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Living Arrangements of the Elderly in China and Consequences for Their Emotional Well-being

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Abstract: *We study the living arrangements and consequences for emotional well-being of the elderly in China using data from a national probability sample survey conducted in 2010, part of the* China Family Panel Studies*: 14,960 households were included and information was collected for each family member. We study 7,015 people in the sample age sixty and older. We find that, compared to living independently with one's spouse, elderly respondents living with grown children are less happy, have less life satisfaction, and are more depressed, especially when the spouse is not sharing the household. The negative effects largely disappear when there also are grandchildren in the household although widows and widowers remain more prone to depression. Elderly people living in "generation-skipping" families suffer the same fate as living with adult children but no grandchildren—they are less happy and more depressed and, when not sharing responsibilities with a spouse, less satisfied with life than independent elderly couples. Finally, living alone or living with other relatives results in a significant degradation of emotional health. But the very small fraction of elderly respondents living with non-relatives enjoys the greatest happiness and the least depression.*

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Introduction

Due to a combination of increases in longevity and the one child policy, which has dramatically slowed population replacement, China's population is aging very rapidly (Banister 1992; Chen and Liu 2009) and will age even more rapidly in the future (United Nations 2002, cited by Zeng and Wang 2003, 98). Thus, China soon will have the largest population of elderly people in the world.

Traditionally, old age security in China was managed mainly via co-residence with an adult child, nominally the eldest son, who continued to live in the parental household, or nearby, even after marriage and the appearance of children (Davis-Friedmann 1983, 34–35; Whyte 2003, 5). Even when new nuclear households were formed, elderly parents often moved to the home of one of their children when it became difficult for them to care for themselves or when they were widowed[1] (Korinek et al. 2011). This pattern was particularly pronounced in rural China—which, until recently, included the bulk of the population—since there was (Chow 1991; see also Lee and Xiao 1998) and is (Cai et al. 2012) essentially no state support for the elderly in rural areas. To be sure, some (e.g., Levy 1949) have suggested that the elderly-parent-plus-adult-child household pattern was more the norm than the rule, at least since the middle of the twentieth century. However, Cartier (1995, 320) reports that as late as 1982 nearly 75 percent of elderly Chinese lived with their adult children.

This is no longer the case. Due to a combination of increased urbanization; changes in housing stock—the replacement of *hutongs* (dwellings arranged around courtyards and housing multiple, often related, families) with high rise apartments containing small units suitable only for nuclear families; and increased migration, which results in many adults living a great distance away from their parents, the proportion of elderly Chinese living with their adult children has declined substantially between 1982 and 2010 and the proportion living with their spouse and no one else has increased concomitantly (Zeng and Wang 2003). Specifically, Zeng and Wang (2003, Table 2) showed from analysis of 1982, 1990, and 2000 census data that the percentage of men age sixty-five and older living with children declined from 68 percent to 60 percent and the percentage living with only a spouse increased from 17 percent to 29 percent; the corresponding percentages for women are 74 percent to 69 percent and 11 percent to 19 percent.[2] This trend has continued through 2010. In the data analyzed here the percentage of men age sixty-five and older living with children declined to 33 percent and for women to 42 percent while the proportion of men living only with a spouse increased to 43 percent and for women to 30 percent. In addition, as internal labor migration has increased, many children have been left behind or sent back to live with grandparents by parents too busy to care for their children or lacking access to education or suitable housing for their

children (Silverstein et al. 2006; Zeng and Wang 2003, 104). Thus, over the past twenty years or so a new form of household has emerged, the "generation-skipping" household consisting of grandparent(s) and one or more nonadult grandchildren but no members of the middle generation.

Focus of this Paper

The concern of this paper is how the living arrangements of elderly Chinese affect their emotional well-being. While the effect of living arrangements on the well-being of the elderly in China has received considerable attention by researchers, our understanding is as yet incomplete. One difficulty is that researchers use a variety of classifications of living arrangements, often simply one specific category against all others, which makes comparisons across studies difficult (e.g., Chen and Silverstein 2000; Liu and Guo 2008; Silverstein et al. 2006; Sun et al. 2011; Ye and Chen 2014). In what follows, we explicitly contrast all pairs of living arrangements. Because we have data only on the non-institutionalized population, we do not consider the institutionalized elderly, who in any event constitute only a tiny fraction (less than 0.4 percent) of the elderly population (Zeng and Wang 2003, 106 [Table 2]).

What has been firmly established is that living alone is an undesirable condition. Those who live alone are less satisfied with life (Wang et al. 2014, 5 [Table 3]), more depressed (Sun et al. 2011), and have lower overall psychological well-being (Chen and Short 2008, 17 [Table 4]; Wang et al. 2014, 5 [Table 3]) than those who live with others.[3] This outcome may be due in part to the fact that those who live alone are usually widowed (in our data, 76 percent of those who live alone are widowed—92 percent among women and 57 percent among men; interestingly 23 percent of men living alone have never married, compared to only 1 percent of women living alone, which reflects the fact that for women in China marriage is nearly universal). Widows who live alone have a double disadvantage—they must cope with the loss of a spouse, which is known to increase the risk of depression (Li et al. 2005), as well as the lack of other companionship.

What is as yet unclear is whether living with children or grandchildren promotes or undercuts emotional well-being. The best evidence comes from the ongoing study of the oldest old (Zeng et al. 2002), a nationally representative panel survey with an initial survey of people age eighty and older in 1998 and new waves approximately every two years. In 2002 the survey was expanded to include people age sixty-five to seventy-nine (Zeng and Vaupel 2004). Still, the available evidence to date comes from analysis of the oldest old population, those age eighty or older. Since 88 percent of the population age sixty or older is less than age eighty (computations from our data), results from the original oldest old sample can hardly be taken as typical of elderly Chinese. Still, these results are suggestive and we report

them here. Wang et al. (2014) studied life satisfaction (using a single item scale) and emotional well-being (the propensity to look on the bright side of things, to feel anxious or fearful, to feel lonely or isolated, to feel that the older you get the more useless you are, and to be as happy now as when younger, which they combined into a single scale) and found that married couples living with children and married couples living independently did not differ significantly with respect to either measure. Chen and Short (2008, Table 5) studied the same population and used the same measures, except that they combined them into two 3-category measures: positive well-being (the quality of life now, the propensity to look on the bright side of things, and the propensity to be as happy as when younger); and negative well-being (the propensity to feel fearful, lonely, or useless). They found no significant differences between those living with their spouse but not with a child, those living with a child but not with a spouse, and those living with both a child and a spouse. Several studies (Chen and Silverstein 2000; Liu and Guo 2008; Silverstein et al. 2006) found that living with children is beneficial, but they did not distinguish between elderly couples living independently and elderly people living alone.

To date there has been to our knowledge only one Chinese study focusing on the emotional health consequences for the elderly of living in "generation-skipping" households, that is, with grandchildren but not with children. Silverstein et al. (2006) showed that grandparents in generation-skipping households were less depressed than other elderly people in their sample, especially when remittances were sent back by parents who had gone out for work. But their data were restricted to a sample of elderly people from rural townships within *Chaohu* City, a primarily agricultural city in central Anhui Province with high rates of temporary out-migration of adults for work. Given the specificity of the sample, it is not at all clear whether their results would hold for China in general.

In our analysis (described in detail below) we distinguish ten categories of living arrangements, which enables us to assess the effect of various combinations—elderly living only with spouse, with spouse; with spouse and grown children; with spouse, children, and grandchildren; and so on.

There are two competing hypotheses regarding the effect of living with grown children. The *family support hypothesis* posits a benefit of living with children on the ground that such arrangements facilitate material support (financial support and aid in daily life) and minimize loneliness and isolation, which may be a problem not only for those who live alone but also for elderly couples living independently. This is consistent with the claim of Davis-Friedmann (1983, 49) that, at least until the 1980s, "Life-long interdependence remains the preferred parent-child relationship among both young and old." For a contrasting view, see Logan et al. (1998), who found, using data from Tianjin and Shanghai, that both older and younger respondents preferred that the old people live separately. The *family conflict hypothesis*

posits that the irritations of family life may undercut any advantages of social interaction, even if material support is enhanced. Such irritations may be particularly pronounced when an elderly person or couple lives with a son because then the primary caregiver is likely to be a daughter-in-law and mother-in-law/daughter-in-law conflicts are legendary in many cultures, not least China[4] (Wolf 1968, 869–870).[5] Thus, we expect that those who live with their daughters, who are a small but nontrivial fraction of the elderly (over 10 percent of those living with a grown child in rural areas and over 20 percent in urban areas [Zeng and Wang 2003, 111]), will be emotionally better off than those who live with their sons and that this gap will be more pronounced for elderly women than for elderly men.

It often has been claimed that elderly Chinese value close relations with their children and their children's families. As Silverstein et al. note (2006, S257–S258)

> … what is distinctive about Chinese grandparents is that their contributions take place within a cultural system of filial piety. In a society that emphasizes collective family goals over individual goals, the contributions of grandparents to the welfare of their children's families fulfill a cultural mandate and are highly valued …. Such provisions allow grandparents to command greater respect from younger generations and to better secure claims to filial piety, which in turn enhances their sense of purpose and self-worth within the family ….

(see also Mjelde-Mossey et al. 2005; Strom et al. 1999; Yan 2003). Insofar as this is so, living in households with both grown children and grandchildren should enhance emotional well-being compared to other living arrangements. Whether living in generation-skipping households also enhances emotional well-being is more problematic, because whatever benefit is derived from interaction with grandchildren and from contributing to the collective well-being of the family may be offset by the burden of caring for them. Moreover, in China as elsewhere, adolescent children can be difficult (Jessor et al. 2003). Thus, we might well expect differences in the feelings of the grandparents depending on the age of the child.

Finally, we expect to replicate the widely observed negative consequences of living alone for the emotional well-being of the elderly due to the psychological costs of social isolation.

Data, Variables, and Analytic Strategy

Data and Variables

The data used in this analysis are from the 2010 wave of the *China Family Panel Studies*, a (nearly) national multi-stage probability sample of Chinese families. In the 2010 wave, 14,960 households were included in the sample

and interviews were conducted with all family members age ten or older, resulting in a total sample of 57,115 (Xie and Hu 2014). Our sample is restricted to 7,038 people age sixty and older who responded to the adult questionnaire (see Table 2). We further restrict the sample to 7,015 by excluding the twenty-three elderly respondents living with children under age sixteen to ensure that those living with children are living with adult children.[6]

The choice of age sixty as the cutoff point for defining the elderly population reflects the nominal retirement age for male workers (for women it is age fifty for ordinary workers and fifty-five for civil servants [Wikipedia 2013]). Davis-Friedmann (1983, 3) asserts that "Age 60 … marks a … universally accepted point in time for entry into the oldest generation, and among those who have celebrated this birthday there are few who still identify themselves as middle-aged." To be sure, the Chinese National Bureau of Statistics defines old age as beginning at age sixty-five, as indicated by the fact that since 1982 separate statistics have been presented for this age group (perhaps to conform to international conventions). Still, we think the nominal retirement age is the optimal cutting point. This follows conventional practice when an upper age limit is imposed in population surveys. For example, many U.S. studies restrict samples to those no older than sixty-four.

Details of the sample design are given in Xie and Hu (2014). Here it suffices to note that six strata were initially specified: four provinces (Gansu, Guangdong, Henan, and Liaoning) and a provincial-level city (Shanghai) were each treated as separate strata and a sixth stratum consisted of the remaining twenty provinces sampled. Within each of the four single-province strata, sixteen counties were chosen at random but with probability proportional to size (PPS); however, in Shanghai thirty-two townships (which in urban areas are known as "streets"—*jiedao*) were chosen PPS as the first stage. Within the twenty-province stratum, eighty counties were chosen PPS. Within each county four villages or neighborhoods were chosen PPS; for Shanghai, two villages or neighborhoods were chosen PPS within each *jiedao*. Within each village/neighborhood, twenty-five households were chosen at random. Because of the multistage design, it is necessary to take account of the resulting clustering of the sample; we specify the village/neighborhood as the cluster variable. In addition, we weight the data using "post-stratification adjustment weights" for the adult sample, which take account of the differential sampling rates implied by the sample design, a correction for differential non-response rates, and a final adjustment to replicate the age-by-sex distribution of the 2010 census (Lü and Xie 2012).

Since several variables used in our analysis have missing data, including a family income variable (592 missing values) and a measure of closeness to children (1,362 missing values, including those without living children), we imputed all missing values using Stata 13's multiple imputation (-mi-)

procedures,[7] carrying out ten imputations, and conducted our analysis using -mi- procedures (StataCorp 2013). Our analysis is based on 7,015 completed cases.

The legitimacy of multiple imputation turns on the plausibility of the assumption that missing values for the variables to be imputed are "missing at random" (MAR) (Little and Rubin 2002; Rubin 1987)—that is, that net of predictors of these variables included in a model there is no correlation between the true value of the variable and the likelihood that the value is missing in the data set. This is a bit problematic with respect to family income since those in high income families might be concerned about information being shared with the tax authorities. But since the variable refers to family rather than individual income, this is unlikely to be an important concern on the part of respondents. Moreover, despite vivid newspaper accounts about the Chinese nouveau riche, they represent only a tiny fraction of China's population and are known to be resistant to being interviewed and hence are unlikely to be found in survey samples. The large amount of missing data on the "closeness to children" variable also is problematic. Of the 1,362 missing values, 182 are due to the fact that the respondent has no living children. However, the remainder are troublesome. One possibility is that people who are not close to their children are less likely to answer the "closeness" question because of the discomfort involved in admitting to themselves (and to the interviewer) that, against strong norms, they are not close to their children. Although no direct assessment of this conjecture is possible, it is possible to carry out a partial indirect test—if those who failed to respond to the closeness questions are significantly less happy and satisfied and more depressed than otherwise comparable people who did respond, we have a basis for suspecting that the missing data on the "closeness" reflect a lack of closeness to children, given that—as shown below—closeness to children is positively associated with happiness and satisfaction and negatively associated with depression. To assess this possibility, we added a dummy variable to the set of variables in Table 3, coded 1 if a response to the "closeness" variable was missing and coded 0 otherwise. We also imputed missing values for the "closeness" variable. Given this, the coefficients associated with the dummy variables for missingness on "closeness" can be interpreted as the expected difference with respect to happiness, life satisfaction, and depression between those missing information on closeness and others. It turns out that those missing information on closeness are *more* happy and satisfied than expected, not less. They also are less depressed, although the coefficient for depression is not significant. From these results we conclude that the hypothesis that those who are not close to their children are less likely to respond to the closeness question is unlikely. Since we have no other hypotheses regarding the possibility that the closeness variable is not MAR, we treat it as MAR and impute the missing cases.

Analytic Strategy

The analysis we conduct here can be divided into two parts. Our first task is to describe the distribution of noninstitutional living arrangements experienced by the elderly population. Second, we consider the consequences of living arrangements for the emotional well-being of the elderly. Descriptive statistics for all variables used in the analysis are shown in Table 1 and 2.

Distribution of Living Arrangements of the Elderly

In our introductory discussion we noted that the living arrangements of the elderly in China have been changing rapidly as China has urbanized, the urban housing stock has become increasingly dominated by small apartments designed for nuclear families, and internal migration has increased. However, until now there has been no definitive assessment of the contemporary living patterns of the elderly or of trends in these patterns over time.

Table 2 provides such estimates for 2010. In constructing the table, we classified our elderly respondents on the basis of the focal relationships identified in each line of the table. The first category consists of married[8] couples living together but without children or grandchildren—although there could be other relatives or non-relatives in the household as well.[9] This is the reference category for the models shown below. The guiding principle in constructing our typology was to be able to distinguish the presence of a spouse, a grown child (or children, including in-laws), and a grandchild or children. To make these distinctions, and also distinguish between people living with other relatives, people living with nonrelatives, and people living alone, requires ten categories. We tried to reduce the number of categories by testing the significance of differences between pairs of coefficients when studying the effect of living arrangements on emotional outcomes (e.g., contrasting Category 2 with Category 5 to assess whether living with a spouse mattered among those living with grown children but without grandchildren), but concluded that there were too many instances in which corresponding coefficients were significantly different to warrant combining categories.

Since 17 percent of elderly respondents identified in the household questionnaire failed to respond to the adult questionnaire, it is important to assess whether the respondents constitute an unbiased subset of all elderly adults. Since, with one exception,[10] we lack adequate data on the personal characteristics of nonrespondents, we resorted to the simple expedient of comparing the distribution of living arrangements among the elderly counted as household members with the distribution of elderly respondents to the adult questionnaire. Inspection of the right and left panels of Table 2 makes it clear that there is relatively little difference between the distributions (the indexes of dissimilarity, Δ, are, respectively, 4.4, 9.5, and 7.6 for

Table 1

Correlations, Means, and Standard Deviations for the Variables Used in the Analysis,[a] Chinese Adults Age Sixty and Older in 2010

Correlations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Happiness	1.00																
2. Life satisfaction	0.56	1.00															
3. Depression	–0.37	–0.32	1.00														
4. Age	–0.04	–0.05	0.11	1.00													
5. Female	–0.02	–0.04	0.13	0.06	1.00												
6. Currently married	0.09	0.06	–0.14	–0.37	–0.19	1.00											
7. Any living children	0.10	0.08	–0.07	–0.02	0.10	0.14	1.00										
8. No. of living children	0.04	0.04	0.08	0.28	0.14	–0.02	0.38	1.00									
9.Health	0.25	0.22	–0.40	–0.09	–0.12	0.05	0.04	–0.07	1.00								
10.No physical limits	0.12	0.09	–0.26	–0.19	–0.11	0.12	–0.00	–0.04	0.28	1.00							
11.Urban residence	0.19	0.08	–0.18	–0.02	0.02	0.04	0.01	–0.16	0.15	0.10	1.00						
12. Years of schooling	0.12	0.08	–0.19	–0.20	–0.26	0.20	0.02	–0.20	0.12	0.14	0.27	1.00					
13. Vocabulary	0.16	0.12	–0.24	–0.22	–0.34	0.20	0.01	–0.20	0.16	0.20	0.32	0.72	1.00				
14. ln(fam. income)	0.16	0.13	–0.14	–0.08	–0.03	0.02	0.02	–0.14	0.10	0.07	0.26	0.22	0.27	1.00			
15. Inadequate housing	–0.04	–0.02	0.06	0.04	0.02	–0.04	–0.02	0.02	–0.03	–0.05	–0.05	–0.07	–0.07	–0.07	1.00		
16. Closeness to children	0.29	0.24	–0.16	–0.08	0.03	0.08	0.07	–0.01	0.10	0.06	0.15	0.13	0.14	0.14	–0.03	1.00	
17. Helping exchanges	0.09	0.10	0.00	0.04	0.03	–0.05	0.06	0.06	–0.02	–0.03	0.03	0.05	0.05	0.10	0.06	0.14	1.00
Mean	3.79	3.62	1.59	69.3	0.50	0.70	0.96	3.12	3.70	0.86	0.43	2.94	9.68	7.85	0.16	4.03	1.40
Standard deviation	1.05	1.04	0.74	7.4	0.50	0.46	0.18	1.57	1.19	0.34	0.49	4.12	10.5	2.37	0.37	0.76	1.25

Notes: [a]All coefficients are weighted by the final weights for adults ("post enumeration strata adjustment weights"). See text for details. Since Stata's -mi- procedures do not permit estimation of correlations or standard deviations, we have simply estimated these coefficients across all ten imputations.

rural, urban and all respondents). We thus are comfortable treating the sample of respondents as representative of noninstitutionalized elderly people in China.

From the left-hand column of the table, it is evident that 65 percent of the elderly population continue to live with their spouses and that of these fewer than half (40 percent) live with grown children or grandchildren. The tendency to live with a spouse but not with children or grandchildren is somewhat more common among the urban elderly than among the rural elderly (42 percent vs. 35 percent) and the tendency to live with grandchildren, whether in 3-generation or generation-skipping households, is somewhat more common among the rural elderly (35 percent vs. 27 percent); there are no other rural-urban differences of note. It also is evident that even in rural China, the 3-generation household is no longer dominant—if it ever was: 28 percent of the rural elderly live in 3-generation households, as do 22 percent of the urban elderly. Interestingly, rural-urban differences are more pronounced in the left-hand panel than in the right-hand panel, where—with the exception of the propensity for couples to live independently (Category 1)—they essentially disappear. This probably reflects rural-urban differences in the living arrangements of the oldest old who, as just noted, were disproportionately unlikely to respond to the adult questionnaire.

Much has been made (e.g., Chan 2009, 9; China Youth Research Center 2006; Guo 2008) of an increasing propensity to send children to live with their grandparent(s). The claim is that when two parents both "go out for work"—that is, become labor migrants—it is difficult to care for their children due to inadequate housing, inadequate supervision, and difficulties in arranging suitable schooling (Chan and Buckingham 2008; Liang and Chen 2007; Liang et al. 2008). Similarly, young professionals may lack the time to care for their children. Thus, they may send them to live with grandparents, who presumably are happy to take on the task of caring for grandchildren. In the next section of the paper, we study whether this last claim is correct. For now, we simply note that "generation-skipping" households are quite uncommon; only about 6 percent of the elderly live in such households and most (81 percent) of these are households in which both grandparents are present. Finally, very few people live with other relatives or nonrelatives but about 17 percent live alone.

Determinants of Emotional Well-Being of the Elderly

We now turn to consideration of factors affecting the emotional well-being of the elderly, with particular attention focused on the effects of the living arrangements we have been exploring. We first introduce the variables studied and the models estimated and then discuss the results.

Table 2

Percentage Distribution of Living Arrangements of the Elderly (Age Sixty and Older) in China in 2010

	Household sample[a]			Person sample		
	Rural	Urban	Total	Rural	Urban	Total
1. Living with a spouse but not with grown children (or children-in-law) or grandchildren	35.2	42.1	39.0	34.9	39.3	36.8
2. Living with a spouse and grown child (or child-in-law) but no grandchildren	6.6	7.2	6.9	5.8	6.9	6.3
3. Living with a spouse, grown child (or child-in-law), and grandchildren	15.7	13.3	14.4	16.1	17.6	16.8
4. Living with a spouse and grandchildren but not with any grown children or children-in-law	6.4	3.2	4.7	7.9	5.2	6.8
5. Living with a grown child (or child-in-law) but no grandchildren and no spouse	5.7	4.8	5.2	6.3	4.8	5.6
6. Living with a grown child (or child-in-law) and grandchildren but not with a spouse	12.1	9.0	10.4	13.4	11.5	12.6
7. Living with grandchildren but not with any grown children or children-in-law or a spouse	1.1	1.1	1.1	1.4	1.5	1.5
8. Living with other relatives who are not spouse, grown children or children in-law, or grandchildren	1.3	0.9	1.1	1.5	0.7	1.2
9. Living with nonrelatives	0.6	0.2	0.4	0.4	0.5	0.4
10. Living alone	15.3	18.2	16.9	12.1	12.0	12.1
Total	100.1	100.0	100.0	99.8	100.0	100.1
N[b]	3,866	4,611	8,477	4,021	3,017	7,038

Notes: [a]These distributions are based on responses to two questionnaires—a family household questionnaire and a questionnaire for all adults residing in the selected family households. The left-hand set is derived from the family roster in the family household questionnaire and hence includes some individuals who did not respond to the adult questionnaire. The right-hand set is derived from responses to the adult questionnaire. [b]Percentages are calculated from weighted data, but the unweighted N's are shown to indicate the true sample sizes. The left panel is weighted by the final household weights. The right panel is weighted by the final adult weights.

Outcome Variables

We consider three measures of emotional well-being.

Happiness

Happiness is measured by a 1–5 scale. Respondents were given a scale:

Very unhappy–1–2–3–4–5–Very happy

and asked to indicate the point on the scale that corresponded to their answer to the question "How happy are you"?

Life Satisfaction

Life satisfaction also is measured on a 1–5 scale. Respondents were given a scale:

Very unsatisfied–1–2–3–4–5–Very satisfied

and asked to indicate the point on the scale that corresponded to their answer to the question "How satisfied are you with your life?"

Depression

We constructed a scale consisting of six items adapted from the widely used CES-D scale (Radloff 1977), which has been validated for studies of Chinese adults (Boey 1999; Lai 1995; Lin 1989). For each item, respondents were asked how often they felt this way during the past month: almost every day, two or three times a week, two or three times a month, once a month, or never. The response categories were scored from 1 ("never") to 5 ("almost every day"). Here are the six items, which are translated from the Chinese and are shown in English in Institute of Social Science Survey (2010):

1. Feel depressed and cannot cheer up
2. Feel nervous
3. Feel agitated or upset and cannot remain calm
4. Feel hopeless about the future
5. Feel that everything is difficult
6. Think life is meaningless

The scale was constructed by computing the mean score across items[11] on the 1–5 frequency scale for each respondent. The resulting scale is highly reliable: Cronbach's Alpha = 0.87.

As noted above, we consider two competing hypotheses—the *family support hypothesis*, which posits that those living in 2- or 3-generation households will be happier, more satisfied with life, and less depressed than those living independently with a spouse; and the *family conflict hypothesis*, which posits that those living independently with a spouse will be happier,

more satisfied with life, and less depressed. Of course, both arrangements should be better, from the point of view of emotional well-being, than living alone, which in China is regarded as a very undesirable condition.

Predictor Variables

In addition to our living arrangements typology, we explore the role of a number of factors that we expect to affect emotional well-being.

Gender

Women are known to be more prone to depression than are men (Castro-Costa et al. 2007; Chen et al. 2005; Mirowsky 1996; Prince et al. 1999), to be less happy (Pinquart and Sörensen 2001), and to have less satisfaction with life (Pinquart and Sörensen 2001). Given that, as we have shown, there are gender differences in living arrangements, it is necessary to control gender when assessing the net effect of living arrangements.

Education

Years of schooling should improve all aspects of emotional well-being, on the ground that education engenders efficacy and the ability to cope with adversity (Mirowsky and Ross 2003). For the same reason, we would expect a positive effect of vocabulary knowledge, which can be understood as a measure of intellectual competence net of years of schooling. Our measure of vocabulary knowledge is the number of words correctly read out loud from a list of 34 words the respondent was shown. (Since Chinese is an ideographic language, it is not possible to guess at the pronunciation of a word from features of the character(s) representing the word; each word must be memorized in the same way that Arabic numerals must be memorized.)

Living Child

This measure is scored 1 if the respondent has any living children and is scored 0 otherwise. Our assumption is that having living children promotes emotional well-being. This is particularly true given that almost all Chinese have children, which means that not having any living children at the time of the interview is generally due to the death of a child or children.

Health/Physical Limitations

We expect both (subjectively reported) better health and the absence of physical limitations to have positive effects on all three emotional

well-being measures. We measure health status by the respondent's report of how healthy s/he is on a 5-point scale that includes the response categories 1 "Healthy," 2 "Fair," 3 "Relatively unhealthy," 4 "Unhealthy," and 5 "Very unhealthy." We reversed the coding of this variable so that 5 is the healthiest response and 1 is the least healthy response. No Physical Limitations: Our respondents were asked five questions regarding ordinary physical capabilities: Can you touch the base of your neck with both hands? Can you touch your lower lumbar spine with both hands? Can you stand up immediately after sitting on a chair for a while? Can you pick up a book from the ground? How many steps does it take for you *to walk* around a full circular rotation? If respondents were unable to accomplish any of these tasks, including not being able to walk in a circle, they were scored as having physical limitations. This variable was scored 1 for those with no physical limitations and was scored 0 for those with physical limitations.

Urban Residence

We expect urban residence to contribute to emotional well-being, both because life is generally easier in urban areas, with more labor-saving devices, and because urban areas are likely to be less isolating due to higher population density and easier transportation.

Family Income

We expect poverty to negatively affect emotional well-being because poverty increases anxiety, increases practical difficulties in life, and makes it difficult to afford things that bring pleasure. The negative effects of poverty on emotional well-being have been clearly documented in many nations (Lorant et al. 2003; Lund et al. 2010; Lynch et al. 1997; Patel et al. 1999; Patel and Kleinman 2003). We measure poverty by the natural log of family income. Logging the income variable has the effect of accentuating differences at the bottom of the income distribution and flattening them at the top, which is what we want since the evidence suggests that the effect of income on emotional well-being pertains mainly to those in extreme poverty (Haushofer and Fehr 2014).

Inadequate Housing

Inadequate housing should have effects similar to poverty, by reducing comfort and increasing household tensions. It also is known that household crowding increases stress (Evans 2003).

Closeness to Children

Feelings of closeness to children should increase emotional well-being. Respondents were asked how close over the past six months their relationship was with each of their children, with response categories 1 "Not close at all," 2 "Not very close," 3 "Fair," 4 "Close," and 5 "Very close." We averaged responses across all children of each respondent. For those without children, and also those with children who failed to respond to the closeness question(s), we imputed scores (recall the discussion above). The imputed scores for those without children can be taken as the level of closeness to children we would expect if they had children.

Instrumental Exchanges with Children

Elderly respondents were asked whether they had engaged in any of the following activities with their children over the past six months (with a yes or no response to each item): 1 "Gave them economic help," 2 "They gave you economic help," 3 "You did housework for them," 4 "They did housework for you," 5 "You helped them take care of their children," 6 "They took care of you," 7 "You helped them with financial management," 8 "They helped you with financial management." We formed a scale of *instrumental exchanges* simply by adding the positive responses. Our scale thus ranges from 0–8. For those without children, and those who failed to respond, we imputed scores just as we did for the "closeness to children" variable. We expect instrumental exchanges to be positively associated with the emotional well-being of the elderly because they reduce social isolation and give the elderly a greater sense of being valued, appreciated, and loved.

This variable also can be taken as a crude proxy for whether those not living with adult children have children living nearby since positive responses to the housework and care items are much more likely in such cases (Logan et al. 1998). Of course, it would be preferable to have a direct measure of residential proximity but such a measure is not available in our data set.

Results

Table 3 shows, for each outcome, estimates for two models—a model assessing the effect of living arrangements only, and a model assessing the effect of living arrangements when the other determinants just discussed are controlled.[12] In order to be able to contrast the effect of each pair of living arrangements, in Table 4 we show p-values for the significance of the difference between each pair of coefficients. The p-values for Model 1 (without controls) are shown above the diagonal in each panel while the p-values for Model 2 (with controls) are shown below the diagonal. To make the

pattern of results easier to grasp, we have bolded all p-values significant at or beyond the 0.05 level.

These results are striking. First, it is clear that Chinese elders fare best when they live independently with their spouse. They are happier, more satisfied with life, and less depressed than in almost all other situations. There are only two exceptions.

First, those in 3-generation families do not differ significantly from independent elderly couples in their emotional well-being, except that the widowed in such families (Category 6) are more depressed.[13] Clearly, the presence of grandchildren mitigates the negative effects of living with adult children. Note that living with grown children but not grandchildren is associated with less happiness and satisfaction and more depression regardless of whether one's spouse is present, but when no individual factors are controlled the effects are significantly stronger among the widowed, as can be seen in from a comparison of Categories 2 and 5 in Table 3 and Table 4; with controls the effects remain stronger among the widowed but the differences are no longer significant.

The benefits of grandchildren do not extend to generation-skipping households. Those living with a spouse and grandchildren (Category 4) are less happy and, when other factors are controlled, more depressed than those living independently, and those living with grandchildren but not a spouse (Category 7) are even less happy and more depressed and also are less satisfied. Here, however, the differences between Categories 4 and 7 are not significant, except for the greater depression of those in Category 7 when no other factors are controlled. Recall that we posited that elderly people in generation-skipping households that included adolescent children might be even less happy and satisfied and more depressed than those living with younger children. This turns out not to be the case. If anything, the presence of adolescents (those age twelve to fifteen and those age sixteen to seventeen) promotes emotional well-being rather than undercutting it, perhaps because older children contribute more and demand less than younger children. However, the results are rather weak and only sometimes significant.

As expected, those who live alone (Category 10) are less happy and more depressed than those living with a spouse regardless of whether children or grandchildren also are present (Categories 1–4). They also are less happy and more depressed than widows living in 3-generation households (Category 6). However, they are no less happy, no less satisfied, and no more depressed than widows living in generation-skipping households (Category 7).

Finally, the small fraction (6/10ths of 1 percent) who live with nonrelatives appear to be even happier and less depressed (but no more satisfied) than those who live independently with their spouse. We have no explanation for this outcome, which holds even when individual level determinants of emotional well-being are controlled. We considered the possibility that those

living with nonrelatives were more likely to be employed or to hold particularly high status jobs. But neither explanation can account for the difference: they are slightly more likely to be employed but hold lower status jobs on average than do other elderly. Thus, we have no explanation to offer except the somewhat cynical view that you can choose your friends but not your relatives and that relatives are often trouble.

Effects of Control Variables

We now turn to the effects of attributes other than living arrangements. On the whole, these control variables behave about as expected and help to explain why the effects of living arrangements sometimes are reduced when individual characteristics are controlled.

Men are less likely to be depressed than are women. This is not simply a reflection of the greater likelihood that women are widowed since the effect is net of living arrangements, which, as we have noted, include the distinction between living or not living with a spouse.

Those with one or more living children are happier, more satisfied, and less depressed than those with no living children.

Those who regard themselves as healthier are happier, more satisfied, and less depressed. However, the absence of physical limitations is not associated with happiness or satisfaction, but does protect against depression.

Those who live in urban environments are happier and less depressed but not significantly more satisfied.

Those with greater cognitive capacity, as measured by vocabulary knowledge net of education, are happier, more satisfied, and less depressed; but years of schooling does not behave as expected—education is not significantly associated with happiness or depression and, contrary to expectations, reduces life satisfaction. These results probably reflect the high correlation between years of schooling and vocabulary knowledge ($r = 0.72$).

Those in more comfortable circumstances, as measured by family income, are happier, more satisfied, and less depressed; and those with inadequate housing are more depressed but not significantly less happy or satisfied.

Finally, as expected, those who feel close to their children are happier, more satisfied, and less depressed. Those who report more helping exchanges with their children are happier and more satisfied but no less depressed than those who report fewer exchanges.

The Effect of Type of Parent-Child Relationship on Emotional Well-Being

At the outset we suggested that certain intergenerational relationships are particularly fraught with difficulty—the classic case being the relationship between a mother-in-law and her daughter-in-law. Tables 5–7 explore the

Table 3

Coefficients of Regression Models of Emotional Outcomes, by Type of Living Arrangement, Chinese Adults Age Sixty and Older in 2010 (n = 7,015; P-Values in Parentheses; Coefficients with P-Values <0.05, Except for Constants, Are Boldfaced)

	Happiness		Life Satisfaction		Depression	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Constant	3.86 (0.000)	1.23 (0.000)	3.69 (0.000)	1.47 (0.000)	1.49 (0.000)	3.13 (0.000)
Living arrangements (the omitted category is "Living with one's spouse but no child or grandchild")						
2. Living with spouse and grown child but not a grandchild	**–0.107** (0.045)	**–0.131** (0.009)	**–0.193** (0.000)	**–0.228** (0.000)	**0.135** (0.000)	**0.141** (0.000)
3. Living with spouse, grown child, and a grandchild	0.069 (0.059)	0.023 (0.516)	0.002 (0.964)	–0.067 (0.062)	0.036 (0.162)	0.042 (0.076)
4. Living with spouse, grandchild, but no grown children	**–0.133** (0.010)	**–0.096** (0.049)	–0.058 (0.258)	–0.058 (0.250)	0.058 (0.111)	**0.071** (0.029)
5. Living with a grown child but not with spouse or grandchild	**–0.332** (0.000)	**–0.228** (0.000)	**–0.395** (0.000)	**–0.332** (0.000)	**0.395** (0.000)	**0.186** (0.000)
6. Living with a grown child and grandchild but not spouse	0.044 (0.282)	0.035 (0.377)	0.053 (0.183)	0.012 (0.769)	**0.169** (0.000)	**0. 099** (0.000)
7. Living with a grandchild but not spouse or grown children	**–0.332** (0.001)	**–0.214** (0.029)	**–0.266** (0.010)	–0.177 (0.077)	**0.260** (0.000)	**0.170** (0.010)
8. Living with other relatives (not mentioned above)	**–0.257** (0.047)	–0.034 (0.777)	**–0.617** (0.000)	**–0.496** (0.000)	**0.334** (0.000)	**0.219** (0.008)
9. Living with nonrelatives	0.355 (0.063)	**0.377** (0.040)	–0.016 (0.932)	–0.010 (0.959)	**–0.295** (0.029)	**–0.240** (0.049)
10. Living alone	**–0.429** (0.000)	**–0.249** (0.000)	**–0.273** (0.000)	**–0.125** (0.002)	**0.280** (0.000)	**0.167** (0.000)
Joint significance	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female		0.027 (0.297)		–0.032 (0.216)		**0.067** (0.000)
One or more children still alive		**0.339** (0.000)		**0.282** (0.000)		**–0.176** (0.000)

(*Continued*)

Table 3 **Continued**

	Happiness		Life Satisfaction		Depression	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Health status (1–5 scale; 5 is best)		**0.170** (0.000)		**0.155** (0.000)		**–0.199** (0.000)
No physical limitations		0.067 (0.061)		0.038 (0.300)		**–0.267** (0.000)
Urban residence		**0.204** (0.000)		–0.012 (0.639)		**–0.096** (0.000)
Years of schooling		–0.0055 (0.167)		**–0.0092** (0.026)		–0.0019 (0.477)
Vocabulary knowledge (range: 0–32)		**0.0058** (0.000)		**0.0049** (0.004)		**–0.0061** (0.000)
ln (per person family income)		**0.026** (0.000)		**0.030** (0.000)		**–0.012** (0.002)
Inadequate housing		–0.053 (0.103)		–0.017 (0.611)		**0.046** (0.035)
Closeness to Children (1–5 scale; 5 is closest)		**0.298** (0.000)		**0.254** (0.000)		**–0.078** (0.000)
Instrumental exchanges with children (0–8 scale; 8 is high)		**0.041** (0.000)		**0.059** (0.000)		0.004 (0.587)

effects of living in intergenerational relationships with various categories of children and children-in-law. As can be seen in the right-hand panel of Table 2, 41 percent of our elderly respondents lived with a child or child-in-law. As would be expected from traditional norms, by far the most prevalent arrangement, which includes about 60 percent of the elderly who live with the next generation, is for an elderly couple or individual to live with a son and his wife (Table 5). Interestingly, the next most prevalent arrangement is to live with a son who has no spouse present. The remaining relationships tend to be much less common, each including less than 10 percent of those in 2-generation households. Still, it is of interest to explore the consequences of the entire range of relationships for the emotional well-being of the elderly.

We do this for women only, since we know from preliminary analysis, not presented here, that in general men's emotional health is not much affected by the nature of the intergenerational relationship. For women, by contrast, the effects are sometimes quite large.

The coefficients in Table 6 show the expected level of emotional well-being for women in each of the seven relationships we have distinguished. We have ordered the categories with respect to the average happiness of

Table 4

Significance of Differences Between Living Arrangements Categories in Table 3 (P-Values); Without Controls Above the Diagonal, with Controls Below the Diagonal (P-Values <0.05 Are Boldfaced)

	1	2	3	4	5	6	7	8	9	10
Happiness										
1. Spouse only	–	**0.045**	0.059	**0.010**	**0.000**	0.282	**0.001**	**0.047**	0.063	**0.000**
2. Spouse, child	**0.009**	–	**0.002**	0.707	**0.002**	**0.013**	**0.046**	0.273	**0.019**	**0.000**
3. Spouse, child, g-child	0.516	**0.004**	–	**0.000**	**0.000**	0.580	**0.000**	**0.013**	0.138	**0.000**
4. Spouse, grandchild	**0.049**	0.585	**0.025**	–	**0.005**	**0.003**	0.076	0.361	**0.013**	**0.000**
5. Child	**0.000**	0.154	**0.000**	**0.049**	–	**0.000**	0.999	0.592	**0.001**	0.127
6. Child, grandchild	0.377	**0.004**	0.771	**0.021**	**0.000**	–	**0.000**	**0.023**	0.107	**0.000**
7. Grandchild	**0.029**	0.436	**0.017**	0.264	0.891	**0.013**	–	0.648	**0.001**	0.367
8. Other relatives	0.777	0.451	0.642	0.628	0.136	0.576	0.240	–	**0.008**	0.196
9. Non-relatives	**0.040**	**0.007**	0.055	**0.011**	**0.001**	0.066	**0.004**	0.056	–	**0.000**
10. Live alone	**0.000**	**0.041**	**0.000**	**0.007**	0.728	**0.000**	0.726	0.083	**0.001**	–
Life satisfaction										
1. Spouse only	–	**0.000**	0.964	0.258	**0.000**	0.183	**0.010**	**0.000**	0.932	**0.000**
2. Spouse, child	**0.000**	–	**0.001**	**0.047**	**0.005**	**0.000**	0.516	**0.002**	0.364	0.188
3. Spouse, child, g-child	0.062	**0.003**	–	0.286	**0.000**	0.258	**0.011**	**0.000**	0.926	**0.000**
4. Spouse, grandchild	0.250	**0.009**	0.868	–	**0.000**	0.057	0.062	**0.000**	0.829	**0.000**
5. Child	**0.000**	0.140	**0.000**	**0.000**	–	**0.000**	0.260	0.109	0.054	0.056

(*Continued*)

Table 4 **Continued**

	1	2	3	4	5	6	7	8	9	10
6. Child, grandchild	0.769	**0.000**	0.077	0.231	**0.000**	–	**0.003**	**0.000**	0.717	**0.000**
7. Grandchild	0.077	0.634	0.278	0.268	0.153	0.066	–	**0.031**	0.243	0.950
8. Other relatives	**0.000**	**0.042**	**0.001**	**0.001**	0.222	**0.000**	**0.041**	–	**0.008**	**0.009**
9. Non-relatives	0.959	0.255	0.763	0.802	0.094	0.909	0.424	**0.027**	–	0.181
10. Live alone	**0.002**	0.081	0.213	0.246	**0.001**	**0.006**	0.617	**0.003**	0.539	–
Depression										
1. Spouse only	–	**0.000**	0.162	0.111	**0.000**	**0.000**	**0.000**	**0.000**	**0.029**	**0.000**
2. Spouse, child	**0.000**	–	**0.015**	0.112	**0.000**	0.429	0.120	**0.041**	**0.002**	**0.001**
3. Spouse, child, g-child	0.076	**0.007**	–	0.577	**0.000**	**0.000**	**0.003**	**0.001**	**0.015**	**0.000**
4. Spouse, grandchild	**0.029**	0.110	0.413	–	**0.000**	**0.008**	**0.011**	**0.004**	**0.011**	**0.000**
5. Child	**0.000**	0.322	**0.000**	**0.014**	–	**0.000**	0.095	0.535	**0.000**	**0.010**
6. Child, grandchild	**0.000**	0.280	0.053	0.468	**0.028**	–	0.233	0.079	**0.001**	**0.002**
7. Grandchild	**0.010**	0.681	0.057	0.165	0.825	0.296	–	0.521	**0.000**	0.786
8. Other relatives	**0.008**	0.366	**0.034**	0.088	0.706	0.155	0.635	–	**0.000**	0.568
9. Non relatives	**0.049**	**0.002**	**0.022**	**0.013**	**0.001**	**0.006**	**0.003**	**0.002**	–	**0.000**
10. Live alone	**0.000**	0.502	**0.000**	**0.013**	0.642	**0.040**	0.964	0.534	**0.001**	–

Table 5

Percentage Distribution of Intergenerational Relationships Among Elderly Chinese (Age Sixty and Older) Who Live with an Adult Child or Child-In-Law (n = 3,441)

	% distribution	
Intergenerational relationship	Males	Females
Son only	17.0	16.1
Son and son's wife	59.2	62.9
Daughter only	7.3	5.8
Daughter and daughter's husband	5.7	6.7
Son and daughter	1.9	0.6
Son, daughter, and their spouse(s)	3.3	2.2
Daughter-in-law only	5.7	5.6
Total	100.1	99.9
N	(1,639)	(1,802)

our elderly women when no other factors are controlled and to facilitate interpretation have transformed the coefficients to express them as deviations from the (weighted) mean level of happiness; employing such transformed coefficients is sometimes known as Multiple Classification Analysis, MCA (Andrews et al. 1973; Treiman 2009, 164–166).

Table 7 gives the p-values for the significance of the difference between each pair of coefficients in Table 6.

First, let us consider the effect of intergenerational relationships on happiness. Inspecting the coefficients in Tables 6 and 7 it is evident that elderly women are happiest when they live with their married daughters or with both a son and daughter at least one of whom is married. They are significantly less happy when they live with a son and his wife (and probably also children without spouses, although—almost certainly because of the very small number of women in this relationship—the coefficients are not significant). Still worse is living with only a daughter, worse yet is living with only a daughter-in-law, and worst of all is living with only a son. Introducing controls moderates but does not fundamentally alter the pattern of relative happiness.

Our conjecture is that the observed pattern arises from a combination of two features of family life: (1) women get on better with their daughters than with their daughters-in-law and stress is likely to be particularly great when the son is not present, which accounts for the greater unhappiness of women living with their daughter-in-law only than of women living with their son and daughter-in-law. (2) Even adult children are burdensome, probably demanding too much and helping too little, with sons being worse in this

respect than daughters. In the absence of a spouse of the child, it is easy to slip back into a no-longer-appropriate mother-child relationship with resentments building up on both sides, the adult child chafing at being infantilized and the elderly mother feeling underappreciated. It is notable that when an elderly woman lives with only a son (or sons)—the least happy of all intergenerational relationships—the son is usually unmarried: in our data only 22 percent are married (with 87 percent of their wives absent because they have gone out for work); half have never married; 23 percent are divorced; and 5 percent are widowed. They are not particularly young, age 41 on average, which is similar to the age of adult children in other multiple-generational family relationships. So the tensions that arise are not due to young men chafing at a family relationship they are ready to leave but rather to ongoing tensions between mothers and sons, perhaps exacerbated by the sons' own lack of success in finding or keeping a wife.

Life satisfaction is greatest among women living with a married daughter and is lowest among those living with unmarried adult children, presumably because a parent's task is not complete until all the children are married.

Table 6

MCA Coefficients for Effect of Type of Intergenerational Relationship with Co-Residents on Emotional Well-Being, Chinese Women Age Sixty and Older (n = 1,802)

	Happiness		Life Satisfaction		Depression	
	Model 1[a]	Model 2	Model 1	Model 2	Model 1	Model 2
Son and daughter and their spouse(s)	0.453	0.371	0.102	0.032	–0.182	–0.028
Daughter and daughter's husband	0.408	0.221	0.451	0.280	–0.134	0.040
Son and son's wife	0.093	0.087	0.073	0.068	–0.054	–0.052
Son and daughter	0.078	–0.168	–0.191	–0.386	–0.244	–0.066
Daughter only	–0.078	–0.120	–0.308	–0.322	–0.065	–0.003
Daughter-in-law only	–0.349	–0.195	–0.218	–0.077	0.393	0.283
Son only	–0.448	–0.364	–0.293	–0.229	0.188	0.094

Notes: [a]Model 1 is without controls. Model 2 includes as controls the same control variables as in Table 3 except for whether there are any living children, since the elderly women analyzed in this table all have living children. While in principle those living with a daughter-in-law only could be doing so as the result of the death of a son, there are no such cases in our sample.

Table 7

Significance of Differences Between Intergenerational Relationship Categories in Table 6 (P-Values); Without Controls Above the Diagonal, With Controls Below the Diagonal (P-Values <0.05 are Boldfaced)

	1	2	3	4	5	6	7
Happiness							
1. Son and daughter and their spouse(s)	–	0.813	**0.030**	0.287	**0.007**	**0.000**	**0.000**
2. Daughter and daughter's husband	0.406	–	**0.002**	0.312	**0.000**	**0.000**	**0.000**
3. Son and son's wife	0.073	0.160	–	0.961	0.131	**0.000**	**0.000**
4. Son and daughter	0.108	0.212	0.396	–	0.637	0.194	0.098
5. Daughter only	**0.009**	**0.016**	0.064	0.881	–	0.073	**0.003**
6. Daughter-in-law only	**0.002**	**0.002**	**0.006**	0.930	0.616	–	0.407
7. Son only	**0.000**	**0.000**	**0.000**	0.516	**0.048**	0.143	–
Life Satisfaction							
1. Son and daughter and their spouse(s)	–	0.078	0.871	0.429	**0.048**	0.116	**0.031**
2. Daughter and daughter's husband	0.198	–	**0.000**	0.061	**0.000**	**0.000**	**0.000**
3. Son and son's wife	0.830	**0.039**	–	0.422	**0.002**	**0.010**	**0.000**
4. Son and daughter	0.241	**0.045**	0.155	–	0.736	0.937	0.760
5. Daughter only	0.079	**0.000**	**0.002**	0.849	–	0.575	0.908
6. Daughter-in-law only	0.586	**0.014**	0.188	0.359	0.132	–	0.551
7. Son only	0.143	**0.000**	**0.000**	0.626	0.491	0.217	–
Life Depression							
1. Son and daughter and their spouse(s)	–	0.737	0.313	0.816	0.424	**0.000**	**0.005**
2. Daughter and daughter's husband	0.602	–	0.297	0.656	0.517	**0.000**	**0.000**
3. Son and son's wife	0.835	0.185	–	0.427	0.894	**0.000**	**0.000**
4. Son and daughter	0.874	0.637	0.947	–	0.474	**0.011**	0.075
5. Daughter only	0.848	0.660	0.509	0.778	–	**0.000**	**0.005**
6. Daughter-in-law only	**0.020**	**0.013**	**0.000**	0.125	**0.005**	–	**0.025**
7. Son only	0.308	0.489	**0.002**	0.464	0.239	**0.023**	–

Elderly women living with a daughter-in-law but no son (almost always because the son is away working) suffer substantially more depression than any other group, even when other determinants of depression are controlled. We conjecture that this results from inherent tensions between

mothers-in-law and daughters-in-law that are not mitigated when the son is absent.

Summary and Conclusions

We have carried out the first comprehensive study of the effect of living arrangements on the elderly in China, using data from a nearly national probability sample of those age sixty and older conducted in 2010. Previous analysis has been restricted to the oldest old (those age eighty and older, who constitute only 12 percent of the elderly population), or to samples of selected populations, such as the rural elderly in particular locales.

We found that living independently with one's spouse is the preferred arrangement from the point of view of emotional well-being, measured by happiness, life satisfaction, and depression. But living in 3-generation families, with adult children and also with grandchildren is about equally beneficial except that widows in such arrangements tend to suffer greater depression than elderly couples living independently. By contrast, the emotional well-being of the elderly is compromised by living in 2-generation households—whether with an adult child but no grandchildren or with a grandchild but not an adult child. Presumably this is for different reasons —there may be more conflict in 2-generation adult-only households but there may be a greater burden on the elderly in generation-skipping households. Unfortunately, our data do not permit us to analyze either conflicts or burdens. Our one indirect test—that the presence of teenagers in generation-skipping households would negatively affect emotional well-being—did not come out as expected; indeed, if anything the presence of teenagers increased emotional well-being. Our final point about both types of two generation households—adult-only households and generation-skipping households—is that the strain on emotional well-being is exacerbated by the absence of a spouse, which almost always is the result of widowhood.

As expected, neither living with other relatives nor living alone is a desirable state. Both groups are particularly unhappy, dissatisfied with life, and depressed, although those who live with other relatives are even less satisfied than those who live alone. By contrast, the tiny fraction of those who live with non-relatives are, if anything, emotionally better off even than those living independently with their spouse.

When we subdivide those living with an adult child on the basis of the kind of intergenerational relationship and study effects on the emotional well-being of elderly women it turns out that it is most desirable to live with a married daughter and least desirable to live with an unmarried son, except that depression is even greater when living with a daughter-in-law only than when living with an unmarried son. For elderly men, the type of intergenerational relationship makes little difference.

Although we have interpreted our results as if emotional outcomes are dependent on living arrangements, rather than the reverse, it must be acknowledged that the causal order cannot be definitively established given that we are analyzing cross-sectional data. Still, we think our assumptions regarding causal direction are compelling. First is the matter of temporal order. The emotional outcome variables reflect feeling states—known to be quite volatile over time (Beck, Steer, and Garbin 1988, 84; Elkins, Pincus, and Comer 2014; Fountoulakis et al. 2007)—at the time of the survey whereas living arrangements on average have persisted for some time. Second, when we contrast the feelings of those who live in 2-generation families with adult children, in 3-generation families, and in generation-skipping families it is difficult to imagine that the differences in outcomes reflect the greater propensity of those with more fragile emotional health to choose to live only with adult children or only with grandchildren but not in 3-generation families. Applying the same logic to other comparisons, it is much more plausible that outcomes reflect living arrangements than that living arrangements reflect emotional states. There is, to be sure, one exception. It is likely that widows are depressed because they are widows and also that they tend to live with their adult children because they are widows. But even for widows, the contrasts between the emotional states of those in various multiple-generation arrangements would seem to reflect the consequences of living arrangements rather than of propensities for widows with different emotional states to choose different multiple-generation living arrangements.

Given that the fraction of the elderly living independently with a spouse is increasing due to demographic changes, changes in migration patterns, and changes in housing stock, it is reassuring that this condition is fully as desirable as living in a 3-generation household and more desirable than virtually any other condition. Thus, in contrast to many other changes in Chinese society, the trend in living arrangements on the whole does not portend increasing trouble, although the increasing likelihood of generation-skipping households is not helpful to the elderly in such households. Interestingly, the cost is borne primarily by the elderly since, as Ren and Treiman (2013) have shown, on the whole children do not suffer emotionally from living in generation-skipping households.

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Notes

1. We use the term "widows" to refer to both females and males, both because it is the appropriate collective term for those of both sexes who have lost a spouse and because the existing evidence for China shows no gender differences in the psychological consequences of widowhood (Li et al. 2005).

2. Interestingly, as Zeng and Wang (2003: 105,112) showed, the proportion of 3-generation households increased between 1982 and 1990. However, this was due to the decline in the birthrate, which resulted in fewer children living in independent households, and the increase in longevity, which resulted in more elderly per adult child.

3. Our claims are specific to China. Some U.S. studies show that living alone increases the likelihood of psychological well-being (e.g., Michael et al. 2001). On the other hand, a meta-analysis of 25 studies from various nations by Hu et al. (2012) concludes that, on average, living alone increases the risk of depression.

4. Nobel Laureate Mo Yan's novel, *Big Breasts and Wide Hips* (2004), gives a vivid depiction of a mother-in-law/daughter-in-law conflict that ends with the daughter-in-law murdering her senile mother-in-law.

5. Davis-Friedman (1983: 72–73) suggests that mothers-in-law are often critical of their co-resident son's bride who, especially in rural areas because of village exogamy, is inherently a newcomer to an established household and community and is unfamiliar with family routines. While mothers-in-law may try to minimize conflict in recognition that eventually the power relationship will shift, with the older woman becoming dependent on the younger, many do not have the foresight or the will to do so.

6. Of the twenty-three excluded elderly, fourteen had both children under age sixteen and children age sixteen or older in the household. Clearly, these are people who had children late in life.

7. Specifically, we imputed happiness, life satisfaction, family income, closeness to children, instrumental exchanges with children, health status, and years of schooling. Variables without missing values included as predictors were depression score, type of residential arrangement (coded as a set of dummy variables), gender, age, whether housing is inadequate, the number of people in the household, urban vs. rural residence, agricultural vs. non-agricultural registration, local registration, number of productive adults (age eighteen to fifty-nine) in the household, number of productive age males in the household, mean age of household adults (age eighteen and older), mean years of schooling of household adults, a 3-category typology of

labor migration/remittances, a 3-category region-of-residence variable, whether the respondent had any of several physical limitations, whether currently married, whether currently widowed, whether the family owned any businesses, the number of words the respondent could correctly read, the number of living children of the respondent, and interactions between gender and whether married and between gender and whether widowed, using Stata 13's -chained- specification.

8. We also include cohabiting partners in the married category, but in contemporary China—especially among the elderly—such couples constitute only a tiny fraction of the population. In our data, 0.1 percent were cohabiting, compared to 76 percent who were currently married.

9. The likelihood of other relatives or nonrelatives in the household is very low. Only 1 percent of the elderly in categories 1–7 of Table 2 live in such situations and the highest percentage (in Category 3) is only 2.1.

10. We do know the age of both respondents and nonrespondents, and thus were able to calculate nonresponse rates by age. They increase monotonically from 10 percent of those age sixty to sixty-four to 66 percent of those age ninety-five and older (calculations based on post-stratification adjustment weights for the household samples, which yield an overall non-response rate of 14 percent, compared to 17 percent when calculated from the unweighted data).

11. Means were computed for each person for whom we had nonmissing data on at least four of the six items.

12. We initially estimated a "seemingly unrelated regression" model (using Stata's -sureg- command). But this command is not implemented for -mi- procedures. Thus, we estimated separate models using our imputed data. The main advantage of seemingly unrelated regression is that it provides estimates of correlations among residuals. In our data (based on cases for which we had complete information for all variables in Model 2 of Table 4), the correlation between the residuals for happiness and satisfaction was approximately 0.5 and the other two correlations were approximately 0.25 in absolute value. Thus, it appears that at least to some extent the same unmeasured factors affect all three indicators of emotional well-being.

13. Those living with children and/or grandchildren but without a spouse are almost all widows—about 90 percent; so widowhood clearly drives any differences in outcomes between Categories 2 and 5, 3 and 6, and 4 and 7.

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