Transition and Stability of "Extended Living Arrangement" in Later Life: How Health Plays a Role?

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Abstract

Family is the most important source of support for older adults in many contexts. However, previous research does not tap the full complexity of contemporary familial supporting structure of older adults, which does not only involve people in the household, but also offspring living nearby or in longer distance. We develop the term "extended living arrangements" to comprehend the extensive and interactive nature of older adults' familial supporting structure. Further, there is a lack of understanding of how such supporting structure responds to the health and changes in health of older adults. In this research, using China Health and Retirement Longitudinal Study (2011-2015) and latent class analysis, we developed three types of extended living arrangements: the *multigeneration households*, *Offspring nearby households,* and *left-behind households*. We also assess how health conditions determine older adult's membership in their class, and how changes in these conditions affect their class transitions.

Introduction

Family is the most important source of support for older adults in many countries. Previous research has established that living arrangements – the presence of spouse, children, grandchildren, or others in the household have significant impacts on the health and wellbeing of older adults (Chen & Liu, 2012; Hughes & Waite, 2002; Silverstein, Cong, &Li, 2006). However, such a focus on the household context failed to consider the supporting roles of adult children not coresiding with the older adult. Thus, this research does not tap the full complexity of contemporary familial supporting structure of older adults, which does not only include people in the household, but also offspring living nearby or in longer distance (i.e., internal migrants).

Living arrangement is only but one piece of the outcomes of family negotiations and only captures part of the intrafamilial relationships associated with the older adult, especially in the context in which familial care is the major form of eldercare. First, intergenerational exchanges not only happen in the household, but also between older adults and their spring outside the household. Children living nearby can provide limited social support in case of needs. Modern communication methods, such as cellphones, emails, and social media, and transportation allow adult children from afar to provide certain emotional and social support. In many developing countries where rapid urbanization and industrialization has driven massive rural laborers to urban areas for higher pay, migrant offspring usually send remittances to their older parent households, which help relieve their financial stress (Adhikari et al., 2011; Cong & Silverstein, 2011).

Second, the structure of intergenerational exchange and older adult support is constructed within the whole family, which can transcend the household or any geographical limit. For instance, adult children's migration may change the existing intergenerational exchange patterns between the migrant and the older parents, which also triggers a simultaneous change in other pairs of intergenerational exchanges (Guo et al. 2012). In Mexico, adult children who engaged in international migration substitute for their siblings' time contributions in eldercare with their own financial contributions. And this may be motivated by the emigrant's intention to secure inheritance, competing for a parent's love, or approval or to avoid feelings of guilt (Antman, 2012). In rural China, Cong and Silverstein (2011) found that marginal financial returns to older adults who provide grandchild care are larger for migrant sons than nonmigrant sons. This can be explained by the older adult's strategic investments in the migrant sons and the increased bargaining power exercised by the child-caring grandparents.

Finally, due to such family supporting structure extended outside the household, elderly living arrangements, the presence of offspring living nearby and children's migration are usually interdependent of each other, which involves negotiations amongst each family members, especially when care is needed. Giles and Mu (2007) found that in rural China, in face of a health decline, migrant offspring would return to the older adult households, but are less likely to do so when there are siblings in the household and when there are siblings living nearby. Therefore, solely focusing on the household structure of the older adult to assess familial support may not only miss intrafamilial dynamics and support from a distance, but also fail to recognize the interactive nature of familial support structure and how household structure is determined by other pieces of the puzzle.

We develop the term "extended living arrangements" (ELA) to comprehend the extensive and interactive nature of older adults' familial supporting structure. In the current research, we study the ELA of older adults in rural China, and use latent class analysis to describe the transition and stability of ELA. Further, we assess how health of older adults plays a role in affecting their ELA. Specifically, we ask: 1) What are the classes of ELA for rural older Chinese? 2) How classes of ELA transitioned across years 2011, 2013 and 2015? 3) How health conditions and changes in these conditions determine older adult's membership in their class and affect their ELA stability and transitions?

Data and Methods

The data we use is China Health and Retirement Longitudinal Study (CHARLS) 2011-2015. CHARLS is a high-quality nationally representative sample of Chinese residents age 45 and older living in continental China. In the national baseline survey, 150 county-level units from 28 provinces were randomly chosen, adopting multi-stage stratified Probability Proportional to Size (PPS) sampling. The sampling frame contains all county-level units (except for Tibet), and is stratified by region and urban districts, rural counties and per capita statistics. Within each county-level unit, 3 primary sampling units (PSUs), either villages in rural areas or neighborhoods in urban areas, were chosen. Within each PSU, collective dwellings, such as dormitories and nursing homes were originally excluded. Individuals and their spouses were sampled with the condition that such individual is aged 45 or older (their spouses can be less than age 45). we restrict our sample to non-institutionalized respondents age 60 and over who live in a rural village and have at least one living child at the time of interview. This leads to a sample of 4,347 respondents in 2011, 5,056 respondents in 2013, and 6,695 respondents in 2015.

We use latent class analysis (LCA) to classify older adults' extended living arrangements. We identify 6 dichotomous items describing living arrangements of older adults and their children, including whether (1) the spouse is in the household, (2) any child is present in the household, (3) any grandchild is present in the household, (4) any other person is present in the household, (5) any child live nearby (live in the same village or live in a different village but in the same county), and (6) any migrant child (lives in a different county). SAS PROC LCA is used for the analysis.

Results from LCA

Table 1 presents the goodness-of-fit statistics from a two-class to four-class model for each wave. According to the elbow method, considering changes in the likelihood ratio statistics, Akaike Information Criterion (AIC), and Bayesian Information Criterion (BIC) across models, the three-class model is the best across all three waves.

- Table 1 about here –

In Table 2, we present the item-responsibilities of each class in the three-class model in 2011. The three classes are distinguishable from each other. We highlight the probabilities that serve as the defining feature of each class, based on which we subjectively assign a label for each class. The first class is labeled as 'left-behind household'. Older adults in this extended living

arrangement have a 0.999 probability of having migrant children. At the same time, they're also likely to have children live nearby (a probability of 0.628). They live in a nuclear household only with the spouse present (a probability of 0.848). There is no child, grandchild or other people in the household (a probability of 0.127, 0.315, and 0.047, respectively).

- Table 2 about here –

The second class is labeled as 'offspring nearby household'. Older adults in this class have a 1.0 probability of having children live nearby. However, they tend to live in a nuclear household just with their spouse (a probability of 0.800). No child, grandchild or other person is present in the household (a probability of 0.048, 0.076, and 0.005, respectively). They are also not likely to have migrant children (a probability of 0.360).

The third class is identified as 'multigenerational household'. Older adults in this living arrangement coreside with their spouse, children, and grandchildren in a multigenerational household (a probability of 0.709, 0.990, and 0.767, respectively). They also have children live close-by (a probability of 0.780) but do not have migrant children (a probability of 0.280).

For wave 2013 and 2015 we find similar patterns of item-response probabilities in the three-class model as that in 2011 (results not shown). Therefore, we are able to identify the same three classes in 2013 and 2015 as that described above. Features of each class are quite consistent across waves. The only difference is found between wave 2015 and 2011. In 2015, older adults in the 'left-behind household' class are not likely to have adult children living nearby (the probability of having nearby offspring drops to 0.421). For the class of 'multigenerational household', the probability of having grandchildren present in household drops to 0.156, changing multigenerational coresidence with both children and grandchildren into intergenerational coresidence with children.

Figure 1 shows the distributional patterns of the three classes in years 2011, 2013, and 2015 respectively. In 2011, the largest class is the multigenerational households (44.20%), but this class reduced to 36.21% in 2015. On the contrary, from 2011 to 2015, the offspring nearby households had grown from 35.53% of the total sample to 40.96%, and became the largest class in 2015. As these respondents age and their grandchildren grow up, their role may change from a caregiver for grandchildren to a care receiver from their own adult children. The left-behind households consistently comprise one-fifth to a quarter of the sample.

- Figure 1 about here -

Plan of next steps

In the next step of analysis, we will incorporate health measures into the analysis. Three types of health measures will be included – physical health, depressive symptoms and cognitive functions. Physical health is measured by activities of daily living (ADLs) and self-rated health. depressive symptoms are assessed by an index constructed by the answers to 10 questions

adopted in CHARLS (CES-D10). Cognitive functions are evaluated by mental intactness and episodic memory. Mental intactness (scale 0-10) contains serial 7 subtraction from 100 (up to five times), naming today's date, day of week, and ability to redraw a picture. Episodic Memory (scale 0-10) is the average of immediate and delayed recall scores of ten words. Two stages of analyses are involved. First, we employ fixed effects models and use health conditions of 2011 and 2013 and a set of covariates to predict class memberships in 2013 and 2015 (ref. multigenerational households). Second, we perform multiple logit models and use the changes in health between 2011 and 2013 to predict transitions in ELA between 2013-2015.

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Table 1. Comparison of goodness-of-fit of latent class models, 2011-15

Number of classes	Likelihood ratio G^2	Degrees of freedom	AIC	BIC
Wave 2011				
2	599.08	50	625.08	708.06
3	**131.38**	**43**	**171.38**	**299.05**
4	80.11	36	134.11	306.47
Wave 2013				
2	800.59	50	826.59	911.45
3	**145.95**	**43**	**185.95**	**316.52**
4	94.55	36	148.55	324.82
Wave 2015				
2	451.56	50	477.56	566.08
3	**122.87**	**43**	**162.87**	**299.06**
4	77.57	36	131.57	315.41

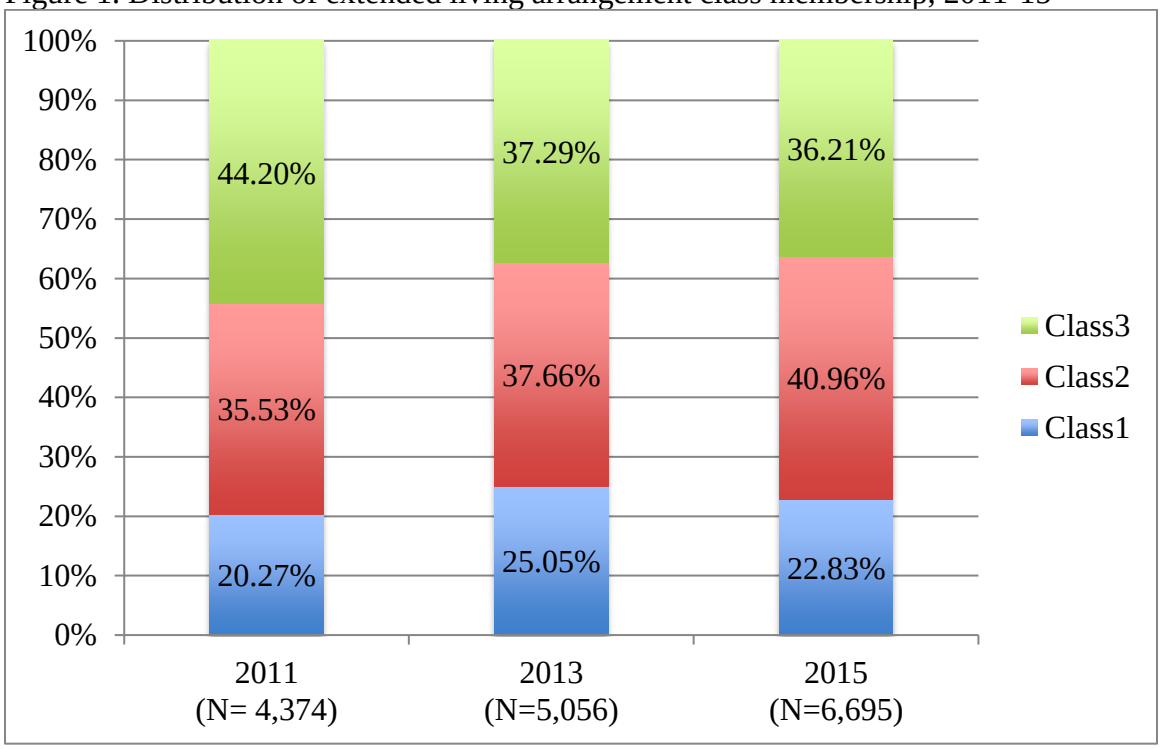
Notes: Bold font indicates the selected model based on the best goodness-of-fit.

Table 2. Item-response probabilities for three-class model, 2011

Item	Latent class		
	1. Left-behind household	2. Offspring nearby household	3. Multigenerational household
Response (yes)			
Spouse present in hh	0.848	0.800	0.709
Offspring present in hh	0.127	0.048	**0.990**
Grandchild present in hh	0.315	0.076	**0.767**
Other people present in hh	0.047	0.005	0.071
Offspring live nearby	0.628	**1.000**	0.780
Migrant Offspring	**0.999**	0.360	0.280

Notes: Bold font indicates the defining feature of the class.

Figure 1. Distribution of extended living arrangement class membership, 2011-15



Notes: Class1. Left-behind household; Class2. Offspring nearby household; Class3. Multigenerational household.