Isolated or Compensated: The Impact of Temporary Migration of Adult Children on the Wellbeing of the Elderly in Rural China

MA Zhongdong^{*,**} and ZHOU Guowei^{*}

^{*} Division of Social Science, Hong Kong University of Science and Technology; Clear Water Bay, Kowloon, Hong Kong.

^{**} Center for Demography and Sustainable Development, Hong Kong University of Science and Technology; Clear Water Bay, Kowloon, Hong Kong.

E-mail: sojohnma@ust.hk, soazgw@ust.hk

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Abstract In developing countries, the impact of migration on elderly care is often perceived to be negative, as young adults who migrate for labor or other reasons leave their elderly parents behind in backward villages. We argue that such a loss-of-care effect can be compensated by the income transferred from the migrant children to their elderly parents. Based on the 2004 General Social Survey in China (CGSS04), we studied both the effect of migration on income transfer to the elderly and the impact of migration on the overall wellbeing of the elderly in rural areas. Regression results show a strong enhancing effect of interprovincial migration on the income transfer to the elderly, increasing both the odds of a significant transfer by 67% and the overall amount by nearly 30%. The elderly in households with interprovincial migrant children were found more likely to be satisfied economically than those in households without any migrant children. The difference between the overall satisfaction of the two household types was found to be very little, however, indicating that the negative and positive effects of temporary migration were more or less balanced. The policy implication is that the overall wellbeing of the elderly in backward regions, especially in migration-sending areas, can be greatly improved if elderly care is community-based.

Key words temporary migration, elderly support, intergenerational income transfer, China.

Introduction

Literature in gerontology often predicts that industrialization and modernization break down the functions of the traditional family, weaken ties to the older generation, and reduce care and support for the elderly reduce during industrialization and modernization (Goode 1970; Cowgill 1986). In developing countries, migration of young adults in response to growing income and employment opportunities leads to widened physical distance and weakened emotional contact between migrants and their elderly parents, which in turn causes serious reduction of daily care for the older generation in spite of remittances they receive (Hoyert 1991). The concern about such negative impacts of industrialization and urbanization on elderly wellbeing has been highlighted in the 'Plan of Action of the 2nd UN World Assembly on Aging', "The ageing population is marked in rural areas, owing to the exodus of young adults. Older persons may be left behind without traditional family support and even without adequate financial resources" (United Nations 2002).

Empirical evidence from East to South-east Asia, however, does not fully support the above hypothesis. Continuing support for parents of migrant children were found in a study of South Korea, a newly industrialized economy, where a majority of elderly parents are still co-residing with, and maintaining close financial and material exchanges with one or more of their migrant children (Lee 2000). The process of 'modernization' or development, of which urbanization is a typical component, might undermine the traditional extended family organization in certain ways. However, evidence in many developing areas especially in Asia suggests that generational interaction is an adapted response to the changing environments and that the dispersion of family members to a large extent promotes a modified extended family system to sustain familial function as a source of old age support (Litwak and Kulis 1987; Smith 1998; Mason and Tapinos 2000). With the advances of transportation and communication technology, distant migrants and their elderly parents can maintain close contact, and fulfill many responsibilities to each other that previously required geographical proximity (Mason

1992; Knodel and Saengtienchai 2005).

In many developing countries including China, the family remains the main source of support for the elderly in the rural areas, given that the social support system for the elderly lags behind other countries. In rural China, apart from self-sustainment by farming, labor or other sources, slightly more than half of the elderly rely economically on their spouses and adult children (Du and Wu 2006). Currently, China's rapid economic growth and large scale labor migration have drawn worldwide attention, and meanwhile, it has become a serious challenge to support and care for the elderly as its rapid urbanization since the mid-1980s is accompanied by a rapidly aging population. Over one hundred million migrants have gone to urban cities for labor reasons. A vast majority of them, however, are young adults who left their family behind to avoid the high risks and costs of family migration. Family settlement is especially difficult in China because of its household registration system (*hukou*) that restricts access to permanent jobs, public schooling, and public health services and facilities for migrants without an urban resident *hukou* status. In response to the opportunities from rapid industrialization in the coastal regions, inter-county migration without a change in *hukou* status grew from a few million in the mid-1980s to nearly eighty million in 2000, with the vast majority of them being young adults from rural areas (Liang and Ma 2004). As the out-migration rate from a county increases in major migration sending regions, it is found that the proportion of rural labor force in a county declines, whereas the financial share given to the elderly increases up to more than 10% (Ma et al. 2004). Given the lack of economic opportunities in their hometown, adult children in rural China are destined for the coastal regions to seek higher income returns. More recently, attention has been drawn to the living arrangement and socio-economic wellbeing of parents left behind by their migrant children. Out-migration of young adult member(s) from rural households has significantly influenced living arrangements of the elderly by increasing the likelihood of living with the daughter-in-law and/or grandchildren alone, and at the same time increasing elderly parents' responsibility to look after themselves as well as their unmarried children and/or grandchildren (Zhang and Li 2004a, 2004b). It is found that while adult migrants may help their elderly parents financially, the emotional ties between generations are weakened, and the elderly parents face more physical burdens (Du et al. 2004). In major migration sending regions, labor income/remittances accounted for about one-quarter of the total

rural household income (Ma et al. 2004), with the bulk of them being used for housing, weddings, children's education, investment, etc. It is unclear, however, whether remittances increase income transfer to the elderly and hence economic satisfaction of the elderly.

In this paper, based on the 2004 General Social Survey in China (CGSS04), we studied both the effect of migration on income transfer to the elderly and the impact of migration on the overall wellbeing of the elderly. The structure of this paper is as follows. In the next section, we introduce a new framework that integrates social, economic and geographical perspectives, and propose a new thesis that links the social costs with the economic benefits, from which a new set of hypotheses is generated. In Section 3, we introduce data from the 2004 General Social Survey in China, present some preliminary results, and specify statistical models for testing the new hypotheses. In multivariate frameworks, we study the effects of migration of adult children on income transfer to the elderly, before proceeding to evaluate the impact on the wellbeing of the elderly from different perspectives in Section 4, and summarizing our findings and discussing them in the last section of this paper.

An Integrated Framework and Compensation Hypotheses

Literature suggests that migration has both positive and negative effects on elderly care and support. The theory of 'isolation' from modernization proposes that the elderly are typically left behind, or isolated, since they are not involved in the process of their adult children's migration. The distance accompanying migration leads to a weakening of intergenerational ties and reduces intensity of care and support between elderly parents and their migrant children (Mason 1992). From this perspective, the loss of care is implied and will be greater in the case of longer-distance migration.

A growing body of literature takes a more positive stance towards the impact of migration on the source community, taking migration as a family decision made to better manage risks. In developing countries where risks of agriculture production are high and capital and insurance markets are incomplete, sending an adult child to the urban sector can be a familial strategy of spreading risks by diversifying income sources between rural and urban sectors (Stark and Lucas 1988; Stark and Bloom 1985; Massey et al. 1993). From this perspective, an implicit contract is made between the migrant children and the family members who are left behind, which

provides initial support for migration and migrant remittances, and in turn serves as a means of smoothing family consumption and financing the change in mode of production. However, this theory often ignores, the social costs incurred during migration, including those associated with temporary separation of spousal residence and the loss of care for the elderly parents.

To evaluate the overall impact of migration on the socioeconomic wellbeing of the elderly, we integrate social, geographical and economic perspectives to have a comprehensive view of the social costs, distance-decay effects, and economic benefits. In developing countries, sending one or a few members to the urban sector is a family decision to spread the risks and to enhance the wellbeing of or the overall utility of the family, which can be expressed as a function of various social, economic and geographical factors. Within the families across generations, the total utility can be separated into different parties, including the migrant, spouse, children and elderly parents. From a relatively long term perspective, the decision to migrate has to be made to at least maintain the utility of each party, allowing for a trade-off among different factors so that a loss of wellbeing from one aspect can be compensated by the gain from other aspects.

Specific to the elderly parents of an adult migrant, the modernization theory hypothesizes that their distance apart leads to weakening ties, loss of care and support, and hence the decline in the wellbeing of the elderly parents who are left behind. In sharp contrast, a new set of hypotheses can be generated along with our compensation thesis by linking the geographic distance and social costs with the economic benefits. First, labor migration is likely to enhance both the propensity and amount of income transfer to the elderly to compensate for the loss-of-care during migration. Second, such an income-enhancing effect is likely to be greater for longer-distance and/or longer-duration migration to compensate for the greater loss of care. Thus, the economic impact of long-distance migration on the wellbeing of the elderly is likely to be positive. Third, to compensate for the loss of care, the migrant is likely to increase the transfer to his/her elderly parents to the extent that their overall wellbeing or life satisfaction will not be severely affected.

Data, Preliminary Findings and Methodology

The data used for this research required particular designs that combined information on elderly wellbeing and migration information within the household. In

2004, we conducted the Chinese General Social Survey (CGSS) to study the changing relationship between social structure and quality of life in urban and rural China, incorporating general questions on socio-demographics of household members and economic conditions of the household. CGSS is intended to be a global resource for the international scholarly community on China studies and the survey is conducted annually or biennially. The 2004 CGSS intentionally included two sub-surveys on migration and the elderly based on different demographic fields to collect information on population change and its socio-economic consequences, with a structured questionnaire survey of around 10,000 households. The field work—which involved face-to-face interviews that were conducted in collaboration with the National Statistical Bureau of China—received a high response rate of 92% (for details of the data, please contact the authors).

This data set was able to meet the demands of our empirical testing in two important respects. First, the whole questionnaire structure was purposefully designed to include comprehensive household and individual information, including social and economic background, variety of value system, elderly support and health, and migrants within households. Second, this data was collected in collaboration with the National Statistical Bureau of China, which ensured a nation-wide and national representative sample. Third, although our main interest was to see what happened to the rural elderly, this data allowed us to include urban counterparts, and make comparisons between the urban and rural elderly.

In our empirical analysis, we confine our sample to a certain age group, 60 and above, containing both the urban and rural elderly, with a final study sample of 1792 (Table 1). Basically, we have a representative sample of old-age Chinese that is comparable, in terms of age, education and marriage distribution, to recently published statistics by the mini-census conducted in 2005 and the China Research Center on Aging (CRCA 2007) in terms of age, education and marriage distribution. In our sample, the age distribution of the elderly in their sixties, seventies and eighties or above was 61.5%, 31.9% and 6.6%, respectively, which is roughly consistent with that in the CRCA report and China's mini-census in 2005. Around 60% of our sample came from rural areas, which is about the same as that in the CRCA report. In terms of education, a majority of them had either no education (30.6%) or low education in primary school (40.3%). Only 16.3% and 12.7% of them were graduates from middle school and high school or above, respectively. Currently married persons accounted for 70% and the rest were

Table 1. The Characteristics of the Elderly in CGSS 2004, China (N=1792)

Sex		Age		Migration status	
Female	40.1%	60–69	61.5%	No Mig	85.9%
Male	59.9%	70–79	31.9%	With Mig	14.1%
		80+	6.6%		
Education		Area		Migration status (duration)	
Illiterate	30.6%	East	30.9%	No Mig	85.9%
Elementary	40.3%	Central	44.1%	Short-term Mig	4.9%
Junior Midd	16.3%	West	25.0%	Longer-term Mig	9.2%
Senior Midd+	12.7%				
Marital status		Hukou		Migration status (distance)	
Married	70.4%	Non-agriculture	40.4%	No Mig	85.9%
Widowed or single	29.6%	Agriculture	59.6%	Intra-prov Mig	6.0%
				Inter-prov Mig	8.1%

Source: 2004 Chinese General Social Survey.

widowed or divorced. Our elderly sample is slightly in favor of males (60%) for their relatively high level of education and likelihood of being head of the household.

The main variable in this study is financial transfer from migrant children to their elderly parents. In the questionnaire, we asked the elderly respondents, “How much RMB (unit of Chinese currency) did you receive from your children in the past year (from 0 to 30,000)?” Keeping the possibility of non-cash transfers (e.g., gifts or necessities) in mind as well, we also asked the elderly respondents about their economic sufficiency with the question, “What is your economic condition: rich, well-to-do, ordinary, tight or insufficient?” For convenience of this study, we shall name the first three categories as the “sufficient group” and the last two as the “insufficient group”.

The records of the elderly can be directly linked to their household records, which contain information on whether there are migrant children in the household; if yes, for how long (less or more than six months) and how far (intra- or inter-province). Based on such information, we first divided our sample into two categories, the elderly with or without migrant children in the household. To test our hypotheses about the effect of the distance and duration of migration, we further classified migration by distance (intra-provincial or inter-provincial) and by duration (half to one year or more than one year). About 14% of the elderly had a child who migrated, with slightly less than two-thirds of the migrant population being away for longer than six months and a slight majority of them being inter-provincial (57.3%).

To measure the magnitude of income transfer from migrant children to their elderly parents, we used the

median rather than the mean, because its distribution is skewed. Figure 2 shows that the median income transfer for migrant families is considerably higher than that for non-migrant families. This is true for both the rural and urban areas (800 vs. 600 RMB in the rural areas and 1,200 vs. 1,000 RMB in the urban areas). By the same amount of difference at 200 RMB, the difference in percentage was considerably higher for the rural areas (one-third) than the urban areas (one fifth).

In our research, the results suggest a clear “compensation” effect in the income transfer between migrant children and their elderly parents, especially in rural areas. In the rural areas, the median income transfer is higher for households with inter-provincial migration (900 RMB) than intra-provincial migration (700 RMB), which in turn is higher than non-migration households (600 RMB). Similar patterns were found with respect to the duration of migration. The median income transfer was considerably higher for longer-duration migration (800 RMB) than that of a shorter one (625 RMB), but the difference between the latter and that of non-migration households (600 RMB) was negligible.

In contrast, the pattern with the urban elderly is rather irregular. It is understandable since in China’s urban setting, most of the elderly depend on pension rather than their children for a living, and migration of their adult children tends to be motivated by the free choice of the younger generation, rather than by a familial risk-averse strategy. That is why, for the urban elderly, the remittance “transferring” effect is not that significant and the type of migration does not affect the final magnitude of money flow.

The income transfer to the elderly is a complicated

Figure 1. Median Income Transferred from Migrant Children to their Elderly Parents (RMB) by Hukou, Status of Migration and Migration Type

Source: 2004 Chinese General Social Survey.

matter, affected by the “willingness” of children, the “needs” of the elderly, and the “earning power” of the children. To separate the effects, we use two models. The first one is a Logit model to explain the propensity/probability to receive an income transfer (0 = not receive, 1 = receive) based on the number of temporary migrations, the duration of migration, the migration distance from the household and personal factors of the elderly, including age, sex, level of education, marital

status, number of surviving children (adults mostly), family and social ties, health condition, household size and region. We can have different specifications related to different definitions of transfer. In the context of China, where the transfer to elderly parents (Y_i) is often in hundreds of RMB, one model specification is to use 100 RMB to define a minimum transfer (Logit1), whereas the other one is to use 300 RMB or half of the median as the minimum to define a significant transfer (Logit2). The two model specifications are as follows:

$$\text{Logit 1: } \text{LOGIT}(P_i) = \log \frac{P_i}{1 - P_i} \quad (1)$$

$$= \beta_0 + \beta_1 X_{li} + \dots + \beta_k X_{ki}; \quad (1 \text{ if } Y_i \geq 100 \text{ RMB})$$

$$\text{Logit 2: } \text{LOGIT}(P_i) = \log \frac{P_i}{1 - P_i} \quad (2)$$

$$= \beta_0 + \beta_1 X_{li} + \dots + \beta_k X_{ki}; \quad (1 \text{ if } Y_i \geq 300 \text{ RMB})$$

In the Logit model results, we measure group difference by the odds ratio (r), which is the ratio of the propensity of the study group to that of the reference group (ref). The difference between the ratio and 1 multiplied by 100 ($(1 - r) \times 100$) can be expressed as the percentage difference in propensity between the study and reference group. The model is estimated by the Maximum Likelihood Method. The Rho-square, which is the difference between 1 and the ratio of the log likelihood of the estimation model to that of the null model, is used to measure the goodness of fit and often assumed a low value of less than 0.2.

The second model we used is an ordinary regression (OLS) model to explain the amount of transfer (Y_i) by the same set of explanatory variables included in the Logit model. We use two sets of model specification to explain (a) the variation of the amount received over 100 RMB (OLS2), (b) the variation of the overall amount with the inclusion of zero amount of transfer (OLS1). We use the logarithm of the amount as the independent variable, given the large range of income transfer and possible non-linearity relationship of the transfer with dependent variables.

$$\text{OLS1: } \log(Y_i) = \beta_0 + \beta_1 X_{li} + \dots + \beta_k X_{ki} + \varepsilon_i, \quad Y_i \geq 0 \quad (3)$$

$$\text{OLS2: } \log(Y_i) = \beta_0 + \beta_1 X_{li} + \dots + \beta_k X_{ki} + \varepsilon_i, \quad Y_i \geq 100 \text{ RMB} \quad (4)$$

For the estimation, we use the Least Square method for the estimation of coefficients. The anti-log of a coefficient is the “change factor” between the current group and the reference group (e.g. a value of 1.2 means that a change from the reference group to the current group is expected to raise the transfer by 20%). From the sign of

Figure 2. Three Economic Regions by GDP per Capita in China

Note: Ningxia and Xizang are not sampled in the survey because of their small population size.

Source: China Statistic Yearbook of 2005 by National Bureau of Statistics.

the coefficient, we can tell whether the effect is positive or negative. We then use T-ratio to show the significance of the estimated coefficient. R-square is used as the indicator of goodness of fit, which is the percentage of variation explained by the independent variables.

It would be better to also include the number of migrant children as a control variable in the model. Unfortunately, such information was not included in our dataset. For this reason, we do not expect a high goodness of fit for both Logit and OLS models. Given the different migration and elderly support system in the urban areas, we restrict our modeling analysis to the rural elderly living in a family household with a local household registration and at least a surviving child, with a sample size of 638 after deleting incomplete cases with missing variables.

For other control variables, we tried to make a comparison between different regions, since China enjoys great geographic diversity. In accordance with usual practice, and in consideration of the migration dynamics, we categorized the provinces into three different regions: East (including Beijing, Tianjin, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong), Central (including Jilin, Heilongjiang, Hebei, Henan,

Shanxi, Anhui, Jiangxi, Hubei, Hunan, Hainan and Guangxi), and West (including Chongqing, Sichuan, Guizhou, Yunnan, Shanxi, Qinghai, Gansu, Xinjiang and Neimeng). Ningxia and Xizang, two provinces in the west, are not included in the survey. The eastern areas are much more developed than the central and western areas with respect to their GDP per capita (Figure 2). The regional distribution of the elderly is 30.9%, 44.1%, and 25.0% in the East, Central and West, respectively.

Main Findings

Findings from statistical models on the odds and amount of income transfer

The findings of the two models are presented in Table 2, with those from the OLS model on the left and those from the Logit model on the right. Furthermore, we put the coefficients and odds-ratio separately in Table 2a and Table 2b. The goodness of fit was not high for OLS1 and OLS2, which is understandable given the missing information about the earning power and other information of the children. The goodness of fit for Logit1 (0.1582) was acceptable, indicating that the odds of

Table 2a. Regression on Cash Transfer (Y_i) to Elderly Parents with Local Rural Hukou, China, 2004

Regression model			OLS 1	OLS 2	Logit 1	Logit 2
Dependent variable: Y_i RMB			$\text{Log}(Y_i)$	$\text{Log}(Y_i) \quad Y_i \geq 100$	1: $Y_i \geq 100$, 0: else	1: $Y_i \geq 300$, 0: else
Sample size (≥ 1 child)			638	528	638	638
			Coeff.	Coeff.	Coeff.	Coeff.
Constant			4.62955***	6.08606***	−0.0549	−1.3048***
Temp. mig from the household	Intraprovince (0.5–1 year)		0.1279	0.02699	0.6570	0.2312
	Intraprovince (>1 year)		0.0497	−0.03081	0.2812	−0.1633
	Interprovince (0.5–1 year)		−0.0580	−0.05773	0.0158	0.1478
	Interprovince (>1 year)		0.2443**	0.1613**	0.2690	0.5155**
Personal Factors	Currently married		−0.2068	−0.0956	−0.3259	0.0728
	Male ($r = \text{female}$)		−0.4150***	−0.2002**	−0.5381**	−0.6264***
	Age ($r = 60\text{--}64$)	65 to 69	0.4579***	0.2343**	0.5523**	0.7256***
		70 to 74	0.4657**	−0.0150	1.2090***	0.7630***
		75 to 79	0.5201**	−0.1598	1.9868***	1.0335***
		80+	0.5588**	−0.2760*	2.1942***	0.9892***
	Education ($r = \text{illiterate}$)	Primary school	0.1388	0.2546***	−0.1285	0.5394***
		Middle school	0.3745**	0.6250***	−0.1474	0.7115**
		High school+	0.0171	0.3148	−0.5734	0.1225
	No. of children ($r = \text{one}$)	Two	0.5556	−0.0764	1.1864**	0.7495*
		Three+	1.0020***	0.2931	1.5560***	1.3785***
Family and social ties	Close ties		0.2545**	0.2851***	0.0159	0.2244
	Caring grandchild		0.0726	−0.2100**	0.5562**	0.2339
Poor health			−2.0065***	−1.2703***	−2.7054***	−3.3173***
Household size	One person		0.3399	0.0405	1.0836*	0.7109**
	Two persons		0.2523*	0.0200	0.5134**	−0.0888
Region ($r = \text{Central}$)	East		0.2380	0.3685***	−0.2133	0.5922***
	West		0.0921	−0.0404	0.1841	0.2741
Goodness of fit			Adj $R^2 = 0.0851$	Adj $R^2 = 0.1464$	$\rho^2 = 0.1582$	$\rho^2 = 0.1095$

Significance level: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Source: 2004 Chinese General Social Survey.

receiving is more explainable than the amount received.

From the results of the two models, we found a strong enhancing effect of interprovincial migration on both the propensity and amount of income transfer to the elderly. The three coefficients of the variable of number of household members for interprovincial migration (0.5155 in Logit2, 0.1613 in OLS2 and 0.2443 in OLS1, respectively) were positive and significant at the 5% level. The odds-ratios (1.674 in Logit 2) and the change factors (1.175 in OLS2 and 1.277 in OLS1) indicate that having an interprovincial migration increased (1) the odds of receiving a significant transfer (≥ 300 RMB) by 67%, (2) the amount received by 18%, and (3) the overall amount of transfer by 28%. For the variable of number of interprovincial migration with a short duration, the coefficients were all small and insignificant, reflecting the

weak earning and saving power of migrants in the initial period of migration. The coefficients and significance of the two variables of intraprovincial migration were insignificant, indicating that having a household member who migrated within the same province did not significantly increase the chance and amount of income transfer to the elderly. The results provide support for our compensation hypothesis that income transfer to the elderly is greater for migrations over a longer duration and a longer distance, in order to compensate for the greater loss of care for their elderly parents whom they leave behind.

The number of surviving children, mostly adult children, in the migrant family is another important factor affecting both the propensity and amount of the income transfer to the elderly. Here, the elderly in a

Table 2b. Regression on Cash Transfer (Y_i) to Elderly Parents with Local Rural Hukou, China, 2004

Regression model			OLS 1	OLS 2	Logit 1	Logit 2
Dependent variable (Y_i RMB)			$\text{Log}(Y_i)$	$\text{Log}(Y_i)$, $Y_i \geq 100$	1: $Y_i \geq 100$, 0: else	1: $Y_i \geq 300$, 0: else
Sample size (≥ 1 child)			638	528	638	638
			Change factor	Change factor	Odds ratio	Odds ratio
Constant			102.468***	439.686***	0.947	0.271***
Temp. mig from the household	Intraprovince (0.5–1 year)		1.136	1.027	1.929	1.260
	Intraprovince (>1 year)		1.051	0.970	1.325	0.849
	Interprovince (0.5–1 year)		0.944	0.944	1.016	1.159
	Interprovince (>1 year)		1.277**	1.175**	1.309	1.674**
Personal factors	Currently married		0.813	0.909	0.722	1.076
	Male (r =Female)		0.660***	0.819**	0.584**	0.535***
	Age (r =60–64)	65 to 69	1.581***	1.264**	1.737**	2.066***
		70 to 74	1.593**	0.985	3.350***	2.145***
		75 to 79	1.682**	0.852	7.292***	2.811***
		80+	1.749**	0.759*	8.973***	2.689***
	Education (r =illiterate)	Primary school	1.149	1.290***	0.879	1.715***
		Middle school	1.454**	1.868***	0.863	2.037**
		High school+	1.017	1.370	0.564	1.130
	No. of children (r =one)	Two	1.743	0.926	3.275**	2.116*
		Three+	2.724***	1.341	4.740***	3.969***
Family and social ties	Close ties		1.290**	1.330***	1.016	1.252
	Caring grandchild		1.075	0.811**	1.744**	1.264
Poor health			0.134***	0.281***	0.067***	0.036***
Household size	One person		1.405	1.041	2.955*	2.036**
	Two persons		1.287*	1.020	1.671**	0.915
Region (r =Central)	East		1.269	1.446***	0.808	1.808***
	West		1.097	0.960	1.202	1.315
Goodness of fit			Adj $R^2 = 0.0851$	Adj $R^2 = 0.1464$	$\rho^2 = 0.1582$	$\rho^2 = 0.1095$

Significance level: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Source: 2004 Chinese General Social Survey.

household with one child is the reference group. The odds-ratio of two dummy variables in Logit2 (2.12 and 3.97 for two and multiple children, respectively) indicate that the chance of receiving a significant cash transfer doubled with two children and quadrupled with multiple children. The coefficients of the two variables in OLS2 were relatively small and insignificant, indicating that the amount of income transfer received was not significantly affected by the number of children. The difference in the overall amount of income transfer in OLS1, however, was higher for those with two children or multiple children than for those with a single child. The effect of number of children, however, was only significant for those with multiple children. These results are consistent with the literature that elderly parents can benefit financially from having more children, just like the old Chinese saying of

“more children, more happiness” (e.g. Guo and Zhang 1996). From the results, we also expect rising difficulties of family support for the elderly in the future given the prevalence of one or two children in a family under the one-child policy.

The transfer is not just related to the number of children in the migrant family, but also affected by the family and social ties. From the change factor shown in OLS1 and OLS2, we found that maintaining close ties with relatives (and friends) significantly increased the amount received by one-third and the overall amount by almost 30%, whereas its effect on the propensity to transfer was not significant. Caring for a grandchild had a strong positive effect on the odds of receiving transfer, and a weak but negative one on the amount of income received. The overall effect of the child-caring effect is

positive but insignificant.

We also found a negative effect of household size on the propensity to transfer income and the overall amount. The elderly who lived alone were three times more likely to receive a transfer and twice as likely to receive a significant one than those who lived in a household with multiple persons. Those who lived in a two-person household were also 67% more likely to receive a transfer. The amount received, however, was not affected by the household size.

As for the personal factors, the transfer in general favored weak or vulnerable groups including female, older and currently unmarried ones. All the coefficients related to the dummy variable of elderly males were negative and significant. The odds ratios indicates that the male elderly were nearly 50% less likely to receive a significant amount, nearly 20% less in the amount received, and one-third less in the overall amount than their female counterparts. The effect of marital status was insignificant on the likelihood and the amount of income transfer received, partly due to the small number of divorced or widowed elderly studied and its correlation with the age variables. Despite its insignificance, the odds ratio and change factor of currently married (0.72 in Logit1 and 0.813 in OLS1) indicates that the widowed or divorced elderly were considerably more likely to receive and hence receive more in terms of the overall amount than their married counterparts. The only surprise here was the smallest income transfer to those with the poorest health who are normally expected to receive much more than healthy ones. The coefficients of the dummy variable of poor health were all negative, large and highly significant, indicating that both the propensity and amount of income transfer were much less for those with the poorest health. Clearly, the government needs to pay much more attention to those elderly with the poorest health.

Turning to the age effect, we found that the older the elderly parent, the more likely (s)he will receive an income transfer. With the youngest age group (60 to 64) as the reference group, we found that the odds of receiving an income transfer in Logit 1 increased dramatically with age from 1.7 (for the 65–69 age group) to 9 for the oldest age group (80+), whereas the odds of receiving a significant transfer in Logit 2 was quite stable (between 2 and 2.8) after age 65. The coefficients in OLS2 show that the amount received was actually less for those older than 65, despite the fact that this age effect was weak and insignificant. The coefficients of age variables in OLS1 show a positive and significant effect of age on the overall amount of income transfer. The effect, however, was not

so considerable after age 65.

With respect to level of education, it had a significant effect on the propensity to receive significant transfer at the primary and middle school level, but much weaker and insignificant at the high school level. The odds ratios in Logit 2 show that the graduates from primary and middle school were 72% and 104% more likely to receive a significant transfer than those with no education, respectively. Graduates from the middle school received the highest in terms of the overall amount, which was significantly higher than that received by other groups with lower or higher education. The bell-shaped effect of education could be a result of the increased bargaining power and economic independence that comes with a higher level of education.

With respect to the region of the household, we found the propensity for migrant children from the more developed regions (the East) were less likely to transfer but much more likely to transfer in significant amounts. This is understandable given the much higher income level, and hence living expenses, in the more developed regions. The differences between the households in the Central and Western regions were insignificant.

Findings about economic sufficiency and life satisfaction

In previous empirical tests, we largely focused on the economic aspects of intergeneration transfer without paying attention to other social and psychological aspects of elderly life. To further confirm our compensation hypothesis, we look at how the migration of an adult child in the household affects the self-perceived economic satisfaction and the life satisfaction of the elderly to see if financial benefits to the elderly can compensate both the physical and psychological losses associated with the migration of their adult children, namely the increased farming and household responsibilities, loss of care and loneliness. The question remains as to whether or not elderly life is improved by their children's migration.

Three indicators are used to investigate the social and psychological impacts of migration: (1) the elderly's feelings of economic sufficiency; (2) household work and duties; and (3) score of life quality or life satisfaction. The focus of our testing remains on the difference between migrant and non-migrant families.

Does migration help to enhance the economic wellbeing of elderly parents? Shown in Figure 3 are percentages of those who felt satisfied with their economic conditions. The χ^2 test indicates that the results are comparable. In rural areas, the impact of migration

Figure 3. Self-perceived Economic Sufficiency of Elderly by Hukou and Migration Type (%)

Source: 2004 Chinese General Social Survey.

is considerable on improving the elderly economic wellbeing and their economic satisfaction. Nearly 70% of the elderly in migrant households expressed their economic satisfaction, whereas the corresponding share of those in non-migrant households was only slightly over half (54.2%). Among the elderly in migrant households, the proportion of satisfied elderly was nearly 80% for longer-distance migrant households, which is 20% higher than the corresponding proportion for shorter-distance migrant households. These results again confirm our hypothesis that the improvement of economic wellbeing increases with the distance of migration.

Turning to other household aspects, does the migration of adult children increase the burden or duties on their elderly parents whom they leave behind (Table 3)? We found that in the rural areas, the proportion of the elderly who took responsibility of caring for their grandchildren was higher in migrant households (43.8% for short-

duration migrations and 41.2% for long-duration migrations) than in non-migrant households (33.9%). Among rural households, the burden of caring for their younger children and/or grandchildren was highest in households with interprovincial migration (54.2%). The patterns render partial support for the isolation theory to the extent that the loss of care or burden on the elderly increases over long-distance migration. This pattern is clear in the rural areas, but not so in the urban areas. We do not have information on emotional ties. There is evidence from previous studies that the elderly in migrant households tend to suffer more emotional stress than those in non-migrant households (Du et al. 2004).

Clearly, migration has both a positive and negative impact on different aspects of elderly livelihood. To assess the overall impact, we use life satisfaction as the measure of the overall wellbeing of the elderly. In the survey, we asked the elderly to rank their livelihood in one of three

Table 3. Distribution of Housework Burden and Life Satisfaction by Hukou and Migration Status (S: satisfied; O: ordinary; DS: unsatisfied)

	Life satisfaction (%)						Housework-burden (% of caring young (grand)children)	
	Rural			Urban			Rural	Urban
	S	O	DS	S	O	DS		
No mig.	45.7	39.2	15.1	46.4	39.7	13.9	33.9*	32.1
Short-term mig.	37.9	52.1	12.0	50.1	28.5	21.4	43.8*	21.8
Longer-term mig.	50.4	35.3	14.3	52.3	36.3	11.4	41.2*	29.4
No mig.	45.7	39.2	15.1	46.4	39.7	13.9	33.9***	32.1
Intra-prov. mig.	49.2	37.2	13.6	52.7	32.0	15.3	30.1***	25.6
Inter-prov. mig.	42.7	44.0	13.3	56.8	33.1	10.1	54.2***	40.1

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Source: 2004 Chinese General Social Survey.

categories: satisfied, ordinary, or dissatisfied. The results in Table 3 suggest that in rural areas, there is no significant difference in life satisfaction between migrant and non-migrant households. Both effects of the duration and distance of migration were not evident. The proportion of satisfied elderly was slightly lower in households with short-term or interprovincial migration (37.9% and 42.7%, respectively) and slightly higher for long-term or intraprovincial migration (50.4% and 49.2%, respectively) than those in non-migrant households (45.7%). Turning to the proportion of unsatisfied elderly, all types of migration, be it short/long in duration or intra/interprovincial, are one to three percentages below those in non-migrant households (15.1%). Interestingly, in the urban areas, long-term and/or long-distance migration had some positive impact on elderly livelihood—it increased the proportion of satisfied elderly and decreased the proportion of dissatisfied elderly. The above results provide strong support for our compensation hypothesis that the overall wellbeing of the elderly would not be severely affected by migration.

Taking both the loss of care effect and the enhanced effect of income transfer, we see a low impact of out-migration of adult children on the overall wellbeing of the elderly which is reflected by self-rated life satisfaction.

Discussion and Conclusion

Modernization theory predicts that rural to urban migration in response to urbanization and industrialization leads to the breakdown of traditional family functions and the weakening of ties between generations in developing countries. According to this theory, the longer the distance or duration of migration, the weaker the ties of migrant children to the elderly, and the greater the loss of elderly care and support, hence the greater decline in their wellbeing or satisfaction. However, interactions between generations seem to be an adapted response to the change in environment and dispersion of family members. Neither the emergence of the modified extended family system nor our empirical findings on temporary migration directly support the “isolation” theory. With the development of communications and transportation systems, there are many other ways of sustaining traditional family functions. Not only close contacts, but also financial exchanges are retained between migrants and the family members whom they leave behind. On the other hand, the new economics of labor migration holds an optimistic view of the impact of migration on the source community: it emphasizes

migration of a few family members as a familial strategy to spread risks across sectors and remittances—a means of maintaining smooth family consumption, and adapting to a new mode of production. While focusing more on the economic aspects, this theory neglects family costs, such as the loss of elderly care, emotional loneliness and increasing family responsibilities associated with the departure of the migrant.

Combining social, economic and geographical perspectives, we propose a new thesis for compensation within the migrant family of different parties or generations to at least maintain the utility level for each party and increase the total utility of the family. In this thesis, we hypothesize that for the elderly living in a household with a migrant child, the loss of elderly care or increase in familial burdens over time and distance will be compensated by enhanced income transfer to the elderly to the extent that the overall wellbeing or life satisfaction of the elderly would not be severely affected.

Using the most recent data from the 2004 General Social Survey in China, we first divided the elderly into two categories: those in migrant households with at least a member having moved out of their place of registration and those in non-migrant households. We further divide migrant households by duration of migration (less or longer than a year) and distance of it (intra- or interprovince). We then explain the propensity and amount of income transfer to the elderly in two multivariate frameworks, respectively.

We found a strong enhancing effect of interprovincial migration on income transfer to the elderly. By contrast, such an enhancing effect was weak and insignificant for short-distance migration within the same province. The elderly in households with an interprovincial migration were 67% more likely to receive a significant income transfer of over 300 RMB, and they received 28% more in the overall amount than their counterparts in non-migrant households. As for the impact of migration, long-distance migration increased the proportion of economic satisfaction from 60 to 80% and at the same time increased the proportion of the elderly who are consequently burdened by the responsibility of caring for their grandchildren from 34 to 54%. The distribution of life satisfaction or dissatisfaction, which is the measure of the wellbeing of the elderly, was not very different between migrant and non-migrant households, indicating that the negative and positive effects of long-distance migration are more or less balanced. These results render strong support for our compensation hypothesis.

We found that the propensity of income transfer

to the elderly was in favor of residents who are female, older, widowed or divorced, and caretakers of their grandchildren, while the amount of income transfer was in favor of elderly females, residents in more developed regions, and those who maintained close family and social ties. The transfer was positively related to the number of children in the migrant family. The elderly with two children had a better chance of receiving than those with only one child. The elderly with multiple children were the happiest in terms of both the highest propensity to receive and highest (overall) amount received. The education effect on the transfer was bell shaped, being positive at primary and middle school level, but much less so at high school level.

Our findings have important policy implications. First, rural-urban migration can be used as an important means for relieving the poverty of rural families, given its enhancing effect on income transfer from the migrant children to their elderly parents. Second, more difficulties in family support for the elderly arise with the decreasing number of adult children under the one-child policy. Therefore, the government should consider relaxing fertility control given that the current fertility levels have been reduced substantially below the replacement level. Third, the increasing burden on the elderly to care for their grandchildren, on top of the loss of elderly care, is alarming because both the health of the elderly and the education of young children can consequently deteriorate. Third, given considerably more economic gains, the insignificant change in the overall wellbeing or life satisfaction of the elderly indicates considerable loss and pain for the elderly during their children's migration. More attention and effort from the government are needed to establish or improve the current social support system for the elderly and young children who are left behind by their migrant children, including the setup of low-cost institutions in source communities of migration, day care centers for the elderly and boarding school for young children. In migration destinations, the judicial and legal system should protect labor migrants from over-exploitation, so that the elderly and young children who are left behind can also enjoy some benefits from the nation's economic growth. In short, efforts and policies should go towards minimizing both the social and psychological costs of migration, and at the same time maximizing the impact of increasing economic gains to the elderly in the source communities.

Due to the limitation of our dataset, we can only address the issue from the perspective of the elderly. In the future, we will also combine that with the perspective

of the younger generation on elderly care and support.

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References

- China Research Center on Aging (CRCA). 2007. Summary report of follow-up survey on elderly population in urban and rural China <http://hxtc.china.cn/policy/txt/2007-12/17/content_9393143_3.htm>.
- Cowgill, D. O. 1986. *Aging around the world*. Belmont: Wadsworth.
- Du, P., Ding, Z., Li Q., and Gui J. 2004. Impact on ageing parents of their children leaving home for work outside. *Population Research* 28(6): 44–52.
- Du, P. and Wu, C. 2006. Living support of the Chinese elderly (1994–2004): Status and change. *Population Research* 30(2): 20–24.
- Goode, W. 1970. *World revolution and family patterns*. New York: The Free Press.
- Guo, Z. and Zhang, K. 1996. Retesting the role of the number of children in family support for the elderly. *Population Research* 20(2): 7–15.
- Hoyert, D. L. 1991. Financial and household exchanges between generations. *Research on Aging* 13: 205–225.
- Knodel, J. and Saengtienchai, C. 2005. Social and economic implications of migration on the rural elderly in Thailand. *Population Studies Center Research Report*, 05-574.
- Lee, Y. J. 2000. Support between rural parents and migrant children in a rapidly industrializing society: South Korea. In *Sharing the wealth: Demographic change and economic transfers between generations*, ed. A. Mason and G. Tapinos, 282–305. Oxford: Oxford University Press.
- Liang, Z. and Ma, Z. 2004. China's floating population: New evidence from the 2000 census. *Population and Development Review* 30(3): 467–488.
- Litwak, E. and Kulis, S. 1987. Technology, proximity, and measures of kin support. *Journal of Marriage and the Family* 49(3): 649–661.
- Ma, Z., Zhang, W., Liang, Z., and Cui, H. 2004. Labour migration as a new determinant of income growth in rural China. *Population Research* 28(3): 2–10.

- Mason, A. and Tapinos, G. 2000. *Sharing the wealth: Demographic change and economic transfers between generations*. Oxford: Oxford University Press.
- Mason, K. O. 1992. Family change and support of the elderly in Asia: What do we know. *Asia-Pacific Population Journal* 7(3): 13–32.
- Massey, D., Arango, J., Hugo, G., Kouaci, A., Pellegrino, A., and Taylor, E. 1993. Theories of international migration: A review and appraisal. *Population and Development Review* 19(3): 431–466.
- Smith, G. C. 1998. Residential separation and patterns of interaction between elderly parents and their adult children. *Progress in Human Geography* 22(3): 368–384.
- Stark, O. and Bloom, D. E. 1985. The new economics of labor migration. *American Economic Review* 75(2): 173–178.
- Stark, O. and Lucas, R. E. B. 1988. Migration, remittances, and the family. *Economic Development and Cultural Change* 36(3): 465–481.
- United Nations. 2002. Report of the second world assembly on ageing. Madrid, 8–12 April 2002. New York.
- Zhang, W. and Li, S. 2004a. Determinants of rural elderly living arrangement under the context of labor migration. *Chinese Journal of Population Science* 1: 42–49.
- Zhang, W. and Li, S. 2004b. An analysis of the effects of labor emigration on supporting the aged family folks in rural China. *China Soft Science* 8: 34–39.