

The AsRES 19th International Conference, Gold Coast, Australia, 14-16 July, 2014

**Does Culture Norms affect the Housing Co-residence between Generations
and Living Arrangement?**

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ABSTRACT

Co-residence between parents and adult children is the critical difference between nuclear family and stem family. The dynamic change of family structure would have significantly influence to the demand of housing need. It would be interesting to figure out the living preferences between generations and the factors that affect the preferences, such as personal willingness, living needs and culture thinking as a Chinese family. In this study, we firstly focused on factors which may result in co-residence preference from both generations. Secondly related both generations' attributes to discriminate living arrangement types from family perspective. Empirical family samples were selected from a panel survey, the Panel Study of Family Dynamics (PSFD), conducted by the Taiwan Academia Sinica. Samples included are socio-eco characteristics for parents and children that can be used to construct binomial choice models for both generations to explain their living preference and real living arrangement.

Our current results implied that filial norms may positively affect co-residence preference in both generations, but not necessary reflected on real living arrangement. Besides, the increase in the sense of filial norms may causing individuals to prefer co-residence, but the effect was relatively significant to child.

Keywords: filial piety, tendency of living together, living arrangements, nested logit model

I. Preface

The Chinese tradition of filial piety continues to play an important role in contemporary Chinese society. As a result, adult children in Taiwan may live with their parents to help each other cope with everyday life and health issues. According to the Taiwanese Social Transformation national survey, conducted from 1984 to 2005, the majority of elderly parents still choose to dwell with their children after retirement (Yang, 2009). In addition, even for adult children who make enough money to live independently (e.g., able to purchase housing to form a new nuclear family), they may still view living with their parents and forming a stem family as a necessary obligation. This belief is different from the cultural values in some western countries, which focus on personal privacy and the formation of a nuclear family (Chen & Zhang, 2004).

The concept of filial piety is derived from traditional cultural ideologies and involves the formation of unique personal rights and obligations that impacts the living arrangements of two generations. The practice of parents living with their children is one of the unique traditions of East

Asian culture. Children are often expected to live with their parents and provide intergenerational support (Lin & Yi, 2011; Yasuda et al., 2011).

The majority of the research on intergenerational living arrangements has focused on the decision-making behaviors of a single generation, namely, the viewpoint of the parents. The findings have revealed that parental gender, age, education level, and family structure affect these arrangements (Takagi & Silverstein, 2006; Yang, 1999; Yasuda et al., 2011). For example, parents of higher socioeconomic status tend to live with their children more than those of lower status, because they may be better able to provide dwellings for their children. In addition, attributes of the children have also been found to affect levels of coresidence. The number of children, gender, and marital status will affect the likelihood of dwelling together (Takagi & Silverstein, 2006; Yasuda et al., 2011). Lin et al. (2003) believes that in traditional Taiwanese culture, parents give more resources to their sons. As a result, married sons will provide more financial support to their parents or live with them, particularly the eldest son.

This study examines whether intergenerational living arrangements involve not only the decisions of a single generation, but also the decisions of both the parents and children. Past studies often examine the viewpoint of only one generation, which may result in an inaccurate understanding of the factors affecting these living arrangements. This study, therefore, analyzed the decision-making behaviors of both generations by utilizing a nested logistic model. The main purpose is to integrate the parent and children perspectives into a macro-viewpoint. The top nest layer was composed of parental attribute factors, and the nest layer below was composed of offspring attribute factors. Through the construction of a nested model, this research investigated the effects of the attributes of both the parents and children at the same time on intergenerational living arrangements.

II. Literature Review

Related research concerning intergenerational living arrangements often analyze family life cycles, the occurrence of different family patterns (Kahn et al., 2013; Takagi & Silverstein, 2011), and transitions in marital status and health (Korinek et al., 2011) associated with the issues of older adults. This research can be divided based on data type into longitudinal analysis and cross-sectional analysis. Longitudinal analysis focuses on the construction of long-term data tracking that analyzes how transformations in attributes of participants leads to changes in living arrangements (Korinek et al., 2011; Smits et al., 2010; Zimmer, 2005, 2008; Zhang & Zhang, 2010). This type of analysis is derived from the life course perspective in which the current living arrangement is regarded as resulting from factors at a larger scale (e.g., changes in living arrangements resulting from a parent becoming widowed). Long-term follow-up investigations are

used to analyze the effects of specific events on living arrangements. In contrast, cross-sectional analysis considers the current living arrangement as resulting from lagged effects, that is, an examination of the characteristics of the current situation helps us to better understand these living arrangements (Isengard & Szydlik, 2012; Takagi & Silverstein, 2011).

(I) Factors affecting parental living arrangements

The research exploring living arrangements from the perspective of older adults often focus on transitions and trajectories in life course. Transitions refer to the transformation periods between different stages in the life course of individuals, often interspersed with life events. Trajectories refer to the common events experienced in an individual's journey through life. These expected events include marriage, having children, retirement, and aging, and these events possess a sequential relationship among them. Therefore, the transitions are embedded in the trajectories, and the trajectories are composed of a series of changes and events (Elder, 1995).

Chen and Wang (2010) used life course as the starting point, and analyzed the transitions in living arrangements through changes in health and marriage. They concluded that important events in a life course have significant impacts on living arrangements in old age. Similarly, Zhang and Zhang (2010) analyzed changes in living arrangements with time-series data, and focused not only on the influences of health and marriage, but also on the preferences of older adults, interactions within the family, and the living environment. From the life course perspective, the living arrangement of older adults may be most affected by turning points, including most importantly deterioration in health and the loss of one's spouse. Older adults experiencing such life events are more likely to live with their married children.

Among the factors affecting the living arrangements of older adults, researchers believe that gender, age, education level, and family structure are the most influential (Yang, 1999). Concerning gender, women are often economically disadvantaged compared with men and are more likely to live with their children. In addition, due to traditional values older men find it easier to live alone (Ji, 1995). The age of older adults affects living arrangements in one of two ways. With increasing age, parents might pursue an independent life, which includes living alone or only with one's spouse (Yount & Khadr, 2008). On the other hand, aging may lead to a decline in the quality of daily living or health, enhancing the probability of living with their children (Chen & Lin, 2010). In general, the education levels of older adults are regarded as an indicator of their ability to live independently. A higher education level is usually associated with a higher degree of openness concerning traditions and customs (Chen & Lin, 2010; Zeng et al., 2006). Therefore, most studies find that parental education levels are negatively related to the probability of living with their children.

Older adults with more resources or capabilities have more freedom to pursue independence and a greater choice of living arrangements (Zeng et al., 2006). These resources can be measured through income and education levels (Takagi & Silverstein, 2011). Wakabayashi and Horioka (2006) found that parents with more resources assist children with lower education levels. Although this may imply that these children may never leave home, the result is the establishment of a relatively stable intergenerational coresidence. In summary, the advantages and disadvantages of parents' resources will affect their living arrangements. But if you also consider the socioeconomic status of their children, the final outcome will involve two different types of living arrangements. Based on the concept that parents assist disadvantaged children, the result of these imbalanced situations involves a type of parental altruism (Chen & Lin, 2010).

In addition, the family structure often reflects the number of children. Older adults usually do not live with more than two married children. Therefore, the number of children, and their sex and marital status may affect levels of intergenerational coresidence (Yasuda et al., 2011). The characteristics of each child are also factors, as reflected by which child parents will choose to living with.

(II) Attributes of children with regard to living arrangements

The attributes of children most often considered in intergenerational coresidence studies include gender, education level, and marital status. In traditional Taiwanese culture, parents provided more financial support for their sons, particularly married first-born sons (Lin et al., 2003). Parents also trained their sons more than their daughters, with the goal of subsequently living with their sons. This phenomenon is more obvious in the case of the eldest sons. If there is no eldest son in the family, the chances of intergenerational living arrangements after the marriage of their daughters is relatively low (Kureishi & Wakabayashi, 2010). Takagi and Silverstein (2011) included the number of siblings in measuring the occurrence of intergenerational coresidence, and found that this number has a negative impact on a specific child being selected to live with their parents (due to the lower probability of being selected). In addition, unmarried siblings represent children who have not left home or are not yet adults.

The higher the education levels of the children, the lower the probability of living with their parents (Smits et al., 2010). Higher education levels results not only in the greater ability of children to afford their own household, but also in greater changes to their traditional values. Children with higher income and changed traditional values have much lower probability of living with their parents. Moreover, the main reasons that offspring leave the stem family are the lack of living area and the need for more personal privacy (Liversage & Jakobsen, 2010). Therefore, the

larger living area that parents have, the greater the probability that they will live with their children. This study also considered the impact of the home ownership. When children own their own home, they are more independent and more likely to live apart from their parents.

(III) Filial piety and living arrangements

The origins of filial piety are found in traditional culture and involve unique rights and obligations. The belief is that family members should take care of each other and is an important factor in living arrangement preferences and life care (Diwan et al., 2011). However, along with the impact of modernization, higher education levels may also convert traditional values (Takagi & Silverstein, 2006). Reflected in actual behaviors, filial piety is closely related to intergenerational support. Common intergenerational support includes child care and providing economic, physical, and psychology well-being. Yasuda et al. (2011) contend that coresidence is a unique Asian cultural norm. One child is usually expected to live with the parents in order to fulfill these norms. This concept has strong gender differences. Usually the first-born son is the best choice. Filial piety is regarded as an enduring Chinese cultural value, and this value is reflected in preferences for and actual living arrangements. However, as previously mentioned, greater personal resources and higher education levels of both parents and their children may result in children fulfilling the obligation (such as support for money) of intergenerational support through other means rather than coresidence and parents to pursue independent living arrangements.

Levels of filial piety are typically measured by examining living arrangements. Coleman and Ganong (2008) studied several issues related to filial piety and found the following reasons of for intergenerational coresidence: (1) Repay the parent, (2) Good relationships between the two generations, (3) Dependence on the other generation's assistance in resources, and (4) Promotion of moral responsibility. Diwan et al. (2011) measured filial piety obligations with a Likert scale along with preference for living arrangements. They found that parents with higher filial piety beliefs had greater probability of choosing to live with their children or be a neighbor of their children. Similarly, Lin and Yi (2011) measured the strength of filial piety norms of children to analyze the associations with financial support, emotional support, or domestic support from children. They discovered that their measure was strongly connected with the level financial support provided by the son and the emotional support provided by the daughters.

III. Theoretical modeling

Past studies usually examine intergenerational living arrangement by considering only a single generation. Such methods may result in a simplified decision-making behavior model and fail to consider the attributes and needs of the other generation. This study used a nested logistic model to analyze the decision-making behaviors underlying intergenerational living arrangements. The

main purpose is to integrate the perspectives of both the parents and their children. Figure 1 shows the structure of nested alternatives in this study. The top nest layer examines the parental decision-making behaviors, and was divided into "parent co-housing with offspring" and "parent not co-housing with offspring." These variables were defined as follows:

- a) Parent co-housing with offspring (PCO): living with children 1, living with children 2...
- b) Parent not co-housing with offspring (PNCO): living alone, living with spouse only, living with other people.

$$y_{it} = \begin{cases} 1, & \text{parent co-housing with offspring(PCO)} \\ 0, & \text{parent not co-housing with offspring(PNCO)} \end{cases}$$

Concerning the case where the parent is co-housing with offspring in the top nested layer, the parent may co-house with the respondent offspring (CR), or may co-house with another offspring (CO). In this study, the lower nested layer contains attributes of the respondent offspring to examine the influencing factors of the respondent offspring in the parental co-housing decision-making behavior. In the correction process of nest layer structure, the top nest layer will include parent properties and analyze "Why parents co-house or do not co-house with offspring in the family?," and the lower nest layer will include the respondent offspring's attributes and analyze "Which offspring are more likely to co-house with their parents?" By constructing this nested model, this study investigated intergenerational living arrangement by simultaneously considering the effects of the attributes of the parents and offspring.

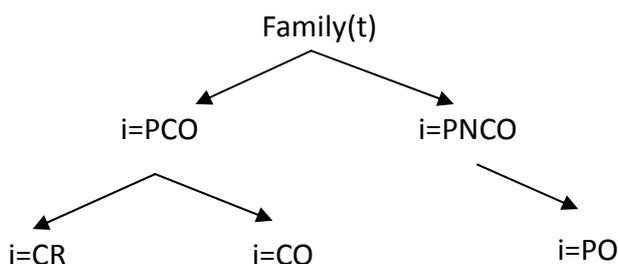


Figure 1. Model of the layers used to study intergenerational living arrangements.

IV. Data analysis and variable definitions

(I) Data source

The data used in this study was obtained from the Panel Study of Family Dynamics (PSFD), which explored intergenerational living arrangements in Taiwan. In 1999 and 2001, interviews

were conducted with 2,959 participants. Follow-up investigations were conducted in 2004, 2005, and 2007, with 787 adult children of the aforementioned main sample group. In this study, the total valid sample involved 657 of these adult children after the following samples were removed: (1) Corresponding parental information could not be found, (2) Omissions in the offspring or parental attributes, and (3) Neither parent was alive at the time of the interview.

Table 1. Sample database and empirical comparison table

| Category | Database | Original samples | Total |
|--------------------|----------|------------------|-------|
| Parent database | RI1999 | 999 | 2,959 |
| | RI2000 | 1,960 | |
| Offspring database | RCI2004 | 298 | 787 |
| | RCI2005 | 167 | |
| | RCI2007 | 322 | |
| Valid samples | | 657 | |

(II) Variable symbols and definitions

The four main categories of explanatory variables used in this study included personal property, family structure, intergenerational interactions and the living environment. Each of the variables along with the expected affect on the co-housing programs is shown in Table 2. If the explanatory variable is 1, the variable is an offspring variable. If the explanatory variable is 2, the variable is a parent variable. The filial piety of personal attributes (FS_1) and co-housing tendency (CO_T_1, CO_T_2) were not included in the questionnaire used in PSFD. In this study, these variables were defined as follows:

a) Filial norms of offspring (FS_1)

The filial norms of offspring measure adopted the Likert scale used in the PSFD. A weighted sum of the participants without access to all of the nine questions used to measure the extent of the participants agreement with filial piety norms. The items asked included: "You are thankful for your parents' upbringing," "No matter how badly your parents treated you, you still treated them well," "You gave up your personal ambitions to achieve your parents' wishes," "Sons co-housed with their parents after marriage," "Take care of your parents to make their lives more comfortable," "You consider your parents' feelings by saying something good about them," "In order to continue the family line, you will try to have a son," "You do things that help the family feel honorable," and "You return often to visit your parents after your marriage."

b) Offspring co-housing tendency (CO_T_1)

The offspring co-housing tendency variable asked the male and female children different questions. For the male offspring these questions were "You will co-house with your parents after your marriage" and "You will take care of your parents to make their lives more comfortable." If the above items reached an aggregate score of 8 points, this variable was set to 1, otherwise it was set to 0. For the female offspring these questions were "You often return to visit your family after your marriage" and "You take care of your parents to make their lives more comfortable." As for the male offspring, this variable was set to 1 if the above items reached an aggregate score to 8 points, and 0 if below.

c) Parents' co-housing tendency (CO_T_2)

Parents' co-housing tendency was measured using the following questions: "As long as they have enough ability, they should help kids to buy a house," "When children are afraid or sad, parents should try to protect them," and "I care a great deal about my children." If the above three items aggregate to a score of 12 point, this variable was given the value of 1, otherwise a value of 0 was given.

Table 2. Description of the variable symbols, definitions, and expected influence on promoting intergenerational coresidence

| Variable Name | Definition | Expected influence | |
|--------------------------------------|---------------------------------------------------------|--------------------|-----------|
| | | Parent | Offspring |
| Personal attribute | | | |
| Sex (Sex_1, Sex_2) | 1: Male 0: Female | - | + |
| Age (Age_2) | Shown with several (Unit: Year) | + | |
| Education (Edu_1, Edu_2) | Number of years, shown with several units (Unit: years) | - | - |
| Offspring marital status (Mar_1) | 1: Married 0: Other | | + |
| Parent without a spouse (Mar_P_2) | 1: Divorced, separated or widowed 0: Other | + | |
| Number of sons (NS_2) | Shown with several units | + | |
| Number of daughters (ND_2) | Shown with several units | + | |
| Poor self-rated health (SeBH_2) | 1: Poor self-rated health 0: No | + | |
| Job (Job_1, Job_2) | 1: Yes 0: No | | |
| Family business (WH_1, WH_2) | 1: The nature of the work to help the family 0: Other | + | + |
| Filial norms (FS_1) | Measured with Likert Scales | | + |
| Co-housing tendency (CO_T_1, CO_T_2) | 1: Yes 0: No | + | + |

| | | | | |
|----------------------------------------------------|----------------------------------------------------------------------------|----------|---|----------|
| Family structure | | | | |
| Eldest son (FirS_1) | 1: Eldest son of offspring | 0: Other | + | + |
| Unmarried siblings (NMSib_1) | Number of unmarried siblings | | + | - |
| Intergenerational interaction | | | | |
| Parents help caring for children (PHK_1) | 1: Yes | 0: No | + | + |
| Parents help with housework (PHH_1) | 1: Yes | 0: No | + | + |
| Relationship with father (RF_1) | 1: Good | 0: Other | | + |
| Relationship with parent (RP_1) | 1: Good | 0: Other | | + |
| Accept parent's financial support (PF_1) | 1: Yes | 0: No | | + |
| Provide parent with financial support (CF_1) | 1: Yes | 0: No | | - |
| Good relationship with son (RS_2) | 1: Yes | 0: No | + | |
| Good relationship with daughter (RD_2) | 1: Yes | 0: No | + | |
| Living environment | | | | |
| Living area per person or Average area (AA_1,AA_2) | Living area divided by number of inhabitants (Unit: square footage/person) | | + | + |
| Housing ownership (HR_1) | 1: Ownership is owned, leased, or borrowed | | | 0: Other |
| House type (Htype_1,Htype_2) | 1: Villas, townhouse, rural style | 0: Other | + | + |

(III) Data analysis

Among the three different types of family living arrangements examined, the gender of the parent was associated with the most significant differences among these schemes (Table 3). Cross-analysis revealed that the percentage of fathers in "Parent not co-housing with offspring" was the highest. This result implies that fathers are more independent than mothers in Chinese culture. Concerning age, significant differences were found among the three living arrangement schemes. The average age of "Parent not co-housing with offspring" was highest. Although differences in educational attainment were not significant, the mean education level among "Parent not co-housing with offspring" was highest. Whether or not a parent has a job does not differ among the living arrangement schemes. However, the level of respondent offspring working for the family business is significantly different. In addition, concerning housing type, "Parent not co-housing with offspring" was connected with the highest levels of living in a villa, townhouse, or rural style. With regard to living area, "Parent not co-housing with offspring" is significantly

associated with the highest average floor area among the three types of living arrangements examined.

Table 3. Parent statistics

| Attributes | Total N = 657 | Parent co-house | | Parent not co-housing with offspring N = 108 [16.4%] |
|------------------------------------|---------------------------------|--------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------|
| | | with the respondent offspring N = 397 [60.4%] | Parent co-house with other offspring N = 152 [23.1%] | |
| Personal attributes | | | | |
| Sex | 0.48 (0.5)^a | 0.47 (0.5) | 0.43 (0.5) | 0.58 (0.5) |
| Age | 47.05 (4.29)^b | 47.06 (4.09) | 46.44 (4.12) | 47.89(5.1) |
| Education | 8.84 (3.94) | 8.63 (3.89) | 8.88 (3.92) | 9.52 (4.08) |
| Job | 0.77 (0.42) | 0.75 (0.43) | 0.77 (0.42) | 0.81 (0.39) |
| Work for family business | 0.04 (0.21)^a | 0.03 (0.18) | 0.09 (0.29) | 0.02 (0.14) |
| Divorced, separated or widowed | 0.07 (0.26) | 0.06 (0.24) | 0.09 (0.28) | 0.08 (0.28) |
| Number of children | 3.16 (1)^b | 3.08 (0.96) | 3.4 (0.99) | 3.08 (1.11) |
| Work or disabilities | 0.1 (0.3) | 0.09 (0.29) | 0.13 (0.33) | 0.08 (0.28) |
| Poor self-rated health | 0.07 (0.25) | 0.06 (0.24) | 0.08 (0.27) | 0.06 (0.25) |
| Intergenerational interaction | | | | |
| Good relationship with son | 0.61 (0.49) | 0.6 (0.49) | 0.58 (0.5) | 0.68 (0.47) |
| Good relationship with daughter | 0.62 (0.49) | 0.62 (0.49) | 0.61 (0.49) | 0.64 (0.48) |
| Living environment | | | | |
| Housing type | 0.7 (0.46)^a | 0.66 (0.48) | 0.74 (0.44) | 0.77 (0.42) |
| Average floor area | 9.55 (7.1)^b | 9.35 (7.15) | 8.77 (6.1) | 11.36 (7.97) |

Note: The value is the mean or proportion; () is standard deviation; ^a means chi-square test p value < 0.1; ^b means chi-square test F value < 0.1.

Gender of offspring differs significantly among the three living arrangements of the program. For "parent living with respondent offspring," more of the respondents were sons. Daughters had a higher proportion for "parents live with other offspring." Concerning filial piety, the lowest levels

were associated with "parent living with respondent offspring," an unexpected result. Significant differences were found concerning job status and whether the respondent worked for the family business. For "parent living with respondent offspring," the proportion of offspring who had a job and working for the family business were higher compared with the other two living arrangements.

Marital status for the respondent offspring was significantly different among the three living arrangements examined, with the highest level associated with "parent living with other offspring." Marriage is usually a symbol of the formation of a new household. In addition, whether the offspring the eldest is son and the number of unmarried brothers also was significantly difference among the living arrangements investigated. In terms of interaction between generations, the levels of parental housework and a good relationship with his father were also significantly different.

Table 4. Offspring statistics

| Attributes | Total N = 657 | Parent living with respondent offspring N = 397 [60.4%] | Parent living with other offspring N = 152 [23.1%] | Parent not living with offspring N = 108 [16.4%] |
|--------------------------------------|---------------------------------|------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------|
| Personal Attributes | | | | |
| Gender | 0.53 (0.5)^a | 0.53 (0.5) | 0.45 (0.5) | 0.63 (0.48) |
| Age | 25.43 (0.52) | 25.43 (0.52) | 25.41 (0.51) | 25.44 (0.57) |
| Educational attainment | 14.44 (2.27)^b | 14.19 (2.13) | 14.73 (2.42) | 14.94 (2.4) |
| Filial norm | 34.85 (4.92)^b | 34.64 (5.14) | 34.74 (4.65) | 35.8 (4.35) |
| Job | 0.74 (0.44)^a | 0.8 (0.4) | 0.61 (0.49) | 0.68 (0.47) |
| Work for the family business | 0.05 (0.22)^a | 0.07 (0.25) | 0.03 (0.18) | 0.02 (0.14) |
| Marital status | 0.11 (0.31)^a | 0.05 (0.22) | 0.25 (0.43) | 0.1 (0.3) |
| Eldest son | 0.31 (0.46)^a | 0.29 (0.46) | 0.29 (0.46) | 0.42 (0.5) |
| Number of unmarried brothers | 1.58 (0.88)^b | 1.55 (0.84) | 1.74 (0.96) | 1.48 (0.89) |
| Intergenerational interaction | | | | |
| Parental child care | 0.04 (0.21) | 0.04 (0.19) | 0.07 (0.26) | 0.04 (0.19) |
| Parental does housework | 0.1 (0.3)^a | 0.14 (0.34) | 0.04 (0.2) | 0.04 (0.19) |
| Good relationship | 0.7 (0.46)^a | 0.69 (0.46) | 0.64 (0.48) | 0.81 (0.39) |

| | | | | |
|---------------------------|--------------------------------|-------------|---------------|--------------|
| with father | | | | |
| Good relationship | 0.89 (0.31) | 0.88 (0.33) | 0.89 (0.31) | 0.93 (0.26) |
| with mother | | | | |
| Accept parent's | 0.23 (0.42) | 0.21 (0.41) | 0.24 (0.43) | 0.29 (0.45) |
| financial support | | | | |
| Provide parent with | 0.46 (0.5) | 0.46 (0.5) | 0.46 (0.5) | 0.47 (0.5) |
| financial support | | | | |
| Parental care by | 0.65 (0.48) | 0.64 (0.48) | 0.68 (0.47) | 0.6 (0.49) |
| sons | | | | |
| Parental care by | 0.58 (0.49) | 0.57 (0.5) | 0.62 (0.49) | 0.56 (0.5) |
| daughters | | | | |
| Living environment | | | | |
| Residential form | 0.51 (0.5)^a | 0.66 (0.48) | 0.32 (0.47) | 0.28 (0.45) |
| Residential | | | | |
| ownership | 0.38 (0.49)^a | 0.14 (0.35) | 0.78 (0.41) | 0.72 (0.45) |
| Living area per | | | | |
| person | 11.37 (12.36) | 9.35 (7.15) | 11.51 (16.01) | 10.4 (19.31) |

Note: The value is the mean or proportion; () is standard deviation; ^a means chi-square test p value < 0.1; ^b means F test p value < 0.1.

V. Results

This study used a nested logistics model of living arrangement, and the variables on nest layer were parental variables. "Parent and offspring living together" was assigned as program specific variables. A positive value for this factor indicates that the variables have a positive effect concerning respondent offspring and parents living together. Model 1 only included the personal attributes of the offspring and the parents. Model 2 included all possible effect variables, including personal attributes, family structure, intergenerational harmony, living environment, and symbiotic variables. Model 3 put the significant variables of Model 1 and Model 2 into one model, and calculated the elastic factor of the explanatory variables (Table 5).

For fathers, if their age is relatively young (Model 1), they have few sons, they have a good relationship with their sons and daughters, and their home type is a villa or rural, they have a lower probability living with their children. The results for the variable examining a good relationship with his son are opposite from what was expected. The findings for the other four variables are consistent with expectations. The following variables did not play a significant role in the tendency to live together: parent without a spouse and poor self-rated health. The impacts of the effects of the remaining variables were in line with expectations. The variables of under nest

layer were the attributes of the offspring. Parameter estimation results indicated that the probability of respondents living with their parents were higher when the offspring had lower educational attainment (Model 1), were unmarried, had a job, had high filial norms (Model 1), had good relationships with their parents (Model 2), the parents assisted in child care or housework, the parents had home loans, the residential form is villa, townhouse or rural, and the home is not owned.

In terms of living with the eldest son, if the respondent offspring was the eldest son in the family's living arrangements had a negative impact on parent living with respondent offspring (see Model 2). This variable was not significant, but the direction of its impact differed from previous research (e.g., Wakabayashi & Horioka, 2006). One explanation is that the respondents who were interviewed in this study were relatively young, unmarried, and just entering adulthood. Yang and Chen (2002) found that the age range when offspring are most likely to live away from home is between 20 to 30 years old, similar to the sample used in this study.

In addition, this study found that the offspring's levels housing ownership and housing type affected the living arrangements of the offspring and the parents interviewed. In addition, the parents' housing type influenced their living arrangements. Concerning the housing ownership of the offspring, this study investigated the autonomy of ownership patterns (including owned, rented, borrowed or configure public, companies, factories and dormitories and military dependents) to define whether the offspring currently have sovereignty of their residences. These variables also implicit that the interviewee satisfy the housing resources or not and to discuss the effects of residential ownership to living arrangements. The results showed that offspring who acquired more stable incomes or disposable resources pursued a more a more independent lifestyle. On the point of view of its resources and presented in line with the relationship between housing tenure offspring in the nest process.

Estimation results suggest that offspring living in the housing type involving villas, townhouse, or classified as rural will promote intergenerational coresidence. However, from the parents' viewpoint living in such housing types reduced the possibility of living with their children. One explanation for this discrepancy involves the age characteristics of the study sample. This sample consisted of parents being in the prime of life and offspring just entering adulthood. Hence, the housing ownership of the offspring may not load, and instead their housing may actually belong to their parents. Therefore, the significance of the variable housing ownership for the offspring should be interpreted as the parents having more residential living area or residential resources. On the other hand, from the parents' viewpoint living in villas, townhouses or rural areas represent greater resources, and not living with their children can be interpreted as the pursuit of an

independent lifestyle.

Takagi and Silverstein (2006) discussed the relationship between filial piety and intergenerational coresidence. Filial piety may positively affect the occurrence of such coresidence. In this study, it only discussed the one way effect between filial piety and the tendency living phenomenon, the empirical results show positively affect has existed. But the tendency of co-living is not significant, this is because measurement errors existed in variable setting.

Table 5. Estimation results of living arrangements examined with a nested logistic model

| Variables | Model 1 | | Model 2 | | Model 3 | |
|-------------------------------|-----------|----------|-----------|-----------|-----------|----------|
| | Parameter | T values | Parameter | T values | Parameter | T values |
| Layer on the nest | | | | | | |
| Parental personal attributes | | | | | | |
| Sex_2 | -0.459 | -2.009** | -0.502 | -2.022** | -0.556 | -2.337** |
| Age_2 | 0.034 | 3.637*** | 0.013 | 0.881 | 0.011 | 0.927 |
| Edu_2 | -0.024 | -0.894 | -0.01 | -0.313 | | |
| Mar_P_2 | -0.418 | -1.043 | -0.519 | -1.19 | | |
| SeBH_2 | -0.085 | -0.19 | -0.287 | -0.604 | | |
| Job_2 | -0.104 | -0.381 | -0.029 | -0.101 | | |
| WH_2 | 0.786 | 1.039 | 0.982 | 1.246 | | |
| CO_T_2 | -0.116 | -0.543 | -0.142 | -0.616 | -0.105 | -0.463 |
| Family structure | | | | | | |
| NS_2 | | | 0.428 | 2.337** | 0.381 | 2.266** |
| ND_2 | | | 0.235 | 1.683* | 0.266 | 2.057** |
| Intergenerational harmony | | | | | | |
| RS_2 | | | -0.687 | -1.961** | -0.399 | -1.674* |
| RD_2 | | | 0.386 | 1.11 | | |
| Living environment | | | | | | |
| Htype_2 | | | -0.765 | -2.793*** | -0.683 | -2.561** |
| Lower nest layer | | | | | | |
| Offspring personal attributes | | | | | | |

| | | | | | | |
|----------------------------------|-------------|---------------|-------------|----------------|-------------|----------------|
| Sex_1 | 0.369 | 1.478 | 0.608 | 1.321 | | |
| Edu_1 | -0.067 | -1.954* | 0.004 | 0.072 | 0.007 | 0.147 |
| Mar_1 | -1.912 | -5.962** * | -6.159 | -7.527*** | -5.912 | -7.679*** |
| Job_1 | 0.982 | 4.495*** | 1.495 | 3.982*** | 1.176 | 3.553*** |
| WH_1 | 0.913 | 1.591 | 1.078 | 1.496 | | |
| FS_1 | 0.032 | 1.747* | 0.032 | 1.141 | 0.033 | 1.372 |
| CO_T_1 | 0.031 | 0.115 | 0.03 | 0.077 | -0.096 | -0.291 |
| Family structure | | | | | | |
| FirS_1 | | | -0.508 | -1.15 | | |
| NMSib_1 | | | -0.231 | -1.372 | | |
| Intergenerational harmony | | | | | | |
| RP_1 | | | 0.756 | 1.712* | 0.588 | 1.4 |
| PHK_1 | | | 2.077 | 2.421** | 2.039 | 2.524** |
| PHH_1 | | | 3.278 | 4.13*** | 3.078 | 4.16*** |
| PF_1 | | | 0.569 | 1.335 | | |
| CF_1 | | | -0.343 | -1.063 | | |
| Living environment | | | | | | |
| HR_1 | | | -4.273 | -10.315** * | -4.074 | -10.673** * |
| HM_1 | | | 1.022 | 1.686* | 1.197 | 2.033** |
| Htype_1 | | | 1.642 | 4.959*** | 1.601 | 5.028*** |
| Symbiotic variables | | | | | | |
| AA_1 | -0.031 | -2.529** | -0.007 | -0.511 | -0.009 | -0.638 |
| AA_2 | -0.012 | -0.838 | -0.038 | -1.715* | -0.034 | -1.55 |
| Inclusive values | | | | | | |
| PNCO | 1 | - | 1 | - | 1 | - |
| PCO | 0.116 | 0.535 | 0.435 | 5.13*** | 0.466 | 5.378*** |
| R^2 | 517.2612*** | | 885.9427*** | | 863.8944*** | |
| R^2 | 0.31 | | 0.53 | | 0.52 | |

*p value less than 0.1 **p value less than 0.05 ***p value less than 0.01

Table 6 shows the results of the elastic analysis. Concerning elastic computing model for the

offspring, every 1% increase in reported levels of filial norm resulted in a 3.61% increase in the probability that the children would live with their parents. Hence, for adult children, filial norms play a key role in providing intergenerational support. And there are positive effect between filial piety to the responsibility of taking care parents. ntergenerational coresidence can be regarded as representing intergenerational support (Chen & Lin, 2011). This study obtained a conclusion similar to that of Chu et al (2011) through a more flexible comparison method, that the concept of filial piety positively affects the probability that parents and their children live together.

The impact of parents' educational attainment is in the opposite direction from what was expected, based on findings of past studies. The elastic calculations showed that a 1% increase in education level would result in a 0.165% increase in the probability that parents would live with their children. Education levels influence traditional values, and are positively associated with greater resources and acceptance of more nontraditional living arrangements (Takagi et al., 2007). Therefore, the higher possibility of "living "phenomenon on the formation of "do not live with the offspring". However, just to "a tendency to live", this study shows the results of the parental level of education in the "living with a tendency to" have a positive impact. It can be speculated that, with a higher level of education or resources for parents in terms of altruistic behavior will positively enhance rather tend to live, and can thus be seen that the difference between the tendency to live phenomenon.

In the parental model, a 1% increase in the number of sons will increase the probability that parents live with their children by approximately 0.114%. In contrast, Table 9 shows that the number of children has a negative effect on intergenerational coresidence. These findings suggest that gender of the children plays an important factor in these intergenerational living arrangements.

In traditional Chinese society, sons are often expected to shoulder the responsibility of cherishing their parents in old age, so the highest proportion of older people live with a married son (Zeng et al. 2006).

Furthermore, in both the parental and offspring model, a 1% increase in the living area per person resulted in increases of 0.066% and 0.076%, respectively, in the probability of intergenerational coresidence. For both models, therefore, an increase in living space had a positive impact on the decision for two generations to live together.

Table 6. Direct elastic analysis table

| Model | Explanatory | Elasticity |
|--------------|--------------------|-------------------|
|--------------|--------------------|-------------------|

| | variables | coefficient |
|-----------------|------------------------------|-------------|
| Parental model | Educational attainment | 0.165 |
| | Number of sons | 0.114 |
| | Living area per person | 0.066 |
| Offspring model | Filial norm | 3.61 |
| | Number of unmarried brothers | -0.128 |
| | Enjoy living area per person | 0.076 |

VI. Conclusions and Recommendations

This study discussed the intergenerational living arrangements from the point of view of two generations. A nested logistics model was used to examine the factors affecting the living arrangements and live tendency concept. And, a binomial variable was set to upper nest level as "whether the parents live with their offspring", the other variable was set to lower nest level as "whether the co-residence was offspring. The results show that lower probability of living with offspring when the parents was male, with fewer sons or daughters, a better relationship with son and living in villas or rural style, and higher probability of living with parents when the offspring was single, have a job, filial piety, parents help to take care of children or housework, there are housing loans and living in villas, etc. In addition, through elastic analysis shows better relationship between offspring and parents will rise the probability of living together. Filial piety of offspring also rise the probability of living together.

This study also analysis the living area per person, housing type and the housing ownership of offspring to family living arrangements. A particular housing type will affect generations of living arrangement. For the offspring, the housing type will increase the probability of living with parents, but it will decrease for the parents. So, it's significant that housing type will affect the living choice of offspring but not parents.

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