



HHS Public Access

Author manuscript

Chin J Sociol. Author manuscript; available in PMC 2018 June 14.

Published in final edited form as:

Chin J Sociol. 2017 January ; 3(1): 56–73. doi:10.1177/2057150X16685499.

Buying out of Familial Obligation: The Tradeoff between Financially Supporting versus Living with Elderly Parents in Urban China

Haiyan Zhu¹ and Yu Xie²

¹Department of Sociology, Virginia Polytechnic Institute and State University, USA

²Department of Sociology, Princeton University, USA and Center for Social Research, Peking University, China

Abstract

For Chinese families, coresidence with elderly parents is both a form of support and a moderator of financial support. Previous literature on intergenerational support in Chinese societies has studied either coresidence or financial support independently, but not these two forms of support jointly. Using data from the 1999 “Study of Family Life in Urban China” in Shanghai, Wuhan, and Xi’an, we examined whether or not adult children, especially sons, buy out of the obligation to live with their parents by providing greater financial support. To account for the potential selection bias associated with coresidence, we treated coresidence and financial transfer as joint outcomes by using endogenous switching regression models. The results showed that children who coreside with their parents would have provided more financial support had they lived away, and children who live away from their parents would have provided more financial support had they coresided. These findings suggest a self-selection mechanism that maximizes children’s interests rather than parents’.

Keywords

Intergenerational transfer; financial transfer; coresidence; elderly support; China

Introduction

Traditionally, Chinese elders rely primarily on their family members, especially adult children, for old age support. This family practice is attributed to the Confucian norm of filial piety (Chen and Silverstein, 2000; Feng et al., 2012), which expects children to be responsible for caring for and supporting their elderly parents. Given the patrilocal and patrilineal features of the family system, sons and daughters are expected to take different roles in caring for their parents (Whyte, 2004; Whyte and Xu, 2003). Sons are permanent family members—they carry the family lineage and inherit properties, and therefore they are expected to take on major responsibilities in caring for their natal parents throughout their

Corresponding author: Haiyan Zhu, Department of Sociology, Virginia Tech, 560 McBryde (0137), 225 Stanger Street, Blacksburg, Virginia 24061, USA. zhuh09@vt.edu.

lives. However, daughters are considered transitory members of their natal families; upon marriage, they move to their husbands' families and provide support to their parents-in-law (Greenhalgh, 1985; Xie, 2014).

Family support for the elderly is still prevalent in contemporary China (Xie and Zhu, 2009; Zhu, 2016). The prevalence of the traditional practice can be explained by cultural and practical reasons. First, filial piety is so deeply rooted as to establish a societal consensus that children should take care of their parents (Sun, 2004). The second reason is that non-family support resources such as pension coverage and private and governmental social support programs are limited. Public pensions are available only to those in the higher social strata who are primarily urban residents (Lee and Xiao, 1998; Walder, 1992). In urban areas, retirement benefits have become unstable, and the cost of medical care has increased in the transition from a planned to a market economy (Lee and Xiao, 1998). Moreover, other types of support such as social and commercial programs are also limited, especially in rural areas (Gu and Vlosky, 2008). As Leung (1997) points out, "The heart of the problem for China is that formal and professional personal social services for the elderly are extremely underdeveloped." It was estimated that the rate of living in residential care facilities is very low, at 1.5–2.0 percent of people aged 65+ in 2010 (Feng et al., 2012). Because the majority of the elderly live either independently or with adult children, the responsibility to care for the elderly falls mainly on their children.

Among various forms of family support, financial support and coresidence have been highlighted in past research (e.g., Chu et al., 2011; Xie and Zhu, 2009). Financial support is important for elderly parents' living expenses and medical care, especially for those who no longer work and have no pension. Statistics from the Survey on Support Systems for the Elderly in China show that 49 percent of urban residents and 73 percent of rural residents received financial support from children in 1992 (Lee and Xiao, 1998). Another crucial part of family support in China has been adult children's coresidence with elderly parents, which plays an important role in affecting elderly parents' psychological, physical, and economic well-being (Knodel and Ofstedal, 2002). Traditionally, the ideal traditional Chinese family is patrilocal, multigenerational, and extended (Greenhalgh, 1985; Xie, 2014; Zavoretti, 2006). Since sons and their wives shoulder major responsibilities to care for parents, parents are expected to live with sons rather than daughters (Chu et al., 2011; Whyte, 2004). According to the 2000 Census, 65.3%¹ of persons aged 60 and older lived with their children; 61.1% in urban areas and 68.2% in rural areas. Significant gender differences exist in living arrangement patterns with parents. From a survey in three large Chinese cities in 1999, Xie and Zhu (2009) found that 38.1% of married sons lived with parents, while only 15.2% of married daughters lived with parents. The percentage of sons coresiding with parents in rural areas is even higher (Lee and Xiao, 1998), given the stronger traditional values of familial obligation there.

Although family support continues to prevail, rapid demographic, social, and economic changes have been eroding traditional practices, particularly in urban areas (Raymo et al., 2015; Whyte, 2004; Xie, 2014). As a result, the level and form of family support to the

¹These percentages are calculated based on the 0.1% micro 2000 Census data.

elderly may change. An important change in family support is the decline of children's coresidence with parents (Logan et al., 1998; Tsui, 1989), as the traditional extended family has been replaced by the nuclear family as the commonly preferred living arrangement. Many young adults do not live with parents, as they increasingly prioritize their own life style and privacy. Moreover, increasing geographic mobility means that fewer adult children live near their parents. A study conducted in the Philippines, Thailand, Taiwan, and Singapore finds that the percentage of children's coresidence with elderly parents declined from the 1980s to the 1990s (Knodel and Ofstedal, 2002). In China, Unger (1993) shows that even in the 1980s about 88% of younger adults preferred not to coreside with their parents after marriage. The proportion of elderly parents coresiding with adult children in urban China decreased from 71% in 1987 to 67% in 1993 (Logan et al., 1998), and 53% in 2012 (Xie et al., 2013).

Adult children in China today are obliged to care for their elderly parents but prefer not to coreside with them. How do they reconcile the two conflicting relationships with parents? Power/bargaining theory suggests that children "may use financial resources to exempt themselves from coresiding with parents or other-intensive services," and that "siblings with more resources may induce less well-off siblings to accept a trade of money for time by housing a parent" (Lee et al., 1994: 1012–1013). Therefore, non-coresidential children may provide more compensation in the form of financial support compared to their coresidential counterparts (Logan and Bian, 2003).

The argument that children may buy out of their familial obligation of living with parents by providing greater financial support actually suggests that coresidence and financial support are jointly determined in that "they are partial substitutes for each other, and the choice between them is made at a single point in time" (Lee et al., 1994: 1027). If so, studies of coresidence and financial support as if they are independent of each other may suffer from a selection bias. In other words, the assignment of children to live with or not live with parents is not random. The decision of whether to coreside with parents may be affected by the expected outcome — the financial obligation under different living arrangements. On the one hand, children with low socioeconomic status (SES) may choose to coreside with parents, since they can share resources with parents and would not need to provide much financial transfer; on the other hand, children with high SES may choose to provide more financial support to parents to fulfill their obligation of support without coresidence.

Although a number of studies have examined either intergenerational financial transfers or coresidence in China (e.g., Chu et al., 2011; Lee and Xiao, 1998; Sun, 2002; Xie and Zhu, 2009; Zhu 2016), the joint nature of these two has not been taken into account. The common approach to analyzing coresidence and financial support from children to parents is to treat them as separate outcomes, predicting the likelihood of coresidence and then estimating the effect of coresidence on financial support. Because this common approach does not consider the joint nature of coresidence and financial transfer, the question of whether children buy out of their familial coresidence obligation by providing more financial support (i.e., the buy-out hypothesis) has not been formally examined in the literature.

In addition, the choice of living arrangements may be affected by unobserved factors that also affect financial transfer. For example, children with traditional family values may prefer to live with their parents and may also provide more financial support. Unobserved factors such as family values may positively affect both living arrangements and financial transfers. Methods employed by previous studies, such as OLS regression analyses, assume the absence of unmeasured factors that may affect both financial transfer and coresidence, leading to omitted variable bias and thus to misleading results (Mare and Winship, 1988).

The purpose of this study is to examine the buy-out hypothesis: adult children buy themselves out of fulfilling obligations to live with parents by providing greater financial support, utilizing a dataset from the 1999 “Study of Family Life in China” conducted in Shanghai, Wuhan, and Xi’an. We consider coresidence and financial support jointly by estimating endogenous switching models taking into account unmeasured variables that could affect both coresidential status and financial transfer.

Based on the coefficients of endogenous switching regression, we can calculate and compare observed and counterfactual financial transfer for both coresidential and non-coresidential children. Therefore, the endogenous switching models can provide answers to the following two questions: 1. Would adult children who currently coreside have given their parents more financial support had they lived away? 2. Would adult children who currently live away from their parents have given less financial support had they coresided? A “yes” to both questions would support the buy-out hypothesis.

Data

The data come from a survey, “Study of Family Life in Urban China,” conducted by Xie and his collaborators in 1999 in three large cities: Shanghai, Wuhan, and Xi’an.² The survey initially aimed to reach 1,300 households in each city using a two-stage probability sampling method, and an adult aged 18 or older was randomly selected in each chosen household. The survey used a unique matching design: if a respondent was younger than 60, he/she was interviewed using Questionnaire A, and his/her parent (if available) was interviewed with Questionnaire A+, which is designed specifically for the elderly. If an initial respondent was 60 years or older, he/she was interviewed using Questionnaire B, which is similar to Questionnaire A+, and one of his/her children was randomly selected and interviewed using Questionnaire B+, which is similar to Questionnaire A.³ Therefore, this study includes an adult child sample, a parent sample, and a matched sample with adult-parent pairs⁴ based on the former two samples.

We use the adult child sample in this study because it includes detailed information on demographic, socioeconomic, and intergenerational transfers of adult children; thus, we examine elderly support from the child’s perspective. We restrict our analyses to married adults, separately for men and women, with at least one surviving parent aged 60+. The

²The principal investigators for this project included Yu Xie (University of Michigan), Zhongdang Pan (Chinese University of Hong Kong), and Xuejun Yu (Center of Population Information and Research, China), in collaboration with the Institute for Market Information and the Beijing Broadcasting Institute.

³For more detailed information on the survey design, see Xie and Zhu (2009).

⁴All parent-child pairs lived in the same city.

previous literature shows significant gender differences in coresidence and financial support after marriage, as marriage is the turning point at which daughters contribute to their husbands' families, but sons continue to support their own parents (Lee et al., 1994; Xie and Zhu, 2009). The sample size of 1,776 includes 853 sons and 923 daughters.

Measures

On the adult child questionnaire, respondents were asked how much money (including both cash and gifts) he or she provided to elderly parents and how much he or she received from parents in 1998. Financial transfer from children to parents is the net amount exchanged between the respondent and the respondent's parents, with parents' contribution subtracted from child's contribution. Coresidence is a dummy variable, with non-coresidence with parents coded 0 and coresidence with parents coded 1.

The independent variables are divided into three categories: parents' resources, children's resources, and other controls. Gender is not included as an independent variable because analyses are stratified by gender.

Parents' resources include father's socioeconomic status (SES), parental survival status (whether both parents are alive or one parent is alive), and whether the respondent child has siblings. Father's socioeconomic status is measured by the International Socioeconomic Index value of the respondent's occupation (SEI), which is created based on 3-digit occupational codes used in the statistical system by the China State Statistical Bureau (Xie and Zhu, 2009). SEI values range from 10 to 88.

Children's resources include both children's SES and spouses' SES. Children's SES is measured by three variables: education, personal income in 1998, and SEI. Education is measured by years of schooling.

Other Covariates include parents' average age (if both parents are alive; parent's age if only one parent is alive), respondent's age, city (Shanghai, Wuhan, or Xi'an?), and length of stay in the city (years).

Methods

The key statistical approach in this study is the application of endogenous switching regression models. As shown by Mare and Winship (1988), this approach can model both the assignment of children's coresidential status and the effect of coresidential status on financial transfer, as well as the influence of unmeasured variables.

The general endogenous switching regression is defined as follows (Gamoran and Mare, 1989; Maddala, 1983; Mare and Winship, 1988; Willis and Rosen, 1979). For the i th child, let Y_{1i} denote the amount of financial transfer if he or she coresides with parents, and Y_{2i} denote the amount of financial transfer if he or she does not coreside with parents. We only observe the outcome under one situation; if children coreside, we observe the amount of transfer under coresidence, and vice versa. Let X_{ki} represent the k th independent variable that affects the amount of financial transfer under such a situation, and Z_{ki} the k th independent variable that affects coresidence status.

$$\text{for children coresiding with parents } Y_{1i} = \sum X_{ki} \beta_{1k} + \varepsilon_{1i} \quad \text{if } I = 1 \quad (1)$$

$$\text{for children not coresiding with parents } Y_{2i} = \sum X_{ki} \beta_{2k} + \varepsilon_{2i} \quad \text{if } I = 0 \quad (2)$$

$$\text{coresidence decision function } I_i^* = \sum Z_{ki} \pi_k + \varepsilon_{3i} \quad (3)$$

In Equations 1 and 2, β_{1k} and β_{2k} are parameters, and ε_{1i} and ε_{2i} are error terms. I is an indicator of whether the children coreside ($I=1$) or do not coreside ($I=0$). I^* is a latent variable, representing the likelihood of children coresiding with parents: $I_i=1$ if $I_i^* > 0$; and $I_i=0$ if $I_i^* \leq 0$. In fact, Equation 3 is in a reduced form, which can be estimated. If ε_3 is uncorrelated with ε_1 and ε_2 , then ordinary least squares (OLS) estimates are consistent (Mare and Winship, 1988). Otherwise, OLS estimates of β_{1k} and β_{2k} in Equations 1 and 2 are inconsistent due to nonrandom selection of individuals into coresidence versus non-coresidence. For the endogenous switching method, Equations 1 and 2 are estimated jointly with an equation predicting the likelihood of coresidence, Equation 3.

With the assumption that the error terms of Equations 1, 2, and 3 are distributed jointly as trivariate normal, we can obtain maximum likelihood estimates of the parameters, β_{1k} and β_{2k} . Theoretically, the parameters can be identified even if the same independent variables appear in all three equations, but the identifying information is weak (Xie, 2000). To improve model identification, it is useful to have instrumental variables that affect Equation 3 but not Equations 1 and 2 (i.e., certain variables appear in Z but not in X). In this study, we use city, length of stay in city, and the interactions between these two variables as instrumental variables. We assume that the city variable is associated with local housing market; both city and length of stay have direct effects on the likelihood of coresidence but indirectly affect financial transfer through coresidence. The two covariances, σ_{13} (i.e., $Cov(\varepsilon_1, \varepsilon_3)$) and σ_{23} (i.e., $Cov(\varepsilon_2, \varepsilon_3)$), indicate the direction and effect of unmeasured factors on both the amount of transfer and the likelihood of coresiding. The two correlation coefficients, ρ_{13} and ρ_{23} , represent correlations between both the error terms of Equations 1 and 3 as well as between the error terms of Equations 2 and 3 respectively. We estimated the endogenous switching regression model with MOVESTAY in STATA (Lokshin and Sajaia, 2004).

Based on the endogenous switching regression model, we further calculated the average change in financial transfer for coresidential children if they had lived away and for non-coresidential children if they had coresided, respectively. First, let us consider those adult children who currently coreside with parents. If we view “coresiding” as a treatment, then the treatment effect on the treated (i.e., coresidential children), which measures the change in average financial transfer if they had lived away, is:

$$\int_{\varepsilon_1, \varepsilon_2} E(y | x, \varepsilon_2, I = 0) - E(y | x, \varepsilon_1, I = 1) f(\varepsilon_1, \varepsilon_2 | I = 1) d\varepsilon_1 d\varepsilon_2 = \sum_k x_k (\beta_{2k} - \beta_{1k}) + E(\varepsilon_2 - \varepsilon_1 | I = 1) = \sum_k x_k (\beta_{2k} - \beta_{1k}) + E(\varepsilon_2 | \varepsilon_3 > - \sum_k z_k \pi_k) - E(\varepsilon_1 | \varepsilon_3 > - \sum_k z_k \pi_k)$$

(4)

Where

$$\begin{aligned} E(\varepsilon_2 | \varepsilon_3 > - \sum_k z_k \pi_k) &= \rho_{23} \sigma_2 \left[\frac{\phi(-\frac{\sum_k z_k \pi_k}{\sigma_3})}{1 - \Phi(-\frac{\sum_k z_k \pi_k}{\sigma_3})} \right] \\ &= \rho_{23} \sigma_2 \left[\frac{\phi(\frac{\sum_k z_k \pi_k}{\sigma_3})}{\Phi(\frac{\sum_k z_k \pi_k}{\sigma_3})} \right] \end{aligned}$$

Similar derivation yields

$$\begin{aligned} E(\varepsilon_1 | \varepsilon_3 > - \sum_k z_k \pi_k) &= \rho_{13} \sigma_1 \left[\frac{\phi(\frac{\sum_k z_k \pi_k}{\sigma_3})}{\Phi(\frac{\sum_k z_k \pi_k}{\sigma_3})} \right] \end{aligned} \quad (5)$$

Thus, the “treatment effect on the treated” is:

$$\sum_k x_k (\beta_{2k} - \beta_{1k}) + (\rho_{23} \sigma_2 - \rho_{13} \sigma_1) \left[\frac{\phi(\frac{\sum_k z_k \pi_k}{\sigma_3})}{\Phi(\frac{\sum_k z_k \pi_k}{\sigma_3})} \right] \quad (6)$$

If the average effect is greater than 0, it means that children who currently coreside would have given more support had they lived away; this is the case where the buy-out hypothesis is supported. If the effect is less than 0, it means that children who currently coreside would have given less support had they lived away; this would be evidence against the buy-out hypothesis.

Let us now consider those adult children who currently live away. The average change in financial transfer if they had coresided is:

$$\begin{aligned}
 & \int_{\varepsilon_1, \varepsilon_2} E(y | x, \varepsilon_1, I = 1) - E(y | x, \varepsilon_2, I = 0) f(\varepsilon_1, \varepsilon_2 | I = 0) d\varepsilon_1 d\varepsilon_2 \quad (7) \\
 &= \sum_k x_k (\beta_{1k} - \beta_{2k}) + E(\varepsilon_1 - \varepsilon_2 | I = 0) \\
 &= \sum_k x_k (\beta_{1k} - \beta_{2k}) + \left[E(\varepsilon_1 | \varepsilon_3 < - \sum_k z_k \pi_k) - E(\varepsilon_2 | \varepsilon_3 < - \sum_k z_k \pi_k) \right]
 \end{aligned}$$

Where

$$\begin{aligned}
 & E(\varepsilon_1 | \varepsilon_3 < - \sum_k z_k \pi_k) \\
 &= -\rho_{13} \sigma_1 \left[\frac{\phi\left(-\frac{\sum_k z_k \pi_k}{\sigma_3}\right)}{1 - \Phi\left(-\frac{\sum_k z_k \pi_k}{\sigma_3}\right)} \right]
 \end{aligned}$$

and

$$\begin{aligned}
 & E(\varepsilon_2 | \varepsilon_3 < - \sum_k z_k \pi_k) \\
 &= -\rho_{23} \sigma_2 \left[\frac{\phi\left(-\frac{\sum_k z_k \pi_k}{\sigma_3}\right)}{1 - \Phi\left(-\frac{\sum_k z_k \pi_k}{\sigma_3}\right)} \right]
 \end{aligned}$$

Thus, the average change in financial transfer if they had coresided is:

$$\sum_k x_k (\beta_{1k} - \beta_{2k}) + (\rho_{23}\sigma_2 - \rho_{13}\sigma_1) \left[\frac{\phi\left(\frac{\sum_k z_k \pi_k}{\sigma_3}\right)}{\Phi\left(\frac{\sum_k z_k \pi_k}{\sigma_3}\right)} \right] \quad (8)$$

If the average change is greater than 0, then children who currently live away from their parents would have given more had they coresided. If the average change is less than 0, then children who currently live away would have given less had they coresided. The latter is the case in support of the buy-out hypothesis.

Results

Table 1 shows descriptive statistics for the dependent and independent variables. Means and percentages are broken down by sex and coresidential status. Overall, the percentage coresiding with parents is 38.2% for sons and 15.2% for daughters. This result shows a traditional pattern, consistent with the previous literature, that married sons are more likely than married daughters to live with parents (Logan et al., 1998; Zhang, 2004). The first three rows present average amounts of financial transfer. The first row shows that the net transfer is negative for married sons, -513 yuan for coresidential sons and -144 yuan for non-coresidential sons, showing that parents actually give more than what they receive from sons. The net transfer is 309 yuan for coresidential daughters and -3 yuan for non-coresidential daughters, indicating that daughters, especially coresidential daughters, give more than what they receive from parents. Net transfer can be further decomposed into upward and downward flow. We find that downward flow is larger than upward flow among coresidential sons. However, downward flow is smaller than upward flow among coresidential daughters. These results reveal that coresidential sons receive more financial support from parents, while coresidential daughters provide more financial support to their parents.

Table 1 also shows that average SES measures are higher among non-coresidential sons than among coresidential sons. For example, the income gap in 1998 between non-coresidential and coresidential sons is about 2,300 yuan (12,045 versus 9,703), and the SEI gap is about 3.8 (44.5 versus 40.7). These statistics indicate that better-off sons are less likely to live with parents. In terms of parents' resources, fathers' SEI is higher among non-coresidential sons than among coresidential sons. Non-coresidential sons are also slightly more likely to have both parents alive and to have siblings than are coresidential sons (58.3% versus 55.9% and 98.2% versus 94.4%). These results suggest that sons may be more likely to live with parents in situations where the parents' SES is lower, only one parent is alive, and parents do not have more than one child. For daughters, we observe opposite patterns: coresidential daughters have higher SES than their counterparts, and their fathers' SES is also higher than that of their counterparts. For example, the income gap is 800 yuan (7,656 versus 6,815) and the gap for father's SEI is 4.2 (46.5 versus 42.3). Therefore, in contrast to married sons, married coresidential daughters and their parents are both more likely to have higher SES. This observed pattern is consistent with the findings of Xie and Zhu (2009). One reason is

that wives with high SES and higher-SES parents may have more marital power relative to their husbands and thus be able to break away from tradition to live with their own parents (Chu et al., 2011).

Table 2 shows the results based on the endogenous switching model for married sons. Columns 2, 4, and 6 present the coefficients respectively from the three models: the selection model predicting the probability of coresiding, the outcome model for amount of financial transfer under non-coresidence, and the outcome model for amount of financial transfer under coresidence. In column 2, city, length of stay, and the interaction between city and length of stay serve as instrumental variables to help identify the model predicting the likelihood of coresiding. Father's SEI, child's education and SEI, having siblings, parents' average age, and child's age are all significantly associated with the likelihood of coresiding. For example, higher education reduces the likelihood of living with parents. Having no siblings increases the probability of living with parents. The older the parent, the more likely it is that sons coreside. In addition, the instrumental variables, city, length of stay, and their interaction all significantly predict coresidence status.

Columns 4 and 6 in Table 2 present the effects of observed variables on financial transfer among coresidential sons and non-coresidential sons. Among coresidential sons, higher SES increases financial transfer provided to parents, while father's SEI and parents' average age are negatively associated with financial transfer. On the other hand, among non-coresidential sons, SES is not significantly associated with financial support provided by children.

Table 3 shows the results based on the endogenous switching model for married daughters. In the coresidence selection model (Column 2), having only one parent alive and having no siblings are associated with higher likelihood of living with parents. However, daughter's age is negatively associated with the likelihood of coresiding, while parents' average age is positively associated with the likelihood of coresiding. Among the instrumental variables, only length of stay is significantly associated with the likelihood of coresiding: the longer daughters stay in the city, the more likely they are to coreside with parents.

Coresidential daughters with higher SEI provide greater financial transfers to parents than coresidential daughters with lower SEI do, as shown in Column 4. Column 6 shows the effects of measured variables on non-coresidential daughters. Non-coresidential daughters who have only one parent alive, higher income, or higher SEI provide more transfers to their parents than those who have both parents alive, lower income, or lower SEI. Having no siblings is associated with decreased amount of transfer to parents.

Table 4 presents the conditional expectations and treatment effects on treated and untreated groups among sons. The observed amount of financial transfer for children who currently coreside is -678 yuan; the counterfactual for children who currently coreside if they had lived away is 3,561 yuan. The observed amount of financial transfer for children who currently live away is -380 yuan; the counterfactual for children who currently live away if they had coresided is 4,539 yuan. By comparing the observed transfer amounts with counterfactual transfer amounts, we observe that sons who currently coreside would have given more financial support had they lived away, and sons who currently live away from

their parents would have given more financial support had they coresided. The treatment effects of residential arrangement for the treated are given in the last column.

Table 5 shows parallel counterfactual comparisons for daughters. The observed amount of financial transfer for daughters who currently coreside is 309 yuan; the counterfactual amount for daughters who currently coreside had they lived away is 2,418 yuan. The observed amount for daughters who currently live away is -65 yuan, and the counterfactual for daughters who currently live away had they coresided is 928 yuan. Like the patterns shown in Table 4, coresidential daughters would have provided more financial support had they lived away from parents, and non-coresidential daughters would have provided more had they coresided. Thus, the treatment effects of residential arrangement on the treated group are given in the last column, -2,009 yuan for coresidence and -993 yuan for non-coresidence.

Discussion

Coresidence is a moderator of financial transfer but also a form of support in China. Although both intergenerational coresidence and financial transfer have been well studied, the joint nature of these two has been ignored in previous studies. Using a dataset collected in three large Chinese cities, this study examined whether or not children buy out of their obligation to live with their elderly parents by providing more financial support. We treated coresidence and financial support as joint outcomes by using endogenous switching models to account for potential selection bias for financial support associated with coresidence. We separated the analyses by child's gender to account for gendered patterns in coresidence and financial support. We also calculated factual and counterfactual financial transfers among coresidential children and non-coresidential children.

We found that children who currently coreside with their parents would have given more financial support had they lived away, and children who currently live away from their parents would have given more financial support had they coresided. These findings lend support to the buy-out hypothesis among coresidential children. Since children would have given more had they chosen alternative living arrangements, parents' benefit is not maximized by either currently coresiding with or living away from their children. The results suggest that whether or not children coreside with parents is driven mainly by children's interests, rather than by parents' interests. If decisions had been driven by maximizing parents' financial benefit, they would have selected non-coresidential children for parents to coreside with, and coresidential children for them not to coreside with. Therefore, our results reveal that the child-parent coresidential pattern is child-centered.

The child-centered pattern reveals that, in urban China, especially in big cities, intergenerational support flows downward, from parents to children, especially for married sons. This pattern is inconsistent with some previous studies. According to Logan et al. (1998), coresidence is mainly determined by parents' rather than children's needs. Zhang (2004) also shows a parent-centered pattern of living arrangements, based on a survey of Life History and Social Change in Contemporary China. The inconsistency may arise from the fact that the data we used for this study came from a survey of three large Chinese cities,

which are much less traditional than China's smaller cities. The downward pattern may also indicate rising socioeconomic power of children and the economic pressure in urban China (Mu and Xie, 2014). The power/bargaining theory argues that parents receive support from children as long as they have power over them (Goode, 1963; Zimmer et al., 2003). However, the process of modernization may have weakened parental power and strengthened children's power. Younger generations are more likely to have good educational and job opportunities, which may empower them in relation to their elderly parents. In addition, the elderly in urban China are covered by the state's pension system and do not need children's support to meet their basic needs (Xie and Zhu, 2009). At the same time, economic pressure faced by adult children in the post-reform era may have compelled parents to help them financially, changing the traditional income flow from upward (i.e., from children to parents) to downward (i.e., from parents to children).

Indeed, as argued by Xie and Zhu (2009), providing support to parents in urban China may have become mostly symbolic rather than material, being a way for children to show respect and acknowledge familial obligations. As such, the pension system, together with social, economic and ideological changes, likely changed the nature of elder support in urban China. Previous literature has also suggested that in contemporary urban China, especially in big cities, the intergenerational support pattern between children and parents actually flows from parents to children (e.g., Rosenzweig and Zhang, 2014). For example, parents provide financial support to their adult children, particularly for high-cost purchases such as homes and durable goods. It is thus no surprise that children's interests rather than parents' are maximized.

This study also found gender differences in how SES affects decisions about living arrangements. Among sons, higher SES reduced the likelihood of living with parents, while SES was not significantly associated with living arrangements among daughters. Consistent with the findings in Xie and Zhu's study (2009), our results suggest that unsuccessful sons may be dependent on parents by living with them to share resources. Since this pattern did not exist among unsuccessful daughters, these findings further indicate that parents are traditional, favoring sons over daughters and providing support to sons rather than daughters even if both are in need, consistent with findings by Zhu (2016). The study further found that children's higher SES was associated with increased amounts of financial transfer to parents among coresidential sons and non-coresidential daughters.

This study has several limitations worth noting. First, due to the limitation of available variables in the dataset, we were unable to include more instrumental variables, which are crucial in improving model identification. Second, the data used for the study were not nationally representative but from a survey conducted in three big cities that were more economically developed than the average level of development in urban China as a whole. Third, the data we used were collected in 1999, and thus information may not be up to date. Since 1999, housing privatization has led to a boom in the real estate market and rapid rises in the costs of housing units in most Chinese cities (Song and Xie, 2014). Thus, economic pressure has increased, most likely pushing intergenerational transfers further downward than before and further favoring child-centered living arrangements that maximize children's

interests. Thus, we believe that the main findings reported in this study are still applicable to today's China and the near future.

References

- Chen X, Silverstein M. Intergenerational social support and the psychological well-being of older parents in China. *Research on Aging*. 2000; 22(1):43–65.
- Chu CYC, Xie Y, Yu RR. Coresidence with elderly parents: A comparative study of southeast China and Taiwan. *Journal of Marriage and Family*. 2011; 73(1):120–135. [PubMed: 22661769]
- Feng Z, Liu C, Guan X, Mor V. China's rapidly aging population creates policy challenges in shaping a viable long-term care system. *Health Affairs*. 2012; 31(12):2764–2773. [PubMed: 23213161]
- Gamoran A, Mare R. Secondary school tracking and educational inequality: Compensation, reinforcement, or neutrality? *American Journal of Sociology*. 1989; 94(5):1146–1183.
- Goode, WJ. *World Revolution and Family Patterns*. New York: Free Press; 1963.
- Greenhalgh S. Sexual stratification: The other side of “growth with equity” in East Asia. *Population and Development Review*. 1985; 11:265–314.
- Gu, D., Vlosky, DA. Long-term care needs and related issues in China. In: Garner, JB., Christiansen, TC., editors. *Social Sciences in Health Care and Medicine*. Hauppauge, NY: Nova Science Publishers; 2008. p. 52-84.
- Knodel, J., Ofstedal, MB. Patterns and determinants of living arrangements. In: Hermalin, A., editor. *The Well-being of the Elderly in Asia*. Ann Arbor, MI: University of Michigan Press; 2002. p. 143-184.
- Lee Y, Parish WL, Willis RJ. Sons, daughters, and intergenerational support in Taiwan. *American Journal of Sociology*. 1994; 99:1010–1041.
- Lee Y, Xiao Z. Children's support for elderly parents in urban and rural China: Results from a national survey. *Journal of Cross-Cultural Gerontology*. 1998; 13:39–62. [PubMed: 14617918]
- Leung J. Family support for the elderly in China: Issues and challenges. *Journal of Aging and Social Policy*. 1997; 9(3):87–101. [PubMed: 10186888]
- Logan JR, Bian F. Parents' needs, family structure, and regular intergenerational financial exchange in Chinese cities. *Sociological Forum*. 2003; 18:85–101.
- Logan JR, Bian F, Bian Y. Tradition and change in the urban Chinese family: The case of living arrangements. *Social Forces*. 1998; 76:851–882.
- Lokshin M, Sajaia Z. Maximum likelihood estimation of endogenous switching regression models. *Stata Journal*. 2004; 4(3):282–289.
- Maddala, GS. *Limited-dependent and qualitative variables in econometrics*. Cambridge: Cambridge University Press; 1983.
- Mare, R., Winship, C. Endogenous switching regression models for the causes and effects of discrete variables. In: Long, S., editor. *Common Problems/Proper Solutions: Avoiding Error in Quantitative Research*. Beverly Hills, CA: SAGE Publications; 1988. p. 132-160.
- Mu Z, Xie Y. Marital age homogamy in China: A reversal of trend in the reform era? *Social Science Research*. 2014; 44:141–157. [PubMed: 24468440]
- Raymo JM, Park H, Xie Y, Yeung WJ. Marriage and family in East Asia: Continuity and change. *Annual Review of Sociology*. 2015; 41:472–492.
- Rosenzweig, M., Zhang, J. NBER Working Paper 20057. Cambridge, MA: National Bureau of Economic Research; 2014 Apr. Co-residence, life-cycle savings and intergenerational support in urban China.
- Song X, Xie Y. Market transition revisited: Changing regimes of housing inequality in China, 1988–2002. *Sociological Science*. 2014; 1:277–291.
- Sun R. Old age support in contemporary urban China from both parents' and children's perspectives. *Research on Aging*. 2002; 24:337–359.
- Sun R. Worry about medical care, family support, and depression of the elders in urban China. *Research on Aging*. 2004; 26:559–585.

- Tsui M. Changes in Chinese urban family structure. *Journal of Marriage and the Family*. 1989; 51:737–747.
- Unger, J. Urban families in the eighties: An analysis of Chinese surveys. In: Davis, D., Harrell, S., editors. *Chinese Families in the Post-Mao Era*. Berkeley, CA: University of California Press; 1993. p. 25-49.
- Walder AG. Property rights and stratification in socialist redistributive economies. *American Sociological Review*. 1992; 57:524–539.
- Whyte, M. Filial obligations in Chinese families: Paradoxes of modernization. In: Ikels, C., editor. *Filial Piety: Practice and Discourse in Contemporary East Asia*. Stanford, CA: Stanford University Press; 2004. p. 106-127.
- Whyte, M., Xu, Q. Support for aging parents from daughters versus sons. In: Whyte, M., editor. *China's Revolutions and Intergenerational Relations*. Ann Arbor, MI: Center for Chinese Studies, the University of Michigan; 2003. p. 167-196.
- Willis R, Rosen S. Education and self-selection. *Journal of Political Economy*. 1979; 87:S7–S36.
- Xie, Y. Endogenous switching regression models. In: Oden, S.Schweinhart, LJ., Weikart, DP., editors. *Into Adulthood: A Study of the Effects of Head Start*. Ypsilanti, MI: High/Scope Press; 2000. p. 169-178.
- Xie, Y. Gender and family. In: Fan, S., et al., editors. *The Oxford Companion to the Economics of China*. Oxford, UK: Oxford University Press; 2014. p. 495-501.
- Xie, Y., Zhang, X., Li, J., Yu, X., Ren, Q. Wellbeing Development Report of China 2013. Beijing, China: Peking University Press; 2013. in Chinese
- Xie Y, Zhu H. Do sons or daughters give more money to parents in urban China? *Journal of Marriage and Family*. 2009; 71:174–186. [PubMed: 20126304]
- Zavoretti R. Family-based care for China's aging population. *Asia Europe Journal*. 2006; 4:211–228.
- Zhang Q. Economic transition and new patterns of parent-adult child coresidence in urban China. *Journal of Marriage and Family*. 2004; 66:1231–1245.
- Zhu H. Adult children's characteristics and intergenerational financial transfers in urban China. *Chinese Journal of Sociology*. 2016; 2:75–94.
- Zimmer Z, Kwong J. Family size and support of older adults in urban and rural China: Current effects and future implications. *Demography*. 2003; 40:23–44. [PubMed: 12647512]

Table 1

Means and Percentages of Variables

	Men		Women	
	Coresiding (38.2%)	Non-coresiding (61.8%)	Coresiding (15.2%)	Non-coresiding (84.8%)
Amount of Transfer (yuan)				
Net transfer	-513	-144	309	-3
Downward transfer (from parents to children)	964	626	437	441
Upward transfer (from children to parents)	451	482	746	438
Parents' Resources				
Father's SEI	43.5	42.4	46.5	42.3
Parents' survival status				
Both alive (%)	55.9	58.3	51.1	60.5
Only father/mother alive (%)	44.1	41.7	48.9	39.5
Respondent has siblings				
Yes (%)	94.4	98.2	87.1	84.8
No (%)	5.6	1.8	12.9	5.2
Respondent's Resources				
Income in 1998 (yuan)	9,703	12,045	7,656	6,815
Education	11	11.4	11.6	10.8
SEI	40.7	44.5	44.8	42.8
Other controls				
Respondent's age	38.3	41.6	38.4	39.4
Parents' average age	69.5	69.9	69.3	68.2
City				
Shanghai (%)	35.1	32	35	29.5
Wuhan (%)	33.2	33.5	38.6	36.9
Xi'an (%)	31.7	34.5	26.4	33.6
Length of stay	36.4	35.3	35.4	33.5
N of observations	853		923	

Data source: "Study of Family Life in Urban China" conducted in Wuhan, Shanghai, and Xi'an, 1999.

Table 2

Endogenous Switching regression for Transfer, sons

	Selection into coresiding			Coresiding			Not Coresiding		
	b	SE		b	SE		b	SE	
Parents' Resources									
Father's SEI	.005*	.003		-.017*	.009		.002	.069	
Parents' survival status									
Both alive (omitted)									
Only one parent alive	.144	.096		.439	.330		.530**	.252	
Respondent having siblings									
Yes (omitted)									
No	.709***	.245		-.343	.708		.019	.764	
Respondent's Resources									
Income in 1998 (logged)	-.046	.037		.337***	.128		.073	.104	
Education	-.035*	.020		.161**	.071		.028	.050	
SEI	-.009***	.003		.029**	.013		-.009	.009	
Other Controls									
Parents' average age	.234***	.007		-.074***	.028		.065***	.021	
Respondent's age	-.069***	.009		.178***	.030		-.058**	.025	
City									
Shanghai (omitted)									
Wuhan	.660**	.287							
Xi'an	.840**	.297							
Length of stay									
Wuhan* length of stay	.035***	.007							
Xi'an* length of stay	-.017**	.007							
Sigma	-.021***	.007							
Rho(1,3)/(2,3)				3.250***			2.884***		
				-.930***			.901***		

N=1,776. Dummy variables representing missing for father's SEI, respondent's SEI, and parents' age are also included in the models.

.1000>

<.000> *

**

!<.0> *

*

Note:

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3

Endogenous Switching regression for Transfer, daughters

	Selection into coresiding			Coresiding			Not Coresiding		
	b	SE		b	SE		b	SE	
Parents' Resources									
Father's SEI	.004	.003		-.013	.010		-.007	.004	
Parents' survival status									
Both alive (omitted)									
Only one parent alive	.258**	.117		.145	.393		.452***	.163	
Respondent having siblings									
Yes (omitted)									
No	.620***	.197		-.396	.538		-.663*	.378	
Respondent's Resources									
Income in 1998 (logged)	-.021	.038		-.039	.115		.127**	.057	
Education	.038	.024		-.015	.076		.017	.030	
SEI	-.001	.004		.030**	.014		.011*	.006	
Other Controls									
Parents' average age	.022**	.009		-.007	.031		-.006	.014	
Respondent's age	-.036***	.011		-.012	.032		-.011	.015	
City									
Shanghai (omitted)									
Wuhan	-.010	.421							
Xi'an	.179	.394							
Length of stay	.020**	.008							
Wuhan* length of stay	.001	.011							
Xi'an* length of stay	-.008	.010							
Sigma				1.827***			2.041***		
Rho(1,3)/(2,3)				-.188			.735***		

Note:

N=1,776. Dummy variables representing missing for father's SEI, respondent's SEI, and parents' age are also included in the models.

```
.100>  
***  
;500> *  
**  
;1'0> *  
*
```

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 4

Conditional Expectations and Treatment Effects, Sons

Subsamples	To coreside	Not to coreside	Treatment effects
Children who coreside	-678	3,561	-4,239
Children who live away	4,539	-380	-4,919

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 5

Conditional Expectations and Treatment Effects, Daughters

Subsamples	To coreside	Not to coreside	Treatment effects
Children who coreside	309	2,418	-2,009
Children who live away	928	-65	-993

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript