INTERNATIONAL REAL ESTATE REVIEW

2019 Vol. 22 No. 3: pp. 431 – 462

Married Young Adults Living with Parents — An Analysis of Regional Differences

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Previous studies have rarely discussed the phenomenon of financially independent married young adults who live with their parents in Asia. This study examines the determinants of living with parents for married young adults who are the main financial provider by using samples of households at the national and regional levels (six municipal regions) in Taiwan. The empirical results reveal that housing affordability is a key factor for why married young adults continue to live with their parents. Due to concerns around housing affordability, married young adults are 1.3 times more likely to live with their parents in Taipei City which is the least affordable city in Taiwan, as opposed to those who do not have concerns around housing affordability as is the case for Tainan City, which is the most affordable region, in which the likelihood is only 1.07. While the education level of married young adults has a significantly positive effect on living with their parents in the Taipei metropolitan area, the opposite is true in the central and southern cities of Taiwan. An increase in the number of pre-school children will increase the likelihood of living with parents, except in Taipei City. The differences might be caused by the differences in the housing and labor markets in the examined cities. Furthermore, an increase in the number of co-residing grandparents or those who have more than one owner-occupied house will increase the probability of living with parents. The variables in this study might be also affected by the influence of traditional family culture and family wealth on the nest-leaving decision of married young adults.

Keywords

Married Young Adults, Living with Parents, Housing Affordability, Regional Differences

1. Introduction

The living arrangements of households are a joint decision that takes into account the housing demand of family members and quality of life. When households make decisions about their living arrangements based on different family life cycle stages, not only must they consider the spatial and location demands of the activities of the family members (e.g., school, employment, proximity to relatives and friends), but also housing affordability and complementary or competing relationships between housing decisions and other major family decisions (such as having children, parenting, parental support, etc.). Moreover, it is even more important to anticipate the future possible changes in the family structure. Such events can be however full of uncertainty. Therefore, the determinants of the living arrangements of households would also differ quite significantly in the different family life-cycle stages.

For young adults who live with their parents, not only do they require more time to form romantic relationships and delay the transition to marriage (Yu et al. 2019), but also do not readily form new households (Ermisch 1999; Myers and Yu, 2010). Furthermore, household formation has a great impact on housing demand and supply, mobility in the employment market, and social welfare of the children and elderly. Therefore, identifying when and why young adults would leave the parental home and live independently is an important task for academic researchers, housing market participants, and decision-makers of public policies.

In the western culture, young people will leave their parental home and live independently (referred to as nest-leaving hereafter) after they reach a certain age. This nest-leaving process implies a new stage in life, and has important ramifications. This stage is a necessary path for everyone during maturity. However, due to different cultural considerations in different countries, the time at which young people move out and live independently differs. For example, young people in central and northern Europe (such as Denmark and the Netherlands) move out to live independently at an earlier age, whereas those in southern Europe (such as Spain and Italy) move out to live independently at a later age. Young people in Australia are somewhere in the middle, with the average age of females of about 19 years old, and the males of about 20 years old (Blanc and Wolff, 2006). In contrast, when young people reach adulthood in most Asian countries, they will not necessarily leave their parental home and live independently. Usually, the key factor for leaving the nest is related to the decision to marry. Most unmarried children who reach adulthood will still continue to live with their parents.

There is an increasing global trend of young adults who still live with their parents (Desilver, 2016). In the United States (US), the proportion of male adults who are 20 to 24 years old and still living with their parents has increased

from 48.2% in 1999 to 50.9% in 2014, and female adults from 38.5% in 1999 to 43.1% in 2014. The proportion of male adults who are 25 to 29 years old and living with their parents has increased from 19.0% in 1999 to 23.1% in 2014, and female adults from 11.5% in 1999 to 16.1% in 2014. Furthermore, the proportion of young adults between 18 to 34 years old who are living with their parents has increased since 1960 and was the most prevalent living arrangement of that age range in 2014 (Fry, 2016). In Taiwan, the proportion of young adults who are living with their parents was 55.3% in 1998 but increased to 73.02% in 2016. The proportion of unmarried young adults who live with their parents has decreased from 88.0% in 1998 to 84.64% in 2016. However, married young adults who are living with their parents have increased from 23.7% in 1998 to 36.64% in 2016.[1] These phenomena indicate that the living arrangements of young adults and why married young adults still continue to live with their parents warrant further discussion and are important topics of study.

Previous studies on social conditions and population have mainly offered three reasons to explain why young adults leave their parental home. First, it is due to career development and future aspirations, such as completing academic studies, finding employment, getting married, and having a family (Billari and Liefbroer 2010; Stone et al., 2011) Secondly, there are external environmental factors; for instance, higher salary or better employment opportunities (Whittington and Peters, 1996; Aassve et al. 2002; Iacovou 2010; Mulder and Clark, 2000) and lower living costs (Ermisch, 1999; Di and Liu, 2006). Lastly, it is a rational choice and exchange, such as the difference in welfare before and after leaving the nest (Ribar, 2015). Some studies have also focused on the impacts of an economic depression (Lee and Painter, 2013; Bitler and Hoynes, 2015; Matsudaira, 2015; Adamopoulou and Kaya 2018) and peer effects (Adamopoulou and Kaya, 2018) which have affected the nest-leaving decisions of young adults.

As for housing perspectives, many of the previous studies have focused on the influential factors of housing demand and housing tenure choice, which can be summarized as three areas of studies: the individual characteristics of households (i.e. social and economic conditions of household), market factors (i.e. the housing and financial markets), and institutional factors (i.e. real estate-related tax system and housing subsidies) (Henderson and Ioannides 1983; Goodman 1988; Jones 1989; Haurin et al.1994; Bourassa and Peng, 2011; Richard et al. 2012). Besides, there are also studies that have focused on the influential factors of household formation and the relationship between household formation and homeownership rate (Haurin et al., 1993; Ermisch, 1999; Haurin and Rosenthal, 2008; Myers and Yu, 2010).

[1] The 2014 statistics are collected from the Department of Household Registration; and 2018 statistics from the Survey on Social Development Trends by Directorate-General of Budget, Accounting and Statistics, Executive Yuan, Republic of China.

Although there are many studies that have focused on the determinants of the nest-leaving decision or housing decision of young adults, however, there are few that can link these two factors coherently. Therefore, this paper will address their shortcomings and the contributions of this paper are as follows.

First, most of the previous studies have only discussed the living arrangements of young adults. In this study, the focus is only on married young adults who can financially support themselves since they are the target groups of new household formation. Secondly, some studies have compared the determinants of the nest-leaving decision of young adults in different countries (Aassve et al., 2002; Blanc and Wolff, 2006; Iacovou, 2010). However, very few studies have discussed the regional differences of the nest-leaving decisions of young adults due to the constraints of a small sample size or insufficient housing-related characteristics. This study overcomes these constraints by integrating data from the "Population and Housing Census" and "Household Income and Expenditure Survey" of Taiwan. Lastly, most of the previous studies have measured the influence of household income and housing price separately on the nest-leaving decision of young adults. They argue that these two factors need to be evaluated at the same time. This study follows Goodman (1988) and Bourassa and Peng (2011) to determine the permanent income of individual households and also estimate the optimal (or expected) housing price for individual households based on their household size, average floor area per person, and average housing price level in their region of residence. Based on the optimal housing price and permanent income, this study uses a "house price to income ratio" to measure the housing affordability of individual households.

The remainder of the paper is as follows. The next section is the literature review. The third section describes our data set and methodology and Section Four discusses our main findings. Lastly, Section Five concludes the paper and provides the recommendations for future research.

2. Literature Review

The consequences of young adults who are living with their parents not only include more time to form romantic relationships, a delayed transition to marriage, but also inhibit the formation of a new household which all have a major impact on the housing and employment markets, and the social welfare system. Therefore, when and why young adults leave their parental home are important issues. Yu et al. (2019) use data from the Taiwan Educational Panel Survey and Beyond project in Taiwan to examine the relationship between co-residence with parents and romantic relationships among young adults. The results show that young adults who live with their parents take more time to form romantic relationships and end relationships faster than those who live independently. The reason might be that young adults who are living with their parents have a less psychological dependence on romantic relationships. In

addition, men who are living with their parents are more likely to form romantic relationships with those of the same age or economic background, while women tend towards those of a similar race and ethnicity.

Myers and Yu (2010) find that the increase in the homeownership rate in the US from 1990 to 2006 was caused by lower rates of household formation. This is an obvious phenomenon for some of the racial or ethnic groups. For instance, Asian Americans have higher homeownership rates in contrast to African Americans because they are less likely to leave the nest so early. Due to changes in the population composition and household formation in the US, future studies on homeownership and the housing market should be conducted more prudently.

2.1 Influential Factors of Nest-Leaving Decision of Young Adults

The studies that examine the nest-leaving decision based on social conditions and population-related perspectives indicate that career and future aspirations (i.e. completing academic studies, finding employment, getting married and having a family), external environmental factors (i.e. living costs, salary or employment opportunities and social support) and the rational choice and exchange (i.e. difference in benefits before and after leaving the nest) are the main influential factors on young adults (Billari and Liefbroer 2010; Stone et al., 2011; Aassve et al., 2002; Iacovou, 2010; Haurin et al. 1993; Ermisch and Di Salvo 1997; Ermisch, 1999; Mulder and Clark, 2000; Hughes, 2003; Di and Liu, 2006).

Traditionally, it is inevitable that young adults would leave their parental home and start an independent life. However, Stone et al. (2011) point out that there is a trend in the United Kingdom (UK) in which young adults still live with their parents or live independently but without forming a family. These phenomena are due to the increasing number of foreign-born young immigrants who reside in the UK, more opportunities for higher education, and economic insecurity. Billari and Liefbroer (2010) mention that the pathways to adulthood in most European countries have significantly changed in the same direction but there has yet to be convergence of the trends of the pathways to adulthood.

Income and living costs are discussed frequently as part of the nest-leaving decision of young adults. Whittington and Peters (1996) use panel data from the US from 1968 to 1988 and find that employment opportunities for young adults and parental income are the main factors of residential independence. Furthermore, the effect of parental income is reduced as the child increases in age. Moreover, tax policies have a slight impact on residential independence. Ermisch (1999) states that high house prices have a negative impact on young adults in leaving their parental home. In fact, high house prices have encouraged them to live with their parents. Therefore, young adults with a higher income have a higher possibility of leaving their parental home. Mulder and Clark (2000) find that young adults with higher income and education have a higher

possibility of interstate movement and leaving their parental home, while housing factors are less important than the income of the young adults.

Aassve et al. (2002) find that employment and income are important factors for young adults in the Southern European states who are deciding to leave their parental home. However, the effects are less clear for those in the Continental European states. Blanc and Wolff (2006) find that except for income, the differences in institutional and economic structures among the different countries in Europe have a great influence on the nest-leaving decisions of young adults. The institutional differences are the differences between the rental and loan markets, and welfare policies (such as housing subsidies) in each country. Differences in economic structure affect economic development and the unemployment rate, which would affect any changes in the living arrangements of young adults. Di and Liu (2006) apply data from the American Housing Survey from 1985 to 1995 to examine the influential factors among young adults who range from 25-34 years old in leaving the parental home. The study finds that housing costs and earning capacity are important factors for leaving. Moreover, overcrowded conditions will facilitate the possibility of leaving. In contrast, poor parents who pressure their children to leave school and work to contribute to the household income reduce the likelihood that their young adult children will leave due to economic challenges, which would result in generational poverty.

Resources from parents are also an important factor in the nest-leaving decision of young adults. De Jong Gierveld et al. (1991) state that transferable parental resources are the main factor for young adults in the Netherlands to leave home. Having more transferable resources will motivate young people to leave home and non-transferable resources will have the opposite effect. Iacovou (2010) finds that the income of young adults has a positive impact on the possibility of leaving home, but parental income has different impacts as it depends on the culture. Normally, higher parental income will reduce the likelihood of young adults to leave the parental home but only when they are older. Yet in Nordic countries, a higher parental income results in leaving the parental home at a younger age which is related to the gravitation of young people towards independence. However, the effect is not observed for adult men in the Southern European states until they are 35 years old due to stronger family ties. Chiuri and Boca (2010) point out that the amount of parental resources has a significantly different impact on young males and females in their decision to leave home. In India, sufficient parental resources will increase the probability that young females leave home and reduce the probability that young males leave home. Moreover, young females will leave the parental home earlier than young males.

There are also some studies that argue that the well-being of young adults who are living with their parents is higher than those who leave their parental home and leaving is a rational choice. Ribar (2015) uses data of the Household, Income, and Labour Dynamics in Australia survey from 2001 to 2009 to

examine the changes in the well-being of young adults in Australia after leaving home and finds that most young males and females will go through financial difficulties and need financial assistance from friends and families after leaving home for years. Also, married young adults who are living with their parents not only can reduce housing-related expenses, but also care for their parents as well as receive assistance from them (such as in providing childcare and monetary support). This type of living arrangement provides intergenerational mutual benefits. However, Wiemers et al. (2017) claim that co-residence mainly benefits the young adults, but not their mother.

Recently, some researchers are emphasizing on the impact of economic depression on the nest-leaving decision. Lee and Painter (2013) conduct an empirical analysis of data in the US from 1975 to 2009 and find that during an economic depression or when the unemployment rate increases, young people may choose to live with their parents and delay entering the housing market or decide to co-reside with other people to reduce their housing costs. The probability of young adults in forming a new household during an economic depression is reduced by 1% to 9% depending on their age. If young adults become unemployed, the probability that they leave their parental home will be reduced by 11%. Matsudaira (2015) examines the association between economic conditions and living arrangements of young adults in the USA from 1960 to 2011. It is found that lack of job opportunities, low salary, and high rental costs increase the proportion of young adults who live with their parents. However, Bitler and Hoynes (2015) find that the effect of economic cycles on living arrangements among young adults is relatively small, and this is even true during the period of the Great Recession.

Besides, the influence of peer effects is also being discussed as part of the nest-leaving decision of young adults. Adamopoulou and Kaya (2018) explore the association of peer behavior with living arrangements among young adults in the US. Their results indicate that peer effects have a significant impact on the nest-leaving decision of young adults. Furthermore, more young adults who leave their parental home will affect the employment market. Therefore, the influence of peer effects on the living arrangements of young adults needs to be considered when making relevant housing and employment policies.

2.2 Related Studies in Housing Demand and Tenure Choices

As for studies on housing perspectives, the influential factors of housing demand and housing tenure choice are long-term in nature, which include the individual characteristics of households (i.e. social and economic conditions of households), market factors (i.e. housing and financial market)s, and institutional factors (i.e. government taxes, housing subsidies) (Henderson and Ioannides 1983; Goodman 1988; Jones 1989; Haurin et al.1994; Bourassa and Peng, 2011; Richard et al. 2012). Goodman (1988) finds that housing price and income have significant effects on the tenure choice. However, the effects of sociodemographic variables, such as age, are complex and might be neglected.

Haurin et al. (1994) claim that tenure choice is affected by wealth, relative costs of owning, and demographic variables. Jones (1989) uses a Canadian micro database and find that the current net worth of households affects their tenure transition. Permanent income is a major factor in housing tenure choice.

Bourassa and Peng (2011) propose a tenure choice model to discuss the causes of high homeownership rates in Taiwan. Their results indicate that the low cost of owner-occupied housing and shortages in the rental market are the main factors that affect high homeownership rates. Richard et al. (2012) find that owned housing are financial assets and the expected value will affect housing demand. They indicate that housing demand is upward sloping in most areas and reflects the capital net effect of housing consumption and investment aspects.

From the above studies, the influential factors of the nest-leaving decision include marital status, education level, parental resources, family structure, external housing costs, employment market, social welfare, and so on and so forth. However, the effect of the above variables not only differs among studies done at the local and international levels, but also between urban and rural regions. Furthermore, these variables will change over time, which makes it necessary to clarify them. Previous studies have mainly explored the living arrangements of young people who reach adulthood. This study selects young people who have not only reached adulthood but are also married and financially independent as the research subjects. Cross-sectional data are used because they provide larger samples and therefore the means to carry out an extensive survey. Then, the geographical differences between different municipal regions can be examined, and the housing conditions of different households are discussed.

3. Research Design

3.1 Hypothesis

Studies in the demography and population-related fields have indicated that the possibility of young adults who leave their parental home is significantly and positively correlated to their age, income, and marital status. On the other hand, living costs or transferable parental resources are negatively correlated to leaving their parental home. As for gender, males have a higher probability of living with their parents than females. Additionally, the education and social welfare systems as well as local culture in each country will also affect the nest-leaving decision of young adults. Housing-related studies have also found that permanent income, housing-related costs (i.e. local house price, rent, mortgage rate, taxes or expected capital gain), housing size, mobility, etc. are all associated with homeownership rates.

The dependent variables differ so much from those in previous studies mainly due to two reasons: one is the desire of the researcher of this study to examine other variables, and two, there is data constraint. To solve the latter problem, this study applies cross-sectional data which include both household and housing characteristics. In addition, to understand why young people who are married and the family support provider still live with their parents, the focus is on the nest-leaving decision of married young adults who can financially support themselves. Based on the literature review, this study proposes four hypotheses as follows:

Hypothesis 1: The house price to income ratio has a positive impact on the likelihood that married young adults live with their parents, and the impact is affected by the local housing and labor markets.

Personal income and housing cost might be the reason for why married young adults still live with their parents. However, there is no consistent conclusion on the influence of house price or rent to the nest-leaving decision of young adults. Some studies reveal that high house price or high rent will encourage young adults to live with their parents or delay their departure from the parental home (Haurin et al., 1994; Ermisch, 1999; Di and Liu, 2006; Matsudaira, 2015). Moreover, there are some studies that have found that high housing cost is not an important factor that affects the nest-leaving decision of young adults (Whittington and Peters 1996; Mulder and Clark 2000). This study argues that by comparing the demand for housing space in relation to housing prices and permanent income in Taiwan, there is the ability to more objectively measure housing affordability due to the long-term stability and relatively lower local rents in comparison to the house prices. In other words, increases in the house price to income ratio will increase the probability of living with parents. However, the differences in the local housing and labor markets mean that the effect of the house price to income ratio on nest-leaving decision among married young adults has regional differences.

Hypothesis 2: Owing to the residential stability and wealth effect, housing tenure is greatly related to the nest-leaving decision of married young adults, and the net effect has regional differences.

Previous studies have been inconsistent in concluding on the influence of parental resources (income and wealth) on residential decisions of young adults. Some studies suggest that when parents have more resources, they will financially support their young children in forming new households (De Jong Gierveld et al., 1991). However, other studies have found that young adults may choose to live with their parents because they depend on them (Whittington and Peters, 1996; Iacovou, 2010; Chiuri and Boca, 2010; Ribar, 2015). This study argues that self-owned housing provides higher housing stability compared to a rental. Moreover, the probability that married young adults will inherit their parental house will also increase due to low fertility rates. Therefore, the probability that they will live with their parents will also increase. However,

households who live in self-owned houses usually have more wealth, especially those who own more than one owner-occupied house. In other words, married young adults in these households can afford to buy a house independently or receive financial support from their parents to buy a house. Nevertheless, a self-owned house has both housing stability and wealth effects on the nest-leaving decision of married young adults. The effects will depend on the above positive and negative effects in each region.

Hypothesis 3: Traditional Chinese culture means that different generations live under the same roof, so if the parents of married young adults live with their parents (grandparents), the probability that married young adults also live with their parents will increase.

Despite that parents or other family members care for their own children, the traditional cultural custom of filial piety in Taiwan dictates that married young adults also need to be responsible for their parents. This study considers the influence of family members such as parents and grandparents on the nest-leaving decision of married young adults, which has not been considered in previous studies. This study speculates that if the parents of married young adults live with their parents (grandparents), this will increase the probability that married young adults also live with their own parents.

Hypothesis 4: Owing that the demand for living space and availability of childcare differ in each region, the impact of the number of pre-school children of married young adults on living with their parents has regional differences.

Nowadays, the dual-earner family structure is a common phenomenon in society. However, inadequate childcare facilities for pre-school children in each region mean that living with parents might be a good option for childcare. Therefore, married young adults with pre-school children might tend to live with their parents[2]. However, married young adults with pre-school children may also have to consider their need for more living space which will increase their tendency to live independently. That is, childcare assistance from family members and demand for more living space have two different effects on the nest-leaving decision of married young adults and the amount of influence will also be different in each region.

3.2 Data

Blanc and Wolff (2006) and Iacovou (2010) find that if the income of young adults is lower than that of their parents, the possibility of co-living will increase.

[2] Decision making on housing and having children has always been paramount in the family life cycle. For this type of predictable major family decision, households do not necessarily need to wait until the actual situation occurs, and thus it is more reasonable to respond early, so that even if a child is conceived after living with parents, this does not mean that there is no causal relationship.

Since young adults are the primary group who form new households, this study will focus on the living arrangements of married young adults who can financially support themselves. In terms of age selection, Haurin et al. (1994) point out that the age range of leaving the nest to form a new household in the US is from 20 to 29 years old. In Taiwan, the legal age which signifies adulthood is 20 years old. However, given that the time for young adults to graduate from school and enter the work force has been extended and the first marriage for males and females is delayed[3], this study selects married young adults between 20 to 39 years old.

Most previous studies that focus on the living arrangements of young adults have used panel data. The advantage of using panel data is that they contain more information about family members. However, the disadvantages of panel data are the small sample size and lack of housing-related characteristics. Under these constraints, it is not possible to examine the regional differences in the determinants of nest-leaving decisions of married young adults. These constraints are resolved by integrating data from the "2010 Population and Housing Census" and "2010 Household Income and Expenditure Survey" in Taiwan. Furthermore, some studies emphasize the impacts of economic recessions on the nest-leaving decisions of young adults (Lee and Painter, 2013; Matsudaira, 2015). Moreover, the global financial crisis took place from 2007 to 2009, so it might be a good idea to investigate the nest-leaving behavior of young adults after the financial crisis in 2010. Therefore, this study follows Di and Liu (2006) who apply the "2010 Population and Housing Census of Taiwan" in their empirical work.[4]

The total number of observations in the "2010 Population and Housing Census" is 23,123,866, of which 31.6% are on the main financial support providers of the family. The main financial support providers are between 20 to 39 years old, who account for 26.62% of all financial support providers. There are 40.02% who are unmarried and subsequently excluded. The marital status of those who were included was married or common law arrangements, divorced or separated, and widowed. They account for the other 59.98%. The outliers for the ratio of house price to income were eliminated[5]. The final sample was 882,996

[3] According to the gender statistics database of the Executive Yuan of the Republic of China, the average age of males at marriage in 2000 was 32.1 years old and 27 years old for females. In 2010, the average age of males at marriage was 33.9 years old and female was 30.5 years old.

[4] The Population and Housing Census is only held every ten years in Taiwan. The 2010 Population and Housing Census is the most recent one, and the next census will be carried out in 2020. The results of the 2020 Population and Housing Census might be released at the end of 2022 or the beginning of 2023.

[5] To determine what constitutes as an outlier value, this study first standardizes the ratio of the house price to income (Z), then obtains the absolute value of the standardized ratio ($|Z|$) and discard the observation if $|Z| \geq 2$. Finally, this study selects observations in which the ratio is greater than 0, in which there are 8,065 outliers.

individuals, of which 686,883 or 77.79% had left their parental home and 196,113 or 22.21% still live with their parents (see Figure 1).

3.3 Methodology and Variables

In this study, the decision of married young adults who are co-living with their parents is modelled as a function of housing affordability, homeownership, family wealth, and several demographic characteristics of the married young adults.

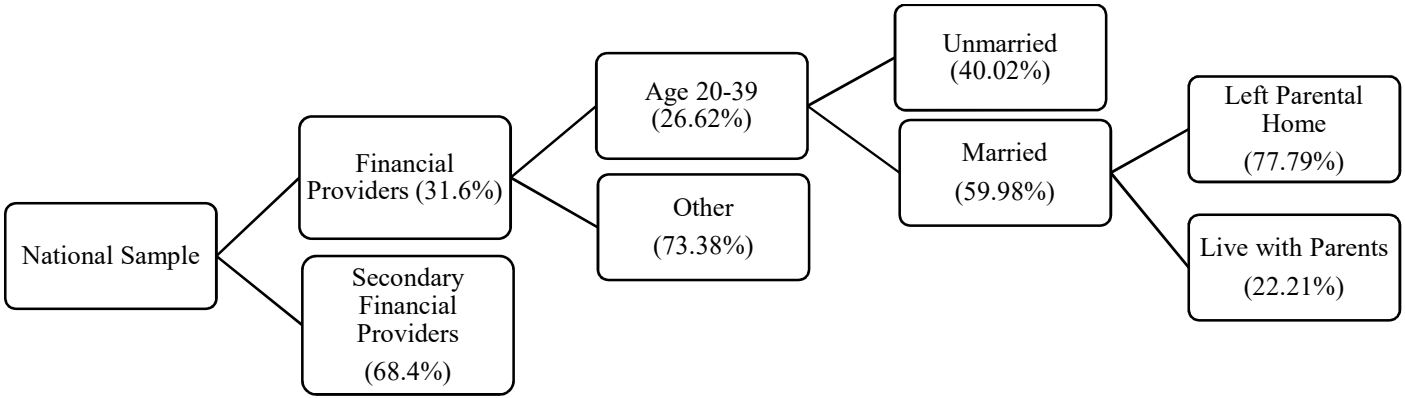
$$Ln\left(\frac{p_i}{1-p_i}\right) = f\left(PIR_i, OWN_i, FWTH_i, GDER_i, AGE_i, EDU_i, NCHILD_i, NGPA_i\right)$$

where $p_i = P(Y_i = 1)$ refers to the probability of living with parents, and $1 - p_i = P(Y_i = 0)$ is the probability of moving away from parents; *PIRi* is the housing price to income ratio of household *I*; *OWNi* is the homeownership of household *i; FWTHi* are the family resources of household *i,* which use own more than one owner-occupied house for proxy; *GDERi* is the gender of the married young adults; *AGEi* is the age of the married young adults; *EDUi* is the education level of the married young adults; *NCHILDi* is the number of pre-school children; and *NGPAi* is the number of grandparents. Except for the number of pre-school children, the number of grandparents and the housing affordability which are continuous variables, the other variables are dummy variables. The definitions and settings of the related variables are shown in Table 1.

As for housing affordability, the appropriate measurement is the ratio of house price to income. Since the General Report of the "2010 Population and Housing Census" does not include household income data, this study uses the approach adopted by Bourassa and Peng (2011). That is, a permanent income equation based on the data from the Report on the Survey of Family Income and Expenditure[6] (2010) is used, in which the permanent income of the main

[6] The permanent income estimate is based on the permanent income of the main financial support provider of the family in the 2010 Household Income and Expenditure Survey report, supplemented by gender, age, education level, industry category, household population, employment population, number of elderly people and minors. The permanent income equation uses the ordinary least squares method (OLS), and the coefficient values estimated by the variables are taken from the General Report of the 2010 Population and Housing Census to estimate the permanent income of a household. Please refer to Appendix 1 for the permanent income estimation results and descriptive statistics for various variables.

Figure 1 Screening Ratios of National Sample



Source: The General Report of the 2010 Population and Housing Census

financial support provider of the family can be indirectly estimated[7]. From a housing prices perspective, the housing floor area of households in the municipal regions can be obtained by multiplying the figures from the "average floor area per person of occupied housing units" and the "number of people per household" obtained from the General Report of the "2010 Population and Housing Census". Moreover, the house price to income ratio for each sample[8] can be estimated from the average unit price of sale and purchase agreements (unspecified type of building) in various municipal regions in 2010. This study anticipates that a higher house price to income ratio will mean a higher probability that married young adults live with their parents[9].

Table 1 Definition of Variables

Variable	Type	Values
Gender (GDER)	binary	0 if female 1 if male
Age	binary	0 if 20-24 1 if 25-29
	binary	0 if 20-24 1 if 30-34
	binary	0 if 20-24 1 if 35-39
Education Level (EDU)	binary	0 if less than senior high school 1 if senior high school
	binary	0 if less than senior high school 1 if junior college
	binary	0 if less than senior high school 1 if university
	binary	0 if less than senior high school 1 if graduate school or higher
Housing Affordability (House Price to Income Ratio, HIR)	continuous	

(***Continued…***)

[7] Taking into consideration three previous studies, this method is rational and relevant. Therefore, this study follows the practice of previous studies in estimating the permanent income of households.

[8] In the 13th Annual Demographia International Housing Affordability Survey (2017), a ratio of house price to income that is less than 3 classifies the housing as affordable, between 3.1 and 4 as moderately unaffordable, between 4.1 as 5 as seriously unaffordable, and over 5.1 as severely unaffordable. Please refer to Appendix 2 for details of the parameters which are used to estimate the optimal housing price of each sample.

[9] This study replaces the continuous variable of the "ratio of house price to income" with the dummy variable of "pressure to purchase a house". The intention is to measure the amount of pressure to purchase a house with different demarcation points. However, there is no significant difference in the estimated results.

(Table 1 Continued)

Variable	Type	Values
Homeownership (OWN)	binary	0 if not self-owned house 1 if self-owned house
More than One Owner-Occupied House (FWTH)	binary	0 if no more than one owner-occupied house 1 if more than one owner-occupied house
Number of Pre-school Children (NCHILD)	continuous	
Number of Grandparents (NGPA)	continuous	

4. Empirical Analysis

4.1 Descriptive Statistics

In terms of the number of married young adults who make up the sample in the six municipal regions, there are 77,140 individuals in Taipei City, 184,719 in New Taipei City, 103,468 in Taoyuan City, 111,350 in Taichung City, 61,013 in Tainan City, and 109,519 in Kaohsiung City. They account for 47.16%, 56.02%, 61.74%, 60.25%, 58.13%, and 55.17% of the total observations in each municipal region, respectively. The results indicate that there are regional differences in the marriage rate. In Taipei City, there is a higher cost for forming a new household due to high housing prices and high commodity prices, which result in more single households and the lowest rate of marriage.

Other than that, it is found that more than 75% of the married young adults leave their parental home, and the probability of living with their parents is less than 25% based on from the national sample and samples of the various municipal regions (please refer to Table 2). This result indicates that married young adults tend to leave the nest. In addition, the distribution of the national sample and the samples of the six municipal regions is similar in terms of the distribution of the factors that affect whether the married young adults live with their parents. Therefore, only the national samples will be considered in this study.

As far as the education level of the married young adults is concerned, the probability of living with parents will increase significantly when the married young adults have low education levels. That is, the probability that those who have less than a high school education level will leave the household of their parents is 70.2%. However, if they have a university or higher education level, the probability is significantly higher at 86.2%. As for the age of the married young adults, it is found that younger married young adults are more likely to live with their parents. The probability that married young adults between 20

and 24 years old would leave their parental home is 68.0% while those between 35 and 39 years old is 79.4%. From a gender perspective, the probability that a married young male will leave the parental household is 74.7%, while the probability of a married young female is significantly higher at 85.9%.

As for the composition of family members, when there is a larger number of grandparents who are living in the same household, the probability that the married young adults leave this household will be significantly reduced. This shows that multiple generations living together may also be an important non-economic consideration for married young adults. As for the number of pre-school children, the probability that married young adults would leave their parental household is as high as 70% regardless of the number of pre-school children in the household. However, as the number of children increases, the probability of living with parents increases even more. Other than that, the probability of owning a house and leaving the parental household is 77.1% from the homeownership perspective[10]. If a rental is involved, the probability of leaving the parental household is greater than 90%. This means that if the house is self-owned, the probability of married young adults living with their parents is relatively higher than if the house is a rental. In terms of whether they will leave their parental household if they own more than one owner-occupied house, the probability is 75.4%, which is slightly lower than the 78.3% for those who do not have other owner-occupied dwellings. Finally, in terms of the ratio of house price to income, the probability that married young adults are pressured to purchase a house (more than 5.1) while living with their parents is 28.4%, which is significantly higher than the 19.1% when there is no pressure to purchase a house.

4.2 Results of Empirical Analysis

Table 3 shows that the -2LL value of the model is 637,878.52, which is far higher than the $X2_{(13,0.1)}$=19.812 of the chi-square distribution table, so that the null hypothesis is rejected. The values of the Cox & Snell R-square and Nagelkerke R-square are relatively low, which might be that most of the variables in the model are dummy variables. However, the overall prediction rate of the model is 87.10%, and the Wald test in relation to the various coefficients reveals significance at the 1% level. This indicates that the various coefficients in the model provide valuable regression results.

[10] Based on the homeownership perspective of the 2010 Population and Housing Census, homeownership can be further categorized into (1) self-occupied, (2) owned by spouse, parents or children not living together, (3) rental, and (4) living with spouse or other. This study combines (1) and (2) which are referred to as self-occupied. Although it is clear from the observations for (2) that the houses are not owned by the members living in the house, whether the home is owned by the parents or children cannot be differentiated from the observations of (1). This is a limitation of this study.

Table 2 Cross Analysis of Nest-leaving Decision and Personal Characteristics of Married Young Adults

		National		Taipei City	
		Living with parents			
		Yes	No	Yes	No
Married Young Adults					
Gender	Male	25.3%	74.7%	21.7%	78.3%
	Female	14.1%	85.9%	15.5%	84.5%
Age	20~24	32.0%	68.0%	12.9%	87.1%
	25~29	27.7%	72.3%	21.2%	78.8%
	30~34	23.4%	76.6%	19.8%	80.2%
	35~39	20.6%	79.4%	19.8%	80.2%
Education Level	Less than Senior High School	29.8%	70.2%	27.8%	72.2%
	Senior High School Graduation	26.1%	73.9%	28.8%	71.2%
	Junior College	21.3%	78.7%	22.4%	77.6%
	University	17.6%	82.4%	16.4%	83.6%
	Grad. School	13.8%	86.2%	14.8%	85.2%
Number of pre-school children					
	0	21.3%	78.7%	19.3%	80.7%
	1	25.1%	74.9%	21.8%	78.2%
	2 or more	28.4%	71.6%	23.5%	76.5%
Number of Grandparents					
	0	13.7%	86.3%	11.2%	88.8%
	1	93.1%	6.9%	93.4%	6.6%
	2	95.5%	4.5%	95.2%	4.8%
Homeownership					
	Self-owned	22.9%	77.1%	21.2%	78.8%
	Not Self-owned	6.7%	93.3%	5.2%	94.8%
More than One Owner-occupied House					
	Yes	24.6%	75.4%	24.5%	75.5%
	No	21.7%	78.3%	18.7%	81.3%
Housing Affordability					
	Yes	28.4%	71.6%	22.3%	77.7%
	No	19.1%	80.9%	0.5%	99.5%
Number/Ratio of Observations		196,080	686,916	15,317	61,823
		22.21%	77.79%	19.86%	80.14%
Total Number of Observations		882,996		77,140	

(***Continued…***)

(Table 2 Continued)

		New Taipei City		Taoyuan City	
		Living with parents			
		Yes	No	Yes	No
Married Young Adults					
Gender	Male	20.5%	79.5%	23.9%	76.1%
	Female	13.7%	86.3%	12.5%	87.5%
Age	20~24	35.7%	64.3%	19.4%	80.6%
	25~29	28.2%	71.8%	22.5%	77.5%
	30~34	20.3%	79.7%	22.1%	77.9%
	35~39	16.2%	83.8%	19.4%	80.6%
Education Level	Less than Senior High School	24.2%	75.8%	25.2%	74.8%
	Senior High School Graduation	22.3%	77.7%	23.2%	76.8%
	Junior College	18.3%	81.7%	21.0%	79.0%
	University	14.3%	85.7%	18.0%	82.0%
	Grad. School	13.6%	86.4%	12.8%	87.2%
Number of pre-school children					
	0	17.9%	82.1%	19.8%	80.2%
	1	21.1%	78.9%	23.2%	76.8%
	2 or more	24.2%	75.8%	28.1%	71.9%
Number of Grandparents					
	0	12.4%	87.6%	12.1%	87.9%
	1	92.5%	7.5%	93.7%	6.3%
	2	93.3%	6.7%	96.3%	3.7%
Homeownership					
	Self-owned	19.2%	80.8%	21.1%	78.9%
	Not Self-owned	6.8%	93.2%	5.3%	94.7%
More than One Owner-occupied House					
	Yes	21.6%	78.4%	21.7%	78.3%
	No	18.1%	81.9%	20.5%	79.5%
Housing Affordability					
	Yes	27.1%	72.9%	31.4%	68.6%
	No	9.6%	90.4%	18.3%	81.7%
Number/Ratio of Observations		34,426	150,293	21,391	82,077
		18.64%	81.36%	20.67%	79.33%
Total Number of Observations		184,719		103,468	

(***Continued…***)

(Table 2 Continued)

		Taichung City		Tainan City	
		Living with parents			
		Yes	No	Yes	No
Married Young Adults					
Gender	Male	26.7%	73.3%	27.0%	73.0%
	Female	12.8%	87.2%	13.2%	86.8%
Age	20~24	23.6%	76.4%	35.7%	64.3%
	25~29	27.4%	72.6%	28.2%	71.8%
	30~34	24.8%	75.2%	23.8%	76.2%
	35~39	21.1%	78.9%	22.1%	77.9%
Education Level	Less than Senior High School	31.7%	68.3%	28.4%	71.6%
	Senior High School Graduation	25.3%	74.7%	27.8%	72.2%
	Junior College	22.3%	77.7%	21.1%	78.9%
	University	18.3%	81.7%	19.5%	80.5%
	Grad. School	15.5%	84.5%	13.6%	86.4%
Number of pre-school children					
	0	21.8%	78.2%	22.6%	77.4%
	1	26.4%	73.6%	25.9%	74.1%
	2 or more	28.4%	71.6%	21.4%	78.6%
Number of Grandparents					
	0	14.5%	85.5%	15.5%	84.5%
	1	94.0%	6.0%	95.1%	4.9%
	2	93.9%	6.1%	98.1%	1.9%
Homeownership					
	Self-owned	24.1%	75.9%	23.7%	76.3%
	Not Self-owned	8.0%	92.0%	7.9%	92.1%
More than One Owner-occupied House					
	Yes	26.9%	73.1%	24.5%	75.5%
	No	22.2%	77.8%	23.0%	77.0%
Housing Affordability					
	Yes	30.3%	69.7%	31.1%	68.9%
	No	20.2%	79.8%	21.9%	78.1%
Number/Ratio of Observations		25,548	85,802	14,191	46,822
		22.94%	77.06%	23.26%	76.74%
Total Number of Observations		111,350		61,013	

(***Continued…***)

(Table 2 Continued)

		Kaohsiung City	
		Living with parents	
		Yes	No
Married Young Adults			
Gender	Male	22.2%	77.8%
	Female	13.3%	86.7%
Age	20~24	19.3%	80.7%
	25~29	23.0%	77.0%
	30~34	20.9%	79.1%
	35~39	18.3%	81.7%
Education Level	Less than Senior High School	27.8%	72.2%
	Senior High School Graduation	22.2%	77.8%
	Junior College	17.4%	82.6%
	University	15.4%	84.6%
	Grad. School	15.3%	84.7%
Number of pre-school children			
	0	18.5%	81.5%
	1	22.5%	77.5%
	2 or more	30.2%	69.8%
Number of Grandparents			
	0	11.9%	88.1%
	1	91.5%	8.5%
	2	93.0%	7.0%
Homeownership			
	Self-owned	20.3%	79.7%
	Not Self-owned	7.8%	92.2%
More than One Owner-occupied House			
	Yes	19.1%	80.9%
	No	19.6%	80.4%
Housing Affordability			
	Yes	30.1%	69.9%
	No	16.0%	84.0%
Number/Ratio of Observations		21,409 19.55%	88,110 80.45%
Total Number of Observations		109,519	

Other than that, this study conducts a multicollinearity analysis in order to avoid the problem of multicollinearity between variables that might affect the accuracy of the model. The results indicate that the tolerance value is greater than 0.4, which means that there is no multicollinearity problem. Lastly, this study conducts a robustness check on the model to exclude biased selection among the observations through the definitions of different housing unit prices and housing floor areas.

4.2.1 Empirical Results for Samples

The empirical results in Table 3 show that the variables that have a positive effect on living with parents are married young adults who are male, the number of pre-school children, number of co-residing grandparents, self-owned house, more than one owner-occupied house, and the ratio of house price to income. These variables will increase the probability that young married adults live with their parents. However, the education level and age of the married young adults have a significantly negative effect on living with parents. This show that those with a higher education level or are older will more likely will leave their parental household and live independently.

Table 3 Odds Ratio at National Level

		Age: 20-39	
		Coefficient (β)	Odds Ratio
Married Young Adults	Male	0.88*	2.41
	25-29	-0.26*	0.77
	30-34	-0.64*	0.53
	35-39	-1.37*	0.25
	Senior High School	-0.03*	0.97
	Junior College	-0.24*	0.78
	University	-0.45*	0.63
	Graduate School	-0.75*	0.47
Number of Pre-School Children		0.10*	1.11
Number of Grandparents		4.27*	71.68
Homeownership		1.33*	3.77
More than One Owner-Occupied House		0.19*	1.21
House Price to Income Ratio		0.04*	1.04
Constant		-2.89*	0.06
-2 Log Likelihood		637,878.52	
Cox & Snell R-Square		0.29	
Nagelkerke R-Square		0.44	
Accurate Predictive Value		87.10%	
Number of Observations		882,996	

Note: * p-value < 0.01

The odds ratio in Table 3 shows that a larger house price to income ratio will increase the probability of living with parents and is 1.04 times higher than that of leaving the parental household. Married male young adults are 2.14 times more likely to live with their parents than married young female adults. As for the age of the married young adults, the odds ratio is less than 1. In comparison to those who are between 20 and 24 years old, those who are older are less likely to live with their parents. That is, those who are between 35 and 39 years old are 4 times (1/0.25=4) more likely to leave the parental home than their 20 and 24 year old cohorts. From the education perspective, the odds ratio is less than 1. That is, in comparison with those who have a primary education level,

a higher education level reduces the probability of living with parents. Those who are more educated and have graduate level schooling are 2.13 times (1/0.47=2.13) more likely to leave the parental household than those with just a primary education.

In terms of rentals, married young adults who live in a self-owned house are 3.77 times more likely to live with their parents than leave than parental household. That is, those who live in a rental are more likely to leave the parental household. As for owning more than one owner-occupied dwelling, the probability that these young adults would live with their parents is higher than those who do not have more than one owner-occupied dwelling. Also, married young adults who have more pre-school children are 1.11 times more likely to stay in the parental household. In other words, having more pre-school children increases the probability of living with parents. Finally, married young adults are 71.68 times more likely to live with their parents when there are co-residing grandparents. That is, having more grandparents under the same roof will increase the probability that married young adults stay in their parental household.

4.2.2 Empirical Results for Regional Level Samples

To examine the living arrangements of married young adults in different regions, an empirical analysis is conducted for six municipal regions, which include Taipei City, New Taipei City, Taoyuan City, Taichung City, Tainan City and Kaohsiung City. Table 4 shows the variables that will contribute to the likelihood that married young adults will live with their parents including gender, number of co-residing grandparents, self-owned house, more than one owner-occupied house, house price to income ratio and number of pre-school children.

In Tainan City, the probability of married young males who live with their parents is 3.13 times greater than that of females. Older married young adults are more likely to leave the parental home. In Taichung City, married young adults between 35 and 39 years old are 3.13 (1/0.32=3.13) times more likely than their younger counterparts between 20 and 24 years old to leave the parental home. In terms of the educational level, the northern and southern regions show very different results. In the north, or Taipei City, New Taipei City, and Taoyuan City, a higher education level means greater likelihood of living with parents. In contrast, the southern cities of Taichung City, Tainan City, and Kaohsiung City show that a higher education level will reduce the likelihood of living with parents.

As for the number of co-residing grandparents, the results indicate that for all six regions that more grandparents under the same roof results in a higher probability of young adults who remain in the parental household.

Table 4 Odds Ratio at Regional Level

	Taipei City		New Taipei City		Taoyuan City		Taichung City		Tainan City		Kaohsiung City	
	β	Odds Ratio	β	Odds Ratio	β	Odds Ratio	β	Odds Ratio	β	Odds Ratio	β	Odds Ratio
Married Young Adults												
Male	0.59*	1.80	0.66*	1.93	1.08*	2.95	1.03*	2.80	1.14*	3.13	0.83*	2.30
25-29	0.16	1.18	-0.34*	0.71	0.21*	1.24	0.01	1.01	-0.18	0.84	0.58*	1.79
30-34	-0.19	0.83	-0.88*	0.42	-0.04	0.96	-0.35*	0.71	-0.62*	0.54	0.33**	1.39
35-39	-0.58*	0.56	-1.58*	0.21	-0.68*	0.51	-1.14*	0.32	-1.12*	0.33	-0.38*	0.68
Senior High School	0.66*	1.93	0.38*	1.46	0.44*	1.56	-0.21*	0.81	0.15*	1.16	0.01	1.01
Junior College	1.30*	3.66	0.56*	1.75	0.54*	1.71	-0.27*	0.77	0.01	1.01	-0.11**	0.90
University	1.90*	6.67	0.42*	1.52	0.60*	1.83	-0.49*	0.61	-0.08	0.92	-0.24*	0.79
Graduate School	2.25*	9.52	0.49*	1.63	0.26*	1.30	-0.71*	0.49	-0.34*	0.71	-0.09	0.92
Number of Pre-School Children	-0.54*	0.58	0.02	1.02	-0.03	0.97	0.06*	1.06	-0.02	0.98	0.12*	1.13
Number of Grandparents	4.03*	56.35	4.16*	64.19	4.48*	88.04	4.14*	62.80	4.54*	94.14	4.14*	62.86
Homeownership	1.30*	3.67	1.24*	3.44	1.35*	3.84	1.13*	3.08	1.34*	3.81	1.10*	3.00
More than One Owner-Occupied House	0.34*	1.41	0.26*	1.30	0.15*	1.16	0.24*	1.27	0.22*	1.25	-0.02	0.98
Ratio of House Price to Income	0.27*	1.30	0.15*	1.16	0.23*	1.25	0.07*	1.07	0.15*	1.16	0.13*	1.14
Constant	-7.84*	0.00	-3.82*	0.02	-5.17*	0.01	-3.01*	0.05	-3.65*	0.03	-4.16*	0.02
-2 Log Likelihood	46,345.05		127,781.73		69,077.15		82,922.43		46,713.78		74,757.49	
Cox & Snell R-Square	0.327		0.237		0.296		0.283		0.273		0.263	
Nagelkerke R-Square	0.518		0.383		0.464		0.429		0.413		0.419	
Accurate Prediction Value	89.28%		87.91%		88.49%		86.41%		85.44%		88.37%	
Number of Samples	77,140		184,719		103,468		111,350		61,013		109,519	

Note: *p-value < 0.01 and **p-value <0.05

In terms of house price to income ratio, a higher ratio increases the probability that married young adults will live with their parents, especially for those who live in Taipei City. Housing affordability means that those who in the least affordable city of Taipei City are 1.3 times more likely to live with their parents versus 1.07 times in the more affordable city of Tainan City. In addition, the probability that married young adults will live with their parents in a self-owned house is 3.84 times greater than those who live in a rental in Taoyuan City, and this number is the highest among the six municipal regions. In terms of owning more than one owner-occupied house, all of the regions except for Kaohsiung City where the result is insignificant, show that those who own more than one owner-occupied house are more likely to live with their parents, with the highest probability in Taipei City.

As for the number of pre-school children, all of the regions except for Taipei City show that more pre-school children will increase the likelihood of living with parents. For example, married young adults in Kaohsiung City are 1.13 times more likely to live with their parents when they have more pre-school children.

4.3 Discussion

The main purpose of this study is to identify the factors that would affect the living arrangements of married young adults who can financially support themselves. Since previous studies have shown inconsistent results, the empirical results of this study provide the following interesting findings.

4.3.1 National Sample

In terms of housing affordability, previous studies have indicated that low income and high living costs may be important reasons that motivate married young adults to live with their parents. This study has identified that those who are unable to afford housing tend to live with their parents; that is, higher house price to income ratios increase the probability that married young adults will live with their parents and the likelihood that they will stay is 1.04 times more leaving. However, the difference is quite limited. The results show two contradictions in Taiwan. On the one hand, young households who can afford to buy a house might still live with their parents. On the other hand, even if they cannot afford to purchase a house, they may still decide to leave their parental household. A possible reason that explains the former might be that married young adults take into consideration childcare or care of their elderly parents. As for the latter, the married young adults might be concerned about the continuous increase in housing prices, thus acting as an inhibitor to moving out.

Secondly, married young adults are more likely to live with their parents when the house is self-owned. This study argues that this might be due to the long-term deficiencies in the rental housing market. Moreover, housing price is continuously increasing. Most households with self-owned houses may not be

able to afford more than one house, in which case, the effect of housing stability is greater than its wealth effect. Besides, the recent significant decline in the fertility rate in Taiwan will only increase the probability that children will directly inherit the house from their parents.

Furthermore, this study also finds that even if there is more than one owner-occupied house, the probability of living with parents is still high. This is not consistent with the general perception that married young adults who can financially support themselves will prefer to leave their parents and live independently. A possible reason might be that the house where they reside currently still belongs to their parents. Or, even though the house is registered in the name of the children, it is still a gift from their parents. Therefore, these married young adults will tend to live with their parents. The result indicates that even if the income of married young adults is high, they will still tend to live with their parents if they have fewer assets than their parents. This result is in agreement with the findings in Whittington and Peters (1996), Iacovou (2010), and Chiuri and Boca (2010).

For the other variables, the empirical results show that married young males prefer to live with their parents as opposed to the females, which indicates that, in modern Taiwan, men are still culturally considered as the main caregiver of their parents. As far as the education level is concerned, the results show that the level of education has a negative effect on the decision to live with parents. A higher level of education means that it is more likely that married young adults will leave the parental household and live independently.

The number of pre-school children is significantly positive because the childcare system in Taiwan is inadequate and expensive. Therefore, married young adults who have more pre-school children are more likely to live with their parents. Regardless whether they place their children in childcare or hire a babysitter, married young adults not only need to pay an additional charge but also worry about the safety of their children. Thus, the need for childcare will be far greater than the demand for additional living space which will increase the tendency that married young adults will live with their parents.

Finally, more co-residing grandparents lead to a higher probability that married young adults will live with their parents. Although Taiwan is a highly modernized society, married young adults still need to care for their parents or other seniors in the family due to conventional filial piety. The probability that they live with their parents is as high as 90%, which demonstrates that married young adults are responsible for caring of seniors which is a very important factor in determining the living arrangements of married young adults.

4.3.2 Samples at Regional Level

In the six municipal regions, the impact of housing affordability on the nest-leaving decision of married young adults is similar to the national sample, which means a larger house price to income ratio increases the probability that married young adults will live with their parents. The highest housing price is found in Taipei City among the six municipal regions, so the probability that married young adults would live with their parents is the highest in Taipei City. The results show that married young adults in Taipei City who experience a larger house price to income ratio are 1.3 times more likely to live with their parents, versus 1.07 in the more affordable Tainan City.

The results vary in the different regions which correspond to the empirical results in which increases in the living costs will increase the likelihood that young adults live with their parents (Haurin et al., 1994; Ermisch, 1999; Di and Liu, 2006; Matsudaira, 2015). Married young adults who reside in a self-owned house in Taoyuan City have the highest probability of living with their parents among the six municipal regions. Moreover, married young adults in Taipei City and New Taipei City with more than one owner-occupied house have a higher probability of living with their parents.

As regards to the education level, those with more education will be more likely to live with their parents especially in Taipei City, New Taipei City, and Taoyuan City which have more employment opportunities. However, more education will reduce the probability of living with parents in Taichung City, Tainan City, and Kaohsiung City which have relatively fewer employment opportunities. That is because married young adults who are more educated have more opportunities to find employment with a higher salary. They may decide to work in other cities, and provide financial support to their parents instead of living with them.

The age of the married young adults also has a significant influence on the nest-leaving decision in New Taipei City and Kaohsiung City. Other regions are less significant. This means there is a regional difference in the influence of age on the nest-leaving decision among married young adults. A possible reason might be the differences in the housing and the labor markets, but the real reason has yet to be determined. Finally, in terms of the number of pre-school children, the empirical results reveal that married young adults who are residing in highly urbanized areas (such as Taipei City and New Taipei City), having more pre-school children will reduce their likelihood of living with their parents. This shows that the demand for living space in regions with high housing prices is much greater than the need for childcare. This result is in agreement with the findings in Di and Liu (2006).

5. Conclusion and Suggestions

Previous studies have rarely examined why financially independent married young adults live with their parents. This study examines the determinants for married young adults who are the main financial provider and live with their parents by using samples of households at the national and regional (six municipal regions) levels in Taiwan.

Findings in previous studies are validated; for example, young male married adults are more likely to live with their parents than young female married adults. As young adults age, there is a significantly negative effect on the likelihood of living with their parents. However, there are many interesting findings that differ from those in previous studies. Housing affordability is a key factor for why married young adults continue to live with their parents. In terms of the housing affordability, married young adults are 1.3 times more likely to live with their parents in Taipei City, which is the least affordable city, whereas the probability is only 1.07 in Tainan City, which is the most affordable among the six municipal regions. While the education level of married young adults has a significantly positive effect on living with their parents in the Taipei metropolitan area, however, it has a negative effect in the central and southern cities.

Furthermore, having more pre-school children will increase the probability of living with parents, except in Taipei City, which might be caused by the differences in the housing and labor markets in those cities. Thirdly, an increase in the number of co-residing grandparents or owning more than one owner-occupied house will increase the likelihood of living with parents. These variables show the influence of filial piety in the Chinese culture and family wealth on the nest-leaving decision of married young adults.

Based on the empirical findings, this study provides the following recommendations for public policies and future research. Governments should solve the housing affordability problem through both an increase to the income of young adults and providing more affordable housing and rentals. Governments should also increase social housing supplies, control the rental housing market, and improve the children and elderly care system.

As this study only focuses on married young adults who can financially support themselves, future research could focus on young people who have financial difficulties. Secondly, this study uses cross-sectional data to include more housing-related characteristics to compensate for other characteristics of family members, such as “parents who have passed away” or “ownership of co-residence house”. These questions require more detailed interviews to conduct further analyses. Thirdly, this study applies a house price to income ratio to measure the housing affordability. The possibility of using mortgage payment data to measure housing affordability can be tested in future research. Finally,

the simple use of a yes-or-no decision on the logistic regression should provide more discussion on the decision structure or other choice models for the co-residence choice.

Acknowledgments

We would like to thank Rose Neng Lai (Executive Editor) and the two anonymous referees for valuable comments that have significantly improved the quality of this article. Funding from the Ministry of Science and Technology, Taiwan, R.O.C. under Project No. NSC 102-2410-H-305 -047 has supported this research work.

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Appendices

Appendix 1 Estimates of Permanent Income from 2010 Housing Income and Expenditure Survey

	Parameter	Standard Deviation	T Value
Intercept	93,760.77*	787.563	119.052
Gender of Household Head (Male=1)	64,568.481*	461.316	139.966
Household Population	146,258.728*	256.974	569.157
Employed Population	200,534.82*	299.917	668.634
Population over 65 years old	-43,513.342*	397.066	-109.587
Population of minors	-49,556.841*	333.849	-148.441
Age of Household Head (65 above =0)			
Under 25	-56,2380.04*	1729.553	-325.159
25 - 34	-52,0748.7*	1071.847	-485.843
35 – 44	-342,810.435*	981.163	-349.392
45 - 54	-180,309.234*	956.636	-188.483
55 - 64	-56,099.631*	939.603	-59.706
Education of Household Head (Primary School or less=0)			
Middle School	97,947.632*	718.307	136.359
High School	276,973.369*	658.478	420.626
Junior College	549,407.055*	765.302	717.896
University and Higher	958,117.826*	734.414	1305
Employment Type of Household Head (Agriculture=0)			
Industrial	127,363.51*	759.575	167.677
Service	198,546.863*	722.097	274.959
R^2		0.474	
Number of Observations		7,840,923	

Note: *p-value < 0.01

Appendix 2 Average Unit Price for Purchase & Sale Contracts (Unspecified Building Type) and Average Floor Area Per Person of Occupied Housing Unit (2010)

Municipal City	Average Unit Price for Purchase & Sale Contract NTD:10,000/ping (USD/acre)	Average Floor Area of Occupied Housing Unit Ping/person (acre/person)
New Taipei City	22.99 (6.20)	8.2 (.0067)
Taipei City	52.5 (14.15)	8.44 (.0069)
Taoyuan City	13.17 (3.55)	10.68 (.0087)
Taichung City	14.34 (3.87)	10.95 (.0089)
Tainan City	10.43 (2.81)	11.31 (.0092)
Kaohsiung City	12.99 (3.50)	10.13 (.0083)
Taichung County (Before 2010)	11.18 (3.01)	10.68 (.0087)
Tainan County (Before 2010)	9.52 (2.57)	11.13 (.0091)
Kaohsiung County (Before 2010)	11.29 (3.04)	10.86 (.0089)

Note: 1 ping = 0.000817 acre, and 1 NTD = 0.033 USD