6. Migration and wellbeing of the elderly in rural China

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6.1 INTRODUCTION

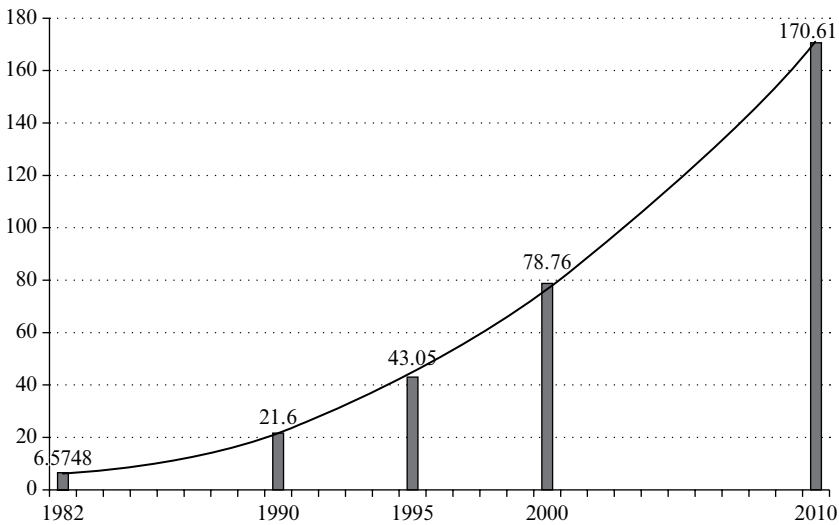
China's transition to a market-oriented economy since the late 1970s and early 1980s has dramatically increased its population mobility. The recent three decades in China have been characterized as an era of great migration, particularly from the rural to urban areas. The massive migration of young adults out of rural locales has raised questions for the traditional family-based systems of old-age support in rural China. Despite the growing concerns over the support for the elderly who stay in rural regions, there have been very limited studies that investigate the linkage between migration and the wellbeing of the left-behind elderly.

The conventional framework of migration research assumes individuals as the unit of migration and focuses on the characteristics and selectivity of migrants. However, the performance of individual migrants can largely be accounted for not only by migrants' characteristics but also by the preferences and constraints of their families who stay behind (Stark 1991). Migration is essentially part of a household strategy to benefit both migrant and non-migrant members. Migration studies informed by the perspectives of household strategy and economics of labour migration have explored consequences of migration, in particular the economic benefits, for migrants and family members as well as communities (Ma et al 2004; Stark and Bloom 1985; Stark and Lucas 1988; Taylor et al 2003; VanWey 2004). However, specific impacts of migration on left-behind elderly parents were rarely addressed until recently (Knodel et al 2010; Knodel and Saengtienchai 2007; Toyota et al 2007). A small emerging body of literature devotes attention to economic, social and psychological wellbeing of the elderly who stay behind (Abas et al 2009; Antman 2010; Giles et al 2010; Kuhn et al 2011; Sando 1986; Sorensen 1986; Vullnetari and King 2008), but to date there have been few studies that use representative data to systematically investigate impacts of children's migration on left-behind elderly parents. This gap in the literature is unfortunate, because the challenges that population aging poses to the contemporary world have been intensified by migration in developing societies (United Nations 2013).

As the most populous country with the largest internal migration in human history, the Chinese case is truly instructive for migration, aging, and family research on both theoretical and empirical front. A vast and growing volume of literature investigates China's rural to urban migration (e.g. Liang 2001; Liang and Ma 2004; Liang et al 2014; Lu 2012a), but few studies have specifically explored impacts of migration on the elderly who stay in sending areas in China. Utilizing a representative data set from a national survey, this chapter aims to examine the relationships between children's migration and various dimensions of their left-behind elderly parents' wellbeing in rural China, which may contribute to our knowledge of this highly important but understudied topic.

6.2 BACKGROUND

Over the course of the last three decades, two significant demographic transformations – migration and population aging – have been concurrently taking place in China along with the fundamental social and economic changes. China's rural to urban migration during the past few decades has been distinctively remarkable. As shown in Figure 6.1, the



Source: Adapted from Liang et al (2014, p. 698).

Figure 6.1 Trend of inter-county floating population in China, 1982–2010 (millions)

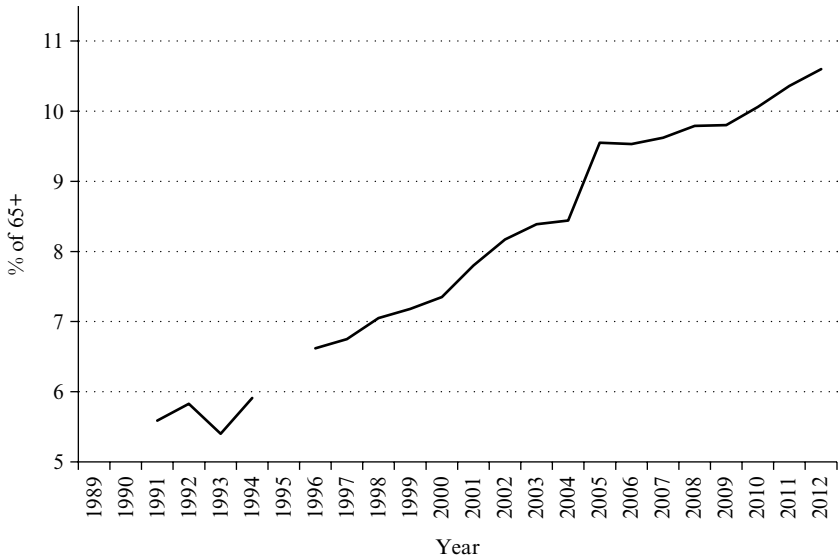
estimated size of inter-county floating population (i.e. individuals who have crossed county boundaries and stayed at a destination for no less than 6 months without a local household registration), of which the great majority are rural-to-urban migrants, increased from less than 7 million in the early 1980s to nearly 22 million by 1990, more than 43 million by 1995, and 79 million in 2000. The 2010 census shows that there was a 221 million floating population in China, of which about 171 million were classified as an inter-county floating population (Liang and Ma 2004; Liang and Song, forthcoming; Liang et al 2014).

The floating population has been dominated by young and middle-aged adults. According to the 2000 census, 57 per cent of the floating population were 15–29 years old and 25 per cent were 30–44 years old (Ma et al 2004). Findings from the 2010 census suggest that 54 per cent of the floating population were born after 1980 (Duan et al 2013). The average age of the total floating population in 2012 was 28 years old (NPFPC 2013). The large-scale migration of young and middle-aged adults has resulted in a significant rise of the old-age dependency ratio in rural China (Cai et al 2012; Ma et al 2004).

China's history-making rural-to-urban migration occurs concurrently with its rapid population aging. China has the largest elderly population in the world, and the accelerating aging is far more pronounced in rural than urban China. With fewer children than before and continued movement of young adults into cities, the proportion of elderly in China's rural population has grown substantially over the last three decades. People aged 65 and older has risen from less than 6 per cent of the rural population in the early 1990s to 10.6 per cent in 2012 (Figure 6.2). The old-age dependency ratio in rural China was 13.5 per cent 2008 and is projected to reach 34.4 per cent by 2030 (Cai et al 2012).

The family-based old age support and care has been practised in China for thousands of years. According to Confucius, children are naturally obligated to provide financial support and physical care to elder parents (Chao 1983). Confucian filial piety is well reflected in the influential proverb of '*fu mu zai, bu yuan you*' (do not travel far away when parents are alive). Although it has been slowly weakened in modern China, the tradition of filial piety is still the dominant ethos, particularly in rural China.

China's pension and social security policies have barely targeted the rural population until the last few years. Unlike urban workers covered by a comprehensive public social security system, the rural residents have to rely on land and family as the primary source of old-age security. In very recent years, the Chinese government has initiated significant reforms of its rural pension and social security systems, for example launching the New Rural Pension Scheme (NRPS) since 2009. But it will take years to



Note: The percentages for 1990 and 1995 are not reported.

Sources: China Population and Employment Statistics Yearbooks.

Figure 6.2 Trend of the elderly population (65+) in China, 1989–2012

establish a comprehensive social security system and extend nationwide coverage for the rural population (Dorfman et al 2013; Herd et al 2010). Given the underdeveloped rural pension system and inadequate institutional care resources, the rural elderly depend far more on family support than the urban elderly (Cai et al 2012).

However, the traditional family-based old age support has been inevitably impacted by booming migration of working-age adults from rural to urban. The census tabulations released by the National Bureau of Statistics of China show that 23.08 per cent of the rural households in 2000 were composed of one or two individuals aged 65 and older, either with or without non-adult children. This proportion increased to 33.87 per cent in 2010. China's unprecedented internal migration, which has tremendously contributed to the modernization and urbanization of this country, has had transformative influences on rural areas (Liang and Song, forthcoming). China offers a particularly instructive context for assessing the consequences of migration, including for the elderly who remain in rural regions.

6.3 CURRENT UNDERSTANDING OF THE IMPACTS OF RURAL-TO-URBAN MIGRATION ON THE ELDERLY IN RURAL SOCIETIES

Although it is not unusual that the elderly are left behind as a result of the adult children's migration in Western societies, many developed countries have relatively well-established social welfare systems, and hence the left-behind elderly in general are in a better situation than their counterpart in developing countries. The consequences of internal and international migration for the left-behind elderly in developing societies have drawn limited but increasing attention of scholars (Nguyen et al 2006; Toyota et al 2007). Several studies have explored the impact of migration on financial, instrumental, and emotional support from children to elderly parents as well as on physical and mental health of the elderly. Both positive and negative effects have been revealed.

Consistent with the economics of labour migration theory (Stark and Bloom 1985; Taylor et al 2003), evidence from the rural communities in Thailand (Knodel and Saengtienchai 2007; Knodel et al 2010) indicates that children's migration to cities enhances the economic wellbeing of elderly parents who remain behind. However, the studies on the case of Mexico (Antman 2008, 2013) reveal no significant change in children-to-parent financial support when one child migrates. In terms of the linkage between children's migration and elderly parents' health, the existing evidence is also mixed. A few studies find children's migration is positively associated with the physical and mental health of their left-behind parents (Abas et al 2009; Kuhn 2005; Kuhn et al 2011), while others show that the left-behind elderly have experienced stress-related health problems, increased sense of loneliness and abandonment and symptoms of poor mental health (Adhikari et al 2011; Antman 2010; Baldock 2000; Kuhn 2002; Lu 2012b; Miltiades 2002; Vullnetari and King 2008).

Migration studies on the Chinese case have been blossoming during the past decades, but little attention has been given to the left-behind elderly until recent years. This limited research has demonstrated ambiguous effects on several key outcomes of interests. Studies on financial support have generally reported that migrant children provide more money to their parents than non-migrant children (Cong and Silverstein 2011; Du et al 2004) and the elderly with migrant children receive more financial support from children than those without migrant children (Guo et al 2009). Migration enables higher income for the children, which is shared with their parents out of filial norms, altruism, and compensation for grandchildren care (Cong and Silverstein 2011). Nevertheless, the empirical evidence on financial impact is not uniformly positive. A few studies point

out that the net financial transfer received by the elderly with migrant children does not significantly surpass that of those without migrant children (Giles et al 2010; Ye and He 2009). The majority of the left-behind elderly in rural China are still living on low income even in poverty (Zhou 2009). Furthermore, as the modernization and aging theory (Aboderin 2004; Cowgill and Holmes 1972) suggests, this vulnerable population may face more uncertainty in the support from children (Giles et al 2010; Ye and He 2009; Zhou 2009). Migrant workers usually take unstable and underpaid jobs in cities, and wage arrears and fraud on this population are not uncommon. In addition, exposure to consumerism, materialism and individualism may weaken migrant children's filial commitment to supporting old parents (Aboderin 2004; Ye and He 2009).

In regard to living arrangements and instrumental support, declining coresidence has been observed in both urban and rural China (Benjamin et al 2000; Giles et al 2010). Sparse evidence suggests that a large number of rural elders with migrant children live in empty-nest, skipped-generation, and single-elderly families (Du et al 2004; He and Ye 2009; Zhang et al 2005; Zhou 2006), and they spend more time on farm work and domestic work (Chang et al 2011). However, the study by Guo et al (2009) reports that the negative impact of migration on instrumental support to the left-behind elderly is not as strong as we expect. Furthermore, the aged people who stay in sending areas may be taken care of by local children and other members in the extended family network (Zeng and Vaupel 1989). In particular, a number of studies on the left-behind children in rural China indicate that the children of migrants are often left with their grandparents, and hence grandparents take on the primary childcare responsibility (Lu 2012a; Tan 2011; Ye and Murray 2005). The skipped-generation living arrangement has significant implications on the elderly wellbeing. It has been observed that many rural elders enjoy living with grandchildren, but feel overburdened by the extensive involvement in childcare and sometimes helpless in providing adequate guidance and supervision for grandchildren (Du et al 2004; He and Ye 2009).

Of the few studies that have been conducted on health and psychological outcomes, results have been mixed. Some descriptive evidence shows that most of the left-behind elderly in rural China are in good health and the level of life satisfaction has increased (Du et al 2004; Sun 2010). They feel happy for the improvement of socio-economic status as a result of migrant children's remittances, and have been maintaining emotional ties with their migrant children via phone calls and visits (Du et al 2004; He and Ye 2009; Silverstein et al 2006). In contrast, the analyses on a two-wave survey of the rural elderly in Anhui province indicate that parents with migrant children have a significantly higher

level of depression and a lower level of life satisfaction (Guo, Aranda, and Silverstein 2009).

Overall, to date only a very small number of studies have directed specific attention to the left-behind elderly in the age of migration. Most of them are descriptive or rely on regional data, and the findings are quite ambiguous. We still know little about the complex multifaceted nexus of migration and left-behind elderly. In response to calls for research based on more detailed and representative data sources (Antman 2013; Nguyen et al 2006; Toyota et al 2007), this chapter examines the relationship between adult children's migration and various dimensions of elderly parents' wellbeing in rural China. Data from a representative sample of a national survey will be used and details will be provided in the next section. Our strategy is to compare the wellbeing of the rural elderly who have migrant children with the wellbeing of those who do not have migrant children. Although this approach is subject to potential selectivity problems and methodological limitation (Gibson et al 2011), it has been commonly used in the literature in this vein. As reviewed above, a handful of existing studies have examined the economic outcome of migration for the left-behind elderly, and a few recent efforts have been directed toward health and psychological aspects. To more fully understand this issue, in this chapter we consider the following five dimensions of the elderly wellbeing: financial transfer from children to the elderly, housing conditions, living arrangements, self-rated health, and life satisfaction. Taking this more comprehensive and nuanced approach also allows the possibility that left behind elderly may be better in some measures but not necessarily on other measures of wellbeing.

6.4 DATA AND METHODS

Data are drawn from a 10 per cent random sample of the 2000 China Elderly Survey (CRCA 2003). This national survey was conducted by China National Aging Committee and China Center for Scientific Study of Aging. The survey was carried out in 160 cities (counties) within 20 provinces, autonomous regions and municipalities. A total of 50 neighbourhood committees (*ju wei hui*) were drawn from each of the selected city-street offices (*jie dao ban*) and 50 village committees (*cun wei hui*) were drawn from each of the selected towns (*xiang zhen*). The households were randomly selected from each of the selected neighbourhood committees or village committees. The Kish method was used to select the participants from the selected households. The respondents were individuals aged 60 or above. A total of 9486 valid questionnaires were obtained from the urban survey and 9745 from the rural survey. The sample utilized in this chapter

is a 10 per cent random sample, which the first author obtained access permission when she participated in the CRCA project at Nankai University, China. We focus on the rural elderly in this chapter. Restricting the data in this way results in a total sample of 946 rural respondents aged 60 or older.

We derive information on migration of adult children from the following question 'How many children (including sons-in-law and daughters-in-law) do you have residing outside the county?' For each individual in the sample, we identify the location of his/her children, i.e., local children within the county and migrant children outside the county. The rural elderly aged 60 or above in 2000 usually have more than one child, and most have at least one child residing in local areas. We classify the rural elderly into two categories – the elderly who have migrant children and those who do not have migrant children. Our analytic strategy is to compare the wellbeing of the rural elderly who have migrant children with those who do not have migrant children along five dimensions: financial transfer from children to the elderly, housing conditions, living arrangements, self-rated health, and life satisfaction.

Financial transfer from children to the elderly is measured by the total amount of money (yuan[1]) that the children gave to the elderly in the year of 2000. Housing condition is measured by house construction materials: clay, brick and wood, brick and tile, and other. Because houses made of brick and tile are the most expensive, we create a dummy variable scored 1 for brick and tile (brick and tile = 1; other = 0). The measure of living arrangements is a dummy variable and the non-coresidence group serves as the reference category. The elderly were asked to provide self-rated health status. The response categories are 'poor' (1), 'fine' (2), and 'good' (3). The ordinal measure of life satisfaction is based on the item 'In general, are you satisfied with your current life?' It is scored as 'dissatisfied' (1), 'neutral' (2), and 'satisfied' (3).

The independent variable of our main interest is whether or not the respondent has adult migrant child/children, which is a dummy variable and those without migrant children serve as the reference category. The following characteristics of individual and household are controlled: gender, age, cadre status, marital status, educational attainment, number of children, and household size.[2]

Tobit regression model is utilized to estimate the relationship between migration and financial transfer from children to the elderly, as 34.2 per cent of the elders in the sample did not receive money from children and hence this dependent variable is truncated (Maddala 1989). The housing condition and living arrangement are dichotomy variables; hence we apply logistic regression models for both of them. Self-rated health and life satisfaction are ordinal variables, thus an ordered logistic regression model is adopted.

6.5 RESULTS

Table 6.1 shows the sample statistics. Among the 946 rural elders, 37.5 per cent had migrant children and 62.5 per cent had no migrant children. The average amount of money transferred from children was 585 yuan for the elders with migrant children while 368 yuan for those without migrant children. About 40 per cent of the participants with migrant children lived in houses built with brick and tile. The corresponding proportion for those without migrant children was 33 per cent. A small proportion of the participants co-resided with children. The elderly with migrant children reported better health status but lower life satisfaction than those without migrant children.

Table 6.1 Means of variables used in the analysis

	Have Migrant Children	
	Yes	No
Dependent variables		
Money transferred from children to elderly parents (yuan)	585.19	368.03
House material (brick and tile = 1, other = 0)	0.40	0.33
Co-residence with children (yes = 1; no = 0)	0.14	0.17
Self-rated health (poor = 1; fine = 2; good = 3)	2.08	1.99
Life satisfaction (dissatisfied = 1, neutral = 2, satisfied = 3)	2.44	2.48
Independent variables		
Gender (female = 1, male = 0)	0.44	0.42
Age	68.59	69.40
Cadre (yes = 1, no = 0)	0.02	0.02
Divorced (divorced = 1, other = 0)	0.02	0.02
Widowed (widowed = 1, other = 0)	0.35	0.42
Years of schooling	2.30	1.97
No. of sons	2.45	2.26
No. of daughters	2.45	2.04
No. of children (incl. daughters-in-law and sons-in-law)	9.47	8.28
Household size	3.97	3.69
No. of observations	355 (37.5%)	591 (62.5%)

Notes: The divorced includes 14 separate living cases. The widowed includes 1 unmarried case.

6.5.1 Financial Transfer

Table 6.2 presents results from Tobit regression model for financial transfer from children to the elderly. The results show that having migrant children was positively associated with the amount of money transferred from children to elderly parents ($\beta = 219.588$, $p \leq 0.01$). The widowed elderly received less money from children than others ($\beta = -149.064$, $p \leq 0.10$). Not surprisingly, the more children an aged person had, the more money he/she received from children ($\beta = 35.034$, $p \leq 0.01$).

6.5.2 Housing Conditions

Results from logistic regression analyses of housing conditions are shown in Table 6.3. Having migrant children was significantly linked to higher odds of living in brick-and-tile houses ($e^{0.336} = 1.399$, $p \leq 0.05$). Age had a positive effect on housing conditions ($e^{0.023} = 1.023$, $p \leq 0.05$). In addition,

Table 6.2 Estimated coefficients from Tobit regression of money transfer from children to elderly parents

	Model 1		Model 2	
Constant	−175.542		−252.533	
	(439.684)		(438.192)	
Age	−0.094		0.317	
	(6.280)		(6.245)	
Cadre	−195.426		−183.424	
	(306.728)		(305.857)	
Divorced	−124.343		−91.705	
	(307.569)		(305.621)	
Widowed	−157.912	α	−149.064	α
	(88.656)		(88.228)	
Years of schooling	27.178		31.420	
	(33.883)		(33.739)	
Number of children	39.618	***	35.034	**
	(11.438)		(11.498)	
Household size	−0.374		−1.325	
	(9.261)		(9.223)	
Have migrant children			219.588	**
			(82.458)	
Log likelihood	−5041.428	*	−5037.901	**

Notes: $^{\alpha}\ p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$ (two-tailed test).

Table 6.3 Estimated coefficients from binary logistic regression of housing conditions

	Model 1		Model 2	
Age	0.022	*	0.023	*
	(0.011)		(0.011)	
Cadre	−0.581		−0.543	
	(0.589)		(0.590)	
Divorced	−0.229		−0.193	
	(0.563)		(0.566)	
Widowed	−0.260		−0.247	
	(0.164)		(0.165)	
Years of schooling	0.025		0.022	
	(0.025)		(0.025)	
Number of children	−0.003		−0.011	
	(0.020)		(0.021)	
Household size	−0.036	α	−0.037	*
	(0.018)		(0.018)	
Have migrant children			0.336	*
			(0.148)	
Constant	−1.897	*	−1.987	*
	(0.792)		(0.795)	
Model χ^2	10.550		15.650	*
df	7		8	

Notes: $^{\alpha}$ $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$ (two-tailed test).

the likelihood of living in better houses was negative associated with household size ($e^{-0.037} = 0.964$, $p \leq 0.05$).

6.5.3 Living Arrangements

Table 6.4 reports the results of living arrangements. Having migrant children did not significantly influence the elderly living arrangements.[3] The only factor that was significantly related to living arrangements was number of sons. Interestingly, the more sons an elderly parent had, the less likely he/she co-resided with children ($e^{-0.331} = 0.718$, $p \leq .001$). In contrast, we did not observe such an effect for number of daughters.

Table 6.4 Estimated coefficients from binary logistic regression of living arrangements

	Model 1		Model 2	
Gender	0.299		0.311	
	(0.212)		(0.213)	
Age	−0.001		−0.002	
	(0.015)		(0.015)	
Cadre	−0.206		−0.218	
	(0.653)		(0.653)	
Divorced	−0.141		−0.149	
	(0.777)		(0.777)	
Widowed	0.127		0.115	
	(0.221)		(0.221)	
Years of schooling	0.023		0.024	
	(0.034)		(0.034)	
Number of sons	−0.337	***	−0.331	***
	(0.080)		(0.080)	
Number of daughters	0.089		0.097	
	(0.062)		(0.063)	
Have migrant children			−0.165	
			(0.199)	
Constant	−1.290		−1.252	
	(1.066)		(1.069)	
Model χ^2	27.269	***	27.964	***
df	8		9	

Notes: $^{\alpha}$ $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$ (two-tailed test).

6.5.4 Health Status

The results from ordered logistic regression analyses of self-rated health are presented in Table 6.5. Elderly with migrant children reported better health than those without migrant children ($\beta = 0.244$, $p \leq 0.10$). Education was positively linked to self-rated health ($\beta = 0.062$, $p \leq 0.01$). Older age was strongly associated to poor health ($\beta = -0.035$, $p \leq 0.001$). In addition, the divorced reported worse health than their counterparts ($\beta = -0.868$, $p \leq 0.10$).

6.5.5 Life Satisfaction

Table 6.6 shows results from the ordered logistic regression analyses of life satisfaction. Controlling for the socio-demographic characteristics, the

Table 6.5 Estimated coefficients from ordered logistic regression of self-rated health

	Model 1		Model 2	
Threshold				
Health = 1	−3.588	***	−3.541	***
	(0.738)		(0.738)	
Health = 2	−1.391	α	−1.337	α
	(0.728)		(0.729)	
Gender	−0.091		−0.100	
	(0.148)		(0.148)	
Age	−0.035	***	−0.035	***
	(0.010)		(0.010)	
Cadre	0.138		0.162	
	(0.483)		(0.483)	
Divorced	−0.903	α	−0.868	α
	(0.489)		(0.489)	
Widowed	−0.175		−0.166	
	(0.153)		(0.153)	
Years of schooling	0.063	**	0.062	**
	(0.024)		(0.024)	
Number of children	−0.011		−0.017	
	(0.018)		(0.018)	
Household size	0.023		0.022	
	(0.015)		(0.015)	
Have migrant children			0.244	α
			(0.134)	
Model χ^2	44.799	***	48.141	***
df	8		9	

Notes: $^{\alpha}$ $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$ (two-tailed test).

elderly who had migrant children reported lower levels of life satisfaction than those who had no migrant children ($\beta = -0.262$, $p \leq 0.10$)[4]. Better health was strongly associated with higher levels of life satisfaction ($\beta = 0.736$, $p \leq 0.001$). The elders in cadre positions were more satisfied with their lives than others ($\beta = 1.386$, $p \leq 0.10$). In addition, older participants reported greater life satisfaction than younger ones ($\beta = .034$, $p \leq .01$). Education and life satisfaction were found to be positively associated after having migrant children was added to the model ($\beta = 0.045$, $p \leq 0.10$).

Despite the voluminous literature on migration, there have been few attempts to examine the consequences of migration on the left-behind elderly. A very small number of studies along this line draw evidence from

Table 6.6 Estimated coefficients from ordered logistic regression of life satisfaction

	Model 1		Model 2	
Threshold				
Life satisfaction = 1	1.817	**	1.811	*
	(0.853)		(0.853)	
Life satisfaction = 2	3.489	***	3.488	***
	(0.858)		(0.857)	
Gender	0.233		0.244	
	(0.159)		(0.159)	
Age	0.034	**	0.034	**
	(0.011)		(0.011)	
Cadre	1.414	α	1.386	α
	(0.746)		(0.746)	
Divorced	−0.127		−0.155	
	(0.503)		(0.506)	
Widowed	−0.253		−0.266	
	(0.164)		(0.164)	
Years of schooling	0.043		0.045	α
	(0.027)		(0.027)	
Number of children	−0.005		0.001	
	(0.019)		(0.020)	
Household size	0.003		0.003	
	(0.016)		(0.016)	
Self-rated health	0.722	***	0.736	***
	(0.100)		(0.100)	
Have migrant children			−0.262	α
			(0.143)	
Model χ^2	69.169	***	72.466	***
df	9		10	

Notes: $^{\alpha}$ $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$ (two-tailed test).

only a few countries and regions, and the findings are highly mixed. The two concurrent formidable demographic changes – unprecedented rural-to-urban migration and population aging – make China an essentially instructive site for investigation on the nexus of migration and the left-behind elderly. The existing research on the Chinese case, in particular those published in Chinese journals, however, is largely descriptive and speculative. This study aims to fill in the literature gap by utilizing a representative sample to examine multiple dimensions of the wellbeing for the left-behind elderly in rural China.

Consistent with previous findings regarding the economic consequences of migration (Du et al 2004; Guo, Aranda, and Silverstein 2009; Ma et al 2004), we find that elderly parents with migrant children received significantly more money than those without migrant children. As the prior research suggests, the higher levels of financial support from children to elderly parents may be attributed to remittances from migrant children. Migrant remittances not only increase rural household income directly, but also contribute to considerable improvement of housing conditions in migration communities (Ma et al 2004). Our findings reveal that the rural elderly with migrant children were more likely to live in higher quality houses. Taken together, our investigation provides support for the economics of labour migration theory and earlier empirical evidence on economic benefits of migration for family members.

Living arrangements are considered to be important for the elderly wellbeing, particularly among Asian countries including China, as coresidence plays a crucial role in traditional approaches of old age support (Anh et al 1997; Knodel and Debavalya 1997; Zimmer and Kim 2002). As many of these countries have been experiencing industrialization and urbanization, the modernization and aging theory proposes that rural-to-urban migration forces elderly parents to live in separate dwellings at increasing distance from their children, which inevitably results in declining old age care and support (Aboderin 2004; Cowgill and Holmes 1972). On the contrary, the modified extended family perspective is optimistic on strategic arrangements among migrants, left-behind parents, and other family members (Knodel and Saengtienchai 2007; Knodel et al 2010; Litwak 1960a, 1960b). The current study demonstrates that having migrant children or not was not linked to the elderly living arrangements, which does not lend support for the vulnerability assumption. Our findings are in accord with the study by Wang and Li (2011), which finds that migration decreased the proportion of living with sons, but many still lived with daughters-in-law. The left-behind elderly are not completely abandoned. Many migrant children continue to support their aged parents, especially when the parents possess characteristics indicative of vulnerability, dependence and needs (Zimmer et al 2008). Living arrangements seem largely a household strategy serving the needs of the elderly as well as children.

Nevertheless, it is noted that the data used in present study were collected in 2000, and only 1 per cent of the participants in the sample had no children living within the same county with all migrating out. The great majority of the participants had local children, and therefore we failed to find the impact of children's migration on the elderly living arrangements. As the population subject to China's birth control policy have been gradu-

ally reaching 60 years old or above and the volume of migrant population continues to reach new highs, it will be necessary to collect and analyse more recent data to further explore the relationship between children's migration and the elderly living arrangements.

Although not the main interest of this study, an interesting finding is that the number of sons is significantly associated with a smaller likelihood of co-residence. This result is consistent with the findings of Zhang et al (2005). Their analyses indicate that additional sons in the same village decrease elderly parents' likelihood to live in stem and skip-generational households and increase the likelihood to live alone or with spouses only. Geographic proximity may increase opportunities for local sons to provide instrumental support for the elderly and decrease the necessity of co-residence. Additionally, when more than one son lives nearby, it is a strategic arrangement for the elderly to live independently in avoidance of conflicts among sons.

Our analyses on self-rated health show that the elderly who have migrant children reported better health status than those without migrant children. Two possible mechanisms may be related here. On the one hand, remittances may enhance the living conditions and life quality of the left-behind elderly, resulting in beneficial outcome on their health (Kuhn 2005). For example, Li and Chi (2011) find that financial sufficiency is positively linked to the likelihood of physician visits among elderly adults in China. On the other hand, it has been reported that adult children are less likely to migrate if a parent is ill (Giles and Mu 2007).

In terms of life satisfaction, we find that the elderly with migrant children had a lower level of life satisfaction than those without migrant children. Although receiving remittances from migrant children enhances the elderly psychological wellbeing (Silverstein et al 2006; Wang and Li 2011), they may still experience emotional pain due to decline of locally based instrumental support, weakened intimate family relations, pressure of farm labour and grandchildren caring (Duan and Zhou 2005; Guo, Aranda, and Silverstein 2009; Kuhn 2002; Miltiades 2002; Vullnetari and King 2008). There is accumulating evidence that psychological problems are rapidly spreading among the left-behind elderly in rural China (Ye and He 2008). Stress, depression and loneliness are widely observed among this population. Du and his colleagues (2004) report that more than 80 per cent of the elders do not feel lonely before their children's migration, but this proportion drops to less than 50 per cent after children move to cities. Migrant children are much less likely to communicate with elderly parents when they make major decisions, and the elderly are upset for being gradually marginalized in families (He and Ye 2009). The field study conducted by the second author of this chapter in Sichuan province, China's largest

sending area of floating population, indicates that many left-behind elders feel overburdened and struggled by working on farm lands of migrant children's and their own, taking care of grandchildren, and in many cases doing both. They are puzzled and frustrated by losing traditional family support and the uncertainty of later life. The multiple challenges faced by the left-behind elderly may demonstrate more significant effects on their psychological wellbeing as they get older. Much more attention is needed on the psychological health of this group in both research and practice.

6.6 CONCLUSION

Overall, we investigate the association between children's migration and five dimensions of the elderly wellbeing in rural China. Our findings add to the very limited body of knowledge about migration and the left-behind elderly. One caveat with our chapter is that we are not making any causal claims about the impact of migration on the left-behind elderly, as the cross-sectional data have inherent difficulty of sorting through the causal process. The comparison between the elderly with migrant children and those without migrant children has several potential problems. First, migration is endogenous. Households are self-selected into migration. Some factors may be correlated to both migration and its outcome for the left behind (Antman 2013; Gibson et al 2011; Knodel and Saengtienchai 2007; Kuhn et al 2011). Second, among the elderly who have migrant children, some have local children while others do not (Gibson et al 2011). The consequences of migration are not uniform for elderly adults in various household structures. Third, the impact of migration on left-behind elderly may be a function of a complex set of reciprocal exchanges among migrant and non-migrant members (Zimmer et al 2008). Fourth, the advantages and disadvantages of children's migration for the left-behind parents vary with the life course stages of both parties (Knodel et al 2010). Data limitations severely hinder our efforts for a better understanding of how children's migration influences the left-behind elderly parents. The development and improvement of research in this field relies on collecting and analysing longitudinal data with more rich information.

Despite the above limitations, this study is suggestive of a multidimensional framework that examines migration and the left-behind. As mentioned earlier, prior research is dominated by economic outcomes, and only a handful of recent studies direct attention to physical and psychological health. The consequences of migration for the left-behind parents are truly multifaceted and complex (Knodel et al 2010). The multiple lines of influences are also intertwined. Thus, we call for theoretical frameworks

that conceptually clarify the multidimensional dynamics of migration and the left behind. We call for rigorous empirical studies that are informed by such integrated frameworks to decompose reciprocal relationships between migration and the left behind (Antman 2013; Toyota et al 2007).

Additionally, migration is institutionally constructed, and the consequences of migration on the left behind are conditioned by social, political, cultural and economic characteristics of the contextual setting (Nguyen et al 2006; Toyota et al 2007; Zimmer et al 2008). To date there is far too little evidence from too few countries and regions. The ambiguity and inconclusiveness of the available evidence indicate the complex nature of the migration and left-behind nexus, but may also be partially attributed to omission of contextual characteristics in analytical modelling. Longitudinal studies within various socio-cultural contexts will undoubtedly advance our understanding on migration and the left behind.

At last, it should be noted that research on migration and left-behind elderly has important policy implications. In a society like China, where family-based old age support has been practised for generations, consequences of migration on the elderly are particularly indispensable. As the migrant population and elderly population both grow larger, the challenges faced by the Chinese society will multiply. Given the almost absence of social welfare and security programs for elderly population in rural China, the left-behind rural elderly receive extremely limited support from governments and communities (Ye and He 2008; Li and He 2010). Fortunately, the Chinese government is aware that shrinking family support with few children and massive migration may place traditional old-age support structures in jeopardy. The 'people-centred' governing approach and development plan cannot neglect the elderly who are left behind in rural areas. The central government has called for accelerating the development of old-age social security systems and community-based elderly care services in rural China. Undoubtedly, much more research on left-behind elderly is needed to guide and facilitate policy making and program planning.

NOTES

1. Yuan: Chinese currency (RMB), 1 USD equals about 8.1 yuan in 2000, the time of the survey.
2. The correlation between number of children and household size is very weak (Peasons's $R = 0.016$) and non-significant, so the collinearity between these two variables should not be a major concern.
3. We also examined the interaction effect between age and having migrant children, and no significant result was found.
4. The interaction between age and having migrant children was tested, and no significant effect was found on life satisfaction.

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