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ORIGINAL PAPER

"Take My Mother-in-law…Please!"

A Study of the Impact of Women's Bargaining Power on the Co-residence Decision in China

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Abstract This paper investigated the effect of the wife's bargaining power on the decision about intergenerational co-residence in China (i.e., whether she lived with the husband's mother or not). Using the China Health and Nutrition Survey data from 2000, this paper found evidence in favor of women's empowerment: the increase in women's bargaining power. Specifically, greater education and a more prestigious occupation for women, relative to their husbands', significantly reduced the probability of living with their mothers-in-law. The effect was particularly strong in urban areas.

Keywords Intergenerational co-residence · Living arrangement · Women's bargaining power · China

Introduction

This paper studied how the intergenerational co-residence decision was affected by women's bargaining power in China. Substantial attention has been paid to the living arrangements between young couples and their older parents. Research has examined the determinants and trends of the intergenerational co-residence decision (Chen 2005; Chu et al. 2011; Loken et al. 2013), as well as the effect of women's bargaining power on household decision-making and family outcomes (Doss 1996; Liu 2008). A number of theoretical studies have developed economic bargaining models to interpret family formation and household decision-making (Becker 1981; Lundberg and Pollak 1994; Manser and Brown 1980); in particular, decision-making regarding co-residence (Loken et al. 2013; Pensieroso and Sommacal 2010). Using data-driven empirical analysis, this paper contributed to the existing literature by emphasizing women's bargaining power relative to their husbands' in the decision about intergenerational living arrangements, and estimated the impact of women's bargaining power on the decision of whether or not to live with their mothers-in-law in China.

Traditionally, the Chinese family is patrilocal in structure and exhibits son preference (Fricke et al. 1994; Greenhalgh 1985). Further, the eldest son has the traditional responsibility for senior care (Lin et al. 2003; Whyte 2004). Therefore, if the son is married, the couple would still probably co-reside with the husband's parents. This common residence structure often results in tension between daughter-in-law and mother-in-law in China. Traditionally, once a woman is married, she becomes part of her husband's family, and has a commitment to take care of her parents-in-law. When her parents-in-law age, and need care, conventionally the young couple will share their house with their older parents. In an extended family, the relationship between mother-in-law and daughter-in-law is often contentious (Fischer 1983). Wallin (1954) found a tendency for there to be a significant level of "disharmony" between the mother-in-law and daughter-in-law, compared with any other in-law dyads studied. Apter (2010) found that over 60 % women were not happy and felt stressed in the long term because of the relationship with their female-in-laws. Mendes and Srighanthan (2009) considered potential reasons for the conflict between mother-in-law and daughter-in-law, especially in China. They found that traditionally, the conflict between mother-in-law and daughter-in-law reflected their roles in performing housework. Also, one deeper reason for the

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conflict is the different understandings of social rules between mother-in-law and daughter-in-law. Another reason for the tension is conflict over the favor of the son/husband; the mother-in-law feels isolated because she feels that she is losing her son when he is married, and spends more time with another woman—his wife. Finally, even though the daughter-in-law has married into the new family, she may still be considered an outsider with weak status in the family, but at the same time, has to be taught by the mother-in-law about how to do the households chores and take care of the children (Mendes and Srighanthan 2009).

Since the twentieth century, China has experienced rapid economic and social changes, which has gradually changed the status of women. Especially after the establishment of People's Republic of China in 1949, China passed or revised several laws to protect the rights for women, such as the Marriage Law to let women choose their husbands and have the right to divorce and the Inheritance Law to let the women have the right to inherit property.

More changes affecting the status of women occurred after 1980, when China emerged from its economic reform and opened its door to the world. The country experienced a transformation from a pure central-planned economy to a more market-oriented economy, and from an agricultural economy to an industrialized economy. During the transition process, Chinese people, particularly women, have had more opportunities to get access to better economic resources—higher education, better job and higher income. Figure 1 illustrates the literacy rates for youth females and adult females in China from 1982 to 2010. The literacy rate for adult females had already exceeded 50 % in 1982, climbed up to 68 % in 1990, and reached 93 % in 2010. The literacy rate for youth females was almost 100 % in 2010. Remarkably, the literacy rate for adult females has increased by 33 % between 1982 and 1990. Comparing with United States and Japan in any specific year, China's female labor force participation rate was much higher (indicated by Fig. 2). Particularly in 1990 and 1995, almost 80 % of the Chinese women took part in the labor force. While for American and Japanese women, this proportion was only around 70 and 60 % respectively. Now, after marriage most women choose to be full-time workers, instead of staying at home to take care of children and elders. The employment could increase women's self-efficacy and self-esteem (Campione 2008). The change of female employment conditions has also improved the status of women within the household (Lee 2012, 2014). Lee (2012) argued that the intra-household status of Chinese women has improved because of the one-child policy, as being the only child in the family, the girl might receive all the investments from her parents. Bian (1996) found that only-child girls received more education investments than the only-child sons. A daughter may have the same opportunity as the son to attain a good education, work in a decent job, and earn a high income, which would make her more confident and independent.

With its rapid economic growth of recent decades, China has become modernized, industrialized, and urbanized. This process has improved living conditions, and reduced the prevalence of the extended family, in favor of the nuclear family structure (Chen 2005; Goode 1970).[1] During the process of growth and modernization, Chinese women have played an important role in weakening the extended family tradition (Chen 2005; Goode 1970; Levy 1949). Higher education, better occupations, and higher income equip them with more earning potential and higher self-esteem, which give them stronger power to bargain with their husbands about household decision-making and family outcomes.

Lundberg and Pollack (1996) documented how the wife could have used her economic resources to help herself break out of the role of traditional household worker. Similarly, in order to avoid the direct tension between the daughter-in-law and mother-in-law, the wife could use her economic resources, as her bargaining power, to affect the co-residence decision. The purpose of this paper was to find out whether the wife's bargaining power mattered for the intergenerational living arrangements, and how this rising bargaining power affected the decision. This paper was an empirical application, which used a binary logistic model to examine the bargaining power effect by employing the China Health and Nutrition Survey (CHNS) data of 2000. There has been a substantial literature discussing how to measure women's bargaining power. A common proxy has been to use women's economic resources and status, such as income and employment (Chu et al. 2011; Hoddinott and Haddad 1995; Iyigun and Walsh 2007; Liu 2008; Phipps and Burton 1998; Yusof and Jarita 2010), and education (Liu 2008; Mahmud et al. 2012). Those papers claimed that a woman who had achieved a higher education level, more formal years of education, had a better job, or earned a higher income, would have had a stronger bargaining position. Receiving education and earning income by working outside the home would make the woman more knowledgeable and informed, thereby increasing her bargaining power (Doss 2013). However, Doss (1996) noted the difficulty interpreting a woman's income as reflecting bargaining power, because a woman with more bargaining power might have chosen not to

[1] The nuclear family is defined as a family group with adults (husband and wife), and their children. This is in contrast to the extended family that also includes intergenerational members, such as the elderly parents.

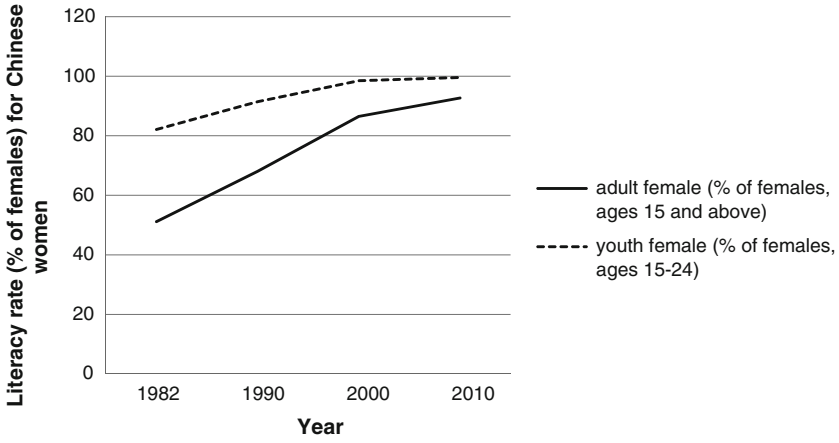

Fig. 1 Literacy rate (% of females) for Chinese women, 1982–2010 *Source* World Bank

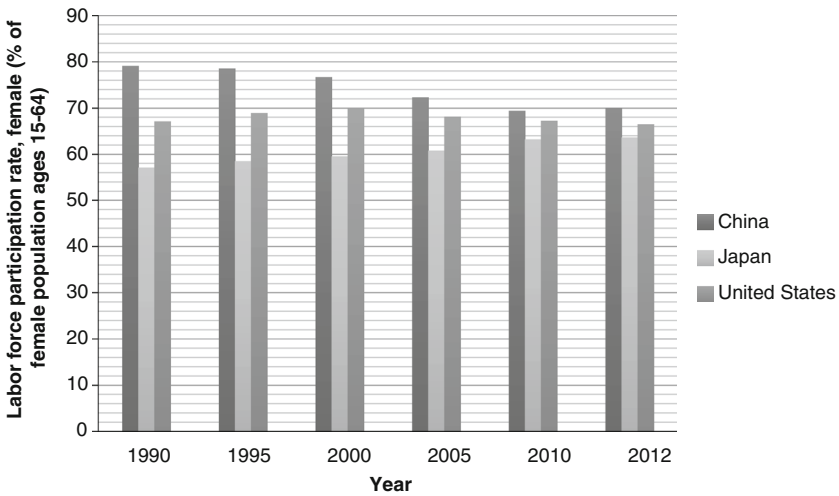

Fig. 2 Labor force participation rate, female (% of female population ages 15–64) in China, United States and Japan, 1990–2012 *Source* World Bank

work, and to be supported by other household members. This paper also found inconclusive effects of relative income.

Other measures of bargaining power have also been considered and used in the literature, such as the relationship to the head of the household—whether the wife was the head or not (Liu 2008), exposure to media (Mahmud et al. 2012), and asset ownership (Doss 1996). I found, however, that these other measures were related to, and were essentially reflected in women's economic resources and status. For example, a highly-educated wife was more knowledgeable and intellectual, was more willing to read, and write, and was more likely to be exposed to media. The measure of whether a woman was the head of the household was not a good proxy either. The wife may have considered herself as the head only if the husband was not at home during the survey interview and she was the only adult in the family. Therefore, this paper considered only economic resources as suitable measures of women's bargaining power, as reflected in women's education level, occupation, and income. I used relative values of all the three economic resources compared with their husbands', in order to emphasize the role of *relative bargaining power*. The empirical results indicated that the wife's economic position relative to her husband's, as measured by education and occupation, was an important factor in determining whether the wife lived with her mother-in-law. The effect was much stronger in urban areas.

The remainder of this paper is organized as follows. The "Data" section documents the data. The "Empirical Results" section presents the empirical results and robustness check. The "Conclusions and Extensions" section concludes, and discusses the implications.

Data

The dataset used in this paper was the 2000 CHNS.[2] It was jointly implemented by the Carolina Population Center at the University of North Carolina at Chapel Hill, and the National Institute of Nutrition and Food Safety at the

[2] The website of China Health and Nutrition Survey: http://www.cpc.unc.edu/projects/china.

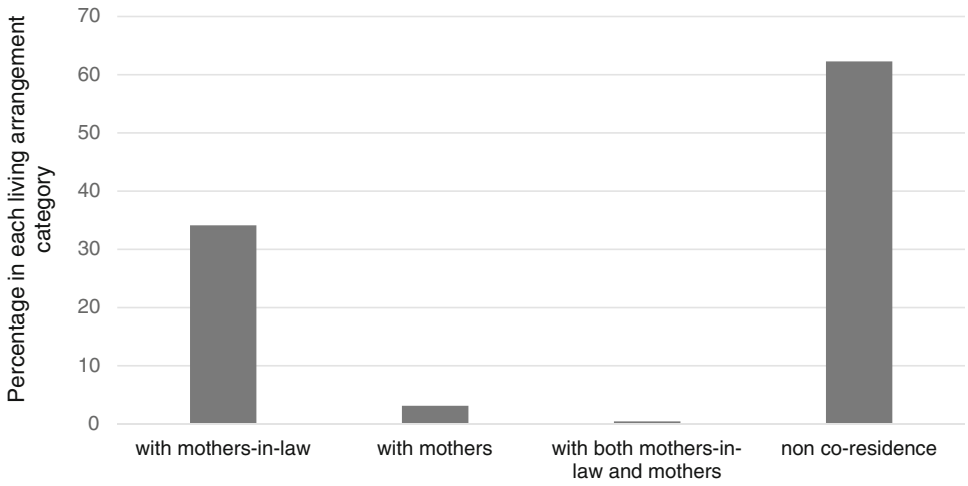

Fig. 3 Distribution of intergenerational living arrangements for women living with mother/mother-in-law *Source* 2000 China Health and Nutrition Survey (CHNS)

Chinese Center for Disease Control and Prevention. Using a multistage, random cluster process, this survey drew a sample of about 4,400 households from a total of 26,000 individuals in nine provinces that varied substantially in geography, economic development, public resources, and health indicators.[3]

This paper took women as the target respondents. This survey was advantageous in addressing the question posed by this paper, because it had a special questionnaire for ever-married women. This paper focused on women who, at the time of the survey, were married and for whom their mothers and mothers-in-law were still alive. Since both mothers and mothers-in-law could provide household services such as childcare, it is important to maintain the symmetry of living arrangement choices. The interviewers asked the women how far they lived from their mothers/mothers-in-law. The options were: 1. same household; 2. next door or adjacent to household; 3. same neighborhood/village; 4. outside neighborhood, but same city or county; or 5. other city or county. Figure 3 shows the distribution of living arrangements between wives and their live mothers/mothers-in-law.

Figure 3 indicates that most of the women were either living together with their mothers-in-law, or living independently with their husbands. The women who were living with their own mothers only accounted for 3 % of the sample. In only 0.45 % of cases were mothers and mothers-in-law living in the same house with the wife.[4] Furthermore, Fig. 4 illustrates the proximity distribution of mothers-in-laws when women lived independently with their husbands. Obviously, most of the women still lived close to their mothers-in-law (46 % of them had mothers-in-law living next door or adjacent to household), though they selected to live independently with their husbands.[5] The distribution of living arrangements with mothers-in-law broken down by urban and rural area is presented in Fig. 5 The majority of women were living independently with their husbands regardless of the area of residence. For the whole sample, 72 % of women were living independently with their husbands. The proportion was 68 % for couples who were living in urban areas and 73 % for those who were living in rural areas. Compared with rural areas, more couples in urban areas were living with the husbands' mothers. This may have been caused by the housing shortage, or inadequate childcare and senior care facilities (Logan et al. 1998).

The baseline empirical equation estimated was as follows:

$$\begin{aligned} live = {} & c + \beta_1 * province + \beta_2 * urban + \beta_3 * migration \\ & + \beta_4 * milcare + \beta_5 * kid + \beta_6 * son + \beta_7 * hbrother \\ & + \beta_8 * marrytime + \beta_9 * diffage + \beta_{10} * diffedu \\ & + \beta_{11} * diffoccupation + \beta_{12} * diffincome + \varepsilon, \end{aligned}$$

where the dependent variable (*live*) was equal to one if wife and husband lived independently and zero if they lived together with the husband's mother, *province* was a set of dummy variables controlling for the nine provinces, and

[3] The nine provinces included four eastern coastal provinces and five inland provinces in the middle of China. The four eastern coastal provinces were Liaoning, Heilongjiang, Jiangsu, and Shandong. The five inland provinces were Henan, Hubei, Hunan, Guangxi, and Guizhou.

[4] For those mothers-in-law coresiding with their daughters-in-law, 69 % of them had living spouses (fathers-in-law), and 96 % of the fathers-in-law also lived together in the same house.

[5] For those mothers-in-law who were not coresiding with their daughters-in-law, 44 % of the mothers-in-law were living next door or adjacent to household; 24 % were living in the same neighborhood/village; 24 % were living outside the neighborhood, but the same city or county; and 8 % were living in a different city or county. Of mothers-in-law not coresiding with their daughters-in-law, 70 % had spouses (fathers-in-law) were still alive.

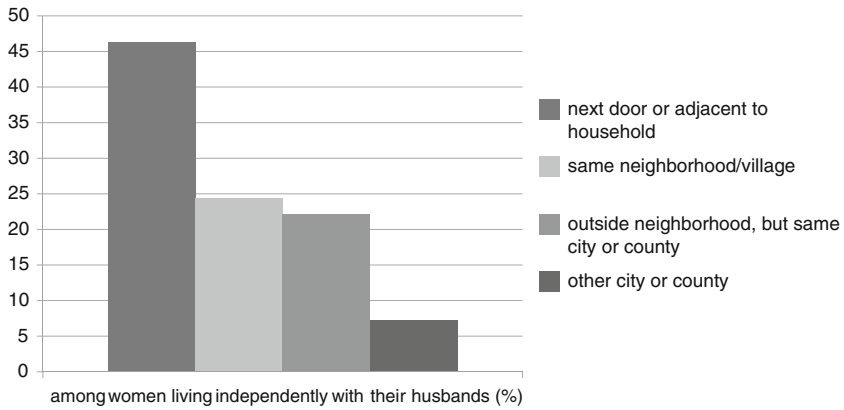

Fig. 4 Distribution of the proximity of mothers-in-law among the women living independently with their husbands *Source* 2000 China Health and Nutrition Survey (CHNS)

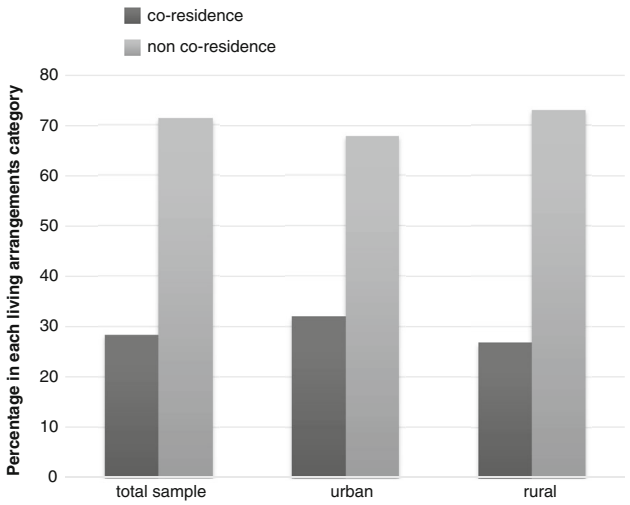

Fig. 5 Distribution of living arrangements with mothers-in-law for the whole sample, urban and rural areas *Source* 2000 China Health and Nutrition Survey (CHNS)

urban was a dummy variable equal to one if the couple currently lived in an urban area, zero if living in the rural area. The descriptive statistics in Table 1 showed that there were more couples living in the rural areas (72 %) than in the urban areas (28 %) in the sample. The variable *migration,* was equal to one if the households migrated from urban to rural areas or vice versa, was included in order to control for migrant households. According to Table 1, only 12 % of households were migrants. Table 1 showed that only 7 % of mothers-in-law needed care, as denoted by *milcare*, a dummy variable equal to one if the mother-in-law needed care and equal to zero otherwise. If the mother-in-law needed care, the couple was more likely to live with her and take care of her. The dummy variable *kid* was equal to one if the couple had any children living with them, and zero otherwise. Since the survey lacked information on the characteristics of the grandparents, I used *kid* to indirectly measure the family care services that the mother or father-in-law could have provided; if they moved into live with the young couple, they could have helped to take care of the children. *son* was a binary dummy variable that was equal to one if the couple had at least one boy living with them and *hbrother* was equal to one if the husband had any brothers and zero otherwise. With younger brothers, the husband may have been more likely to live with his mother because he was the older son and was therefore more responsible for taking care of his mother. With older brothers, the effect could have been the opposite. A younger husband may have had less of a commitment to take care of his mother; as such, he may have been less likely to live with her. The variable *marrytime* measured the number of years that the couple had been married.[6] This variable also captured the generation of the couple (i.e., in which decade or period they got married). Finally, *diffage* was a dummy variable capturing the difference between the wife's age and the husband's age. If the wife was older than the husband, *diffage* was one, and zero otherwise.

The last three variables represented the relative economic resources between husband and wife, in order to test the importance of the wife's bargaining power: *diffedu* represented the difference in the highest education level between husband and wife.[7] If the wife's highest education level was greater than her husband's, *diffedu* was equal to one, and otherwise it was zero. As reported in Table 1, only 15 % of wives had education levels higher than their husbands. Table 1 also showed the formal years of education for husband and wife respectively. On average, both husbands and wives had roughly 10 years of formal education. The variable *diffoccupation* represented the difference in occupation between husband and wife. I coded the

[6] In the data, there was information about the year in which the couple was married. *marrytime* was calculated by using the wave year (which is 2000) minus the married year.

[7] The highest level of education attained included 6 categories: 1—graduated from primary school, 2—lower middle school degree, 3—upper middle school degree, 4—technical or vocational degree, 5—university or college degree, 6—master's degree or higher.

Table 1 Descriptive statistics

Variables	Summary statistics				
	Mean	Std. dev.	Min.	Max.	Sample size
Dependent variable					
Live	0.726	0.014	0	1	992
Explanatory variables					
Urban	0.282	0.014	0	1	992
Migration	0.124	0.010	0	1	992
Milcare	0.070	0.008	0	1	952
Kid	0.947	0.007	0	1	992
Son	0.722	0.014	0	1	992
Hbrother	0.824	0.012	0	1	974
Marrytime	13.506	0.206	0	40	992
Hage	37.645	0.225	21.77	63.53	992
Wage	36.380	0.219	19.11	61.16	991
diffage	0.289	0.014	0	1	992
Heducation	10.280	0.131	0	18	992
Weducation	9.608	0.164	0	18	992
Diffedu	0.154	0.011	0	1	992
hwcollar	0.195	0.013	0	1	992
hbcollar	0.768	0.013	0	1	992
hunemp	0.037	0.006	0	1	992
wwcollar	0.177	0.012	0	1	992
wbcollar	0.745	0.014	0	1	992
wunemp	0.078	0.009	0	1	992
Diffoccupation	0.067	0.008	0	1	992
Hhinc	11.536	0.343	0.352	168	992
Diffincome	−1.871	0.213	−93.960	45.000	992

Note Provinces are not shown here. The definitions of all the variables are described in the paper

Source 2000 China Health and Nutrition Survey (CHNS)

occupation of each partner into three categories: unemployed, blue collar and white collar.[8] If a wife's occupation category number was greater than her husband's, then *diffoccupation* was one. In the sample, only 7 % wives had better jobs than their husbands, as reported in Table 1. There were more unemployed wives than unemployed husbands. *diffincome* measured the difference in income between husband and wife (i.e., wife's income minus husband's income), measured in thousands of Chinese Yuan. The negative mean of the difference in income between husband and wife implied that, on average, the husband earned more than the wife in the whole sample. In 2000, the average annual household income (*hhinc*) was around 12,000 Chinese Yuan.[9] All three relative variables were expected to have positive effects on the dependent variable (*live*), suggesting that stronger bargaining power of the wife decreased the likelihood of living together with her mother-in-law.

Empirical Results

Primary Estimation

The baseline estimations of the binary logistic model from the above empirical equation are presented in Table 2 as odds ratios. If the odds ratio was greater than one, the likelihood of the wife living independently with the husband, rather than living with the wife's mother-in-law, was greater. Models (1)–(3) showed the individual effect of each of the three women's bargaining power variables. Model (4) showed the results when all three measures were included together. Generally, the signs and effects of most

[8] Blue collar occupations included farmers, fishermen, hunters, skilled and non-skilled workers such as craftsmen and loggers, service workers such as waiters, hairdressers, cooks, etc., as well as policemen, drivers, etc. White collar occupations included senior/junior professionals such as doctors, professors, teachers, editors, and administrators/executives such as government officials, village leaders, secretaries, etc.

[9] Household income represented the total household annual income—pooled net annual income of husband and wife in thousands of Chinese Yuan, as reported in Table 1.

Table 2 Living arrangement between young couple and mother-in-law, basic models (odds ratios)

	(1)	(2)	(3)	(4)
Urban	0.787	0.764	0.806	0.752†
	(0.183)	(0.128)	(0.234)	(0.090)
migration	0.554*	0.578*	0.595*	0.545*
	(0.027)	(0.044)	(0.050)	(0.030)
Milcare	0.864	0.833	0.848	0.854
	(0.214)	(0.141)	(0.188)	(0.179)
Kid	0.717†	0.746	0.761	0.713†
	(0.078)	(0.119)	(0.142)	(0.079)
Son	1.168	1.214	1.195	1.188
	(0.349)	(0.241)	(0.281)	(0.295)
hbrother	6.890**	6.903**	6.850**	7.003**
	(0.000)	(0.000)	(0.000)	(0.000)
marrytime	1.105**	1.102**	1.102**	1.105**
	(0.000)	(0.000)	(0.000)	(0.000)
diffage	0.854	0.862	0.859	0.855
	(0.465)	(0.471)	(0.485)	(0.454)
Diffedu	2.183*	–		2.093*
	(0.013)			(0.014)
diffoccupation	–	2.045*		1.803*
		(0.038)		(0.024)
diffincome	–	–	1.003	1.003
			(0.809)	(0.851)
R^2	0.317	0.310	0.306	0.320
SBC	977.360	983.132	986.606	988.637
N	935	935	935	935

Note The definitions of all the variables are described in the paper. Dependent variable is whether the wife lives independently with her husband (*live*). Numbers in parenthesis are *p*-values. Dummies for the provinces are included in the regressions, but the results are not reported here

Statistical significance level † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

Source 2000 China Health and Nutrition Survey (CHNS)

control variables were consistent with previous findings, and our expectations. Controlling for provinces,[10] the variables *urban* and *milcare* both negatively affected the likelihood of living independently, with the odds ratios less than one, although these effects were statistically nonsignificant. The wife living in the urban area was less likely to live independently, which was consistent with earlier findings (Chu et al. 2011). In urban China, with the pressure of housing shortages, inadequate childcare and limited senior care facilities, couples may have had to consider co-residence with their parents (Logan et al. 1998). If the mother-in-law needed care, *milcare* equal to one, it was more likely for the couple to co-reside with her (Chen 2005). Having a child living in the household, *kid,* was marginally significant, at the 10 % level in Models (1) and (4), indicating that the couple was more likely to live with the mother-in-law. This result was consistent with Chen et al. (2000) and Hermalin et al. (1998), who indicated that in China grandparents often played a substantial role in providing care for their grandchildren. If the couple had at least one boy living with them (*son*), it was more likely for them to live independently, although the effects were not significant. *Migration* was significant in all models, at 5 % level, but with an odds ratios less than one; thus, migrant households were less likely to live independently. The following section discusses migrant households in more depth, when the sample was broken down into urban and rural areas as origin.

The number of years married, *marrytime*, and an indicator variable for if the husband had brother, *hbrother*, had a highly significant and positive effect on living independently. When the husband had brothers, the couple was seven times more likely to live independently, as indicated in Model (4). With brothers, the husband was not the only child and thus his responsibility to care for his parents was shared with his brothers. The data lacked information about whether the brothers were younger or older than the husband, or how many younger/older brothers the husband had. Hence, the effect of *hbrother* could not be segregated between older brothers and younger brothers. Chu et al. (2011) separated this variable into older and younger brothers, and found both variables were significant and consistently had positive effects on living independently.

The odds ratio of *marrytime* was 1.105 in Model (4), suggesting that if the couple's marriage duration was one year longer, the odds of living independently would have been 1.105 times greater than the odds of living with the mother-in-law. An alternative interpretation was that the odds of living independently could be higher for older generations of couples. This implied that older couples with longer marriages were generally more independent and were more likely to have the resources to live on their own. The wife being older than the husband—*diffage* was not significantly related to living arrangements with the mother-in-law, though with an odds ratio less than one for all models.

The woman's bargaining power variables—*diffedu*, *diffoccupation* and *diffincome*, all had odds ratios greater than one, suggesting a positive effect on living independently. In Models (1) and (2) respectively, the difference in education level and the difference in occupation were both significant at the 5 % level, with odds ratios greater than one. The odds ratios decreased in magnitude slightly after adding the effect of the difference in income in Model (4), but their significance levels were maintained. The difference in income had a positive effect in Models (3) and (4);

[10] In order to save the space, province variables were not shown in the tables. They are available upon request.

however the effect was not statistically significant. In Model (4), which included all three measures of bargaining power, the effect of differences in education and occupation were both strong. If the wife attained a higher education level than her husband, the odds of living independently would be 2.1 times greater than the odds of living together with the mother-in-law. Similarly, for occupation, if the wife had a better job than her husband, the couple was almost twice as likely to live independently.

Controlling for the Independent Effects of Education, Occupation and Income

Only considering the relative variables, without their absolute measures, may have caused statistical bias and inaccurate results due to omitted variables. Therefore, the wife's formal years of education (*weducation*), husband's formal years of education (*heducation*), wife's occupation, husband's occupation, and the log of household income (*lhhinc*) were included to control for their independent effects.[11] Husband's/wife's occupation was a categorical variable, indicating if the husband/wife was white collar (*hwcollar/wwcollar)*, if he/she was blue collar (*hbcollar/wbcollar*), or if he/she was unemployed (*hunemp/wunemp*). There was a high correlation between husband's formal years of education and wife's formal years of education, as well as husband's occupation and wife's occupation.[12] In order to avoid multicollinearity, only the husband's formal years of education and occupation were included as controls. Table 3 reports the results.

As in Table 2, Models (1)–(3) in Table 3 presented the results of the logistic regressions measuring the individual effect of each of the women's bargaining power variables while Model (4) showed the results when including all the bargaining power variables simultaneously. The control for the log of total household income (*lhhinc*) was significant at the 1 % level, indicating that couples would have been more likely to live alone if they had a higher household income. This was consistent with Chu et al. (2011), who asserted that, with more economic resources, the couple could have "bought out" of the obligation of co-residence. As expected, living in an urban area (*urban*) became statistically significant at the 1 % level, with an odds ratio less than one, in all specifications. When adding the level controls, the negative effect of being a migrant household (*migration*) increased in statistical significance to the 1 % level in Model (2) to (4). The effect of a husband having brothers (*hbrother*) and the effect of the number of years couples have been married

Table 3 Living arrangement between young couple and mother-in-law with more control variables (odds ratios)

	(1)	(2)	(3)	(4)
urban	0.691**	0.593**	0.562**	0.455**
	(0.004)	(0.001)	(0.000)	(0.000)
migration	0.545*	0.531**	0.495**	0.438**
	(0.015)	(0.006)	(0.003)	(0.000)
milcare	0.862	0.883	0.887	0.932
	(0.237)	(0.375)	(0.243)	(0.495)
Kid	0.736†	0.749	0.755	0.716†
	(0.098)	(0.118)	(0.164)	(0.077)
Son	1.177	1.203	1.257	1.219
	(0.327)	(0.307)	(0.125)	(0.222)
hbrother	6.895**	6.895**	6.737**	6.955**
	(0.000)	(0.000)	(0.000)	(0.000)
marrytime	1.099**	1.096**	1.098**	1.107**
	(0.000)	(0.000)	(0.000)	(0.000)
hage	1.010	1.007	1.006	1.001
	(0.723)	(0.824)	(0.818)	(0.973)
diffage	0.865	0.851	0.868	0.830
	(0.501)	(0.463)	(0.529)	(0.426)
heducation	1.031	–	–	1.002
	(0.138)			(0.922)
diffedu	2.266*	–	–	2.048*
	(0.012)			(0.016)
hwcollar	–	3.206*	–	2.789*
		(0.024)		(0.033)
hbcollar		1.847		1.788
		(0.256)		(0.284)
diffoccupation	–	2.636*	–	2.028*
		(0.013)		(0.012)
lhhinc	–	–	1.853**	1.697**
			(0.000)	(0.000)
diffincome	–	–	1.019	1.018
			(0.135)	(0.151)
R^2	0.319	0.319	0.324	0.342
SBC	989.464	996.503	985.096	1,004.674
N	935	935	935	935

Note The definitions of all the variables are described in the paper. Dependent variable is whether the wife lives independently with her husband (*live*). Numbers in parenthesis are *p*-values. Dummies for the provinces are included in the regressions, but the results are not reported here. The reference group of husband's occupations is husband being unemployed (*hunemp*)

Statistical significance level † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

Source 2000 China Health and Nutrition Survey (CHNS)

[11] Husband's age (*hage*) and wife's age (*wage*) were also considered in the model to control for the independent effects of ages. For the concern of multicollinearity, only husband's age was added in the model eventually.

[12] For husband's education years and wife's education years, the Pearson Correlation Coefficient was 0.69, with the significance at the 1 % level; for husband's occupation and wife's occupation, the χ^2 test statistic for non-correlation was 519.6349, indicating they were significantly interdependent at the 1 % level.

(*marrytime*) both remained stable and significant at the 1 % level, indicating a positive effect on the likelihood of living without mother-in-law.

After controlling for the independent effect of the husband's formal years of education (*heducation*), the effect of a wife with a higher education level (*diffedu*) remained significant at the 5 % level in Models (1) and (4). In the most complete specification, a wife with a higher education level than her husband (*diffedu*) was 2.048 times more likely to live independently than to live with her mother-in-law. As expected, the odds ratio of relative occupation (*diffoccupation*) was greater than one in both Models (2) and (4), and was significant at the 5 % level. Finally, the difference in income (*diffincome*) had the expected sign, though it was not significant in either Model (3) or (4).

Breaking down the sample into urban and rural areas yielded interesting results, as shown in Table 4. However, splitting the sample based on the current location of residence may have caused endogeneity problems. Women with stronger bargaining power that did not like living together with their mothers-in-law may have persuaded their husbands to move into urban areas. Thus, instead of partitioning the sample based on their current residence I partitioned the sample based on their origin of birth, as measured by their households registration locations (urban registration or rural registration), namely, the *hukou* system. In the sample, 36 % of the couples were originally from urban areas, and 64 % were originally from rural areas. Among those who originally came from rural areas, most of them stayed, only 3 % migrated to the city. Of those who originally came from urban areas, 72 % couples stayed in the city. Since the proportion of households migrating from rural to urban areas was small, only 21 observations, the estimation of this group was not reliable and the results were not reported. Table 4 presents the estimations for three sub-samples: Column (1) people staying in the urban areas; Column (2) people staying in the rural areas, and Column (3) people migrating from urban to rural areas. Column (3) showed that only 97 households moved from urban to rural areas, from which the results were ambiguous because of the problem of quasi-completion.[13] Hence, the main focus of my interpretation was the non-migrant households. As shown in Column (1) of Table 4, when the couples stayed in urban areas, difference in income (*diffincome*) became significant at the 1 % level, with an odds ratio greater than one. The effect was not significant for the rural households, although the odds ratio was very close in magnitude to the odds ratio found for urban households. Meanwhile, the wife being more highly educated than the husband (*diffedu*) showed a stronger effect for urban residents than for rural residents. Similarly, the variable that indicated that the wife had a better job than the husband (*diffoccupation*) was 1 % significant for urban couples; however, the effects were much larger for rural couples, though the effect was not significant. Controls for the husband's occupation (*hwcollar* and *hbcollar*) had negative and nonsignificant effects on living

Table 4 Living arrangement between young couple and mother-in-law with more control variables, by migration status (odds ratios)

	Staying in urban (1)	Staying in rural (2)	From urban to rural (3)
milcare	0.722	1.354	0.273
	(0.378)	(0.518)	(0.178)
Kid	0.888	0.898	0.184
	(0.768)	(0.622)	(0.186)
Son	2.389**	1.010	0.986
	(0.010)	(0.952)	(0.986)
Hbrother	6.982**	7.745**	129.058**
	(0.000)	(0.000)	(0.000)
marrytime	1.125*	1.109**	1.193†
	(0.013)	(0.000)	(0.084)
hage	0.939	1.013	1.046
	(0.200)	(0.742)	(0.561)
diffage	0.463*	0.821	8.612**
	(0.050)	(0.381)	(0.002)
heducation	0.932	1.060	0.913
	(0.116)	(0.101)	(0.110)
diffedu	3.011**	2.059†	0.343
	(0.001)	(0.078)	(0.404)
hwcollar	0.379	5.122**	0.861
	(0.374)	(0.003)	(0.869)
hbcollar	0.234	6.024**	0.995
	(0.150)	(0.002)	(0.997)
diffoccupation	1.913**	3.768	0.493
	(0.004)	(0.182)	(0.505)
lhhinc	2.200*	1.357†	9.971*
	(0.017)	(0.081)	(0.017)
diffincome	1.022**	1.014	1.161**
	(0.000)	(0.614)	(0.000)
R^2	0.420	0.343	0.715
SBC	338.838	625.701	159.037
N	250	568	97

Note The definitions of all the variables are described in the paper. Dependent variable is whether the wife lives independently with her husband (*live*). Numbers in parenthesis are *p*-values. Dummies for the provinces are included in the regressions, but the results are not reported here. The reference group of husband's occupations is husband being unemployed (*hunemp*)

Statistical significance level † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

Source 2000 China Health and Nutrition Survey (CHNS)

[13] The problem of quasi-completion occurs when an independent variable nearly perfectly predicts one of the outcome categories.

Table 5 Robustness check of difference in income, by alternative income variables, with more control variables (odds ratios)

	Difference in income (in Chinese Yuan)	Whole sample	Staying in urban	Staying in rural
Group 1	More than 0	1.105	1.221	1.031
		(0.304)	(0.674)	(0.861)
Group 2	More than 1,000	1.338	1.072	1.713**
		(0.178)	(0.897)	(0.002)
	0 to 1,000	0.851	1.620	0.619
		(0.447)	(0.286)	(0.232)
Group 3	>3rd quartile (more than 400)	1.044	1.490	1.109
		(0.858)	(0.344)	(0.717)
	2nd–3rd quartile (−200 to 400)	0.789	1.724	0.668
		(0.282)	(0.410)	(0.268)
	1st–2nd quartile (−340 to −200)	0.725	1.403	0.701
		(0.444)	(0.261)	(0.533)

Note The other variables are skipped here but are available upon request. Difference in income is wife's net annual income less her husband's net annual income, in thousands of Chinese Yuan. For both group 1 and 2, the reference group is: the difference in income is at most 0 Chinese Yuan. For group 3, the reference group is: the difference in income is at most equal to 1st quartile of the distribution of the difference in income. Numbers in parenthesis are *p*-values

Statistical significance level † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

Source 2000 China Health and Nutrition Survey (CHNS)

independently for urban couples, while they had positive and significant effects for rural couples. When urban and rural couples were compared, this suggested that a wife having a better job than her husband (*diffoccupation*) was important in determining living arrangements in the urban areas, however the husband's occupation (*hwcollar* and *hbcollar*) played a more important role in determining the living decisions regarding mother-in-law in the rural areas.

From the above analysis, there were a small proportion of women who had higher education levels and better occupations than their husbands. However, in terms of the significant effect of the difference in education (*diffedu*) and the difference in occupation (*diffoccupation*) it seemed that this small proportion of women had substantial bargaining power to make it more likely to live independently with their husbands, even after controlling for the husband's education (*heducation*) and occupation (*hwcollar* and *hbcollar*). Women with relatively prestigious occupations and relatively high education had greater power than their husbands to make a decision within the family.

Robustness Check

To test the sensitivity of some key results, I conducted a series of robustness checks. I recoded the continuous variable for difference in income in three different ways. First, a binary variable for difference in income was generated that was equal to one if the wife earned more than the husband and zero otherwise. The second coding broke the income difference into three categories: if the wife earned 1,000 Chinese Yuan more than her husband, if husband earned 1,000 Yuan more than the wife, and if the husband and wife earned within 1,000 Yuan of each other.[14] Similarly, the last coding scheme for income broke income differences into quartiles. The results, which were shown in Table 5, suggested the effect of the difference in income was not significant when using categorical variables of income. This implied that the relative income between the wife and the husband was not a robust factor to affect intergenerational living arrangements. Although not significant, the signs of odds ratios were consistent with the results in Table 3, greater than one, for the couples living in urban areas.

According to the distribution of the difference in income, there were several outliers, extreme small values for the difference in income that accounted for 5 % of the sample. After truncating the sample to eliminate those 5 % of observations, the difference in income, regardless of continuous or categorical coding, became statistically nonsignificant. Therefore, the significance of difference in income was driven by those extreme observations. I

[14] The frequency results suggested 1,000 Chinese Yuan might have been an appreciate threshold for difference in income between the wife and the husband. For 69 % of the couples, the wife's income was less than the husband's income. The wife earned more than the husband, but the difference was less than 1,000 Chinese Yuan, for 13 % of couples. For 18 % of couples, the wife earned at least 1,000 Chinese Yuan more than the husband.

Table 6 Robustness check: the wife's mother also living together, with more control variables (odds ratios)

	Whole sample	Staying in urban	Staying in rural
diffedu	2.205**	3.040**	2.284*
	(0.006)	(0.001)	(0.037)
diffoccupation	1.923*	1.758*	3.677
	(0.015)	(0.011)	(0.193)
diffincome	1.017	1.018**	1.014
	(0.197)	(0.002)	(0.587)
R^2	0.331	0.390	0.338
SBC	1,029.347	352.616	637.446
N	961	263	581

Note The other variables are skipped here. Availability upon request. The definitions of all the variables are described in the paper. Numbers in parenthesis are *p*-values

Statistical significance level † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

Source 2000 China Health and Nutrition Survey (CHNS)

concluded that the relative income was not a robustly significant factor in determining living arrangements.

The analysis thus far has excluded the proportion of wives whose mothers also lived together with the couples, which may have caused selection bias. This section reports the results of a robustness check by including these observations, shown in Table 6. Comparing Table 6 to Table 3 and 4, it suggested that all three relative bargaining power variables were robust, in terms of sign and significance, to the inclusion of these additional observations.

An alternative way to investigate the above selection bias problem was to estimate a multinomial logistic regression by separating the living arrangements for the wife into three groups: living with her mother-in-law only; living with her mother only; living independently with her husband. In order to check whether there was any difference between the wife living with her mother-in-law or living with her own mother, a small group of couples that co-resided with both mothers-in-law and mothers were deleted, only 2 observations. Table 7 reports the results of this exercise, where living independently with the husband was considered as the reference group. Generally, the results demonstrated that breaking down the living arrangements into three groups instead of two made little difference. For each bargaining power variable, regardless of sub-sample, the odds ratios were less than one; this indicated a lower likelihood of living together with the mother-in-law as compared to living independently with the husband. As for the likelihood of the wife living with her own mother, the effects were not conclusive; the signs of the odds ratios were inconsistent for all three relative bargaining power variables. The statistical software indicated the problem of quasi-complete separation of data points when running this regression, which may have been caused by the small proportion of the wives who lived with their mothers only (3 %). Accordingly, the estimated odds ratios may have not been fully reliable. However, the multinomial logistic regression demonstrated that the likelihood of living with the mother-in-law was not significantly different when a third possible living arraignment was introduced into the model.

Conclusions and Extensions

This paper investigated the association between a woman's bargaining power and intergenerational co-residence with

Table 7 Robustness check: multinomial logistic regression for living arrangements, with more control variables (odds ratios)

	Whole sample		Staying in urban		Staying in rural	
	Living with mother-in-law	Living with mother	Living with mother-in-law	Living with mother	Living with mother-in-law	Living with mother
diffedu	0.492*	3.930**	0.352**	2.955*	0.487†	18.579**
	(0.022)	(0.004)	(0.004)	(0.023)	(0.077)	(0.001)
diffoccupation	0.512*	0.610	0.589**	1.018	0.265	0.000**
	(0.021)	(0.416)	(0.008)	(0.984)	(0.184)	(0.000)
diffincome	0.982	0.970†	0.976**	0.942†	0.986	1.040
	(0.165)	(0.084)	(0.001)	(0.053)	(0.598)	(0.192)
R^2	0.378		0.453		0.402	
SBC	1,334.604		543.005		831.204	
N	959		263		579	

Note The reference group for living arrangements is living independently. The other variables are skipped here. Availability upon request. The definitions of all the variables are described in the paper. Numbers in parenthesis are *p*-values

Statistical significance level † $p < 0.1$, * $p < 0.05$, ** $p < 0.01$

Source 2000 China Health and Nutrition Survey (CHNS)

her mother-in-law. The empirical analysis provided evidence that co-residence, in China, depended on the women's bargaining power in the household. Using three proxies for the wife's bargaining power—wife's education level relative to her husband's, the wife occupation relative to her husband's, and the difference between wife's income and husband's income—I found strong evidence that the wife's bargaining power impacted the couple's co-residence decision. The likelihood of the couple having lived with the wife's mother-in-law declined if the wife attained a higher level of education or a better occupation than her husband. However, relative income did not have a robust effect on the co-residence decision. My results also indicated that women's bargaining power may be more important in urban areas than in rural areas. The difference may reflect the industrialization and urbanization following the economic reforms of the past 30 years. Women have more access to economic opportunities when they are living in a city. The extensive employment opportunities that exist in urban China may represent high potential returns to educated women that do not exist in the rural areas. A wife with a more prestigious job and a higher level of education may control more economic resources, and hold a higher position of social status, earning her a stronger position when bargaining in household decisions.

Important sources of women's bargaining power are a product of economic growth, modernization and the urbanization process. This paper provided strong evidence for the effectiveness of a woman's economic resources as bargaining tools in determining the living arrangements decision. The findings of this paper have important implications for women's contributions to Chinese society as a whole. The rise of women's bargaining power could mitigate the well documented family tension, especially between mothers-in-law and daughters-in-law. As women's educational attainment and participation in the workforce increase, more couples will choose to live independently with their husbands. This process speeds the transformation process of the Chinese family structure from the extended model to the nuclear model. Since elderly parents traditionally offer care and support to young couples in China, such as taking care of young children, this transformation of the family structure implies that the traditional system of elderly care within the family will continue to give way to a market-oriented system where the elderly are cared for by those outside of the family. Outside caregivers, such as those in nursing homes, are more specialized in taking care of the elderly. Similarly, this transformation might also promote the development of day care services. In addition to those economic and social adjustments, the rise of women's bargaining power would gradually diminish the expectation that the young couples have to take care of the elderly parents. Sending them to the nursing home might be a better choice because the elderly could receive a better service with more professional care. From a policy prospective, as in other developed countries this may become a large expense for households or for the government.

Just as economic development in western countries coincided with greater rights for women, in part through women's increased educational attainment and participation in the labor force, the economic development of China is bringing about similar societal changes. Growth and urbanization are contentious issues in China. The results of this paper indicated an additional benefit of growth and urbanization, namely, women's empowerment. As development and urbanization continue, more women in China will find themselves with more bargaining power within the family, and it is likely that this increased bargaining power has implications well beyond the decision of intergenerational co-residence, an exciting area for future research.

The empirical model in this paper that was estimated to analyze the effect of women's bargaining power on living arrangements was still preliminary, due to the limitations of the data from CHNS. For example, if the mother-in-law lived in the same house with the young couples, the data provided the relevant demographic characteristics of the mother-in-law, including her age, education, income, etc. However, if the mother-in-law did not live together with the young couple, her demographic characteristics were available in another household, which could not have been matched to the household of the young couple. The lack of information regarding the ties between mother-in-law and daughter-in-law, particularly when they lived separately, was the main limitation of this dataset. Though, the CHNS data were still advantageous for analyzing living arrangement determinants, especially about China. Few household surveys in China collected data about household living arrangements, but CHNS covered information about living arrangements and living proximity between elderly parents and young couples. Undoubtedly, this model could be improved for future investigation once more characteristics of the elderly parents become available and the link between them and the young couples is established.

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