40	-0.01***	1.29	0.00
		(76.05)	(0.00)	(0.99)	(0.00)
	Rural setting	-121.84	0.04*	-14.58***	0.03
		(298.11)	(0.02)	(4.38)	(0.02)
Province (compared to Beijing)	*Tianjin*	359.87	0.08	-16.47	0.06
		(1115.38)	(0.16)	(28.93)	(0.11)
	Hebei	789.44	-0.07	-43.23**	-0.03
		(1427.25)	(0.15)	(21.54)	(0.13)
	Shanxi	1876.22	0.42***	-29.29	0.06
		(1509.63)	(0.12)	(23.77)	(0.13)
	Liaoning	-156.17	0.12	-30.84*	-0.00
		(1048.66)	(0.13)	(18.45)	(0.09)
	Jilin	-1068.93	0.17	-19.19	0.01
		(1058.73)	(0.13)	(19.16)	(0.10)
	Heilongjiang	2083.33	-0.07	0.21	-0.05
		(1981.62)	(0.15)	(19.97)	(0.10)
	Shanghai	1299.18	0.36***	-49.07***	-0.08
		(1205.43)	(0.12)	(17.65)	(0.09)
	Jiangsu	-353.47	0.15	-36.38*	-0.11
		(986.03)	(0.12)	(18.61)	(0.08)
	Zhejiang	291.84	0.30**	-36.84*	-0.22***
		(1029.60)	(0.12)	(21.27)	(0.08)
	Anhui	-949.69	0.30**	-22.64	-0.18**
		(1101.10)	(0.12)	(18.85)	(0.08)
	Fujian	792.58	0.24*	-22.69	-0.22**
		(1133.17)	(0.13)	(26.43)	(0.08)
	Jiangxi	-3889.83	0.07	-52.19**	-0.30***
		(2455.28)	(0.14)	(25.10)	(0.09)
	Shandong	-996.99	0.25**	-9.17	-0.06
		(1014.64)	(0.13)	(17.56)	(0.08)
	Henan	-1639.27	0.37***	-23.84	0.00
		(1134.34)	(0.12)	(17.82)	(0.08)
	Hubei	-376.34	0.06	-38.34*	-0.17*
		(1129.78)	(0.14)	(20.28)	(0.08)
	Hunan	568.80	0.30**	-49.57***	-0.16**
		(1515.10)	(0.12)	(18.35)	(0.08)
	Guangxi	-1435.64	0.22*	-53.55***	-0.20***
		(1301.57)	(0.12)	(17.41)	(0.08)
	Chongqing	-2102.54	0.26*	-43.15**	-0.09
		(1304.97)	(0.14)	(18.11)	(0.10)
	Sichuan	-327.29	0.26**	-44.70***	-0.20***
		(1171.37)	(0.12)	(17.29)	(0.08)
	Shaanxi	1838.53	0.29**	-17.45	0.17
		(1959.03)	(0.13)	(21.79)	(0.11)
Health Attributes	Annual medical costs	0.04	0.00***	0.00	-0.00
		(0.06)	(0.00)	(0.00)	(0.00)
	Has medical insurance	-519.84	-0.10**	-2.87	0.07**
		(455.25)	(0.04)	(10.97)	(0.03)
	# serious illness past 2 yrs	51.04	0.01	2.92	0.02
		(207.25)	(0.01)	(2.74)	(0.02)
	Bedridden	352.36	0.00	-11.20	-0.18***
		(1599.64)	(0.09)	(11.85)	(0.05)
	Hypertension	196.48	0.03	-2.68	0.02
		(427.42)	(0.03)	(7.52)	(0.03)
	Heartdisease	-232.45	0.04	3.10	0.00
		(866.25)	(0.04)	(8.27)	(0.04)
	Stroke	474.60	-0.02	7.03	0.00
		(806.67)	(0.05)	(15.06)	(0.06)
	Respiratory illness	-437.44	0.01	4.28	-0.04
		(830.74)	(0.03)	(7.40)	(0.03)
	Cataracts	-544.95	0.01	0.53	0.02
		(690.10)	(0.03)	(5.34)	(0.03)
	Arthritis	96.15	0.03	-7.27	0.03
		(406.41)	(0.03)	(5.30)	(0.03)
	# of ADLs needing assistance	338.19***	-0.01**	8.15***	0.16***
		(121.04)	(0.01)	(1.41)	(0.00)
Child Attributes	Closest child in same town	-232.23	-0.01	6.81	0.10***
		(389.07)	(0.02)	(5.17)	(0.02)
	Age of youngest child	-29.29	0.00*	0.27	0.00
		(22.60)	(0.00)	(0.36)	(0.00)
	Ratio of male children	46.86	-0.02	-1.02	-0.04*
		(349.01)	(0.02)	(4.44)	(0.02)
	Constant	-1929.93	0.50***	36.48	-0.77***
		(1883.99)	(0.18)	(39.00)	(0.14)
N		426	1327	604	1354
R^2		0.21	0.13	0.16	0.59

p<0.10 = * p>0.05= ** p>0.01 = *** *Includes other province and health fixed effects not shown (App. 3)