# 國家科學及技術委員會補助專題研究計畫報告

## 與公婆同住?女性的議價能力及上一代選擇的影響

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中文摘要：本文探討與夫家父母跨世代同住決策及其決定因素。我們所使用的豐富資料讓我們可以控制橫跨三代的先生與妻子及父母及小孩的相關變數。我們使用非線性追蹤資料模型來控制家庭中未觀察到且不隨時間改變的因素。我們發現父母和孩子的受教育年數與和夫家父母同住的可能性呈負相關。我們也發現有和夫家家人同住經驗的父母較少可能與孩子住在一起。實證結果還顯示與公婆同住的妻子賺取較高的薪資但也分擔更多的家務。這對與夫家父母同住造成的可能負擔，可能會成為女性步入婚姻的阻礙。

中文關鍵詞：與公婆同住、跨世代同住、家庭權力分配、非線性追蹤資料模型

英文摘要：This paper investigates the determinants of intergenerational patrilocal coresidence choices in Taiwan. Our rich dataset allows us to control for the characteristics of husbands and wives, parents and children, across three generations in the analysis. Using nonlinear panel data methods to control for the unobserved, time-invariant factors within households, we found that both parent's and children's years of education are negatively related with the probability of patrilocal coresidence. We also found that the parents with experience from patrilocal coresidence are less likely to live with their children. Empirical results also show that the wives who lived with husband's parents earned more salary and shared more household chores than the others. These expected burdens from patrilocal coresidence might deter women's
willingness to enter marriage.

英文關鍵詞：patrilocal coresidence; intergenerational coresidence; family bargaining; nonlinear panel data methods

# Coresidence with Husbands' Parents: Empirical Evidence from Three-generational Panel Data

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**Abstract**

This paper investigates the determinants of intergenerational patrilocal coresidence choices in Taiwan. Our rich dataset allows us to control for the characteristics of husbands and wives, parents and children, across three generations in the analysis. Using nonlinear panel data methods to control for the unobserved, time-invariant factors within households, we found that both parent's and children's years of education are negatively related with the probability of patrilocal coresidence. We also found that the parents with experience from patrilocal coresidence are less likely to live with their children. Empirical results also show that the wives who lived with husband's parents earned more salary and shared more household chores than the others. These expected burdens from patrilocal coresidence might deter women's willingness to enter marriage.

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# 1. Introduction

More and more women entered marriage at older age than previous generations, some of them not get married at all. This attributes to the low fertility rate in the recent years. For example, Taiwan just had their death rate increased more than the birth rate last year in 2020. This generates social attentions because it means the future workforce will reduce while they need to support more elders on average. This phenomenon began in at least a decade ago. *The Economist* (2011) reported that Asian women did not want to enter marriage because they are expected to bear large share of the household chores and taking care of parents and kids. Although these women had acquired substential education while holding a decent job, the traditional expectations on their duties at home does not change (Shiu and Tang, 2017). This family-work conflicts is one of the main reason of low marriage rate in recent years.

Another reason for women not entering marriage is likely the possibility to live with husbands' parents. Traditional view of Asian families considers that it is the responsibility of the daughter-in-laws to handle household chores, taking care of husband, children and inlaws (maybe even relatives). Again, this would create extra burden on working women. While grandparents could take care of kids and share some chores at home, working moms with sufficient salary could send the kids to daycare and hire helps to do the chores. In that case they could avoid the responsibilities to take care of elders, but their husbands might prefer otherwise. Accordingly, the coresidence decisions hinge on various tradeoffs and bargaining power balance between husband and wife. It also relates to their labor force participation choices. The living arrangement of elders also relates to the long-term care policy in the aging society.

In this paper, we considered husbands and wives to be separate decision makers in a household

by including both husband's and wife's characteristics in the analysis. The Panel Study of Family Dynamics (PSFD) dataset records these information and allows us to include abundant control variables that are not available to include altogether in the previous literature. We intended to provide a comprehensive analysis that include most of the determinants mentioned in the literature, which would reduce the concerns of omitted bias to the minimum. The panel structure of the dataset also allows us to control for unobserved, time-invariant effects within household in the analysis such as family attitude and bequest allocation. The coverage of three generations in the dataset further allows us to investigate the parent's and children's characteristics in determining intergenerational coresidence arrangement among Taiwanese families.

As pointed out by Chu and Yu (2009) and Chu et al. (2011), while traditional Chinese families expect parents to live with their sons, modern Chinese families in Taiwan and China already deviated this tradition due to economic development; couples with more economic resources are more likely to live away from the husband's parents. This is not only because the children might want to avoid the responsibility of taking of parents, it is also possible that children with better education or job opportunities have to leave hometowns to work in another location. Even if their parents were asked to move with them, parents might be reluctant to leave home, especially for the parents who can take care of themselves such as parents with college degrees or decent jobs. Besides, more capable children can choose to live close to but not together with their parents. Traditional factors deciding coresidence status such as bequest motives or childcare taking might become less attractive due to the better personal economic development of the parents and children.

Our empirical evidence supports the above viewpoint that the couples with more economic resources are more likely to live away from the husband's parents. We found that, after controlling

for unobserved, time-invariant fixed effects, husbands and wives with more education are less likely to live with the husband's parents. This findings is similar to Løken et al. (2013), which showed that the family connections to husbands affects the residence location choice of less-educated couples in Norway. Takagi and Silverstein (2011) also found that less-educated married children tended to live in the households of their higher-income parents in Japan. We also found that parents with higher education are less likely to live with their children. Empirical results suggest that one of the reasons behind this independence is their ownership of current residence.

Our empirical results also show that wives' characteristics matters when making living arrangements with husband's parents. In addition to education, we found the wives who live with husband's parents are healthier and younger. They are likely to have more siblings than the other respondents, and being the older ones among their siblings. More importantly, the empirical results show that these wives earned more salary and shared more household chores than the other wives. Chu et al. (2014) considered a type of women who cared about their career success while also trying to accommodate their traditional role in the family. They found this "have-it-all" type of women appeared more often in the younger cohorts than the early ones. Shiu and Tang (2017) coined women who both work and shared more household chores as the "capable wife." This extra burden could be the reason for women chose not to enter marriage, especially when the daughter-in-laws are expected to live with husband's parents.

Another goal of this research is to examine whether the coresidence choice would pass on across generations, which we did not find previous empirical evidence in the literature. The dynamic consideration is important because the preference toward coresidence might be shaped before entering marriage. In particular, when a couple (second generation) lives with husband's parents

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(first generation), their children (third generation) were raised under the roof with three generations living together. Not only the preference of second generation on coresidence would pass on to the third generation, the third generation would also form their preference toward coresidence with father's parents before entering marriage. If the third generation found the coresidence experience unbearable, it could deter the willingness of third generation to enter marriage. We considered the observed coresidence arrangement between second and third generation reflects their preference toward this living arrangement.

Using a bivarate probit model, we applied the exclusion variable to be the job type of the first generation father. The assumption is that it is related with the second generation's past experience of living with first generation, but not the living arrangement between the second and third generations. The within family fixed effects were also controlled by using the Chamberlain's correlated random effects model (Chamberlain, 1982, 1984). The results show that the second generation with past coresidence experience with husband's parents is about 3.32% less likely to live with their married kids than the other parents. The estimate suggests that the experience of living with husband's parents might not be something the second and third generations wants to inherit.

We examined the robustness of our empirical results from nonlinear panel data models by using the linear panel data models. We found the signs of the estimates are similar between the two models, but the size and statistical significance are slightly different. We also used alternative variables that deemed as the substitutes of coresidence choice, including the number of calls made to parents and the distance away from parents. We found that husband's education is positively related with the number of calls made to parents. As these couples were also more likely to live

away from their parents, they likely substituted coresidence by making more calls to the husband's parents. We also found that husbands' and wives' salary are positively related with their distance away from parents. The estimate provide another evidence that individual economic development reduces the likelihood of living close to husband's parents.

This paper proceeds as follows: the next section discusses the related literature. Section 3 reports the data used in the analysis. Section 4 proposes the empirical models, while Section 5 reports the empirical results. Section 6 presents alternative results that supports the robustness of our main results. Section 7 concludes this paper.

# 2. Related Literature

The literature on coresidence decisions can be roughly categorized as follows: papers on strategic bequest motives (Bernheim et al., 1985; Horioka et al., 2018), altruism (Becker, 1974; Horioka, 2002, 2009), and traditional view (Johar et al., 2015; Yi and Lin, 2009). Bernheim et al. (1985) first proposed the strategic bequest motive as an incentive for coresidence decisions. They proposed a theoretical model and found empirical evidence supporting the model, which shows that bequests were used as compensations for services provided by the decendents. That means the bequest were actually an incentives for beneficiaries' actions rather than just an unconditonal gift. Horioka (2009) and Horioka et al. (2018) also found similar evidence using Japanese data.

Altruistic motive is another main hypothesis behind coresidence choices stressed in the literature. Horioka (2002, 2014) found that people in some countries such as U.S. and India are more altruistic toward bequest than the other countries such as China and Japan. Using Taiwanese data surveyed in 1989, Lee et al. (1994) found that altruistic motives were more important than

the bequest for children taking care of their parents. Because the number of siblings affect the resource allocation decisions by the parents, it could also affect the coresidence decisions (Horioka et al., 2018).

The traditional view on the coresidence decisions has been considered as major factors in the literature. Johar et al. (2015) found that the eldest sons were more likely to live with their parents. It could be the strategic motives because they were also more likely to inherit parents' bequests. Yi and Lin (2009) showed sons wre more likely to take care of parents as instructed by the Confucianism.

This paper contributes to the above literature by considering only the time-varying determinants of the coresidence decisions within household. As most of the determinants of coresidence decisions discussed in the literature are time-invariant, including the bequest motives, altruism and traditional view of family, most of the literature did not control for the within-household fixed effects in the analysis. As plenty of the research already addressed the effect of time-invariant determinants of coresidence arrangements, our paper sheds light on the important time-variant determinants. Besides, Chu and Yu (2004) mentioned that most of the living parents in Taiwan had transferred all their assets. This *inter vivos* transfers thus cannot be considered as the main determinant of patrilocal coresidence decision in Taiwan. Chu and Yu (2004) found that there are kinship pressure on kids. Even bequests were already assigned kids still took care of their parents. Panel data methods also remove the concern that there might be time-invariant omitted variables that could bias the estimates. For example, children of wealthy families might be more likely to stay with their parents. But their observed income is not necessarily large. Empirical analysis on the data without the information on their family wealth could be misleading, but panel data

methods can address the problem.

In this paper, we applied nonlinear panel data methods that removes unobserved, time-invariant determinants in coresidence decisions. To our knowledge, not many papers used panel data to study coresidence decisions, and most of them applied linear methods. Using the panel data from the Health and Retirement Study, Engelhardt et al. (2019) showed that the probability of coresidence with parents increases with the son's unemployment status but not daughter's. Albertini et al. (2018) applied the panel data method when studying the effect of divorce on coresidence likelihood in Sweden. Cheng et al. (2018) used panel data from China to study the income effects of pension expansion of elderlies and their coresidence status. They found the elders with higher education are more likely to live independently after pension expansion.

This paper considers husband and wife to be separate decision maker, which follows the literature that considered the family decisions to be jointly made by husbands and wives (for example, Chiappori et al., 2002) instead of acting as one person as Becker's (1965) unitary model that stresses household decisions being made as a unilateral decision maker. Takagi and Silverstein (2011) found that couples' relative education are related to the living arrangement with parents. Their paper considers both parent's and children's characteristics in studying coresidence choices in Japan, which we also adopted in this paper but with more explanatory variables on both parents and children.

# 3. Data

This study uses data from the Panel Study of Family Dynamics (PSFD). The data contain detailed survey responses from Taiwanese families, including individual demographic characteristics, family

structure, health conditions, income, and employment characteristics. Respondents were traced in the subsequent surveys, which also include information on their kids if any. This allows the research to investigate how the coresidence choices of the subsequent generation were affected by the previous generation in the same household. In particular, we used the survey data from 1999 to 2014; there was no survey conducted in 2013. As shown in Figure 1, there are four groups covered in the survey, RI1999, RI2000, RI2003 and RI2009. 'I' indicates their first survey and the year the survey conducted. The shaded areas in Figure 1 mark the first interview of the respondents. These groups were surveyed subsequently later, for example, the group RI1999 was survey again in 2000, denoted as RII2000 in Figure 1. The group RI2003 was surveyed again in 2004 as RII2004, together with the sixth survey of the RI1999 group and the fifth survey of the RI2000 group, noted as RVIRVRII2004 in Figure 1. Later surveys were just denoted as RR.

Because the respondents in the RI groups also reported the information of their parents, we considered the parents of the RI groups as the first generation in the analysis. The respondents and their kids are thus the second and third generation, respectively. In particular, the kids of the RI respondents were also included in the survey after they became 25 years old. The kids are denoted as RCI in Figure 1, who were also traced subsequently later every two or three years. The children and their parents were surveyed using the same questionnaire in the subsequent surveys, say, RR(2005). This is why we considered our data as a three-generational panel data. These sample cover most of the data in PSFD except RII2000 and RIIIRIV2002, because key variables such as coresidence decisions are missing in the two surveys. Data from the respondents with both of their parents deceased were removed from the sample.

Another major difference between this paper and the previous papers using PSFD is that we

aggregated the information from both male and female respondents. While most of the previous studies using PSFD treated male and female respondents separately, we combined the information provided by male and female respondents as husbands' and wives' characteristics within household. We took advantage of the survey structure that both male and female respondents provided information on their spouses. This allows us to aggregate the information from both male and female respondents as husbands' and wives' characteristics within household. The combination of sample allows us to use household as a unit of observation and distinguish each household characteristics to be either husband's or wife's.

Table 1 provides the summary statistics of the second and third generations. Table 1 shows that more than 40% of the households in the children sample had lived with the husbands' parents at some point in their lives. Husband's year of education is similar to the wife's, but husband's salary is more than double of the wife's salary. Figure 2 shows the correlation between husbands' and wives' years of education and their average patrilocal coresidence rate in a given year of education. The number of observations with a given years of education was illustrated by the size of a circle. Figure 2 shows that the patrilocal coresidence rate decreases in the cohorts with 12 years of education or more. This indicates most of the couples that live with husband's parents are likely the ones with fewer education. Besides, Table 1 also shows that husbands have more working hours than the wives and spent much fewer hours on household chores. Nearly 37% of the households own their current residence, and almost a quarter of the husband's parents own the current residence of the respondents. More than a quarter of husbands' mothers were widowed. Besides, nearly 85% of the observations belongs to the second generation.

Table 2 provides the summary statistics with additional information from the first generation.

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The number of observations are fewer that the ones reported in Table 1 because some of the second generation respondents did not provide information on the first generation. Some of the second generation respondents who provided the first generation information are also the parents of the third generation, and their characteristics are also considered as the parent characteristics. About 6% of the sample reported in Table 2 are the observations from second and third generation families. Table 2 reports that fathers' average education years are higher than that of the mothers', while the mothers' average age are older than the fathers' average age. The mothers were healthier than the fathers on on average. More than half of the observations in the parent sample belong to the first generation.

# 4. Empirical Model

We proposed two empirical models to investigate the determinants of intergenerational living arrangement in Taiwan. First, we proposed a random effect probit model that controls for the unobserved, time-invariant effects within household using the children and parent sample. The coresidence choice to live with husband's parents is modeled as a latent variable as follows

$$y_{it}^* = x_{it}\beta + a_i + e_{it}, \quad y_{it} = 1[y_{it}^* > 0]. \tag{1}$$

$y_{it}$ indicates the observed coresidence choice by a household $i$ at time $t$. $y_{it}^*$ is the latent utility behind this choice and considered as a function of explanatory variables $x_{it}$. A household would choose to live with husband's parents when $y_{it}^* > 0$. $a_i$ is incorporated as time-invariant, unobserved effect on household $i$'s coresidence decision, which is the main focus of this paper. For example, the attitude toward coresidence could be held among family members but unobserved in the data.

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$a_i$ would also include the bequest decision by the parents that might be determined joint with coresidence decisions. Because each household were observed multiple times in the sample, random effect probit model were applied to control for the effect $a_i$ within each household. The model also addresses the likelihood that $a_i$ could be confounded with the other observed determinants, which suggest potential endogenous issue. Specifically, we considered $P(y_{it} = 1|x_{it}, a_i) = \Phi(x_{it}\beta + a_i)$ and assumed $a_i \mid x_i \sim \text{Normal}(0, \sigma_a)$, where $x_i$ consists of all the $x_{it}$, $t = 1...T$. This setup allows us to control for the potential source of endogeneity $a_i$ with random effect probit model.

Second, we proposed a bivariate probit model to investigate the effect of coresidence experience of second generation with first generation on the second generation's decision to live with the third generation. Applying the standard probit model would ignore unobserved factors within households that affected both the second and third generations such as family values or inherited family preference. To address this potential endogeneity problem, bivariate probit model is applied with exclusion condition. We considered the excluded variable to be the type of job of the father of the first generation, assuming the job type would affect their coresidence decisions with the second generation but not the coresidence status between the second and third generations. Specifically, consider $First\_coresidence_{it}$ as the coresidence experience of the second generation in a household $i$ at time $t$, which equals to 1 if the second generation has ever lived with the first generation. We then used $Second\_coresidence_{it}$ as the current coresidence status of second and third generations in a household $i$ at time $t$. The bivariate model we proposed is as follows:

$$Second\_coresidence_{it} = 1[x'_{it1}\delta_1 + \delta_F First\_coresidence_{it} + \eta_{i1} + \nu_{it1} > 0]$$
$$First\_coresidence_{it} = 1[x'_{it}\delta_2 + \eta_{i2} + \nu_{it2} > 0]$$

(2)

We also assumed that

$$\nu_{it1} \mid x_{it1}, First\_coresidence_{it}, \eta_{i1} \sim \text{Normal}(0,1)$$

$$\nu_{it2} \mid x_{it}, \eta_{i2} \sim \text{Normal}(0,1)$$

(3)

Exclusion condition is $x_{it} = (x_{it1}, x_{it2})$, where $x_{it1}$ controls for the determinants of the current coresidence status between the second and third generations. $x_{it2}$ controls for the determinants of coresidence arrangement between the first and second generations. The condition assumes that $x_{it2}$ affects First_coresidence$_{it}$ but not $Second\_coresidence_{it}$, such as the characteristics of the first generation. $x_{it1}$ would have effects on both dependent variables because the second generation are related in both coresidence arrangements.

To address the presence of the unobserved, time-invariant fixed effects $\eta_{i1}$ and $\eta_{i2}$, we adopted Chamberlain's (1982, 1984) correlated random effect model by modeling these effects as follows

$$\eta_{i1}|\mathbf{x}_i \equiv \bar{\mathbf{x}}_i'\psi_1 + a_{i1}, \text{ and } \eta_{i2}|\mathbf{x}_i \equiv \bar{\mathbf{x}}_i'\psi_2 + a_{i2},$$

(4)

where $\bar{\mathbf{x}}_i' = (1, \bar{x}_{i1}, \bar{x}_{i2}, ..., \bar{x}_{iK})$, and $\psi_j' = (\psi_{j0}, \psi_{j1}, \psi_{j2}, ..., \psi_{jK})$ for $j$=1,2. $\mathbf{x}_i = (\mathbf{x}_{i1}, ..., \mathbf{x}_{iT})'$, where $\bar{\mathbf{x}}_i$ contains the time averages of the strictly exogenous variables. The bivariate probit model proposed in Eq. (2) is then rewritten as follows:

$$
\begin{aligned}
Second\_coresidence_{it} &= 1[x_{it1}'\delta_1 + \delta_F First\_coresidence_{it} + \bar{x}_i'\psi_1 + a_{i1} + \nu_{it1} > 0] \\
&= 1[x_{it1}'\delta_{1a} + \delta_{Fa} First\_coresidence_{it} + \bar{x}_i'\psi_{1a} + e_{it1} > 0]
\end{aligned}
$$

(5)

$$
\begin{aligned}
First\_coresidence_{it} &= 1[x_{it}'\delta_2 + \bar{x}_i'\psi_2 + a_{i2} + \nu_{it2} > 0] \\
&= 1[x_{it}'\delta_{2a} + \bar{x}_i'\psi_{2a} + e_{it2} > 0]
\end{aligned}
$$

(6)

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where $e_{itj} = (a_{ij} + v_{itj})/(1 + \sigma^2_{a_{ij}})^{1/2}$ for $j = 1, 2$, each $e_{itj}$ has a standard normal distribution conditional on $\mathbf{x}_i$, and the subscript $a$ denotes standardized parameters. In addition, the joint error term, $e_{it} \equiv (e_{it1}, e_{it2})$, is assumed to be independent of $\mathbf{x}_{it}$, $\bar{\mathbf{x}}_i$, and $First\_coresidence_{it}$. The MLE method can then consistently estimate these re-scaled parameters.

# 5. Empirical Results

Empirical results are reported in two subsections: first, we reported the results on the determinants of coresidence choices based on the data of three generations. The analysis include both husbands' and wives' characteristics, and the parent's and children's characteristics. Second, we investigated the effect of the second generation's coresidence experience with first generation on their coresidence decision with third generation.

## 5.1. Coresidence Decision and Parent's and Children's Characteristics

Table 3 reports the marginal effect estimates from both pooled and panel probit models. The first two columns reports the results using the data from the second and third generations, while the last two columns reports the results using the three generations. The estimates are not much different in signs and size among pooled and panel regressions, but the level of statistical significance are quite different. This indicates that controlling for the unobserved within-family fixed effects mainly affect the deviation of the estimates.

The results reported in columns 1 and 2 show that husband's and wife's education are negative related with their probability of coresidence with husband's parents. As the couples with better education are more likely to have more life choices, they probably chose not to live with the

husband's parents. This implication is further supported by the estimate of the ownership of current residence, which also suggest that the couples who own their place are less likely to live with the husband's parents. These estimates also suggest that the children who are less educated or did not own their current residence are more likely to live with the husband's parents. As shown in Table 3, the coresidence probability is positively related with husband's parents' ownership of the house. It is less likely to live with husband's parents if the wife's parents own the place.

The results reported in column 2 reveals that the wives who live with their husbands' parents are likely to be less educated but healthier and younger. They shared more household chores. They are likely to have more siblings than the other respondents, and being the older ones among their siblings. On the husband's side, the husbands who have fewer brothers and being the younger ones among their siblings are more likely to live with their parents. They are more likely to live with their mothers if their fathers passed away. In addition, empirical results also reveal that the male respondents and third-generation respondents are more likely to live with their husband's parents.

Columns 3 and 4 of Table 3 reports the regression results controlling for both parent and children characteristics, using data from the three generations. Sample size are smaller than the ones reported in columns 1 and 2 due to the missing information on the first generation. The third part of Table 3 reports the estimates on the parents' characteristics on coresidence likelihood. The education of husband's parents are found to be negatively related with coresidence likelihood. Along with the estimates using children sample, this indicates the negative correlation between education and coresidence choice presents for both parents and children. Regarding the effect of children's characteristics after controlling for parent's characteristics, husband's and

wife's education and residence ownership are still found to be negatively correlated with their coresidence likelihood. The results also show that the wives' salary and chores share are positively related with the likelihood of coresidence with husband's parents, which is not revealed when the parent's characteristics were not controlled for. This suggests that women who live with their husband's parents shared more responsibility than the other women. This could be the reason for women chose not to enter marriage, especially when the traditional view that daughter-in-laws are expected to live with husband's parents. Also using the PSFD data, Chu and Yu (2009) obtained a negative effect of wives' salary on patrilocal coresidence probability. Their estimate differs from this study likely due to our inclusion of fixed effects in the regressions.

## 5.2. Coresidence Decision and Coresidence Experience

Previous analysis focuses on how an observed couple's current living arrangement with husband's parents when surveyed were affected by the couples' and parents' characteristics. In this section, we used only the responses from the second generation, focusing on their experience from coresidence with the husband's parents and current living arrangement with the third generation. The analysis compliments the previous results because more data and variables on the parent characteristics are included.

Table 4 reports the sample analyzed in this section. About 3% of the second generation were currently living with their married children when surveyed, and majority of these children are sons. More than 87% of the second generation lives with their children, who are mostly unmarried. Nearly 42% of the second generation has coresidence experience with husband's parents, which is defined as that the second generation respondents had responded at least once in the data that

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they were currently live with their husband's parents when surveyed. If the respondents were currently living with the husband's parents when surveyed but not before, their indicator variable of coresidence experience becomes one in the next period and beyond. It is likely that some of the couples had lived with parents before 1999 but not afterwards, which did not reveal in the data. Besides, nearly 46% of the households lived with three generations at the moment of the survey. Since the past coresidence experience and the current coresidence arrangement is likely tightly linked in this case, this variable is included in the regression to control for this effect.

The proposed bivariate probit model requires exclusion variables in the analysis that is related with the second generation's past coresidence experience with first generation but unrelated with current coresidence status with third generation. We chose the employment type of the husband's father as this variable, assuming the job type of first generation is unrelated with the current living arrangement between the second and third generations. Specifically, there are nine categories of jobs in the data as follows, where the brackets include the number of observations in each category for the husband's father: 1. Self-employed (2,502); 2. Employers (928); 3. Employed by private companies (1,872); 4. Employed by government (446); 5. Worked for family business with fixed wage (36); 6. Worked for government agency (1,041); 7. Worked for non-profit organizations (42); 8. Worked for family business without pay (83) and 9. Partnership without employees (47). We considered some of the employment types would increase the likelihood of the fathers to to live with their children such as the categories 1, 2, 5, and 8.

Table 5 reports the results from the bivariate probit models with and without controlling for the CREs. We reported the results using coresidence with married kids as the dependent variable, while the results using coresidence with sons and all kids are similar and thus not reported.

Both the coefficient estimates and marginal effect estimates are reported. We found statistically significant effect of the coresidence experience on current coresidence status; the respondents with experience from living with the husband's parents were less likely to live with their children. The marginal effect estimate from the regression including the CREs show that the second generation with past coresidence experience with parents is about 3.32% less likely to live with their kids than the other parents. The estimated effect is 2% and 3.89% when the dependent variables are coresidence with sons and coresidence with all kids, respectively, and both estimates are statistically significant. These estimates suggest that the experience of living with husband's parents might not be something the second and third generations wanted to inherit.

Table 5 also reports the test of statistical significance of the time-averages, which is statistically significant and indicates the potential unobserved fixed effects should be controlled in the regression. Most of the estimates with and without controlling for CREs are similar in sign, but the size of estimates and their statistical significance are different. In addition to the coresidence experience and currently live with three generations, other statistical significant estimates after controlling for the CREs including the husband's salary and age, house ownership of husband's parents and wife's health. These variables are positively related with the likelihood of coresidence with children. The likelihood of the second generation to live with their kids is reduced if the husband's mother is widowed. These estimates compliment the estimates reported in the third part of Table 3 by showing which of the parent's characteristics are important determinants when making living arrangement with children.

# 6. Robustness Check Using Linear Panel Data Models

In this section, we provided the results using linear probability model as a robustness check for previous results. Instead of using probit models as reported in Table 3, Table 6 presents the estimates using linear probability model with or without controlling for the fixed effects. The signs and size of the estimates are similar, but the statistical significance level are different for the results controlling for fixed effects. The pooled regression estimates and statistical significance are similar in both Tables 3 and 6. Only the parent's ownership of current residence and the wife's health status are statistical significant in all the specifications controlling for fixed effects in both Tables 3 and 6. The other estimates are similar in both tables except the wife's age; the sign is negative in Table 3 bur turns to positive in Table 6. Table 6 thus show that the regression results presented in Table 3 are mostly robust regardless whether the nonlinearity is modeled.

Instead of living together, children can take care of their parents by living close or making frequent calls. These potential substitutes of coresidence with parents provide supplement information to investigate the robustness of the empirical results reported in the previous section. In particular, our survey respondents were asked how many times they made the calls to their father and mother. We considered that they made 30 calls a month if their answer is "almost everyday;" 8 calls if the answer is "once or twice a week;" 3 calls if the answer is "one to three times a month;" 1 call if the answer is "less than once per month;" and 0 calls if the answer is "almost none." Because the survey asked separate questions on the calls made to the respondents' father and mother, we took the maximum number of calls made either to father or mother. We considered the observation to be missing if the respondents did not respond or respond as currently living with their parents. The number of average calls is about 7.41 calls among 3,536 observations. The

standard deviation is 8.518.

The distance from parents' residence was also asked in the survey, recorded as: 1. live in the same neighborhood; 2. within one hour drive; 3. within one to two hour drive; 4. more than two hour drive, and 5. live abroad. We considered this information to be an ordered variable from 1 to 5. Most of the respondents who replied to this question live within one to two hour drive away from their parents, where the average response is 2.361 among 2,424 observations. The standard deviation is 1.069.

Table 7 reports the results from pooled OLS and fixed effects models. The first two columns list the estimates using number of calls per month as dependent variable. We found that husband's education is positively related with the number of calls made to parents. This result is consistent with the finding reported in Table 3 because these sons are less likely to live with their parents. The results also show that fewer calls were made if one of the husband's parents was widowed. The second generation made more calls to their parents than their children did to themselves. The wives' health status and number of brothers are found to be related with the number of calls made. All these effects became statistically insignificant after the fixed effects were controlled for.

Table 7 also lists the estimates of the regressions using the distance from parents as dependent variables. We found that husbands' and wives' salary are positively related with their distance away from parents. This is consistent with our findings reported in Table 3, where the couples with higher education, who may also have better jobs, are less likely to live with the husbands' parents. Empirical results also reveal that the couples who own their home live closer to husbands' parents than the others, so the negative relationship between ownership of current residence and coresidence choices reported in Table 3 does not necessarily mean that children live far away from

their parents. If husbands worked in family-owned business or live in the place owned by their parents, his families are closer to their parents then the others. We also found that the wives who live closer to husbands' parents worked fewer hours. The husbands that are older among his brothers are more likely to live closer to his parents, which is consistent with the ones reported in Table 3. The respondents also live closer to the parents than the others if one of the husband's parents is widowed. These estimates are consistent and complement with the ones reported in Table 3 and provide further support for the findings of this paper.

# 7. Conclusions

With the falling marriage and fertility rates across the world, coresidence with husband's parents could be a reason stopping women from entering marriage. We explored this potential explanation by examining the determinants of coresidence with husband's parents in Taiwan. Use the ample information provided in the PSFD, the empirical analysis includes both the husband's and wives' characteristics in determining coresidence decision with husband's parents. This empirical strategy allows us to consider both husband and wife as separate decision makers. We also applied linear and nonlinear panel data methods to control for unobserved, time-invariant fixed effects that could bias the estimates, which were rarely controlled in the literature.

The empirical results indicate that those who lived with husband's parents are couples with fewer education and did not own current residence. The wives tend to be younger, healthier, earned more salary and shared more household chores than the others. These estimates indicate wives' extra burden in living with husband's parents, which might deter women's willingness to enter marriage. As we also found that the parents with more education or own current residence

are less likely to live with their children, we concluded that living arrangement with husband's parents might not be preferred by parents and children with sufficient economic resources. We also found that second generation parents with patrilocal coresidence experience are less likely to live with their children. This suggests patrilocal coresidence is not a preferred living arrangement by the second and third generations with this experience.

Our results suggest that the traditional view of Chinese families, which expects parents to live with sons, is likely to be one of the reasons behind the falling marriage rate in Taiwan. Our results indirectly support the soaring housing price as part of the reasons behind low marriage rate; women might want to enter marriage only if the men have their own place and not to live with husband's parents. In such case, the long-term care policy that provides more support for elders could be helpful in increasing marriage rate.

Our paper provides a comprehensive analysis on coresidence decisions that covers most of the important determinants mentioned in the related literature. Omitted variable bias were further reduced by applying panel data methods, and we extended the analysis to be intergenerational. While we found coresidence with husband's parents is not a preferred living arrangement by couples with sufficient economic sources, direct effect of the past coresidence experience and the expected living arrangement with parents on the willingness to enter marriage is not explored in the analysis. This could be potential research topic for future analysis.

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Table 1 Summary Statistics: The Second and Third Generations

| Variables | Mean | SD | Variables | Mean | SD |
|---|---|---|---|---|---|
| *Coresidence with husband's parents* | 0.404 | 0.491 | *Age* | | |
| | | | Husband | 38.993 | 8.740 |
| *Education* | | | Wife | 36.301 | 8.405 |
| Husband | 13.211 | 3.180 | *Number of brothers* | | |
| Wife | 12.853 | 3.247 | Husband | 1.301 | 1.175 |
| *Ownership of current residence (husband or wife)* | 0.367 | 0.482 | Wife | 1.385 | 1.133 |
| | | | *Number of sisters* | | |
| *Ownership of current residence* | | | Husband | 1.412 | 1.307 |
| Husband's parents | 0.249 | 0.433 | Wife | 1.320 | 1.375 |
| Wife's parents | 0.037 | 0.189 | *Birth order* | | |
| *Salary (10,000)* | | | Husband | 2.421 | 1.559 |
| Husband | 4.818 | 4.283 | Wife | 2.242 | 1.495 |
| Wife | 2.332 | 3.001 | *Father only* | | |
| *Works in family-owned business* | | | Husband | 0.064 | 0.245 |
| Husband | 0.016 | 0.127 | Wife | 0.078 | 0.268 |
| Wife | 0.031 | 0.172 | *Mother only* | | |
| *Working hours* | | | Husband | 0.262 | 0.440 |
| Husband | 45.077 | 20.805 | Wife | 0.221 | 0.415 |
| Wife | 29.683 | 23.659 | *Gender (male = 1)* | 0.531 | 0.499 |
| *Chores share (hours)* | | | *Second generation* | 0.848 | 0.359 |
| Husband | 6.191 | 9.203 | *Area* | | |
| Wife | 18.105 | 19.401 | North | 0.475 | 0.499 |
| *Health status (1-5)* | | | Middle | 0.229 | 0.420 |
| Husband | 3.700 | 0.809 | South | 0.257 | 0.437 |
| Wife | 3.716 | 0.811 | East | 0.031 | 0.172 |
| | | | Outlying island or abroad | 0.008 | 0.089 |
| Observations | 11,287 | | | | |

Table 2 Summary Statistics: The First and Second Generation

| Variables | Mean | SD |
|---|---|---|
| *Father education* | | |
| Husband | 7.373 | 4.240 |
| Wife | 7.480 | 3.894 |
| *Mother education* | | |
| Husband | 5.270 | 4.236 |
| Wife | 5.617 | 3.845 |
| *Father age* | | |
| Husband | 70.044 | 10.266 |
| Wife | 67.286 | 10.40 |
| *Mother age* | | |
| Husband | 80.343 | 17.081 |
| Wife | 79.032 | 18.044 |
| *Father health status (1-5)* | | |
| Husband | 2.468 | 1.673 |
| Wife | 2.543 | 1.621 |
| *Mother health status (1-5)* | | |
| Husband | 3.041 | 1.217 |
| Wife | 3.019 | 1.247 |
| *Second generation* | 0.936 | 0.244 |
| Observations | 4,955 | |

Table 3 : Dependent variable (Coresidence with husband's parents)

| Variables | Pooled probit | Panel probit | Pooled probit | Panel probit |
|---|---|---|---|---|
| **Parent characteristics** | NO | NO | YES | YES |
| *Education* | | | | |
|   Husband | -0.013*** | -0.012*** | -0.005 | -0.008** |
| | (0.004) | (0.003) | (0.006) | (0.004) |
|   Wife | -0.010*** | -0.011*** | -0.008 | -0.008* |
| | (0.004) | (0.003) | (0.006) | (0.005) |
| *Ownership of current residence* | -0.059*** | -0.023 | -0.089*** | -0.060*** |
| *(husband or wife)* | (0.018) | (0.015) | (0.028) | (0.021) |
| *Ownership of current residence* | | | | |
|   Husband's parents | 0.357*** | 0.291*** | 0.325*** | 0.240*** |
| | (0.018) | (0.018) | (0.028) | (0.031) |
|   Wife's parents | -0.202*** | -0.189*** | -0.180*** | -0.163*** |
| | (0.041) | (0.033) | (0.059) | (0.047) |
| *Salary* | | | | |
|   Husband | -0.001 | 0.000 | -0.002 | -0.001 |
| | (0.002) | (0.001) | (0.003) | (0.001) |
|   Wife | 0.003 | 0.000 | 0.007** | 0.004*** |
| | (0.003) | (0.001) | (0.003) | (0.002) |
| *Works in family-owned business* | | | | |
|   Husband | 0.068* | 0.029 | 0.035 | 0.027 |
| | (0.037) | (0.026) | (0.051) | (0.030) |
|   Wife | 0.004 | 0.010 | 0.036 | 0.017 |
| | (0.027) | (0.020) | (0.040) | (0.023) |
| *Working hours* | | | | |
|   Husband | -0.001** | -0.000 | -0.001 | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
|   Wife | 0.000 | 0.000 | 0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| *Chores share* | | | | |
|   Husband | -0.002** | -0.001 | 0.000 | -0.001 |
| | (0.001) | (0.000) | (0.001) | (0.001) |
|   Wife | 0.000 | 0.000** | 0.000 | 0.001* |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| *Health status* (1-5) | | | | |
|   Husband | -0.015* | -0.006 | -0.012 | -0.011 |
| | (0.008) | (0.005) | (0.011) | (0.007) |
|   Wife | 0.029*** | 0.017*** | 0.022* | 0.014* |
| | (0.008) | (0.005) | (0.012) | (0.007) |

(*Continued*)

Table 3 (continued): Dependent variable (Coresidence with husband's parents)

| Variables | Pooled probit | Panel probit | Pooled probit | Panel probit |
|---|---|---|---|---|
| *Age* | | | | |
|   Husband | 0.001 | -0.002 | 0.002 | -0.003 |
| | (0.002) | (0.002) | (0.004) | (0.003) |
|   Wife | -0.009*** | -0.006*** | -0.005 | 0.000 |
| | (0.002) | (0.002) | (0.004) | (0.003) |
| *Number of brothers* | | | | |
|   Husband | -0.041*** | -0.034*** | -0.075*** | -0.079*** |
| | (0.010) | (0.008) | (0.017) | (0.014) |
|   Wife | 0.013 | 0.014* | 0.029* | 0.023* |
| | (0.010) | (0.008) | (0.016) | (0.013) |
| *Number of sisters* | | | | |
|   Husband | 0.008 | 0.009 | -0.009 | -0.013 |
| | (0.009) | (0.007) | (0.015) | (0.012) |
|   Wife | 0.017** | 0.020*** | 0.021* | 0.016* |
| | (0.008) | (0.007) | (0.012) | (0.010) |
| *Birth order* | | | | |
|   Husband | 0.012 | 0.011* | 0.026** | 0.025** |
| | (0.008) | (0.007) | (0.013) | (0.011) |
|   Wife | -0.019** | -0.018*** | -0.014 | -0.009 |
| | (0.008) | (0.006) | (0.011) | (0.009) |
| *Father only* | | | | |
|   Husband | 0.052 | 0.017 | 0.156*** | 0.022 |
| | (0.033) | (0.023) | (0.057) | (0.036) |
|   Wife | 0.011 | 0.025 | 0.003 | -0.002 |
| | (0.032) | (0.025) | (0.056) | (0.036) |
| *Mother only* | | | | |
|   Husband | 0.079*** | 0.056*** | 0.050 | 0.006 |
| | (0.020) | (0.015) | (0.053) | (0.032) |
|   Wife | 0.010 | -0.005 | -0.057 | -0.003 |
| | (0.021) | (0.016) | (0.051) | (0.029) |
| *Respondent's gender* | 0.044** | 0.065*** | -0.009 | -0.007 |
| (male = 1) | (0.018) | (0.015) | (0.026) | (0.022) |
| *Second generation indicator* | -0.083*** | -0.079*** | -0.197*** | -0.153*** |
| | (0.024) | (0.022) | (0.052) | (0.050) |

(*Continued*)

Table 3 (continued): Dependent variable (Coresidence with husband's parents)

| Variables | Pooled probit | Panel probit | Pooled probit | Panel probit |
|---|---|---|---|---|
| *Parent characteristics* | | | | |
| *Father education* | | | | |
| Husband | | | -0.008* | -0.003 |
| | | | (0.004) | (0.003) |
| Wife | | | 0.003 | 0.001 |
| | | | (0.004) | (0.003) |
| *Mother education* | | | | |
| Husband | | | -0.005 | -0.007** |
| | | | (0.004) | (0.003) |
| Wife | | | -0.003 | -0.002 |
| | | | (0.004) | (0.004) |
| *Father age* | | | | |
| Husband | | | 0.002 | 0.003 |
| | | | (0.002) | (0.002) |
| Wife | | | -0.004* | -0.004** |
| | | | (0.002) | (0.002) |
| *Mother age* | | | | |
| Husband | | | -0.000 | 0.000 |
| | | | (0.003) | (0.002) |
| Wife | | | -0.001 | -0.003 |
| | | | (0.003) | (0.002) |
| *Father health status (1-5)* | | | | |
| Husband | | | 0.005 | 0.001 |
| | | | (0.014) | (0.008) |
| Wife | | | -0.032** | -0.005 |
| | | | (0.013) | (0.007) |
| *Mother health status (1-5)* | | | | |
| Husband | | | 0.021* | 0.005 |
| | | | (0.012) | (0.008) |
| Wife | | | 0.014 | 0.006 |
| | | | (0.013) | (0.008) |
| Observations | 11,287 | | 4,955 | |

Marginal effect estimates are reported. Standard errors in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table 4 Summary Statistics of Additional Variables

| Variables | Mean | SD |
|---|---|---|
| Currently live with any children | 0.033 | 0.179 |
| Currently live with any married children | 0.027 | 0.163 |
| Currently live with any married son | 0.872 | 0.334 |
| Experience from living with husband's parents | 0.417 | 0.493 |
| Currently live with three generation | 0.459 | 0.498 |
| Total observations | 6,997 | |

Table 5 Bivariate Probit Model

| | Pooled Bivariate Probit | | Panel Bivariate Probit | |
|---|---|---|---|---|
| | Coefficient Estimates | Marginal Effects | Coefficient Estimates | Marginal Effects |
| *Experience from living with husband's parents* | -1.158*** | -0.035* | -1.169** | -0.033 |
| | (0.375) | (0.020) | (0.473) | (0.025) |
| *Currently live with three generation* | 1.793*** | 0.070** | 1.839*** | 0.068 |
| | (0.303) | (0.036) | (0.352) | (0.045) |
| *Education* | | | | |
| Husband | 0.008 | 0.000 | -0.025 | -0.001 |
| | (0.022) | (0.001) | (0.046) | (0.001) |
| Wife | -0.087*** | -0.003** | 0.080 | 0.003 |
| | (0.019) | (0.001) | (0.050) | (0.002) |
| *Ownership of current residence (husband or wife)* | 0.230* | 0.005 | 0.129 | 0.003 |
| | (0.139) | (0.004) | (0.216) | (0.006) |
| *Ownership of current residence* | | | | |
| Husband's parents | 0.034 | -0.000 | 0.455* | 0.009 |
| | (0.195) | (0.006) | (0.275) | (0.009) |
| Wife's parents | 0.464* | 0.012 | -0.213 | -0.005 |
| | (0.278) | (0.009) | (0.345) | (0.010) |
| *Salary* | | | | |
| Husband | 0.010 | 0.000 | 0.028*** | 0.001 |
| | (0.012) | (0.000) | (0.007) | (0.001) |
| Wife | -0.024 | -0.001 | 0.015 | 0.000 |
| | (0.019) | (0.001) | (0.009) | (0.000) |
| *Works in family-owned business* | | | | |
| Husband | 0.527 | 0.015 | 0.062 | -0.001 |
| | (0.357) | (0.012) | (0.424) | (0.012) |
| Wife | -0.210 | -0.008 | -0.131 | -0.005 |
| | (0.282) | (0.009) | (0.303) | (0.009) |
| *Working hours* | | | | |
| Husband | -0.003 | -0.000 | -0.004 | -0.000 |
| | (0.003) | (0.000) | (0.003) | (0.000) |
| Wife | -0.002 | -0.000 | -0.000 | -0.000 |
| | (0.002) | (0.000) | (0.003) | (0.000) |
| *Chores share* | | | | |
| Husband | 0.003 | 0.000 | -0.002 | -0.000 |
| | (0.004) | (0.000) | (0.004) | (0.000) |
| Wife | 0.003 | 0.000 | 0.003 | 0.000 |
| | (0.003) | (0.000) | (0.003) | (0.000) |
| *Health status (1-5)* | | | | |
| Husband | 0.074 | 0.002 | 0.020 | -0.000 |
| | (0.054) | (0.002) | (0.055) | (0.000) |
| Wife | -0.000 | -0.000 | 0.101* | 0.003 |
| | (0.053) | (0.002) | (0.060) | (0.002) |

(*Continued*)

Table 5 (continued) Bivariate Probit Models

| | Pooled Bivariate Probit | | Panel Bivariate Probit | |
|---|---|---|---|---|
| | Coefficient Estimates | Marginal Effects | Coefficient Estimates | Marginal Effects |
| *Age* | | | | |
| Husband | 0.062*** | 0.002** | 0.140*** | 0.005 |
| | (0.016) | (0.001) | (0.033) | (0.003) |
| Wife | 0.022 | 0.001 | 0.009 | 0.000 |
| | (0.015) | (0.001) | (0.022) | (0.001) |
| *Number of brothers* | | | | |
| Husband | 0.067 | 0.001 | 0.085 | 0.002 |
| | (0.052) | (0.002) | (0.053) | (0.002) |
| Wife | 0.018 | 0.001 | 0.028 | 0.001 |
| | (0.049) | (0.002) | (0.049) | (0.002) |
| *Number of sisters* | | | | |
| Husband | 0.040 | 0.001 | 0.046 | 0.001 |
| | (0.042) | (0.001) | (0.042) | (0.001) |
| Wife | 0.017 | 0.001 | 0.010 | 0.001 |
| | (0.048) | (0.002) | (0.048) | (0.001) |
| *Birth order* | | | | |
| Husband | -0.029 | -0.001 | -0.054 | -0.001 |
| | (0.040) | (0.001) | (0.040) | (0.001) |
| Wife | -0.016 | -0.001 | -0.018 | -0.001 |
| | (0.046) | (0.001) | (0.047) | (0.002) |
| *Father only* | | | | |
| Husband | -0.121 | -0.004 | -0.131 | -0.005 |
| | (0.161) | (0.005) | (0.168) | (0.006) |
| Wife | -0.001 | 0.001 | -0.423 | -0.011 |
| | (0.184) | (0.006) | (0.264) | (0.010) |
| *Mother only* | | | | |
| Husband | -0.202 | -0.006 | -0.515** | -0.015 |
| | (0.126) | (0.004) | (0.262) | (0.011) |
| Wife | 0.041 | 0.002 | -0.036 | -0.002 |
| | (0.118) | (0.004) | (0.190) | (0.006) |
| *Respondent's gender* | | | | |
| (male = 1) | 0.210* | 0.008 | 0.178 | 0.006 |
| | (0.120) | (0.005) | (0.123) | (0.005) |
| $\rho$ | 0.450** | | 0.443* | |
| | (0.190) | | (0.248) | |
| Test of CREs ($\chi^2$) | | | 249.42*** | |
| Observations | 6,997 | | | |

Standard errors in parentheses. $^{*}$ $p<0.10$, $^{**}$ $p<0.05$, $^{***}$ $p<0.01$.

Table 6 Linear Probability Models

| Variables | Pooled OLS | Panel FE | Pooled OLS | Panel FE |
|---|---|---|---|---|
| **Parent characteristics** | NO | NO | YES | YES |
| *Education* | | | | |
|    Husband | -0.013*** | 0.003 | -0.005 | -0.003 |
| | (0.004) | (0.005) | (0.006) | (0.007) |
|    Wife | -0.010** | -0.007 | -0.008 | -0.009 |
| | (0.004) | (0.007) | (0.006) | (0.010) |
| *Ownership of current residence* | -0.061*** | -0.019 | -0.091*** | -0.053** |
| *(husband or wife)* | (0.019) | (0.018) | (0.030) | (0.025) |
| *Ownership of current residence* | | | | |
|    Husband's parents | 0.421*** | 0.245*** | 0.405*** | 0.209*** |
| | (0.021) | (0.028) | (0.035) | (0.040) |
|    Wife's parents | -0.188*** | -0.132*** | -0.170*** | -0.147*** |
| | (0.032) | (0.036) | (0.054) | (0.047) |
| *Salary* | | | | |
|    Husband | -0.001 | 0.000 | -0.003 | -0.001 |
| | (0.002) | (0.001) | (0.003) | (0.001) |
|    Wife | 0.002 | 0.000 | 0.007** | 0.002 |
| | (0.003) | (0.001) | (0.003) | (0.002) |
| *Works in family-owned business* | | | | |
|    Husband | 0.063* | -0.009 | 0.024 | 0.015 |
| | (0.037) | (0.029) | (0.054) | (0.040) |
|    Wife | 0.007 | 0.000 | 0.035 | 0.001 |
| | (0.028) | (0.020) | (0.042) | (0.023) |
| *Working hours* | | | | |
|    Husband | -0.001** | -0.000 | -0.001 | -0.001* |
| | (0.000) | (0.000) | (0.001) | (0.000) |
|    Wife | 0.000 | -0.000 | 0.000 | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| *Chores share* | | | | |
|    Husband | -0.002** | -0.000 | -0.001 | -0.001* |
| | (0.001) | (0.000) | (0.001) | (0.001) |
|    Wife | 0.000 | 0.000 | 0.001 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| *Health status* (1-5) | | | | |
|    Husband | -0.014* | -0.002 | -0.009 | -0.008 |
| | (0.008) | (0.005) | (0.012) | (0.007) |
|    Wife | 0.029*** | 0.009** | 0.022* | 0.010* |
| | (0.008) | (0.005) | (0.012) | (0.006) |

(*Continued*)

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Table 6 (continued)Linear Probability Models

| Variables | Pooled OLS | Panel FE | Pooled OLS | Panel FE |
|---|---|---|---|---|
| *Age* | | | | |
| Husband | 0.002 | -0.004** | 0.002 | -0.004*** |
| | (0.002) | (0.002) | (0.004) | (0.001) |
| Wife | -0.010*** | 0.010* | -0.005 | 0.014 |
| | (0.003) | (0.005) | (0.004) | (0.010) |
| *Number of brothers* | | | | |
| Husband | -0.039*** | | -0.071*** | |
| | (0.009) | | (0.016) | |
| Wife | 0.013 | | 0.028* | |
| | (0.010) | | (0.017) | |
| *Number of sisters* | | | | |
| Husband | 0.010 | | -0.008 | |
| | (0.009) | | (0.015) | |
| Wife | 0.017** | | 0.017 | |
| | (0.008) | | (0.012) | |
| *Birth order* | | | | |
| Husband | 0.011 | | 0.023* | |
| | (0.008) | | (0.013) | |
| Wife | -0.018** | | -0.013 | |
| | (0.007) | | (0.012) | |
| *Father only* | | | | |
| Husband | 0.055* | 0.017 | 0.155*** | 0.020 |
| | (0.033) | (0.029) | (0.059) | (0.039) |
| Wife | 0.008 | 0.012 | -0.007 | -0.017 |
| | (0.033) | (0.032) | (0.058) | (0.045) |
| *Mother only* | | | | |
| Husband | 0.082*** | 0.039* | 0.052 | 0.021 |
| | (0.020) | (0.020) | (0.055) | (0.037) |
| Wife | 0.009 | -0.010 | -0.056 | -0.003 |
| | (0.021) | (0.022) | (0.054) | (0.033) |
| *Respondent's gender* | 0.046*** | | -0.009 | |
| (male = 1) | (0.018) | | (0.027) | |
| *Second generation indicator* | -0.092*** | | -0.211*** | |
| | (0.026) | | (0.053) | |

(*Continued*)

Table 6 (continued)Linear Probability Models

| Variables | Pooled OLS | Panel FE | Pooled OLS | Panel FE |
|---|---|---|---|---|
| *Father education* | | | | |
| Husband | | | -0.007* | 0.001 |
| | | | (0.004) | (0.005) |
| Wife | | | 0.002 | 0.003 |
| | | | (0.004) | (0.004) |
| *Mother education* | | | | |
| Husband | | | -0.005 | |
| | | | (0.004) | |
| Wife | | | -0.002 | |
| | | | (0.005) | |
| *Father age* | | | | |
| Husband | | | 0.002 | -0.013 |
| | | | (0.002) | (0.011) |
| Wife | | | -0.004* | |
| | | | (0.002) | |
| *Mother age* | | | | |
| Husband | | | -0.000 | |
| | | | (0.003) | |
| Wife | | | -0.001 | |
| | | | (0.003) | |
| *Father health status (1-5)* | | | | |
| Husband | | | 0.004 | 0.004 |
| | | | (0.014) | (0.009) |
| Wife | | | -0.032** | 0.000 |
| | | | (0.014) | (0.008) |
| *Mother health status (1-5)* | | | | |
| Husband | | | 0.020 | -0.000 |
| | | | (0.013) | (0.007) |
| Wife | | | 0.014 | 0.001 |
| | | | (0.013) | (0.008) |
| Observations | 11,287 | | 4,955 | |

Marginal effect estimates are reported. Standard errors in parentheses. $^{*}$ $p<0.10$, $^{**}$ $p<0.05$, $^{***}$ $p<0.01$.

Table 7 : Probit and Panel Data Models

| Sample/Model<br>Dependent Variables | All/Pooled OLS<br>Number of calls<br>per month | All/Panel FE<br>Number of calls<br>per month | All/Pooled OLS<br>Distance<br>from parents | All/Panel FE<br>Distance<br>from parents |
|---|---|---|---|---|
| *Education* | | | | |
|   Husband | 0.173** | 0.436 | 0.023 | 0.012 |
| | (0.076) | (0.325) | (0.015) | (0.030) |
|   Wife | -0.025 | 0.221 | 0.003 | -0.004 |
| | (0.078) | (0.227) | (0.016) | (0.021) |
| *Ownership of current residence* | 0.453 | -0.211 | -0.281*** | -0.095 |
| *(husband or wife)* | (0.320) | (0.518) | (0.057) | (0.060) |
| *Ownership of current residence* | | | | |
|   Husband's parents | 0.719 | -1.050 | -0.813*** | -0.004 |
| | (0.536) | (1.092) | (0.078) | (0.087) |
|   Wife's parents | -0.384 | -0.711 | 0.114 | -0.158 |
| | (0.609) | (0.925) | (0.107) | (0.155) |
| *Salary* | | | | |
|   Husband | 0.031 | -0.021 | 0.019** | 0.007 |
| | (0.035) | (0.058) | (0.008) | (0.005) |
|   Wife | 0.068 | -0.015 | -0.007 | 0.013** |
| | (0.061) | (0.057) | (0.011) | (0.006) |
| *Works in family-owned business* | | | | |
|   Husband | 2.065 | 0.678 | -0.373** | 0.161 |
| | (1.322) | (3.017) | (0.146) | (0.145) |
|   Wife | 0.744 | -0.105 | -0.106 | -0.033 |
| | (0.724) | (0.976) | (0.092) | (0.103) |
| *Working hours* | | | | |
|   Husband | -0.003 | -0.002 | 0.001 | 0.000 |
| | (0.006) | (0.013) | (0.001) | (0.001) |
|   Wife | -0.000 | 0.000 | -0.001 | -0.002* |
| | (0.007) | (0.009) | (0.001) | (0.001) |
| *Chores share* | | | | |
|   Husband | 0.014 | 0.024 | -0.001 | -0.002 |
| | (0.015) | (0.024) | (0.003) | (0.002) |
|   Wife | 0.010 | -0.007 | -0.001 | 0.000 |
| | (0.007) | (0.009) | (0.001) | (0.001) |
| *Health status* (1-5) | | | | |
|   Husband | -0.125 | -0.061 | 0.003 | 0.032 |
| | (0.161) | (0.263) | (0.031) | (0.021) |
|   Wife | 0.329* | 0.239 | 0.034 | 0.011 |
| | (0.171) | (0.253) | (0.033) | (0.020) |

(*Continued*)

Table 7 : Probit and Panel Data Models

| Sample/Model | All/Pooled OLS | All/Panel FE | All/Pooled OLS | All/Panel FE |
|---|---|---|---|---|
| Dependent Variables | Number of calls | Number of calls | Distance | Distance |
| | per month | per month | from parents | from parents |
| *Age* | | | | |
| Husband | -0.018 | 0.276 | -0.001 | 0.005 |
| | (0.040) | (1.015) | (0.008) | (0.019) |
| Wife | -0.037 | 0.375 | -0.010 | 0.014 |
| | (0.044) | (0.360) | (0.010) | (0.015) |
| *Number of brothers* | | | | |
| Husband | -0.044 | | -0.029 | |
| | (0.181) | | (0.037) | |
| Wife | -0.391** | | 0.023 | |
| | (0.178) | | (0.037) | |
| *Number of sisters* | | | | |
| Husband | 0.039 | | -0.028 | |
| | (0.165) | | (0.032) | |
| Wife | -0.070 | | -0.014 | |
| | (0.150) | | (0.030) | |
| *Birth order* | | | | |
| Husband | -0.120 | | 0.055* | |
| | (0.139) | | (0.031) | |
| Wife | 0.103 | | 0.002 | |
| | (0.130) | | (0.028) | |
| *Father only* | | | | |
| Husband | -0.964* | -1.625 | 0.106 | -0.249* |
| | (0.533) | (1.626) | (0.104) | (0.138) |
| Wife | -0.069 | 0.627 | 0.078 | 0.033 |
| | (0.625) | (1.333) | (0.114) | (0.137) |
| *Mother only* | | | | |
| Husband | -0.634* | -1.343 | -0.889*** | -1.766* |
| | (0.382) | (0.974) | (0.066) | (0.971) |
| Wife | -0.255 | 1.070 | 0.041 | 0.054 |
| | (0.361) | (0.858) | (0.083) | (0.077) |
| *Second generation* | 1.117** | | 0.031 | |
| | (0.457) | | (0.093) | |
| Observations | 6,908 | 3,536 | 4,774 | 2,424 |

Standard errors in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

| Birth year "Republic Era" (=A.D.-1911) | Investigation year (A.D.) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
| 24-43 | | RI 2000 | RII 2001 | RIV RIII 2002 | RV RIV 2003 | RVI RV RII 2004 | RR 2005 | RR 2006 | RR 2007 | RR 2008 | RR 2009 | RR 2010 | RR 2011 | RR 2012 | | RR 2014 |
| 42-53 | RI 1999 | RII 2000 | RIII 2001 | | | | | | | | | | | | | |
| 53-65 | | | | | RI 2003 | | | | | | | | | | | |
| 66-68 | | | | | | RCI 2004 | | | | | | | | | | |
| 69 | | | | | | | RCI 2005 | | | | RI 2009 (66-72) | | | | | |
| 70-71 | | | | | | | | | RCI 2007 | | | | | | | |
| 72-73 | | | | | | | | | | | RCI 2009 | | | | | |
| 74-75 | | | | | | | | | | | | | RCI 2011 | | | |
| 76-78 | | | | | | | | | | | | | | | | RCI 2014 |

Figure 1: The Structure of Panel Survey of Family Dynamics on the Survey Respondents Group and Subsequent Surveys
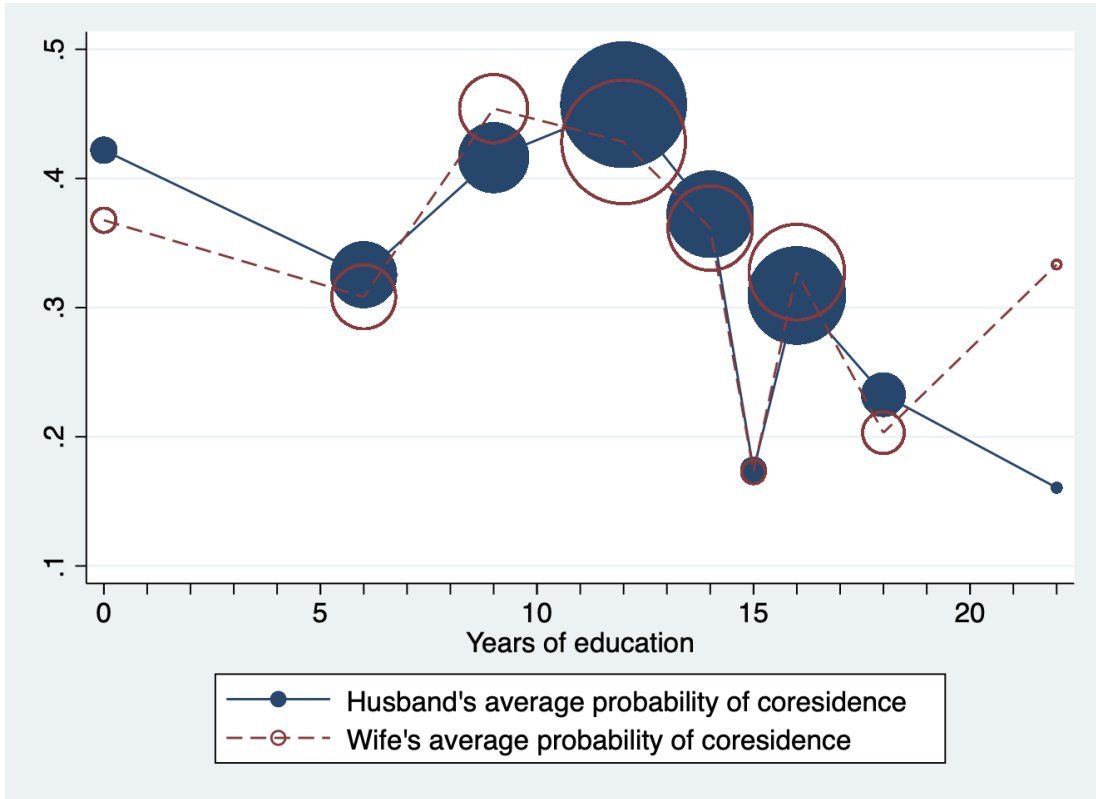
Figure 2: Average Patrilocal Coresidence Probability and Years of Education Weighted by the Number of Observations

# 110年度專題研究計畫成果彙整表

**計畫主持人：**唐孟祺　　　　　**計畫編號：**110-2629-H-194-002-

**計畫名稱：**與公婆同住?女性的議價能力及上一代選擇的影響

| 成果項目 | | | 量化 | 單位 | 質化（說明：各成果項目請附佐證資料或細項說明，如期刊名稱、年份、卷期、起訖頁數、證號...等） |
|---|---|---|---|---|---|
| 國內 | 學術性論文 | 期刊論文 | 0 | 篇 | |
| | | 研討會論文 | 1 | | 東吳大學2021年台灣經濟學會年會 |
| | | 專書 | 0 | 本 | |
| | | 專書論文 | 0 | 章 | |
| | | 技術報告 | 0 | 篇 | |
| | | 其他 | 0 | 篇 | |
| 國外 | 學術性論文 | 期刊論文 | 0 | 篇 | |
| | | 研討會論文 | 0 | | |
| | | 專書 | 0 | 本 | |
| | | 專書論文 | 0 | 章 | |
| | | 技術報告 | 0 | 篇 | |
| | | 其他 | 0 | 篇 | |
| 參與計畫人力 | 本國籍 | 大專生 | 0 | 人次 | |
| | | 碩士生 | 0 | | |
| | | 博士生 | 0 | | |
| | | 博士級研究人員 | 0 | | |
| | | 專任人員 | 0 | | |
| | 非本國籍 | 大專生 | 0 | | |
| | | 碩士生 | 0 | | |
| | | 博士生 | 0 | | |
| | | 博士級研究人員 | 0 | | |
| | | 專任人員 | 0 | | |
| 其他成果（無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。） | | | | | |