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**Article**

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## Research Article

## Intergenerational coresidence living arrangements of young adults with their parents in Taiwan: The role of filial Piety

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## ABSTRACT

Young adults throughout the world today, including those in Taiwan, are permanently leaving their parents' homes at a much later age compared with their parents' generation, a situation labeled as the failure-to-launch or boomerang generation. What role do filial piety beliefs play in East Asian especially in Chinese societies concerning intergenerational coresidence? Most studies on filial piety have examined older adult children and post-retirement parents, and have not simultaneously considered the viewpoints of both generations, which was investigated by using a two-level nested logit model. A sample of 657 families was selected from the Panel Study of Family Dynamics (PSFD), conducted in Taiwan from 1999 to 2007. The young adult factors of having fewer economic resources and being unmarried were more important than their parents' having greater economic resources and other demographic characteristics, and the filial piety beliefs of young adults were less significant, but still associated with intergenerational coresidence.

## 1. Introduction

Globally, there has been a growing trend of increasing delay among young adults leaving their parents' homes. In many cultures, leaving home has been described as an important stage in the transition to adulthood and economic independence. This situation results either from a “failure-to-launch,” in which young adults delay leaving their parents' homes, or from “boomeranging” young adults, involving those who return home after living independently (Burn & Szoeki, 2016; Dykstra et al., 2013; Houle & Warner, 2017; Sandberg-Thoma, Snyder, & Jang, 2015; South & Lei, 2015). Researchers have attributed these trends to the effects of ever more globalized and information-driven economies, rising housing costs, and the decline of low-skilled, entry-level jobs (Bayrakdar & Coulter, 2017; Dhakal, Connell, & Burgess, 2018; Li & Hung, 2019; O'Reilly et al., 2015, pp. 1–19). This has resulted in greater percentages of young adults pursuing higher education, delaying marriage, and having difficulties in obtaining employment (Burn & Szoeki, 2016; Sandberg-Thoma et al., 2015). Initial studies on this growing trend among young adults were conducted mostly in Western countries. More recent studies in East Asian countries have found that young adults are also living with their parents longer, as compared with their parents' generation. Researchers have attributed this trend to current education, marriage, and employment conditions similar to those being experienced in Western countries (Burn & Szoeki, 2016; Raymo, Park, Xie, & Yeung, 2015; Yi, 2015).

In contrast to their counterparts in most Western countries, however, young adults in East Asian countries have traditionally left their childhood homes at a later age, a condition that still continues. Due to filial piety norms, leaving home is not an important stage in their transition to adulthood (Kim, Cheng, Zarit, & Fingerman, 2015; Li & Hung, 2019; Park & Sandefur, 2005). What role do these filial piety

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norms play in young adults in East Asian countries coresiding longer with their parents, as compared with the effects of changing economic conditions resulting in greater educational needs, rising housing prices, and delayed marriages? To the best of our knowledge, studies examining the connections between adult children's filial piety beliefs and intergenerational coresidence have concentrated on older adult children whose parents are above the age of 65. Therefore, the first purpose of this study is to closely examine the role of such beliefs among young adults whose average age was in the mid-twenties, with parents whose average age was below 50. Secondly, most filial piety research have examined separately the perspectives of older adult children (Chu, Xie, & Yu, 2011; Horioka, Gahramanov, Hayat, & Tang, 2018; Lin & Yi, 2013; Yasuda, Iwai, Yi, & Xie, 2011) and their parents (Chang & Chang, 2010; S.-M. Chen & Lin, 2010; Takagi & Silverstein, 2006; Wakabayashi & Horioka, 2009; Wang, Chen, & Han, 2014). As a result, scholars have called for research to be conducted that frame intergenerational coresidence as a co-decision – a decision requiring the characteristics of both generations to decide their living arrangements (Casares & White, 2018; Davis, Kim, & Fingerman, 2018; Horioka et al., 2018). Our investigation will incorporate the perspectives of both generations and consider intergenerational coresidence as a joint decision involving both young adults and their parents. This methodological breakthrough is one of our contributions to this research topic.

## 2. Literature review

### 2.1. Failure-to-launch and boomeranging young adults

The delay in young adults below the age of 35 leaving their childhood homes has recently attracted more attention due to the rising occurrence worldwide of extended intergenerational coresidence. Leaving home has become a longer process with many reversals as young adults both fail to launch or boomerang back to their parents' homes. The reasons proposed for this delay have included an increasingly globalized economy and changing social norms, which have resulted in higher college enrollment, increases in student debt, delayed age of marriage, rising divorce rates, having children without a partner, lower wages, fewer jobs, reductions in family resources, and skyrocketing property prices (Bayrakdar & Coulter, 2017; Burn & Szoek, 2016; Casares & White, 2018; Davis et al., 2018; Fingerman, Huo, Kim, & Birditt, 2016; Houle & Warner, 2017; Kahn, Goldscheider, & García-Manglano, 2013; Li & Hung, 2019; Matsudaira, 2015; Or, 2018).

### 2.2. Important parental factors

For parents, the important factors associated with failure-to-launch and boomeranging young adults involve their gender, whether they have been divorced or widowed, number of children, and their economic resources. First, researchers have found that mothers tend to coreside with their adult children more than fathers. Mothers have been found to be more financially dependent on their older adult children than fathers (Glick & van Hook, 2011; Kahn et al., 2013), less likely to live alone (Knodel & Ofstedal, 2002), and also less likely to remarry after widowhood, separation, or divorce (Wandera, Ddumba, Akinyemi, Adedini, & Odimegwu, 2017). Whether mothers are also more likely to live with their young adult children than fathers, however, has yet to be thoroughly investigated.

Second, young adults coming from divorced, single-parent families, and families with stepparents have been found to leave their parents' homes earlier than those from families with two biological parents (Bayrakdar & Coulter, 2017; Li & Hung, 2019; Tomaszewski et al., 2017). In addition, female children are more strongly affected by family background characteristics than male children (Blaauboer & Mulder, 2010; Mencarini, Meroni, & Pronzato, 2012).

Third, having more young adult children, particularly those who are unmarried or divorced, has been found to be related to increased intergenerational coresidence (Bayrakdar & Coulter, 2017; Burn & Szoek, 2016; Houle & Warner, 2017; Li & Hung, 2019; South & Lei, 2015; Tomaszewski et al., 2017). Fourth, having good economic resources has been linked with both increased (Li & Hung, 2019; Nauck, Groepler, & Yi, 2017; Tomaszewski et al., 2017) and decreased (Iacovou, 2010; Tomaszewski et al., 2017) intergenerational coresidence with young adult children. On the one hand, parents who have more resources to share with their young adult children can also provide more comfortable living spaces in their homes. For this situation, researchers have proposed the feathered nest hypothesis, which states that parental homes that provide high levels of comfort for young adult children will increase their propensity to stay or return home when necessary (Albertini, Gähler, & Härkönen, 2018; Mulder, Dewilde, van Duijn, & Smits, 2015). On the other hand, parents with greater economic resources have been found to be better able to provide their young adult children with home-ownership support and the ability to live on their own (Iacovou, 2010; Lux et al., 2018; Mulder et al., 2015; Mulder & Smits, 2013; Öst, 2012). Moreover, research findings suggest that parents with more economic resources may prefer to live independently, either alone or with only their spouse (Chaudhuri & Roy, 2009; S.-M. Chen & Lin, 2010; Chu et al., 2011; Korinek, Zimmer, & Gu, 2011).

### 2.3. Important young adult factors

For young adults, the important factors connected with failure-to-launch and boomeranging back to their parents' homes include their gender, education level, income, homeownership, marital status, and relationships with their parents and whether they receive parental support with childcare and housework. First, young adult daughters tend to leave home at an earlier age than sons. Daughters attain certain life stage milestones faster than sons, including finishing college, marrying, and cohabitating with partners (Bayrakdar & Coulter, 2017; Fry, 2013). In addition, in East Asian countries, the tradition of leaving home at the time of marriage applies much more to daughters than to sons (Nauck et al., 2017).

Second, young adults with higher levels of education and higher-paying jobs are both less and more likely to coreside with their parents. Due to the higher prices faced by today's first-time homebuyers, many young adults with low-paying jobs are not able to

purchase their own home and live independently away from their parents (Bayrakdar & Coulter, 2017; Lewis, West, Roberts, & Noden, 2016; Li & Hung, 2019; Matsudaira, 2015; Smith, 2017; Stone, Berrington, & Falkingham, 2014). In the U.S., for example, young adults aged 18 to 34 in 2016 were more likely to be living in their parents' home than their own household, for the first time in more than 130 years (Fry, 2016). On the other hand, some researchers have noted that young adults, even those with good paying jobs, live at home as a way to save money for their eventual departure from home (Knodel & Ofstedal, 2002; Payne & Copp, 2013).

Third, young adults who have transitioned to adult roles are less likely to live at home. These roles include marriage and becoming a parent, which encourages establishing a separate household to create privacy (Houle & Warner, 2017; South & Lei, 2015).

Fourth, concerning family structure, young adults with more unmarried siblings have been found to leave their parents' homes at an earlier age. Researchers attribute this crowding effect to the parental home becoming a less comfortable place to live, because the parents' resources need to be shared with a larger number of brother and sisters (Dykstra et al., 2013; Li & Hung, 2019). In addition, in East Asian countries, children who are first sons are more likely to live with their parents, especially as their parents get older, due to the filial piety norms shared by many East Asian cultures (Lin & Yi, 2013; M.-C. Tsai & Yang, 2017; Zhang & Lin, 2017).

Fifth, research has connected better relationships with parents with higher levels of intergenerational coresidence among both young adults (Albertini, Gähler, & Härkönen, 2018; Blaauboer & Mulder, 2010; Nauck et al., 2017; Tomaszewski et al., 2017) and older adult children (Cong & Silverstein, 2015; Zhang, Gu, & Luo, 2014). In addition, due to higher housing costs, high unemployment, prolonged education, and having children without a partner, young adults have been found to coreside with their parents to receive much needed assistance with childcare and housework (Fingerman et al., 2016; Houle & Warner, 2017).

#### 2.4. Chinese filial piety norms in East Asian societies and the relationship to coresidence in Taiwan

The origins of the concept of filial piety in Chinese culture can be traced back to Confucianism, which has been a dominant moral philosophy in China for about 2000 years. Based on living experiences and family tradition, filial piety as practiced today encompasses unique and strict responsibilities within Chinese and Taiwanese families. The younger generation is obligated to follow the instructions of their parents or older adults, and all family members are obliged to support each other (Bedford & Yeh, 2019; Chu et al., 2011; Lin & Yi, 2011, 2013). To meet these social expectations, children are expected to assist in supporting the physical, psychological and material well-being of their parents by all means possible. Concerning living arrangements, coresidence is one of the most common ways of providing such intergenerational support (Chu et al., 2011; Zimmer, 2005).

The family structure is one of the main considerations of intergenerational coresidence. Older parents normally live with only one married child at a time, unless the family group is very large, such as a traditional farmer's family. Likewise, married young adults will not typically live with parents from both the husband's and wife's sides at the same time, even in the older social tradition of family group living. One child, traditionally the eldest son, is often expected to live with the parents to fulfill this filial piety obligation (M.-C. Tsai & Yang, 2017; Zhang et al., 2014).

In terms of analytical methods, the recent literature has gradually adopted quantitative methods to measure filial piety in order to improve the accuracy of these measurements, and to analyze the impacts on coresidence arrangements and intergenerational support. For example, Diwan, Lee, and Sen (2011) quantified filial obligation as an indicator variable by using Likert scales, and then analyzed the influence of this variable on the preferred coresidence living arrangements of Indian American immigrants. The results showed that parents with higher levels of filial piety beliefs were more likely to choose to live with their children. In addition, Lin and Yi (2011) used Likert-scaled indicators to investigate the associations between filial piety beliefs and levels of support among adult children in Taiwan. They found that these indicators had a significant connection with financial support, and also that daughters preferred to provide emotional support to their parents in addition to only financial support.

In bridging the literature to the context in Taiwan, staying in parental homes has been the culturally preferred living arrangement in many East Asian countries, including China, Japan, and South Korea. The younger generation has traditionally been the primary source of support for aging parents, where coresidence has been regarded as an ideal realization of filial piety (Lin & Yi, 2013; Yi, 2015). Filial piety is one of the most important cultural norms that continues to shape the intergenerational household compositions of these countries. In the ideal Confucian family, the eldest son is expected to assume the major responsibility of taking care of his aging parents, including living with them and overseeing family matters. Recent studies have found that, even today, the stronger the filial piety beliefs expressed by adult children, the more likely they were to live with their parents (Lin & Yi, 2013; M.-C. Tsai & Yang, 2017; Zhang et al., 2014). This is particularly true for adult children in Taiwan, where stronger filial piety norms have been found to be more strongly related to intergenerational coresidence as compared with their counterparts in China, South Korea, and Japan (Chu et al., 2011; Liu, Dijst, & Geertman, 2017; Taniguchi & Kaufman, 2017; Yasuda et al., 2011). Therefore, unlike their counterparts in the West, there does not exist a socially expected norm for young adults in East Asia countries to establish an independent household as part of their transition to adulthood (Li & Hung, 2019; Yi, 2015).

Nonetheless, young adults in Taiwan are experiencing many of the failure-to-launch and boomeranging conditions young adults in other countries are experiencing, particularly lower wages, fewer jobs, and rapidly increasing housing prices (Y.-L. Chen, 2015; Everington, 2017; Jennings, 2018; Smith, 2017; T.-H. Yeh, 2017). In addition, some researchers have observed that the global forces of modernization have enabled young adults in East Asian societies to be less restricted by the traditional rules of intergenerational coresidence (Li & Hung, 2019). For example, researchers have noted that adult children with higher incomes in Taiwan were less likely to coreside with the husband's parents, which suggested that such children were able to "buy out" their obligations to coreside with their aging parents (Chen & Lin, 2011; Chu et al., 2011; Lin & Yi, 2013). Although filial piety beliefs remain strong, greater economic resources may enable adult children to deviate from traditional practices by perhaps employing professional caregivers. Likewise, parents with higher education and greater economic resources in Taiwan have begun pursuing a more independent life. These resources are

resulting in a growing break from the traditional norms of coresidence and greater ability to “buy” privacy. This contrasts with the situations in China, the Philippines, and Thailand, where more difficult economic conditions require parents to share their resources with other less well-off family members (Chen & Lin, 2011; Chu et al., 2011; Knodel & Ofstedal, 2002; K. H. Yeh, 2009). Hence, the current conditions influencing intergenerational coresidence are more complicated than in traditional Taiwanese society.

In summary, these conditions of intergenerational coresidence involving failure-to-launch and boomeranging young adults are different from most existing studies, given the unique culture of Taiwan, and the stronger but nonetheless changing filial piety beliefs in Taiwan as compared with China, South Korea, and Japan. Moreover, the changes in the economic conditions for young adults in Taiwan are more recent, as compared with other industrialized countries, involving such factors as lower wages, fewer jobs, and skyrocketing housing prices. This paper thus contributes to the failure-to-launch literature by exploring the unique role of filial piety norms in Taiwan. We hypothesized that because leaving home is not an important stage in young adults’ transition to adulthood, stronger filial piety beliefs will be associated with higher intergenerational coresidence. In addition, within these intergenerational coresidences, the support will initially flow primarily from the parents to the young adult children during this final stage of the nuclear family. However, as these adult children grow older and establish their own nuclear families, the support will increasing flow from them to their aging, retired parents, as revealed by the research conducting with older adult children (e.g., Knodel & Ofstedal, 2002; Taniguchi & Kaufman, 2017). Therefore, throughout the life courses of these young adult children, their ability to financially support themselves and potentially their parents, whether measured by demographic characteristics (e.g., education level, having a job), intergenerational interaction (e.g., offer of financial support to parents), or living environment (e.g., homeowner/renter, housing type), will be the most important factor connected to intergenerational coresidence (see Table 2).

### 3. Method

#### 3.1. Data

This study used the information collected by the Panel Study of Family Dynamics (PSFD), which was conducted in Taiwan from 1999 to 2007.<sup>1</sup> Although more recent similar studies have been conducted, these PSFD data are still the most complete and comprehensive data source available, and utilized a nationally representative sample to investigate family patterns and changes in Taiwan (Yu & Su, 2006). PSFD researchers interviewed 2959 participants of age 18 years and older from 1999 to 2000, and annually kept tracking this main sample. A stratified, three-stage random sampling procedure was applied first to the scale of 131 townships, second to smaller administrative districts (villages or equivalent districts in urban areas), and lastly to individuals (Chu, Xie, & Yu, 2007). Additionally, in 2004, 2005 and 2007, the scope of this survey was expanded to include adult children of age 25 years and older, if any existed, within the main sample.

We first pooled two PSFD databases (which combined RI 1999 and RI 2000 for the parents,<sup>2</sup> and RCI 2004; RCI 2005; and RCI 2007 for the young adult children,<sup>3</sup> respectively) in pairs to obtain a sample of 787 young adult children. Next, only those young adult children who had at least one living parent who could be tracked were retained, reducing the sample to 668. Young adults with missing information were then dropped. The final sample consisted of 657 young adult children (see Table 1), which constituted 22.2% of the parents interviewed (657/2,959, because only one parent was interviewed per sampled family) and 83% of the children interviewed (657/787, because only one young adult child was interviewed per sampled family).

#### 3.2. Independent variables

The independent variables were separated into the following four categories, namely demographic characteristics, family structure, intergenerational interaction, and living environment. The definitions and calculated means for each variable are listed in Table 2. Most of the variable definitions are self-explanatory, with the exception of the demographic characteristics concerning the young adult children’s filial piety beliefs and both the children’s coresidence preferences and parent’s coresidence preferences. According to Zhang et al. (2014), filial piety measurements should reflect the idea of obligating adult children to respect, support, and obey their parents. As a result, living with and providing daily care to their elderly parents are considered to embody filial piety. The filial piety beliefs of the responding young adult children in this paper, therefore, were measured in line with Zhang et al.’s (2014) approach, by summing up their responses to the following eight Likert scale questions (0 = strongly disagree to 5 = strongly agree, 40-point maximum):

1) You feel gratitude for the nurturing provided by your parents.

<sup>1</sup> The PSFD data from 1999 to 2007 represented the first completed sample that allowed us to match intergenerational family information, which included young adults. This sample comprised sufficient information concerning the age groups so called Millennials generation that we were investigating to complete our research.

<sup>2</sup> According to the Panel Study of Family Dynamics (2022), as of 2020, five different main samples, involving people born in different years, were conducted with their first-wave surveys in 1999, 2000, 2003, 2009, and 2016. The sample sizes were inflated for the 2003, 2009, and 2016 first-wave surveys, differentiating them from the 1999 and 2000 surveys. Therefore, we only used the earlier two for consistency.

<sup>3</sup> Young adult children were treated as financially independent individuals upon reaching the age of 25 by the PSFD survey. Therefore, these young adults could “choose” whether they preferred coresidence and, therefore, they should be considered different from students who typically depend on their parents for the bulk of their financial support.

**Table 1**  
Databases and sample sizes.

Database	Sample Size	Total
RI 1999	999	2959
RI 2000	1960	
RCI 2004	298	787
RCI 2005	167	
RCI 2007	322	
Total young adults after deletions		657

**Table 2**  
Variable definitions and corresponding means for parents and responding young adult children.

Variable	Definition	Mean	
		Parents	Responding Children
<b>Demographic Characteristics</b>			
Gender	Gender of parents or children: 1 = male; 0 = female	48.2% male	53.4% male
Age	Age of parents or children	47.1 years (4.3)	25.4 years (0.5)
Education level	Years of education of parents or children	8.8 years (3.9)	14.4 years (2.3)
Job	Parents or children: 1 = have a job; 0 = no job	77.2%	74.3%
Self-rated health	Parents only: 1 = poor health; 0 = good health	7%	–
Without spouse	Parents only: 1 = divorced, separated or widowed; 0 = with spouse	7%	–
Married	Children only: 1 = married; 0 = not married	–	11.2%
Filial piety belief	Children only: Measured by 5-point Likert scale (40-point maximum)	–	34.9 (4.9)
Coresidential preference	Parents or children: Measured by 5-point Likert scale (10-point maximum)	50.2%	64.4%
Average area per householder	Parents or children: Average area per householder in square meters	31.5 sq m (23.4)	37.5 sq m (40.8)
<b>Family Structure</b>			
Number of children	Parents only: Total number of sons and daughters	3.2 children (1.0)	–
Child is first son	Children only: 1 = eldest son; 0 = not eldest son	–	31.4%
Number of unmarried siblings	Children only: Total number of unmarried siblings	–	1.6 siblings (0.9)
<b>Intergenerational Interaction</b>			
Relationship with son	Parents only: 1 = good relationship with son; 0 = poor relationship	61.2%	–
Relationship with daughter	Parents only: 1 = good relationship with daughter; 0 = poor relationship	62.4%	–
Relationship with parents	Children only: 1 = good relationship with parents; 0 = bad relationship	–	79.5%
Parents help with childcare	Children only: 1 = received assistance with childcare; 0 = no assistance	–	4.3%
Parent helps with housework	Children only: 1 = received assistance with housework; 0 = no assistance	–	10.4%
Financial support from parents	Children only: 1 = received financial support from parents; 0 = no financial support	–	23.4%
Financial support to parents	Children only: 1 = Offered financial support to parents; 0 = never offered	–	46.4%
<b>Living Environment</b>			
Homeowner/renter	Children only: 1 = owns or rents their housing; 0 = do not own or rent their housing	–	38.4%
Housing type <sup>1</sup>	Parents or children: 1 = single family home; 0 = other	70.4%	51.2%

Note. Standard deviations for continuous variables are in parentheses.

1: “Single family home” in this paper indicates house, duplex, townhouse, and farmhouse housing types that are more spacious than apartment, condominium, and dormitory categories.

- 2) You treat your parents well even when they are not friendly to you.
- 3) You try to achieve your parents' wishes, even giving up on your personal objectives.
- 4) As a son, you will live with your parents after you marry.

As a daughter, you will visit your parents often after you marry.

- 5) You wish to make your parents' lives more comfortable.
- 6) You must always speak up for your parents.
- 7) You must have a son to carry on your family line.
- 8) You must do something to make your family proud.

The coresidential preferences<sup>4</sup> of the responding young adult children were measured by summing up their responses to the following two questions used to measure their filial piety beliefs:

For sons:

- 1) As a son, you will live with your parents after you marry.
- 2) You wish to make your parents' lives more comfortable.

For daughters:

- 1) As a daughter, you will visit your parents often after you marry.
- 2) You wish to make your parents' lives more comfortable.

The children's coresidential preferences were coded as "1," meaning that the sons and daughters prefer to live with their parents, if the sum of their responses were equal or greater than eight. Otherwise, this variable was coded as "0."

The coresidential preferences of the parents were measured by summing up their responses to the following three Likert scale questions (0 = strongly disagree to 5 = strongly agree):

- 1) You will help your children with their housing needs, if you are capable.
- 2) You will protect your children when they are afraid or sad.

You will actively care for your children.

The parents' coresidential preference was coded as "1," meaning that the parents prefer to live with their children, if the sum of their responses were equal or greater than 12. Otherwise, the variable was coded as "0."

### 3.3. The two-level nested decision making structure

To investigate the perspectives of both generations concerning intergenerational coresidence, we used a discrete choice model with a nested structure, specifically a two-level nested logit model. This nested structure of the alternative types of living arrangements examined is shown in Fig. 1. In the upper level, the marginal probability choice (noted as level  $m$ ), the coresidence decision-making was evaluated using parents' attributes and opinions. We contend that the parents' coresidence decisions are more important and should be considered the *conditional decision* for the coresidence situation of the respondent child, which was the *marginal decision*. In the upper level, the factors that affect the parents' coresidence decisions include their demographic attributes, family structure involving the number of sons and daughters, their relationships with their sons and daughters, and housing type. The two alternatives used were as follows:

- Parents Coreside: Parents coreside with one of their children
- Parents Do Not Coreside: Parents do not coreside with one of their children

This binary decision variable of parents coreside  $y_{it}$  for the sampled family  $t$  was defined as,

$$y_{it} = \begin{cases} 1, & \text{Parents Coreside } (i = 1) \\ 0, & \text{Parents Do Not Coreside } (i = 0) \end{cases}$$

In the lower level, the conditional probability choice (noted as level  $n$ ), the decision-making was evaluated using the attributes and opinions of the responding young adult child. Factors that affect the decision to coreside with the respondent child include the demographic factors of the children, filial piety beliefs, number of siblings, and helps from parents. The three alternatives used were as follows:

- Coreside with Responding Child: Parents coreside with the responding child
- Coreside with Other Child: Parents coreside with a child other than the responding child
- Others: Parents do not coreside with one of their children, but instead live only with their spouse, live with others, or live alone

The upper level was used to examine why parents coreside with their children, while the lower level was used to investigate which young adult children were more likely to live with their parents. Therefore, the framework of this model incorporated the attributes and opinions of both generations.

The probability of the parents' choosing coresidence in the marginal level ( $m$ ) is given by

<sup>4</sup> Not having the parents' and young adult children's direct responses to their coresidence preference is a limitation of this paper given that the existing datasets did not include such questions for either the parents or the children. Future research can resolve this limitation when more datasets are available.

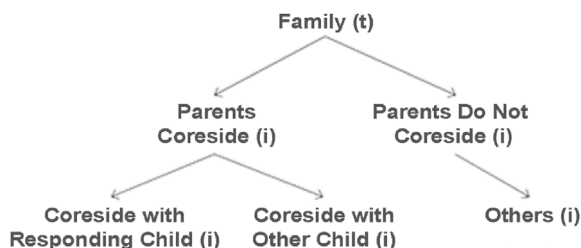


Fig. 1. Nested structure of living arrangements utilized in the statistical analyses.

$$P_m = \frac{EXP(V_m + \theta I_m)}{\sum_{m=0,1} EXP(V_m + \theta I_m)} \tag{1}$$

And, the probability of the responding young adult child's choosing coresidence in the conditional level (n) under the marginal choice in the upper level (m) is given by

$$P_{n/m} = \frac{EXP(V_{n/m})}{\sum_{n=0,1} EXP(V_{n/m})} \tag{2}$$

The joint probability of coresidence choice was then computed by

$$P_{nm} = P_m * P_{n/m} \tag{3}$$

where  $V_m$  represents the indirect utility measuring the observed utility in the parents' decision level  $m$ , and is generally assigned to be a linear combination of the variables characterized by parents' generation and family attributes, denoted by  $X_{k,m}$ .

$$V_m = \left( \sum_k \beta X_{k,m} \right) \tag{4}$$

The Inclusive Value ( $I_m$ )<sup>5</sup> of alternative  $m$  can be defined as the maximum expected utility (MEU) of the alternative (Small & Rosen, 1981), and was computed based on the indirect utility from the lower level ( $V_{n/m}$ ) with the form of

$$I_m = \ln \left( \sum_{n=0,1} EXP(V_{n/m}) \right) \tag{5}$$

where  $V_{n/m}$  represents the measurement of the indirect utility in the level of responding young adult's decision with the variables shown in Table 3.

The joint decision involving parents' coresidence and their coresidence with the responding child could also be a multiple-choice decision without the nested structure. The multiple-choice structure is, in fact, just one part of the nested structure. The coefficient of IV in each choice set in the lower level would then be the measurement of such a structure. Such a nested structure reduces to a multiple structure when the IV is statistically not different from the value 1, as indicated by both Domencich and McFadden (1975) and Ben-Akiva and Lerman (1985).

## 4. Results

### 4.1. Two-level nested logit model analysis of coresidence

In Table 3, Model 1 includes only the demographic variables of the parents (upper level) and responding children (lower level). Model 2 adds the family structure, intergenerational interaction, and living environment variables of both groups. For Model 3, the variables that were not significant in Models 1 or 2 were removed. The signs of the variables were mostly consistent in each model. In addition, the estimated coefficient of "Inclusive Value" ( $\theta$ ) were all between 0 and 1, which indicates that the nested structure of all three models were statistically acceptable.

### 4.2. Responding children

The results of our study revealed that stronger filial piety beliefs among young adults were also associated with higher levels of

<sup>5</sup> Inclusive value (IV) represents the expected maximum utility of the choice set with coefficient between [0, 1]. Refer to Domencich and McFadden (1975).



**Table 3**  
Coresidence regressed onto all three categories of parents' and adult Children's attributes for the three nested logit models.

Variable	Model 1		Model 2		Model 3	
	Coefficients	T	Coefficients	T	Coefficients	T
<b>Parents (upper level)</b>						
<b>Demographic Factors</b>						
Gender	-0.46	-2.01**	-0.50	-2.02**	-0.56	-2.34**
Age	0.04	3.64***	0.01	0.88	0.01	0.93
Education level	-0.03	-0.90	-0.01	-0.31		
Without spouse	-0.42	-1.04	-0.52	-1.19		
Self-rated health	-0.09	-0.19	-0.29	-0.60		
Job	-0.10	-0.38	-0.03	-0.10		
Coresidence preference	-0.12	-0.54	-0.14	-0.62	-0.11	-0.46
Average area per householder	-0.01	-0.84	-0.04	-1.72*	-0.03	-1.55
<b>Family Structure</b>						
Number of sons			0.43	2.34**	0.38	2.27**
Number of daughters			0.24	1.68*	0.27	2.06**
<b>Intergenerational Interaction</b>						
Relationship with son			-0.69	-1.96**	-0.40	-1.67*
Relationship with daughter			0.39	1.11		
<b>Living Environment</b>						
Housing type			-0.77	-2.79***	-0.68	-2.56**
<b>Responding Children (lower level)</b>						
<b>Demographic Factors</b>						
Gender	0.37	1.48	0.61	1.32		
Education level	-0.07	-1.95*	0.00	0.07	0.01	0.15
First marriage	-1.91	-5.96***	-6.16	-7.53***	-5.91	-7.68***
Job	0.98	4.50***	1.50	3.98***	1.18	3.55***
Filial piety belief	0.03	1.75*	0.03	1.14	0.03	1.37
Coresidence preference	0.03	0.12	0.03	0.08	-0.10	-0.29
Average area per householder	-0.03	-2.53**	-0.01	-0.51	-0.01	-0.64
<b>Family Structure</b>						
Child is first son			-0.51	-1.15		
No. of unmarried siblings			-0.23	-1.37		
<b>Intergenerational Interaction</b>						
Relationship with parents			0.76	1.71*	0.59	1.40
Parents help with childcare			2.08	2.42**	2.04	2.52**
Parents help with housework			3.28	4.13***	3.08	4.16***
Financial support from parents			0.57	1.34		
Financial support to parents			-0.34	-1.06		
<b>Living Environment</b>						
Homeowner/renter			-4.27	-10.32***	-4.074	-10.67***
Housing type			1.64	4.96***	1.60	5.03***
<b>Inclusive Value</b>						
Parents do not coreside	1	-	1	-	1	-
Parents coreside	0.116	0.535	0.435	5.13***	0.466	5.378***
$\chi^2$	517.26***		885.94***		863.89***	
$\rho^2$	0.31		0.53		0.52	

\*p < .1. \*\*p < .05. \*\*\*p < .01.

intergenerational coresidence. Nonetheless, though significant, filial piety beliefs were less strongly related to coresidency than the responding children variables more directly related to the economic resource needs of young adults. In agreement with the findings of previous investigations, responding young adult children were more likely to live with their parents if they had lower education levels, and were non-homeowners (Bayrakdar & Coulter, 2017; Houle & Warner, 2017; Li & Hung, 2019; Mulder, Clark, & Wagner, 2002; South & Lei, 2015; Tomaszewski et al., 2017), had better relationships with their parents (Nauck et al., 2017; Tomaszewski et al., 2017), and received help from their parents with childcare and housework (Fingerman et al., 2016; Houle & Warner, 2017). We also found that having a job and being unmarried was related to being more likely to live with their parents. Having a job was unexpectedly related to higher levels of coresidence, but perhaps the responding child in the survey was also the oldest sibling. This specific finding, therefore, may be more representative of expected stage of life transitions than reasons for coresidence. Likewise, marriage represents another important stage of life transition. To achieve more privacy, married young adults established separate households.

In addition, young adults with lower average area per householder and those living in single-family homes were found to be more likely to coreside with their parents. Lower average area per householder would logically result from young adults not yet living in their own homes. Likewise, responding children who reported that they were living in single-family homes were most likely still living in homes owned by their parents. Due to recent very high housing price-to-income ratios, many people in Taiwan cannot afford to buy a condominium, much less an expensive single-family home (Everington, 2017; Y.-C. Tsai & Kao, 2017). In addition, this finding provides support for the feathered nest hypothesis, where young adults are less eager to leave larger and more comfortable parental homes (Albertini, Tosi, & Kohli, 2018; Leopold, 2012; Mulder et al., 2002).

### 4.3. Parents of responding children

Mothers were found to be more likely than fathers to coreside with their young adult children, similar to the findings of past studies involving older adult children (Glick & van Hook, 2011; Kahn et al., 2013; Knodel & Ofstedal, 2002; Wandera et al., 2017). Also, in agreement with past findings involving young adult children, parents having more young adult children, particularly sons (Albertini, Gähler, & Härkönen, 2018; Bayrakdar & Coulter, 2017; Kahn et al., 2013; Li & Hung, 2019; Nauck et al., 2017), and parents not living in a larger housing type with more average area per householder were found to be more likely to coreside with their young adult children (see Table 3). Owning a smaller home is perhaps related to lower parental economic resources, and an inability to financially support their young adult children to live independently.

In addition, older parents were found to be more likely to coreside with their young adult children as compared with younger parents. This particular finding has not been closely examined by researchers investigating failure-to-launch and boomeranging young adults. Most of the older parents in this study were of pre-retirement age, with a mean age of 47.1 years (see Table 2). In agreement with the findings of other researchers, nonetheless, one can argue that these relatively older parents had more resources to share with their young adult children, including living spaces in their homes, than either younger or post-retirement parents (Knodel & Ofstedal, 2002).

Both being without a spouse and self-rated health were not significantly related to coresidence in this study (see Table 3). In contrast, other researchers have found that parents who are widowed, separated, or divorced (Blaauboer & Mulder, 2010; Li & Hung, 2019; Mencarini et al., 2012; Nauck et al., 2017; Tomaszewski et al., 2017) or have poor self-rated health (South & Lei, 2015) were more likely to coreside with their young adult children. One explanation for this discrepancy may lie in the low rates of both without spouse and poor self-rated health reported by our study participants (i.e., 7% for both). An additional explanation may stem from the fact that parents in East Asian countries often live with their children before experiencing widowhood or poor health, to increase the certainty of receiving support from their children later in life (Brown et al., 2002).

Lastly, the variable parents having a poor relationship with their sons was not expected to be associated with higher levels of coresidence. The few studies that have directly examined the quality of the relationship between parents and their young adult children from the parents' point of view have revealed that better relationships led to higher levels of coresidence (Albertini, Gähler, & Härkönen, 2018; Blaauboer & Mulder, 2010). Notwithstanding, the results of our study reinforce the fact that the economic needs of young adults may be more important than the quality of family relations. The increasing financial dependency of young adults on older relatives for support, including housing needs, reflects the importance of these economic forces on family coresidence (Albertini, Gähler, & Härkönen, 2018; Blaauboer & Mulder, 2010; Houle & Warner, 2017; Iacovou, 2010; Kahn et al., 2013; Lewis et al., 2016; Li & Hung, 2019; Matsudaira, 2015; Mulder et al., 2002; Stone et al., 2014; Tomaszewski et al., 2017). In addition, the poor relationship with their sons in our study may be the result of unexpected and extended coresidence with young adult children. Researchers have discovered that such unexpected coresidence can lead to both greater emotional closeness and family conflicts (Casares & White, 2018; Davis et al., 2018; Fingerman et al., 2016).

### 4.4. Direct and cross elasticity

Although the nested logit model helped reveal what variables affected intergenerational coresidence, this model did not explain how the likelihood of coresidence might differ because of changes in these significant continuous variables. We, therefore, used elasticity analysis to better understand some of these dynamics. The direct elasticity between parents' and children's variables and coresiding with the responding children, and cross elasticity between parents' and children's variables and coresiding with the other children or not coresiding with children are shown in Table 4. Some of these independent variables were not significant in the nested logit models but were analyzed due to their potential implications, like parents' educational levels and children's filial piety beliefs.

For the parents, a 1.0% increase in educational level resulted in a 0.08% increase in the possibility of not coresiding with any of their children. Although not significant in the nested logic models (see Table 3), higher educational levels are logically related to greater

**Table 4**  
Direct and cross elasticity between selected continuous parent and children variables.

Generation	Variable	Coefficient of Elasticity		
		Coreside with responding children	Coreside with other children	Do not Coreside
Parents	Education level	-0.01	-0.01	0.08 <sup>a</sup>
	Number of sons	0.09	0.09	-0.58 <sup>a</sup>
Children	Filial piety belief	0.88 <sup>a</sup>	-1.68	-0.71
	Number of unmarried siblings	-0.30 <sup>a</sup>	0.54	0.23

Note. The formula of direct elasticity can be stated as:  $\frac{\sum_m P_m P_{n/m} [(1 - P_n) + (\frac{1}{\mu_m} - 1)(1 - P_{n/m})]}{P_n} \times \beta X_n$ ; The formula of cross elasticity can be stated

as:  $-\left[ P_n + \frac{\sum_m (\frac{1}{\mu_m} - 1) P_m P_{n/m} P_{n'/m}}{P_{n'}} \right] \times \beta X_n$  (Wen & Koppelman, 2001).

<sup>a</sup> Direct elasticity, others are cross elasticity.

economic resources. These parents, therefore, are better able to financially help their young children to buy or rent a place to live. In addition, a 1.0% increase in the number of sons may decrease the possibility of parents not living with any of their children by 0.58%. Sons in East Asian countries, particularly Taiwan, are expected to take care of their parents (Lin & Yi, 2013; M.-C. Tsai & Yang, 2017; Zhang et al., 2014).

For the responding young adult children, a 1.0% increase in filial piety belief scores was associated with a 0.88% increase in the possibility of coresiding with their parents (see Table 4). Additionally, the cross elasticity analyses revealed that the same filial piety belief increase was associated with 1.68% and 0.71% decreases in parents coresiding with children other than the responding children and not coresiding with any of their children, respectively. Filial piety has been considered the vital element that connects intergenerational support, and coresidence is regarded as the performance of such support (Chen & Lin, 2011; Chu et al., 2011). Finally, 1.0% increases in the numbers of unmarried siblings were children were linked with a 0.30% decrease in the probability of coresiding with their parents, and 0.54% and 0.23% increases in either other siblings living at home or no sibling living at home, respectively. Although not significant in the nested logit models, greater numbers of unmarried siblings have been linked with young adults leaving their parents' homes at an earlier age, due to the greater need to share parental resources with more people and the resulting reduction in home comfort (Albertini, Tosi, & Kohli, 2018; Li & Hung, 2019; Mulder et al., 2002).

## 5. Discussion

The purpose of this study is twofold. First, we wanted to investigate the role that East Asian filial piety norms play in the globally increasing occurrences of failure to launch and boomeranging young adults. Second, we wanted to explore the factors underlying coresiding young adults from the perspectives of both young adults and their parents simultaneously, using a nested logit model as our methodological contribution. Another related contribution is pragmatizing factors related to intergenerational interactions. An example is the quality of the relationship between parents and their young adult children, which has been less studied due to the difficulty of pairing intergenerational datasets.

With regard to the filial piety beliefs of the responding children, studies linking such beliefs with higher levels of intergenerational coresidence have primarily examined this relationship between older adult children above the age of 35 and older parents above the age of 65 (Chu et al., 2011; Horioka et al., 2018; Lin & Yi, 2013; Yasuda et al., 2011; Zhang et al., 2014). In this vein, we found a similar result that stronger filial piety beliefs among younger adult children were associated with higher levels of intergenerational coresidence. One can argue that the importance of these filial piety norms was still at a nascent stage in the lives of these young adults, in their life course paths of breaking away from their parents' nuclear families. The importance of taking care of their parents will increase greatly when their parents reach retirement age and as these young adults, especially the sons, marry and start their own families. Even for these young adults in an East Asian society, nonetheless, the influences of filial piety norms on intergenerational family structures were still measurable. In addition, we computed the elasticities of several significant variables representing both the parent and young adult generations in the decision-making processes associated with coresiding, which represents an analysis that has not been explored in previous research. This elasticity represents the sensitivity of variables influencing coresidence decisions, such as the education level and number of sons corresponding to the parents' generation and the level of filial piety beliefs of the young adult children's generation. Most importantly, a 1.0% increase in the responding young adult children's filial piety belief scores was linked with a 0.88% increase of coresiding with their parents. Of note, our ability to find additional connections among the young adult children's filial piety beliefs and their differing social and economic backgrounds was limited by our relatively small sample size. This limitation presents a direction for future research.

Much like other regions of the world (Bayrakdar & Coulter, 2017; Isengard & Szydluk, 2012; Kahn et al., 2013; Matsudaira, 2015; Sandberg-Thoma et al., 2015), the economic resources of the young adults in Taiwan appear to be more important determinants behind intergenerational coresidence levels than those of their parents. In addition, for parents, those who could afford more living space seemed to have used their economic resources to help their young adult children buy homes, in agreement with other studies conducted in Western Europe and the United States (Iacovou, 2010; Mulder et al., 2015; Mulder & Smits, 2013). At the same time, older parents were found to be more likely to coreside with their adult children. This particular finding has not been closely examined by researchers investigating failure-to-launch and boomeranging young adults. Most of the older parents in this study were of pre-retirement age, with a mean age of 47.1 years (see Table 2). In agreement with the findings of other researchers, nonetheless, one can argue that these relatively older parents had more resources to share with their young adult children, including living spaces in their homes, than either younger or post-retirement parents (Knodel & Ofstedal, 2002).

A related living arrangement is the option of co-neighboring (Teerawichitchainan, Pothisiri, & Long, 2015; Zhang, Engelman, & Agree, 2013). Living nearby, instead of coresiding, gives both generations more privacy on the one hand, while allowing the young adult children to adhere to filial piety norms for taking care of their parents on the other. In addition, with Taiwan currently being recognized as having the lowest birth rate in the world following many years of decline (Everington, 2021), the opportunities for parents to coreside with their children will decrease in the future. The interactions between these two trends will necessitate the researching of new issues: Will co-neighboring gain further popularity among the young adults in the near future, and how will today's low birth rates affect the growth of such co-neighboring?

The greatest limitation of this study was the lack of information on the economic resources of both generations. Our findings confirmed the importance of the economic resources for not only young adults, but also their parents in determining intergenerational coresidence. However, education levels, employment status, living area per householder, and housing types were used as proxies for their economic resources. A future study should be conducted utilizing better information regarding (1) the incomes of all the family members, (2) the actual real-world market prices of the family home, (3) the estimates of family savings and other financial resources,

(4) the parents' pre- or post-retirement stages, and even (5) the interactions between parents' and children's characteristics in determining coresidence. Also, the nested logit model developed in this paper was based on the assumption that the parent's coresidence decisions should be considered the conditional decision for the children's generation. This assumption's rationality could be further discussed in future research, potentially illustrating different structures of living arrangements other than in Fig. 1.

## 6. Conclusions

Young adults globally are delaying leaving their parents' home and establishing their own independent households and nuclear families. Analysts have concluded that the challenging economic forces of today's world are the most important factors bringing about this change. Skyrocketing housing prices and drastic reductions in low-skilled, entry-level jobs due to an increasingly globalized economy have been pointed out as the major problems. Our study revealed that these economic forces are affecting the status of intergenerational coresidence even in East Asian societies. In such societies, due to filial piety norms, leaving home is not an important stage in a young adult's transition to adulthood. Nonetheless, these global economic factors were found to be influencing the intergenerational living arrangements of families in today's Taiwan. Filial piety norms were found to still play a role, but the economic needs of young adults in Taiwan, more so than their parents, are determining their intergenerational living arrangements.

## Declaration of competing interest

None.

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