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## Out-migration of Young Adults and Gender Division of Intergenerational Support in Rural China\*

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### Abstract

Using data from the baseline and follow-up surveys of “Well-being of Elderly in Anhui Province, China” conducted in 2001, in 2003 and in 2006, respectively, by the Institute for Population and Development Studies of Xi’an Jiaotong University, this paper employs random effects models to explore the gender division of intergenerational support in the elderly rural families. Analyses by parents’ and children’s gender suggest that there are gender differences in intergenerational support because of gender roles and division in family. Our analysis shows that older mothers receive more returns, which reciprocates their support, while older fathers benefit more from the out-migration of adult children. While sons take more responsibility for family support, daughters reciprocate support from their elderly parents more. Enhancement of the role and function of daughters in families has accompanied out-migration of young adults and suggests that gender differences in intergenerational supports between sons and daughters have decreased.

### Keywords

gender; intergenerational support; out-migration; grandchild-care

### Introduction

The traditional family system in Chinese society is characterized as patriarchal, patrilineal, and patrilocal. The core value of the Chinese family system is filial piety, the idea that adult children have both the moral and legal obligation to support their elderly parents (Whyte 2004; Whyte and Xu 2003). In particular, essential support is expected from sons rather than

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from daughters in a traditional family (H. Yang 1996). Therefore, gender differences in the family support of older parents in Chinese families should be expected. According to Greenhalgh's (1985) characterization of the Chinese patriarchal family system, the status and roles of children in the family vary systematically by their gender. Sons are long-term members of their original family and keep contractual relationships with their parents for life. In contrast, daughters are only temporary members of the family, whose contracts last only until their marriage, when they move and devote themselves to their husbands' families. Although daughters are expected to contribute to their natal families before marriage, married women are not expected to contribute to the support of their aged parents (Greenhalgh 1985; H. Yang 1996; Das Gupta and Li 1999). Thus parents' long-term well-being depends on their sons to a large extent. On the other hand, the parent-child contracts also vary by the gender of the parent. As women have less access to economic resources for most of their lives, they tend to need more support in their old age (Nugent 1985).

The Chinese family may have undergone major transformations as a result of economic development and social transition, and the above description of the family may no longer apply in contemporary Chinese society (e.g., Thornton and Lin 1994; Whyte 2004). These transformations include a great number of young workers migrating out of rural areas, a reduction in the size and complexity of the household, a shift from the traditional extended family to the nuclear family, and a decline in social resources available to older people (Wang 2006). Along with many other developing countries, China is experiencing the structural changes that accompany "rural migrant waves"; the volume of Chinese rural-to-urban migration has more than quadrupled from 34 million in 1989 to 147.35 million in 2005 (National Statistics Bureau of China 2005). Such large-scale internal migration may reshape the demographic profile and family structure of China by moving the younger population from rural to urban areas. Simultaneously, because of the "Hukou" household registration system in China, most migrants from rural areas will only temporarily leave their home villages, making it difficult to take their children with them (Zhao 2005), and older parents become valuable resources for providing grandchild-care (Chen et al. 2000). Especially, with "family planning" and the decline in fertility, children have become more precious and costly. Many Chinese overemphasize care of their children at the expense of providing care and support for aged parents. Younger people who migrate to urban areas might have their traditional notions altered by modern culture in ways that weaken filial obligations but emphasize conjugal and individualistic goals (Goode 1963; Whyte and Xu 2003). Thus the authority of older generations in both society and individual families may be eroded (Lai 1995). The shifts concomitant with out-migration of young workers might be expected to influence patterns of intergenerational support in families.

Many scholars argue that with urbanization and industrialization, age-selective out-migration of family members becomes increasingly common, families become increasingly nucleated, and older parents begin to exercise less control over resources and so have reduced status in the family (e.g., Mason, 1992; Martin, 1990). Unlike traditional family systems in China, in which older parents occupy positions of authority in family, family support behaviors between older parents and adult children may be evolving towards more equality of the two generations, neither of which can force the other to conform to its own rules. Thus it is necessary to examine this support from both parents' and children's perspectives. Estimates

of intergenerational supports have seldom been reported from both angles, except for one study based on data from Baoding (Sun 2002) and one of Chinese rural families by Zhang (2004), both of which support the corporate group/mutual aid model from both parents' and children's perspectives. However, few studies have systematically addressed the division by gender of intergenerational support among older parents and adult children. The purpose of this study is to examine the gender division of intergenerational support both within a generation (adult son–adult daughter) and between generations (older parent–adult children), in the context of the patriarchal/patrilineal family system and out-migration of the labor force in rural China.

## Research Framework

### Intergenerational Support

In an early study on intergenerational support, the relationship between parent and children was viewed in terms of exchanges of rights and duties, or obligations and counter obligations (Cohen 1976). While this revealed the exchange nature of parent-child resource flows, it told us little about the timing, and nothing about the precise levels, of flows between different family members (Greenhalgh 1985). Greenhalgh (1985) distinguished between high-flow and low-flow contracts by gender, depending on the shares of total family resources that are exchanged between the parties to the contract. Those between parents and sons are higher-flow contracts that approximate serial reciprocity, requiring a counter obligation or later repayment. Contracts between parents and daughters are lower-flow contracts with more equitable reciprocity, in which one thing is exchanged for another of equivalent value with little delay (Greenhalgh 1985). While distinguishing the forms of intergenerational transfers, this did not explain the motivations behind and rules governing intergenerational transfers.

Three groups of theories of the family are relevant to the issue of intergenerational support; the power and bargaining model, the mutual aid model and the altruism/corporate group model, all of which address exchange dynamics between older and younger generations in the family. The power and bargaining model involves a “sharing rule” in which the amount that each member receives is an increasing function of his or her bargaining power (Chiappori 1992; Lee et al. 1994). The mutual aid model specifies that transfers between generations are made as needs arise in each generation, with the family functioning as an insurance policy (Frankenberg et al. 2002; Lee et al. 1994). The corporate group model focuses on the criteria by which strategic investments are made to optimize collective and personal well-being (Becker 1991). Most studies have suggested that the altruism/corporate group model best describes intergenerational transfers in Chinese families (e.g., Lee et al. 1994; Shi 1993; Sun 2002). However, other studies have claimed that, unlike the traditional corporate model, filial piety rather than economic resources motivates adult children to provide support to older parents (e.g., Zhan and Montgomery 2003; Zhang 2004) and altruism and son preference are distinguishing characteristics of the elderly in China (Zhang 2004).

## Gender Patterns

Within the patriarchal/patrilineal system that conditions the support system in Eastern Asia, father-son relationships are particularly important, and are based on the principle of mutual dependency throughout life (Aboderin 2003; Hsu 1971; Mason 1992). Thus older mothers are likely to receive less support and care than older fathers (Mason 1992; Ofstedal et al 2004). With the traditional control of economic resources held by male family members, financial incentives induce support (including financial support, instrumental assistance, and so on) to older fathers (Silverstein et al. 1995). Moreover, a traditional role for women is as the kinkeepers in the family (Zhang 2001). Also, wives are more likely to serve as primary caregivers for their husbands. Because of the higher levels of widowhood among women, older women are more likely to rely on support and care from their children, while older men are more likely to have their wives as primary caregivers (Knodel and Chayovan 2009). Thus as out-migration of adult children involves not only improvement of the family's economic status (Du et al. 2002), but also long-distance separations, which reduce the probability of instrumental assistance (Zimmer and Kwong 2003), we deduce that this out-migration might be expected to influence financial support received by older fathers and instrumental assistance between older mothers and their adult children. Because of the disadvantage of older females in economic resources, older mothers might be expected to rely more on returns that reciprocate assistance they provide to their adult children, such as housework, grandchild-care, etc.

Since sons are long-term members of the family, parents invest as much as they can in their sons in order to increase the latter's ability to provide for the former in the future. Especially when economic opportunities are brighter elsewhere, parents might encourage sons to leave and find more promising work. Thus investing in a child is a long-term strategy for reducing uncertainty about old age support, while taking care of grandchildren so that adult children can obtain better wages is a shorter-term strategy to reach the same goal (Silverstein et al. 2007). Since day-care in rural areas of China is scarce, older parents become valuable resources to families (Chen et al. 2000). As the transfers between parents and daughters are balanced, with one thing exchanged for another of equivalent value with little delay, daughters might be expected to return more financial support for grandchild-care by their older parents than sons. H. Yang (1996) found that maternal, but not paternal, older parents receive greater monetary support from children when they both engage in child-care activities.

The corporate group arrangement is also reflected in the relationship between living arrangements and the form of support. The choice of living arrangement is based on the needs of older parents rather than of children (Logan et al. 1998), and older people who are co-resident with their children are likely to receive more support and assistance. Chi's (1996) study found that the elderly living with children are more likely to receive care than financial support. Due to the "son preference" inherent in the patrilineal family system, co-residence, especially with sons, confirms children's obligation to support their aged parents, and hence increases intergenerational transfers and family cohesion. On the other hand, as labor migration of working-age children tends to result in skipped-generation households, grandparents become caregivers of grandchildren left behind in rural villages (Ke and Li

2001; Y. Yang 1996). Thus we deduce that older parents in skipped-generation households would receive returns (remittances) for caregiving as part of a time-for-money exchange between generations. And because of their role of kinkeepers in their families, older mothers might receive more returns from their children.

The role of children's gender can be integrated into the corporate model. In rural areas of China, sons are expected to take the main responsibility for supporting parents in their old age, while daughters are more likely to provide assistance to parents with routine activities or emotional support (Lee et al. 1994; Sun 2002; H. Yang 1996). With changes in jobs, economic status, and economic potential after out-migration, and the increase in the cost of time needed to provide service assistance, the division of intergenerational support should be adjusted among siblings to optimize the distribution of family resources, according to their relative available resources and the absolute cost of providing support (e.g., time, space, and money) (Song and Li 2008). Hence, although there is gender division of labor in Chinese families (Chen 2004; Zhan 2005), as the socio-economic status of migrant women improves and the traditional gender division of labor becomes less strict, the pattern of old-age support in the Chinese patrilineal rural societies may change.

### Hypotheses To Be Tested

In light of existing theories and earlier studies, the corporate group model still best describes intergenerational transfers in Chinese elderly families. However, because of gender roles and division in families, there are expected to be gender differences in intergenerational support, and women may benefit more from reciprocal support. From the parents' perspective, older mothers depend more on their children than do older fathers, and lose more when children migrate away. However, according to the corporate group principle, older mothers should expect more returns for providing support to their children than older fathers. From the children's perspective, sons play a more important role in essential support of their parents, and their spouses occupy position in providing assistance, deriving from a traditional gender division that allots household work to women and that assigns daughters-in-law to serve their parents-in-law. Thus, sons who migrate for short terms usually leave their wives and children in villages where the wives can provide instrumental support to their parents, while daughters return more in order to reciprocate their parents' support of them, which is consistent with the exchange-balance of intergenerational transfers. However, out-migration should reduce this gender difference among children. Six testable hypotheses are developed from older parents' and children's perspectives, respectively:

By older parents' gender:

**Hypothesis 1** Older fathers with children who have migrated away are more likely to receive increased financial support than older mothers whose children have migrated, and older mothers whose children have migrated are less likely to receive increased instrumental support than older fathers whose children have migrated.

**Hypothesis 2** Older mothers who provide more grandchild-care are more likely to receive increased financial support than older fathers.

**Hypothesis 3** Older mothers who continue to live with their grandchildren (but not their children) are more likely to receive increased financial support than older fathers who continue to live with their grandchildren.

By adult children's gender:

**Hypothesis 4** Migrant daughters are more likely to provide increased financial support than migrant sons, and are less likely to provide increased instrumental support than migrant sons.

**Hypothesis 5** Daughters who receive more grandchild-care are more likely to provide increased financial support than sons.

**Hypothesis 6** Sons who moved to live with older parents are more likely to increase intergenerational financial, instrumental and emotional support than daughters in the same position.

## Methods

### Data

Data for this study are derived from the three waves of the survey "Well-being of Elderly Survey in Anhui Province" carried out in 2001, 2003, and 2006 by the Institute for Population and Development Studies of Xi'an Jiaotong University, in conjunction with the University of Southern California. The survey location, Anhui Province, was chosen specifically for its relatively high density of older adults and high levels of out-migration of working age adults. A stratified multistage method was used to select potential respondents from 12 randomly selected rural townships, within each of which six villages were randomly selected. The respondents were identified from all residents aged 60 and older with a small proportionate over-sampling of people 75 years of age and older. To guarantee that only one older person per household was interviewed, two measures were adopted in the sampling procedure. If household partners were from two age groups, then the younger partner was dropped, and a substitute respondent was selected randomly as a replacement for him/her. If household partners were both from the same age group, then the partner chosen second was dropped, and a substitute respondent was randomly selected as a replacement. The survey was conducted in the respondents' homes and included assessments of family relations, intergenerational transfers, physical health status, and psychological wellbeing. When the elderly were asked about themselves and their households, they were also asked about each child including questions about age, marital status, education, and so on.

Of 1,800 individuals identified as eligible respondents, 1,715 completed the survey in 2001, a response rate of 95.3%. 1,391 respondents completed the follow-up survey in 2003, and 1,067 or 62.22% of the original participants were re-interviewed in 2006. The primary reason for sample attrition during the three waves was mortality (27.77%), while other reasons included: geographic relocation (8.2%), lack of interest/time or loss of contact with researchers (1.8%). Thus, only 10% of the sample lost for nonmortality-related reasons. We conducted independent *t*-tests to compare the characteristics of retained and drop-out participants. As expected, compared to retained participants, those lost to follow-up tended to be more disadvantaged in terms of educational attainment, income, and functional and

mental health (i.e. having more ADL, IADL difficulties, and more depression). However, there were no significant differences in intergenerational supports (financial, instrumental, and emotional support).

During the two survey intervals after the baseline survey, the physical and psychological health, socio-economic status and living arrangements of the older people, as well as the occupations and geographic location of adult children, might have changed. As in studies of the dynamics of variables and their associations that have been applied in gerontological studies (e.g., Gu and Xu 2007; Waldron 1997), the three waves of data gave rise to two survey intervals in our analysis: 2001–2003 and 2003–2006. Time 1 referred to the start-point of each interval, whereas Time 2 referred to the end-point of each interval. Therefore, Time 1 in this study could be 2001 or 2003 and Time 2 could be 2003 or 2006. After omitting respondents without children and cases with missing data on relevant study variables, the total number of observations at Time 1 was 2,045, including 924 older men (45.18%) and 1,121 older women (54.82%). The total number of children-parent pairs, was 8,064, including 4,263 son-parent pairs (52.86%) and 3,801 daughter-parent pairs (47.14%). As to multiple children from the same family being matched with the same parent, there were 4032 surviving children during the three-wave surveys, matched with 1023 older individuals.

## Measurement

**Dependent Variables**—The dependent variable, intergenerational support was divided into financial support, instrumental support, and emotional support. By older parents' gender, intergenerational support was measured by the amount transferred from all their children. The amount of support provided by each child was assessed by children's gender. Previous empirical studies in China suggest that older parents' needs strongly influence adult children's support for them. For example, age was a strong predictor of support received by older parents. That was, as time goes by, children tended to increase the support provided for older parents to meet the latter's increased needs with age. Thus increase between Time 1 and Time 2 in support for the same individual measured the change in intergenerational support provided. Because the change in support could be affected by the level at Time 1, this level was also included in the analysis. Financial support received was assessed by answers to the question "*Did the child send you (or your spouse living with you now) money, food or gifts?*". This was a measure of the total amount received from each child during the past 12 months. If the respondents did not respond with an exact amount, the options were the following categories based on Chinese RMB currency: 0= "none", 1= "less than 50", 2= "50–99", 3= "100–199", 4= "200–499", 5= "500–999", 6= "1000–2999", 7= "3000–4999", 8= "5000–9999", 9= "More than 10,000". The log of the median value for each interval was taken as the amount of financial support from children at Time 1. The log of the sum of financial transfers received from all children by one elderly person was taken to be the financial support received by that elder at Time 1. Comparing the amounts at Time 1 and Time 2, the change in financial support received was coded as 0 if there was no increase (including decrease), 1 if there was an increase.

There were two kinds of instrumental support: (1) *household tasks, such as cleaning the house and washing clothes*, and (2) *personal care tasks, such as bathing and dressing*, each of which was scored using five values: “none”=0, “seldom”=1, “several times a month”=2, “at least once per week”=3, and “every day”=4. The sum of the two kinds of assistance by one child was taken as the measure of instrumental support from a child to his/her elderly parent. Summing the measures of instrumental support from each child across all children at Time 1, the total score was considered as the support received at Time 1 by an elder. Comparing Time 1 and Time 2, the change in instrumental support was coded as 0 if there was no increase (including decrease), 1 if there was an increase.

Emotional support was assessed using the three questions: (1) *Overall, how close do you feel to (this child)?* (2) *Overall, how well do you and (this child) get along together?* (3) *How much do you feel that (this child) would be willing to listen when you intend to talk about your worries and troubles?* The responses were coded as follows: 1=“Not at all close/not at all well/not at all”, 2=“Somewhat close/somewhat well/somewhat”, 3=“Very close/very well/very much”. An additive scale was computed, ranging from 3–9, with a higher score indicating a higher quality of parent-child relationship. The alpha reliability coefficient for this scale was  $\alpha = 0.86$  in 2001,  $\alpha = 0.96$  in 2003, and  $\alpha = 0.83$  in 2006, respectively. Having more children did not necessarily mean that parents had stronger emotional bonds with their children. Thus to avoid multicollinearity between emotional support and number of children, we took the mean of the total score across all children for each elderly parent at Time 1 to indicate the emotional support (Guo et al. 2009). Comparing Time 1 and Time 2, the change in emotional support was coded as 0 if there was no increase (including decrease), 1 if there was an increase.

**Independent Variables**—The main predictor variables were of two general types: (1) variables specific to older parents, including their personal characteristics and characteristics of their household structure, and (2) variables specific to adult children, including their personal characteristics and characteristics of their relationships with older parents.

**Parent-level:** Due to possible changes in the spatial distribution of children as a result of out-migration or return of children, change in migration status of children was introduced to our analysis.

Care for grandchildren provided by older parents was measured as the frequency with which “older parents provided child-care for the offspring of each adult child during the past year”. This variable ranged from 0–6, with 0= “not at all”, 1= “seldom”,

2= “once per month”, 3= “several times per month”, 4= “at least once per week”, 5= “every day, but not for the entire day”, and 6= “every day, for the entire day”. Grandchildren were treated in sets--as groups nested within the adult child who was their parent. Thus, a single value was obtained for each set of grandchildren. Summing the score of grandchild-care across all adult children at Time 1, the total score was considered as the care provided at Time 1 by an elder. Comparing Time 1 and Time 2, the change in grandchild-care was coded as 0 if there was no increase (including decrease), 1 if there was an increase.



The following are the possible changes in living arrangements during the survey intervals: (1) not living with children or grandchildren → not living with children or grandchildren, (2) not living with children or grandchildren → living with children, (3) not living with children or grandchildren → living with grandchildren (no children), (4) living with children → not living with children or grandchildren, (5) living with children → living with children, (6) living with children → living with grandchildren (no children), (7) living with grandchildren (no children) → not living with children or grandchildren, (8) living with grandchildren (no children) → living with children, and (9) living with grandchildren (no children) → living with grandchildren (no children).

The income of an older parent at Time 1 was measured as the log of the total yearly earning of that parent (including his/her spouse). Comparing Time 1 and Time 2, the change in income was coded as 0 if there was no increase (including decrease), and 1 if there was an increase.

Health status was measured as the sum of 6 items reflecting the ability to perform personal activities of daily living, including bathing, dressing or undressing, walking around the room, getting out of the bed or chair, using the toilet, and eating. An elder is considered as functionally limited in a given activity if he or she has any degree of difficulty in performing that activity without help. Functional status is measured by the number of functional limitations at Time 1, ranging from 0 (none) to 6 (6 items). As the functional status at Time 2 was compared to the status at Time 1, both the change in functional disabilities during the survey intervals and the level at Time 1 were included in our analysis.

Age, education, occupation, and marital status were introduced as control variables. The levels at Time 1 of these variables were controlled in our analysis. The education and occupation of older parents did not change during the survey intervals. Marital status was considered as a static variable as it changed in less than 5% of our subjects.

**Child-level:** Most of the measures of children's characteristics, such as dependent variables--intergenerational support, grandchild-care, which were measured as support provided to that specific child, were similar to those of older parents. The dynamic variables from the children's perspective included the change in out-migration status, living arrangement and occupation. The change in migration status of children was measured with four dummy variables: (1) not out-migrating, (2) not out-migrating → out-migrating, (3) still out-migrating, and (4) return, that is out-migrating → not out-migrating. Change in living arrangement was coded as 0 if still not living with older parents, 1 if changed from not living with older parents to living with older parents, 2 if still not living with older parents, and 3 if changed from living with older parents to not living with older parents. Change in occupation of children during the survey interval included: (1) agricultural → agricultural, (2) agricultural → non-agricultural, (3) non-agricultural → non-agricultural, and (4) non-agricultural → agricultural.

Finally, relative education represented external resources (Blair and Lichter 1991; Yang 2006). It was measured by the relative level of education in comparison with other children in family, using two dummy variables: (1) not lower than the average level of all children in

the family, and (2) lower than the average level of all children in the family. The characteristics of older parents were controlled in the analysis by children's gender.

### Multivariate Estimation

Our data had two survey intervals. Random effects logit models using STATA version 9 (STATA 2005) were employed, which corrected for intra-subject correlation due to multiple observations of some respondents in the pooled data set (e.g., Liang and Zeger 1986). With our interest in exchanges between individual children and parents, the likelihood of children's support could not be modeled in exactly the same way, because in most cases there were multiple children in each family. Thus, family heterogeneity had to be controlled. We used a 3-layer random effects model, a procedure suited to unbalanced hierarchically nested data.

Since the outcome variables in this study were binary, a Generalized Linear Mixed Model was employed. This relied on the logit as the link function and fitted a logit mixed model, which can be written as the following (Rabe-Hesketh et al. 2004):

$$\log\left(\frac{p_{ijk}}{1-p_{ijk}}\right) = \alpha_k + \beta x_{ijk} + \varepsilon_{jk} + \varepsilon_k,$$

where  $p_{ijk}$  is the probability of providing a certain type of help for the  $k$ th family and  $j$ th child at  $i$ th time, and  $\alpha_k$  serves as a family indicator, controlling for the effect of unobserved family heterogeneity.  $\varepsilon_{jk}$  in this model was assumed to be random with a normal distribution and to be the intercept of the  $j$ th child in the  $k$ th family,  $\varepsilon_k$  was assumed to be the random intercept of the  $k$ th family, also with a normal distribution.

## Results

### Gender Division: By Parents' Gender

Table 1 shows the results of testing for likelihood of increase in intergenerational support during the survey interval as a function of parents' gender. We find that levels of supports, including financial, instrumental, and emotional support, are stable over time as indicated by the lagged predictor. Older parents whose children migrated out have a greater probability of receiving increased financial support and, comparing the coefficients by gender, older fathers whose children migrated out in the survey intervals are more likely to receive increased financial support (having migrated sons OR=1.434; having migrated daughters OR=1.918) than older mothers in the same situation (having migrated sons OR=1.421; having migrated daughters OR=1.604), especially those having migrated daughters. This supports hypothesis 1 with regard to financial support. Older mothers who provide increased grandchild-care have a greater probability of receiving increased financial support (OR=1.832), but there is no significant effect for older fathers, which supports hypothesis 2. Older mothers who continued to live with grandchildren (without children) have a greater probability of receiving increased financial support than other older mothers (OR=3.191), but there is no significant effect for older fathers, which supports hypothesis 3. In addition, older mothers who continued to live with children have a greater probability of receiving

increased financial support (OR=1.810), while older fathers who changed from living with grandchildren to living with children are least likely to receive increased financial support (OR=0.471), and those who changed from living alone to living with grandchildren are most likely to receive increased financial support (OR=2.914).

Estimates for instrumental support by parent's gender show that older fathers who changed their living arrangement to live with some child(ren) have a greater probability of receiving increased instrumental support (from living alone to living with children, OR=2.477; from living with grandchildren to living with children OR=2.815), while older mothers who changed from living alone to living with children are more likely to receive increased instrumental support (OR=3.942). Older parents who continued to live with children also have a greater probability of providing increased instrumental support (respectively, OR=2.143 and OR=2.393). Unexpectedly, for both older fathers and older mothers, out-migration of children has no significant effect on the change in instrumental support received, suggesting a pattern of demand-based exchange in intergenerational support between older people and their children. That is, the instrumental support provided to older parents is based on their needs (e.g., their functional status).

Table 1 also shows that out-migration of daughters enhances the probability that emotional support of older fathers is increased (OR=2.161), while older mothers whose daughters return are more likely to receive increased emotional support (OR=1.595). Older fathers who provide increased grandchild-care have a higher probability of receiving increased emotional support (OR=1.776).

### **Gender Division: By Children's Gender**

Estimates of the likelihood of increase in intergenerational support by children's gender are presented in Table 2. We see that increase in financial support by sons is not significantly influenced by their out-migration, while daughters who were away from the village during the survey intervals had a greater probability of providing increased financial support than those who remained in the village (OR=1.237). Daughters who received increased grandchild-care have a greater probability of providing an increase in financial support than do sons (OR=1.763), supporting Hypothesis 5. Daughters who continue to live with older parents are less likely to provide increased financial support (OR=0.397), while sons who changed from not living with parents to co-residence have a greater probability of giving increased financial support than sons who continued to live away from their parents (OR=1.657), which supports hypothesis 6 regarding financial support. Daughters who continued to do non-agricultural work have a greater probability of giving increased financial support (OR=1.497), while daughters who changed from non-agricultural to agricultural work are less likely to provide increased financial support (OR=0.736). In light of these results, we infer that although son preference in living arrangement and its indirect effects confirm the expectation that sons provide financial support to their parents, for the likelihood of increasing financial support in the future, sons are inferior to those daughters whose socio-economic status improved as a result of a change in their earning capacity. The difference in financial support between sons and daughters is reduced, supporting Hypothesis 4 regarding financial support.

Estimates of instrumental support provided by children reported in Table 2 show that out-migration from the village during the survey intervals reduced the probability that instrumental support by children would increase (respectively, OR=0.406 and OR=0.167). Daughters who are away from their village or who return during the survey intervals also are less likely to provide increased instrumental support (respectively, OR=0.208 and OR=0.470). Co-residence with parents enhanced the likelihood of providing increased instrumental support, for example by children who changed to live with their parents during the survey intervals (respectively, OR=11.241 and OR=9.485), which supports hypothesis 6 regarding instrumental support. Sons who changed from living with parents to living away from parents had a greater probability of providing increased instrumental support (OR=2.298). Daughters who switched from agricultural work to non-agricultural work had the lowest probability of providing increased instrumental support (OR=0.458). These results suggest that although sons have primary responsibility for support, their spouses (daughters-in-law) are placed a particular position in providing assistance. The change in time or space availability that accompanies out-migration or occupational transitions has little effect on change in instrumental support by sons, while daughters who are non-agricultural workers or who move from being in the village to away from the village are less likely to provide increased instrumental support. Thus hypothesis 4 regarding instrumental support is supported.

Results for emotional support by children's gender are also shown in Table 2 where we see that sons who are away from their village had a greater probability of increasing emotional support (OR=1.546). The daughter who received increased grandchild-care had a greater probability of increasing their emotional support (OR=2.019). The son who changed to live with their parents during the survey intervals were more likely to provide increased emotional support (OR=2.013), especially sons who lived continuously with their parent (OR=2.532). These suggest that co-residence strengthens the support of their older parents by children, especially by sons, and enhances older parents' well-being. The frequent transfers between older parents and co-resident sons increase emotional closeness. Hypothesis 6 regarding emotional support is therefore supported. In addition, the higher the level of children's education, the higher is the likelihood that they provide increased emotional support, and sons with higher education have a greater probability of increase than daughters. Thus migrant sons are more likely to increase emotional support of parents than migrant daughters, which may be a result of selection for out-migration. That is, children with higher education are more likely to leave their village for a job. Alternatively, people with higher education may more easily adopt modern notions (the education of sons is usually at a higher level than that of daughters in rural areas of China), or there is a greater expectation that sons should "bring honors to ancestors".

## Discussion

We have explored gender division of intergenerational transfers by older parents' and adult children's gender, respectively, taking account of out-migration of labor in Chinese rural areas. The results support the corporate group model. However, there were gender differences in intergenerational support of elderly parents and adult children that were apparently attributable to gender roles in families. The results for the parents' gender

showed that older mothers received more returns, which reciprocated the support they provided, while older fathers benefitted more from out-migration of adult children. With respect to children's gender, while sons took on more responsibility for family support, daughters reciprocated more to support received from their elderly parents. The role of daughters in regard to elderly family members had been enhanced by the out-migration of young adults. As a result gender differences between sons and daughters in intergenerational support have been reduced.

The patterns of intergenerational transfers between older parents and their children support the corporate group model; that is, the objective of intergenerational transfers is still to satisfy the needs of older parents, and due to their disadvantages in economic status and health, older mothers depend more on their children. The results are consistent with older mothers' status in the Chinese traditional patrilineal family system--"be faithful to husband, and be faithful to son". On the one hand, older mothers depend more on their spouses (married older mothers are more likely to receive increased intergenerational financial and emotional supports and less instrumental supports; see Table 1), which suggests that spouses not only provide economic security for older mothers, but also enhance financial transfers between generations, while this effect is not significant for older fathers. On the other hand, older mothers depend more on their sons. We found that adult sons provided more intergenerational support to their mothers, corresponding more to a higher-flow contract. However, with modernization and urbanization, as the traditional responsibilities rooted in notions of filial piety (Zhang 1999) and "community opinion" that regulate the role of children have weakened, older parents have had no choice but to provide more assistance and support to grandchildren in order to improve their children's abilities to provide for the elders in the future; thus children's adherence to the contract is ensured by increasing their debt. We found that older mothers who had less resources did not benefit more than older fathers from increasing income as result of out-migration of their children, but received more compensation for such assistance as caring for grandchildren.

We found that daughters who received support from their older parents (e.g., grandchild-care) returned more in the form of financial and emotional support, suggesting that intergenerational transfers between daughters and elderly parents were short-term, approximating reciprocal exchanges, while intergenerational transfers between sons and elderly parents were long-term "contracts". There was a gender difference in the regulation of family support, which also appeared in living arrangements and its consequences. Co-residence can be seen as a form of contract to distribute obligations among siblings, and to ensure family support for older parents. We found that co-residence enhanced intergenerational transfers between sons living with parents and these older parents, as a result of which co-resident sons were more likely to increase support to fulfill the contracts with older parents. However, daughters living with older parents had a greater probability of providing increased instrumental support than other daughters, and the likelihood that co-resident daughters provided increased financial support was lower than that of daughters living apart from parents. We infer that, as a complement to instrumental support, financial supports provided by daughters living away from parents would be partially transferred to those daughters living with parents to compensate for the latter's assistance to the older parents.

Our analysis of factors that increase the probability of intergenerational support has demonstrated the effects of out-migration of children on gender division of intergenerational support. We also found that although sons had an advantage in financial support, as the socio-economic status of migrant daughters was improved gender difference in financial support tended to be reduced. Change over time or proximity accompanying the transformation of children's occupations reduced the probability that daughters provide more instrumental support, which reduced the traditional gender division of instrumental support. Further, as out-migration improved the emotional closeness between sons and older parents, the gender gap of emotional support between generations is apparently weakened. In sum, although there remain gender differences in intergenerational transfers between generations, out-migration of children reduced these differences between sons and daughters. This heralds a change in the traditional gender division of family support in Chinese patrilineal rural societies.

There are several limitations of this study. First, our analysis is based on information provided by elderly respondents who are potentially influenced by subjective bias, for example, with respect to information about an individual child. Different responses might have been presented by the children. Second, the respondents are individuals; that is only one older person per household was interviewed and there were no instances in which both older father and older mother in the same household were present. Thus we could not compare couples in the same family with respect to gender patterns in families. Further, there was little information about daughters-in-law or sons-in-law that might aid in comparing the gender differences between the adult children couples. Third, due to the limited distribution of older people's education and occupations, we were unable to estimate the effects of factors related to gender division of labor on gender division of intergenerational transfer by older parents. In future studies, in addition to assessing the probability of intergenerational support, the net flows of intergenerational transfers should be analyzed from both the older parents' and adult children's perspectives.

Despite these limitations, this longitudinal study has provided valuable insights into the complex relationships between children's out-migration and changing intergenerational support patterns by gender. Our results may help policymakers get a better understanding of the role of out-migration in remodeling sources of support of the rural elderly, especially traditional gendered old-age support. Services and policies for the elderly should take into account the differential effects of the out-migration of sons and daughters on older parents, and that out-migration of rural females helps to enhance the status of women in the family and society. Perhaps this might lead to change in attitudes towards son preference, and weaken the gender gap in old-age support. The effect of the one-child policy on the well-being of older parents is another consideration for future analysis. With fewer adult children, the rural elderly may face greater difficulty in obtaining support in the context of urbanization, modernization and economic growth, and this may force improvements in old-age security.

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**Table 1**  
Random Effects Models Predicting Change in Intergenerational Supports by Parents' Gender (N=2045)

Independent Variables	Financial Support		Instrumental Support		Emotional Support	
	Father	Mother	Father	Mother	Father	Mother
<b>Level of Support at Time 1</b>	0.229***	0.224***	0.848***	0.915***	0.346***	0.322***
<b>Children Status</b>						
Out-migration of sons: (None) One or more	1.434*	1.421*	0.706 <sup>+</sup>	0.941	1.000	1.204
Out-migration of daughters: (None) One or more	1.918**	1.604*	1.009	0.866	2.161**	1.273
Return of sons: (None) One or more	1.074	1.220	0.672	0.970	0.808	1.218
Return of daughters: (None) One or more	1.274	0.910	1.128	0.879	1.607 <sup>+</sup>	1.595*
Grandchild-care provided at Time 1	1.012	1.000	1.042	1.033	1.048*	1.070**
Change of Grandchild-care provided: (No increase) Increase	1.042	1.832**	1.065	0.795	1.776**	1.459 <sup>+</sup>
<b>Living arrangement: Continuing to live apart from children</b>						
Not living with children → Living with children	0.992	0.992	2.477*	3.942***	0.877	1.092
Not living with children → Living with grandchildren	2.914*	1.767	0.552	0.985	1.174	0.740
Living with children → Not living with children	1.105	2.714 <sup>+</sup>	0.417	0.528	1.539	1.280
Continuing to live with children	0.800	1.810*	2.143*	2.393**	1.200	1.707 <sup>+</sup>
Living with children → Living with grandchildren	1.732	1.695	1.017	0.797	0.955	1.587
Living with grandchildren → Not living with children	0.744	1.557	0.597	0.813	0.699	0.883
Living with grandchildren → Living with children	0.471*	1.823 <sup>+</sup>	2.815*	1.422	1.094	1.145
Continuing to live with grandchildren	1.208	3.191***	0.789	0.983	1.081	0.914
<b>Control variables</b>						
Age	1.057***	1.046***	0.987*	0.987**	1.086***	1.095***
Marital status: (Unmarried) Married	0.993	1.509*	0.689	0.552*	1.463	2.224***
Education: (Illiterate) Literate	1.034	1.015	0.917	0.817	1.218	1.167
Occupation: (Agricultural work) Non-agricultural work	0.956	1.356	1.155	1.211	1.226	1.171
Income at Time 1	0.920	0.967	0.702***	0.888	1.066	1.232**
Change of income: (No decrease) Decrease	1.252	1.217	1.533 <sup>+</sup>	1.203	1.456*	0.969

Independent Variables	Financial Support		Instrumental Support		Emotional Support	
	Father	Mother	Father	Mother	Father	Mother
Functional status at Time 1	0.910	0.985	1.088	1.131**	0.940	0.985
Change of functional status: ( <i>No decline</i> ) Decline	0.882	0.892	1.898**	2.417***	0.532**	0.410***
-2LL	553.324	672.261	357.661	605.824	479.168	574.742
N	924	1121	924	1121	924	1121

All static control variables are measured at Time 1.

N is the total number of observations.

\*\*\* p < 0.001;

\*\* p < 0.01;

\* p < 0.05;

+ p < 0.1

Table 2  
Random Effects Models Predicting Change in Intergenerational Supports by Children's Gender (8064)

Independent Variables	Financial Support		Instrumental Support		Emotional Support	
	Son	Daughter	Son	Daughter	Son	Daughter
<b>Level of Support at Time 1</b>	0.476***	0.293***	0.842***	0.764***	0.239***	0.104***
<b>Child-level variables</b>						
Out-migration: <i>In village</i> → <i>In village</i>						
In village → Out of village	1.190	1.025	0.695	0.208***	1.203	0.779
Out of village → Out of village	1.053	1.237*	0.406***	0.167***	1.546*	0.860
Out of village → In village	0.827	1.124	0.878	0.470*	1.055	0.983
Grandchild-care received at Time 1	1.036 <sup>+</sup>	1.038	1.109**	1.116 <sup>+</sup>	1.002	1.112 <sup>+</sup>
Change of Grandchild-care received: ( <i>No increase</i> ) Increase	1.273 <sup>+</sup>	1.763**	1.257	0.932	1.331 <sup>+</sup>	2.019*
<b>Living arrangement: <i>Continuing to live apart from parents</i></b>						
Not living with parents → Living with parents	1.657**	1.419	11.24***	9.485***	2.013**	1.611
Continuing to live with parents	1.134	0.397*	13.82***	29.56***	2.532***	0.659
Living with parents → Not living with parents	0.784	0.757	2.298**	1.194	1.245	0.268
<b>Occupation: <i>Agricultural work</i> → <i>Agricultural work</i></b>						
Agricultural work → Non-agricultural work	1.107	1.028	0.742	0.458*	1.111	1.176
Non-agricultural work → Non-agricultural work	1.240 <sup>+</sup>	1.497***	0.737	0.531*	1.136	1.810**
Non-Agricultural work → agricultural work	1.132	0.736**	0.767	1.092	1.218	1.080
<b>Education: <i>Illiterate</i></b>						
Primary school	1.236	1.099	0.796	0.925	1.377 <sup>+</sup>	1.570*
Middle school education	1.388 <sup>+</sup>	0.950	0.607	2.415	1.887*	0.899
<b>Relative Education: <i>Lower than average level of all children in family</i></b>						
Not lower than average level of all children in family	0.936	1.140	1.163	1.040	0.897	0.847
<b>Age</b>						
Marital status: ( <i>Unmarried</i> ) Married	0.997	0.992	1.003	0.999	0.971**	0.978*
	1.631***	1.584**	1.652*	0.846	1.107	1.523

**Parent-Level variables**

Independent Variables	Financial Support		Instrumental Support		Emotional Support	
	Son	Daughter	Son	Daughter	Son	Daughter
Age	1.010 <sup>*</sup>	1.029 <sup>***</sup>	0.957 <sup>***</sup>	0.968 <sup>**</sup>	1.131 <sup>***</sup>	1.231 <sup>***</sup>
Gender: (Male) Female	1.178	1.020	1.755 <sup>**</sup>	1.515 <sup>+</sup>	1.671 <sup>**</sup>	2.197 <sup>**</sup>
Marital status: (Unmarried) Married	0.828 <sup>*</sup>	1.121	0.285 <sup>***</sup>	0.612 <sup>*</sup>	1.932 <sup>***</sup>	3.774 <sup>***</sup>
Education: (Illiterate) Literate	1.048	0.967	0.914	0.926	1.756 <sup>**</sup>	1.29
Occupation (Agricultural work) Non-agricultural work	1.194	0.962	1.282	1.908 <sup>+</sup>	0.947	1.193
Functional status at Time 1	1.023	0.984	1.161 <sup>***</sup>	1.238 <sup>***</sup>	0.997	0.777 <sup>***</sup>
Change of functional status: (No decline) Decline	0.985	0.728 <sup>***</sup>	2.546 <sup>***</sup>	2.917 <sup>***</sup>	0.534 <sup>***</sup>	0.435 <sup>***</sup>
-2LL	2751.958	2395.256	1176.825	830.074	1963.693	1454.462
N	4263	3801	4263	3801	4263	3801

All static variables are measured at Time 1.

N is the total number of observations.

\*\*\* p < 0.001;

\*\* p < 0.01;

\* p < 0.05;

<sup>+</sup> p < 0.1