Living with Mom and Dad and Loving It…or Are You?

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Abstract

We investigate how living at the parental home past adolescence is related to the subjective well-being of young adults using a large representative panel dataset from the Household, Income and Labour Dynamics in Australia (HILDA) Survey from 2001 to 2013. We find that living at the parental home past the ages of 20-22 is associated with lower life satisfaction after controlling for individual fixed effects, a large set of household and personal characteristics, and recent life events ranging from unemployment to death of a spouse. This negative association increases with age, but at a decreasing rate. It peaks between the ages of 35-45 and then slowly dissipates. Results are robust to caliper Propensity Score Matching (PSM) analysis.

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1. Introduction

For many young adults living with their parents may be a smart economic decision while they finish their college education, look for a job in a market with low entry wages, cope with an unsuccessful first marriage, pay out student loans, or save to be able to afford the rising cost of housing. But just how bad is it to be well past adulthood and still living under your parents' roof? Does living at home help offset the reduction in happiness associated with financial hardship and unemployment? Or does the social stigma of young adults who choose to linger at home longer as less mature and independent affect negatively their subjective well-being?

To shed light on the answers to these questions, we use longitudinal data on subjective well-being (SWB) from the Household, Income and Labour Dynamics in Australia (HILDA) Survey on how satisfied people feel with their lives. To the best of our knowledge, this is the first study that examines the effect of living at the parental home on the subjective well-being of adults past their adolescent years. Thus, our paper adds to the emerging literature on happiness economics that has identified many important socio-economic determinants of subjective well-being (e.g. see Dolan et al., 2008 for a summary).

Studying this topic is relevant for several reasons. First, in the past several decades the number of young adults living with their parents has steadily increased, at least in the developed world. In the 1970s, for example, less than 8 percent of young American adults lived under the same roof as their parents. Today, this number has more than doubled, and close to 22 million adults ages

25-34 are calling mom and dad "roommates."[2] Similarly, in Great Britain a record number of young adults are living with their parents. This number has increased by a quarter since 1996 and is steadily growing.[3] In Australia, close to 30 percent of young adults ages 18-34 were living at the parental home in 2011 (up from 21 percent in 1976). Similar trends have been documented in many other countries.[4]

Second, this prolonged transition from infancy to adulthood, especially in the developed world, has become such a common phenomenon for young generations that scholars have recently started describing it as a separate developmental stage called *emerging adulthood* (e.g., see Arnett, 2007).[5] Although for many young adults returning to the family nest could be seen as an insurance against labor market risk (Kaplan, 2010) or financial hardship (Bane, 1976), other demographic and socio-economic changes have contributed to this pattern too. The postponement of first marriage and the increasing number of never married women worldwide (Jones, 2010; UN, 2011), higher divorce rates (Dommarju & Jones, 2011; Stevenson & Wolfers, 2007), a labor market with low entry wages (Danziger & Ratner, 2010), and the unprecedented growth of student enrollment in higher education (Altbach et al., 2009) have fundamentally changed the pattern of transitioning to adulthood.

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[2] According to the US Census Bureau, Current Population Survey (CPS), Table AD-1.

[3] According to the British Office of National Statistics (ONS), a total of 3.3 million 20-to-34 year old adults lived with their parents.

[4] For example, see Kins et al. (2013) for Belgium, Rossi (1997) for Italy, Galland (1997) for France, Nave-Herz (1997) for Germany, Van Hekken et al. (1997) for Netherland, and Leccardi & Ruspini (2006) for Eastern Europe, New Zealand, and Georgia.

[5] In the United States, for example, the popular press have labeled the new generation of young adults the "boomerang generation"-- referring to young adults who leave the family nest but after a short period of time living on their own return to their parental home. For example, see a series of articles by the Huffington Post: http://www.huffingtonpost.com/tag/boomerang-generation/

Third, parents are investing a significant amount of resources to help their children succeed. This assistance plays an important role in the intergenerational transmission of socio-economic status (Fingerman et al., 2012; Henretta et al, 2012, Swartz, 2008; Jones, 2013). Financial assistance from parents, for example, is associated with higher achievement of young adults such as higher educational attainment, lower college dropout, and likelihood to find a career-related job (Johnson & Benson, 2011; Semyonov & Lewin-Epstein, 2001). Young adults who believe that their parents would bail them out of debt also have lower levels of debt (Norlitis & MacLean, 2010). In addition, parental behavior such as discussing financial matters with children has an impact on economic behavior (Webley and Nyhus, 2006)[6] as well as pro-environmental behavior in adulthood (Grønhøj & Thøgersen, 2012).

Too much giving, however, may provide young adults with disincentive to find a job more quickly and may stifle their quest toward much desired autonomy and independence. This can cause lost wages in the long run, but also tension between parents and children in the short-run (Kloep & Hendry, 2010). Financial assistance from parents, for example, has been linked with increase in depressive symptoms and loss of self-esteem (Johnson, 2013). Living at home may also affect romantic and social life and postpone marriage, which is known to be one of the most important determinants of happiness.[7]

[6] To some extent, this could be attributed to better understanding of economic concepts such as real and nominal wages, taxes, or bank functioning (Lyck, 1990) that parents have.

[7] A recent survey by the website Trulia, for example, found that only 5 percent of unmarried adults would be open to dating someone who lives with their parents (see Corbett, 2012).

In the absence of a randomized controlled experimental dataset, which is not feasible in this case, we turn to a large representative sample of Australian citizens from the longitudinal HILDA survey to examine the effect of living at the parental home on life satisfaction. While self-reported happiness data have its limitation, a large number of studies suggest that it provides meaningful information that can be used to better understand the determinants of happiness (e.g., see Krueger and Schkade, 2008). In addition, using a large household panel allows us to address more appropriately two problems usually associated with statistical inferences from cross-sectional data. The first problem is determining the direction of causality—does living at the parental home lead to lower life satisfaction, or is it the other way around? It is possible that people who have lower life satisfaction are less likely to have a desire to move out of the family nest, perhaps because they seek the emotional support of their parents. In a cross sectional study, the interpretation of this negative effect as causal will be wrong. The second problem is unobserved heterogeneity. Individual specific characteristics such as ability, motivation, or family expectations that are unobserved to the researcher may determine both life satisfaction and the probability of living at the parental home. This could lead to spurious correlations and omitted variable bias. For example, more introverted people, who tend to be less happy (Peter and Argyle, 2001), may also be more likely to live with their parents. In this case, the negative association between living at the parental home and happiness can be due to a third factor, introversion, that is not observed by the researcher. Panel data is not cure-all to all of these biases, but allows us to

control for such unobserved individual specific effects that are correlated with both life satisfaction and living at the parental home if they are time-invariant.

The main finding in our study is that living at the parental home past adolescence is associated with lower life satisfaction even after controlling for individual specific effects and a large set of household and personal characteristics such as household size, personal income, marital status, education and employment. The richness of the HILDA dataset also allows us to control for a number of recent life events ranging from death of a spouse to recent unemployment that may also be correlated with both life satisfaction and the probability of living at the family home. This negative association between subjective well-being and living at the parental home is increasing with age but at a decreasing rate. It reaches a peak around the age of 42 and then slowly dissipates. As a robustness analysis, we use a caliper propensity score matching (PSM) analysis to show that the average life satisfaction of "stay-at-homers" (treatment group) is significantly lower than those who manage to 'escape' the family nest (control group).

2. Data

Data on happiness have been collected by representative surveys for several decades. Internationally, data are available from the World Values Survey since the early 1980's and cover more than 80 countries that represent 90 percent of the world's population. Other sources such as the Latinobarometer, the European Values Survey, the Eurobarometer, and the Gallup World Poll have also been

conducting surveys on life satisfaction for some time. An important drawback to using cross sectional data, however, is that it is difficult to establish causal relationships, primarily due to the problems of endogeneity and omitted variable bias (Wooldridge, 2002). To help us make better inferences about the relationship between living at the parental home and life satisfaction, we use a longitudinal dataset from the HILDA survey, waves 1-13.[8]

The HILDA survey is funded by the Australian Government through the Department of Social Services and represents a large household panel designed and managed by the Melbourne Institute of Applied Economic and Social Research (University of Melbourne). The dataset contains questions on respondents' socio-demographic characteristics, subjective well-being, labor market participation, and family circumstances. The first wave of the survey was conducted in 2001 and the majority of interviews usually take place in September and October of each year. Wave 1 contains 19,914 individuals living in 7,682 households. In Wave 11, a new refreshment sample (2,153 households and 5,477 individuals) was introduced with the first re-interviews for this sample being conducted in Wave 2012. While most interviews are collected face-to-face about 20 percent of the interviews are conducted over the phone. The survey is nationally representative of the population aged 15 and over, but individuals in remote areas are under-sampled.

Our analysis is for a sample of individuals aged 15-65 at the time of the interview. Our final sample, after deleting missing observations, consists of

[8] In this paper, we used PanelWhiz to extract the variables across different years (see Haisken-DeNew and Hahn, 2010). Developed by Dr. John Haisken De-New, PanelWhiz is a collection of Stata add-ons, which facilitate the use of panel datasets. For more information, visit: http://www.panelwhiz.eu/

22,474 individuals and 121,202 individual observations over the course of thirteen years (2001-2013). Our methodology does not require a balanced dataset and hence we allow the number of individuals to differ from year to year. Such variation of individual observations from year to year is common in panel datasets due to attrition bias, which arises when a non-random sample of respondents chooses not to respond. The HILDA documentation notes that the probability of re-interview is low for those interviewed in Wave 1 who are also young (ages 15-24), born in a non-English speaking country, are of Aboriginal or Torres Island descent, single, unemployed, or working in low-skilled occupations. This is particularly problematic if these are the types of respondents who are also less happy and more likely to live with their parents. Such self-selection bias will lead our analysis to underestimate the true causal effect of living at the parental home on life satisfaction. To help mitigate such sample selection bias we further provide a caliper PSM analysis.

Specifically, data on life satisfaction were collected using the following question: "*All things considered, how satisfied are you with your life?*" The scale of possible answers ranged from 1 (*totally dissatisfied*) to 10 (*totally satisfied*).[9]

[9] The terms "happiness," "subjective well-being," and "life-satisfaction" are often used interchangeably in common language (and by economists), which has caused some ambiguities. Like well-being, which has many different dimensions such as being healthy, having strong social connections and economic opportunities, happiness is a multi-dimensional concept too. Diener (1984), for example, identifies three separate aspects of subjective well-being: (1) life-satisfaction (i.e., person's overall life evaluation at a point in time); (2) the presence of positive feelings ; or affect (i.e., positive emotions such as feeling of happiness and joy, or a sense of vitality and energy); and (3) the absence of negative feelings of affects (i.e., feelings of anger, sadness, stress, etc...). The first one, life-satisfaction, is a reflective assessment which involves evaluative judgment of one's life and requires an effort to remember and evaluate past experiences. The latter two aspects of subjective well-being, positive and negative affect, represent hedonic experiences which are experienced in real time. These dimensions of subjective well-being are distinct. It is possible for a person to experience positive affect and at the same time report low life satisfaction. Similarly, the presence of positive affect does not necessarily imply the absence of negative affect (Kahneman & Deaton,

An important criticism of subjective well-being data is that it is not interpersonally comparable. Answers to survey questions may depend on many different factors: individual interpretation of the scale that is used, the order and wording of the questions, the mood of the respondent when the survey is taken, and many others. This is less of a problem when subjective well-being data are used to estimate "averages" across a homogeneous population, and more of a problem when data are compared across countries and over time as definitions of happiness may change. In this regard, panel data can be helpful, especially if the underlying scale that people use to evaluate questions on happiness is time-invariant. This is because panel data helps us make statistical inferences based on *intra*-personal comparisons as opposed to *inter*-personal comparisons. Using such data also helps us eliminate biases caused by unobserved individual specific factors such as time-invariant personality traits that may influence happiness answers.

Another inherent problem with subjective well-being data is that external events may influence survey answers. Making general evaluations of life involves cognitive effort to remember and reflect on past events, which may be influenced by many different factors such as time of the day, how the survey is carried out, etc. Most importantly, answers about overall satisfaction from life may reflect current moods. The main use of happiness data, however, is to identify the determinants of happiness and not to compare levels between different individuals in the absolute sense. In this case, it is not necessary to make the

2010). In this study, we investigate life satisfaction, as it is most common in the economics of happiness literature.

assumption that happiness data are cardinally measurable or that they are interpersonally comparable (Frey, 2010).

Self-reported data, by its nature, cannot be validated. However, an extensive literature exits that attempts to validate such data indirectly. First, self-reported happiness tends to be consistent with other meaningful measures of utility. For example, people that report themselves happy smile more often during social interactions (Fernandez-Dols and Ruiz-Belda, 1995). Happy people are also more likely to be rated happy by friends and family (Sandvik *et al.*, 1993) and by their spouses (Costa and McCrae, 1988), and less likely to commit suicide (Helliwell, 2006). Second, happiness data tend to move in an expected manner with many external factors such as unemployment and marriage. For example, unemployed people report lower levels of happiness and so do those who are recently divorced (Kahneman *et al.*, 1999). Similarly, happiness data tend to move in a predictable way with many macroeconomic variables such as GDP per capita, the general level of unemployment, and income inequality (e.g., see Di Tella *et al.*, 2003; Alesina *et al.*, 2004). A third important validation comes from neuropsychological studies that measure electrical changes in brain activity and heart rate. These changes tend to be significantly correlated with a variety of hedonic experiences and the subject's self-report (Davidson 1992, 2000; Davidson *et al.,* 2000).

Although happiness data have limitations, we believe that listening to what people have to say about their feelings (as opposed to what they do) provides meaningful information that can help us, at least partially, understand the determinants of happiness.

Our main variable is a dummy that indicates whether respondents were living with their parents at the time of the survey. The variable was constructed by identifying the relationship of the respondent to the household head at the time of the interview. We create a dummy variable equal to 1 if the respondent identifies herself or himself as a child to the household head. Overall, about 14 percent of our sample consists of respondents who are still living with their parents. In addition, we include a large set of household and personal characteristics as well as important life events such as recent loss of a job or death of a spouse that may be correlated with both life satisfaction and the probability of returning to the parental home. Table 1 in the Appendix provides description of all variables in this study, and Table 2 shows summary statistics for the overall sample, the subsample of respondents who were living with their parents, and those who were living on their own.

3. Empirical Strategy

We use the following multivariate linear regression model for the main analytical part of the paper:

$$SWB_{it} = \alpha_i + \boldsymbol{x}'_{it}\beta + \delta D_{it} + \varepsilon_{it} \quad (1)$$

where SWB_{it} is the life satisfaction of individual i at time t, α_i is a time-invariant individual-specific effect, $\boldsymbol{x}'_{it}$ is a vector of time-varying explanatory variables, D_{it} is a dummy variable set to equal to one if person i resides at home at time t,

and ε_{it} is the idiosyncratic error term.[10] The vector of explanatory variables **x** includes standard controls that are common in the happiness literature such as age, age squared, marital status, employment status, educational level, self-reported health, log of individual income, and household size. We also include a set of variables that measure recent life events such as major worsening of finances or separation from a spouse that may be correlated with both life satisfaction and the probability of living at the parental home. This helps mitigate the problem of omitted variable bias further.

Our hypothesis is that the effect of living at the parental home will differ with age. Younger individuals, for example, benefit from living with their parents while they finish their high school or college degrees. There is also less parental and social pressure to leave the family nest since majority of other young people are also living with their parents. As individuals grow older, however, and more of their peers escape the family nest, social pressure can cause feelings of shame, problems with self-esteem, and ultimately dissatisfaction with life. Figure 1 shows unconditional age-happiness profiles for individuals who are living with their parents and those who manage to escape the family nest. The data suggest that the relationship between life satisfaction and living at the parental home is non-linear with age. Therefore, we include an interactive variable between living at the parental home and the age of the individual and its quadratic term in our final model.

[10] We do not include time effects because we already control for age. Including a full set of time dummies (T-1), one for each period but the last, means that we cannot include any explanatory variables that have a constant difference over time for each individual such as age (Wooldridge, 2012) since these time dummies will absorb all time constant effects. This happens only with a fixed-effects estimation that relies on within-person variation over time. Using a random effects model with a complete set of time dummies does not change the results qualitatively (results available upon request).

Since the dependent variable in this study, SWB, is a categorical variable, it requires an ordered probit or logit estimation (Green, 1993). However, we choose a fixed-effects linear estimator for two reasons. First, the practice of interpreting answers to happiness surveys as cardinal and comparable is common among psychologists and sociologist (Kahneman et al., 1999). More importantly, Ferrer-i-Carbonell and Frijters (2004) provide extensive evidence that it makes virtually no difference whether one assumes cardinality or ordinality of happiness data, i.e., the results from OLS and ordered probit or logit estimations hardly differ in the context of happiness research. However, allowing for individual fixed-effects changes the results substantially, so Ferrer-i-Carbonell and Frijters (2004) advocate the use of individual-specific fixed-effects estimator that allows one to control for persistent personality traits. In addition, we perform a Hausman test[11] on our main model (p-value less than 0.01), which indicates that there are significant differences between the coefficients for the fixed effects and random effects model. This implies that the fixed-effects estimator is more appropriate for our study. Second, while the ordered logit models are theoretically appealing, the estimates from the fixed-effects model also have the practical advantage of providing easy-to-interpret marginal effects. This is important since Ai and Norton (2003) show that coefficients involving interaction variables in ordered probit or logit regressions are more difficult to interpret than commonly assumed.[12]

[11] We also perform a Breusch-Pagan LM test for random effects vs pooled OLS. The result (p-value less than 0.01) indicates that we should use an individual-specific effects model.

[12] Using a fixed-effects logit estimator does not change the general findings of our paper. We do not report these results here, but they are available upon request.

4. Regression Results

We start the analysis in Table 3, which reports happiness equations for the overall sample of 15-65 year old respondents. All regressions are estimated using a fixed-effects estimator with robust standard errors clustered at the individual level.[13] Individuals who live with their parents past adolescence may have different set of skills, motivation, or face different pressure from their family and friends to live on their own. Therefore, using individual specific fixed-effects allow us to control for such unobservable fixed factors.

Model 1 shows our baseline specification, which includes standard socio-demographic controls and regional dummies. Since much of the negative effect of living at the parental home can come through the marriage, unemployment, income, and health channels, model 2 presents a more parsimonious specification, which includes only controls for age and regional dummies. This allows us to evaluate the overall (direct and indirect) effect of living at the parental home on life satisfaction through some of these channels. Finally, model 3 adds controls for a number of household characteristics and recent life events. Since many of these time-varying events can be correlated with both SWB and the probability of living at home, including them in the regression helps mitigate the problem of omitted variable bias.

The results in this table suggest that living at the parental home past 20-22 years of age is associated with lower levels of life satisfaction. This negative correlation is strong and statistically significant even after controlling for

[13] We use the STATA xtreg command with vce (cluster id) option, which causes the Huber/White/sandwich estimator to be calculated for the coefficients estimated in the regressions. This is equivalent to specifying vce (robust) as discussed by Wooldridge (2013).

individual-specific effects and a large number of controls such as marriage, unemployment, income, and life events. This negative correlation is increasing but at a decreasing rate, reaching a maximum between the ages of 35-45. If causal, the estimates from our parsimonious estimation in model 2, would imply that living at the parental home is associated with a .25 points decrease in life satisfaction, on average, at its peak.[14] As a comparison, this negative premium is higher than the negative effect associated with being divorced relative to being married, which is estimated to be .179 in model 3 (Table 3). The other variables in the table also have the expected signs and are consistent with previous happiness research, which provides further confidence in our results.

Figures 2 and 3 display the average predicted life satisfaction for the "stay-at-homers" and those who manage to escape the family nest and help us visualize the relationship and get a better sense of its magnitude.[15] Figure 3, for example, compares the mean life satisfaction for the two groups holding constant at their sample means a large number of individual and household characteristics including age, age squared, marital status, education, employment, health, log of income, recent life events, and regional and individual fixed-effects. Both figures display the non-linear relationship between living at the parental home and happiness with age. As expected, living at the parental home is associated with a life satisfaction premium for the 15-22 year old respondents in the sample. At this young age, family plays an important role in supporting the development of

[14] To arrive at this number, we use the estimates from model 2 to calculate the average difference in life satisfaction between the stay-at-homers and those who escape the family nest at different ages while holding all other variables at their sample means. This difference could be seen in Figure 2, which shows the average life satisfaction of individuals who live with their parents and those who live on their own. The difference between the two groups peaks between the age of 35-45, where it is close to .25 points.

[15] We use STATA's margins command to show the non-linear effect of living at the parental home on life-satisfaction at different ages.

young individuals while they are finishing their formal education or getting started with life on their own. However, as individuals grow older and more of their peers leave the family nest, parental and social pressure builds up and can leave individuals dissatisfied with their life. This negative effect reaches a peak around the ages 35-45 and then slowly dissipates. For example, Figure 2 suggests that an "average" 35 year-old person will report close to 0.4 points lower life satisfaction compared to another 34 year-old person of similar socio-economic status and background who is living on their own.

To complement our analysis, we investigate how the average life satisfaction of the 'stay-at-homers' differs from those who manage to escape the family nest by estimating the Average Treatment Effect on the Treated (ATT) using Propensity Score Matching (PSM). The goal of the PSM analysis is to find a group of people who are not living with their parents (control group), but have similar characteristics to those who are still living at home (treatment group) based on the observables in the survey data and estimate differences in means between the two groups. Results are reported in Table 4 and the exact procedure is described in Appendix B. In all three models that we test, we find statistically significant differences between the two group for individuals between the ages 23-45. Overall, the results from the PSM analysis confirm our hypothesis and provide further support for our main findings: living at the parental home past adolescence is associated with lower life satisfaction.

5. Conclusion

Happiness scholars have identified a number of socio-economic variables that influence both the hedonic experiences and life evaluation of people. To the best of our knowledge, the effect of living at the parental home has received little attention so far. Yet, due to a number of institutional and socio-demographic changes in the past several decades the percentage of young people who are living with their parents has steadily increased. Using a large representative sample of Australian citizens from the longitudinal HILDA survey, we investigate the link between living at the parental home and life satisfaction.

The results suggest that young adults past the age of 20-22 who live with their parents are more likely to report lower levels of life satisfaction even after controlling for individual fixed effects and a large set of household and personal characteristics such as household size, marital status, and income. The richness of our dataset also allows us to control for a number of life events ranging from recent unemployment to death of a spouse. This negative effect is increasing with age, but at a decreasing rate. It peaks between the ages of 35-45 and then slowly dissipates around the age of 52-55. It is also economically significant: a typical 34-year-old person, for example, who is living with his or her parents, is likely to report close to 0.44 points lower life satisfaction (on a scale from 0-10, distributed with a standard deviation 1.4). This negative effect is stronger than the negative effect associated with divorce.

Furthermore, we use a caliper Propensity Score Matching method and estimate the average treatment effect on the treated for the “stay-at-homers” (treatment group) compared to those who leave the family nest (control group).

The PSM analysis also suggests that there are statistically significant differences in life satisfaction between these two groups.

While our analysis suggests that living at the parental home decreases life satisfaction, especially for adults who are past their adolescence, our results should be treated with caution. In the absence of experimental data, which is not feasible for this type of study, the results from our panel data analysis are not causal but only suggestive. However, the main goal of this study is to provide a first step towards exploring this relevant topic. Future studies may want to investigate the effect of living at the parental home on hedonic happiness and explore some of the channels through which this relationship works such as satisfaction with family life or the sense of control young individuals experience while living with their parents.

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Appendix

Table 1: Description of Variables

Variables	Description
Life Satisfaction (0-10)	Data was collected with the question: "*All things considered, how satisfied are you with your life?*" Possible answers ranged from 1 'Totally dissatisfied' to 10 'Totally satisfied'.
Living with Mom	Dummy equal to 1 if the respondent is classified as a 'child' in its relationship to the household head.
Household Size	Number of people living in household
Household Type	Type of household is constructed using the following three elements: (1) Type of core household unit (couple family, other related family, lone person, group household, and multi-family household), (2) Type of most dependent child (without children, with child <15), and (3) type of other attached to family (without others, with others related such as aunt or grandparents).
Age	Age in years
Marital Status	Marital Status
Married (base)	Dummy for 'married'
Single	Dummy for 'single'
Widowed	Dummy for 'widowed'
Divorced	Dummy for 'divorced'
Separated	Dummy for 'separated'
Years of Education	Number of years of education
Employed	Dummy for 'employed'
Health Status	Self-rated health status
Poor (base)	Dummy for 'poor'
Fair	Dummy for 'fair'
Good	Dummy for 'good'
Very Good	Dummy for 'very good'
Excellent	Dummy for 'excellent'
Log Income	The log of individual labor income in constant 2001 prices. To prevent the loss of data for incomes equal to $0, we add $1 to all incomes before taking the log values.
Life Events	Life events in the past year. The list of life events was informed by the list originally used by Holmes and Rahe (1967) in their development of a stressful life events measure. All variables on life events represent dummies equal to 1 if the respondent self-reported herself or himself as experiencing the event.
Region	Region of permanent residence

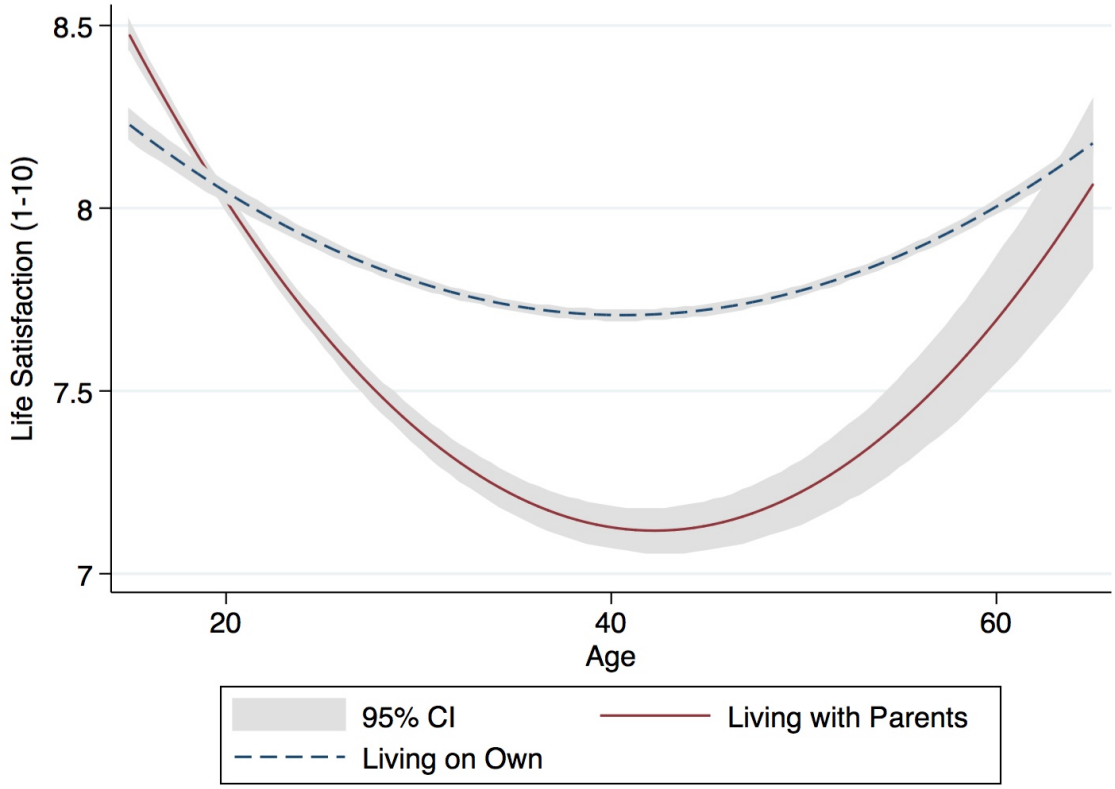
Note: All variables came from the latest release of the HILDA surveys (2001-2013)

Table 2: Summary Statistics

	Overall Sample			Not Living with Parents			Living with Parents		
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev.
Living With Parents (1=Yes)	121,208	0.141	0.348	104,125	0.000	0.000	17,083	1.000	0.000
Life satisfaction (0-10)	121,208	7.862	1.450	104,125	7.834	1.448	17,083	8.032	1.453
Age	121,208	39.673	14.080	104,125	42.670	12.492	17,083	21.400	8.169
Female	121,208	0.529	0.499	104,125	0.539	0.498	17,083	0.468	0.499
Household size	121,208	3.093	1.496	104,125	2.943	1.460	17,083	4.005	1.387
Marital Status									
Married	121,208	0.662	0.473	104,125	0.768	0.422	17,083	0.014	0.119
Single	121,208	0.239	0.426	104,125	0.121	0.326	17,083	0.959	0.199
Widowed	121,208	0.013	0.114	104,125	0.015	0.122	17,083	0.001	0.034
Divorced	121,208	0.058	0.233	104,125	0.064	0.245	17,083	0.018	0.135
Separated	121,208	0.029	0.167	104,125	0.032	0.176	17,083	0.007	0.085
Years of education	121,208	12.335	2.390	104,125	12.476	2.467	17,083	11.474	1.602
Employed (1=Yes)	121,208	0.680	0.466	104,125	0.687	0.464	17,083	0.637	0.481
Self-rated health									
1	121,208	0.026	0.158	104,125	0.028	0.165	17,083	0.011	0.104
2	121,208	0.114	0.318	104,125	0.120	0.326	17,083	0.076	0.265
3	121,208	0.349	0.477	104,125	0.359	0.480	17,083	0.285	0.451
4	121,208	0.380	0.485	104,125	0.375	0.484	17,083	0.411	0.492
5	121,208	0.131	0.338	104,125	0.117	0.322	17,083	0.217	0.412
Individual Employment Income	121,208	34,760	42,330	104,125	38,212	44,042.31	17,083	13,722	19,369.29

Source: Authors' calculations based on HIDLA (2001-2013)
Notes: See Table 1 for variable definitions

Figure 1: Life Satisfaction and Age by Living Arrangement



Source: HILDA, 2014

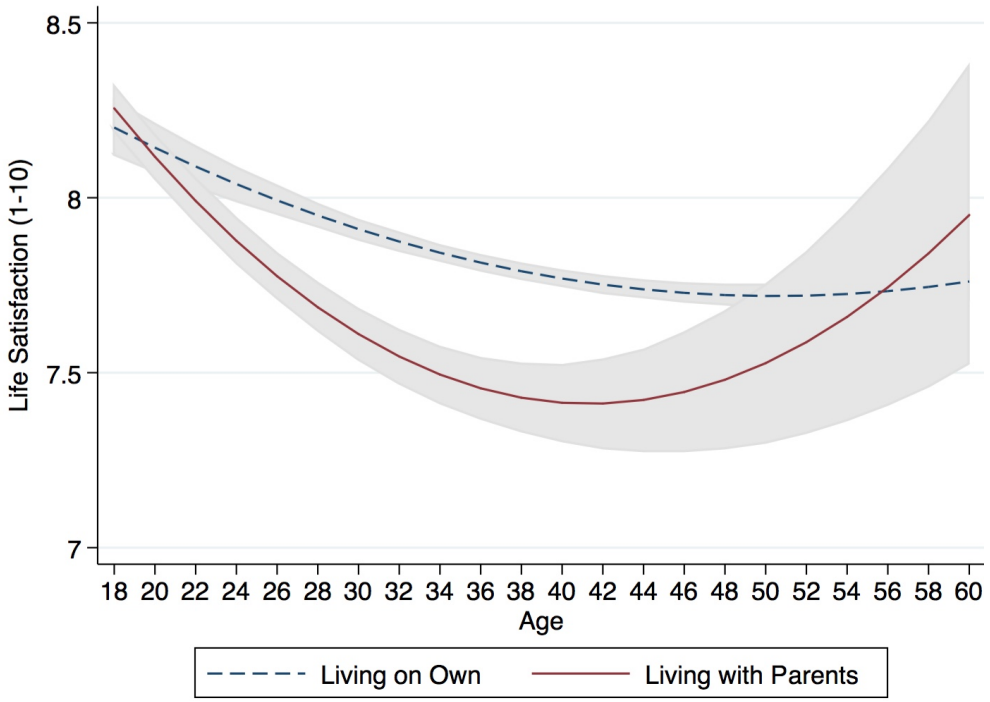
Note: The figure represents a quadratic fit of life satisfaction and age by living situation with 95 percent confidence intervals

Table 3: Main Results, HILDA 2001-2014

Variables	(1)		(2)		(3)	
Living with Mom	1.095***	(0.160)	1.177***	(0.157)	1.063***	(0.174)
Age	-0.052***	(0.005)	-0.046***	(0.005)	-0.038***	(0.006)
Mom x Age	-0.068***	(0.012)	-0.082***	(0.011)	-0.067***	(0.012)
Age squared	0.001***	(0.000)	0.000***	(0.000)	0.000***	(0.000)
Mom x Age squared	0.001***	(0.000)	0.001***	(0.000)	0.001***	(0.000)
Marital Status (Base=Married)						
Single	-0.273***	(0.024)			-0.049	(0.039)
Widowed	-0.551***	(0.115)			-0.299**	(0.127)
Divorced	-0.404***	(0.042)			-0.179***	(0.053)
Separated	-0.678***	(0.043)			-0.363***	(0.053)
Years of Education	-0.004	(0.008)			-0.011	(0.008)
Employed	0.006	(0.017)			-0.001	(0.017)
Health Status (Base=Poor)						
Fair	0.708***	(0.048)			0.678***	(0.051)
Good	1.098***	(0.050)			1.033***	(0.053)
Very Good	1.366***	(0.051)			1.284***	(0.054)
Excellent	1.581***	(0.052)			1.487***	(0.055)
Log Income	0.002	(0.002)			0.001	(0.002)
Life Events						
Adoption of a new child					0.082***	(0.020)
Death of close friend					-0.050***	(0.014)
Death of close relative or family member					-0.010	(0.011)
Death of spouse or child					-0.245***	(0.074)
Major improvement in finances					0.118***	(0.019)
Major worsening in finances					-0.487***	(0.029)
Fired or made redundant					-0.052**	(0.024)
Serious injury/illness of family member					-0.021**	(0.010)
Serious personal injury/illness					-0.115***	(0.017)
Close family member detained in jail					0.001	(0.038)
Detained in jail					-0.085	(0.112)
Changed jobs					0.012	(0.011)
Got married					0.098***	(0.020)
Changed residence					0.071***	(0.011)
Victim of property crime					-0.073***	(0.019)
Pregnancy					0.097***	(0.018)
Promoted at work					0.031**	(0.013)
Got back together with spouse					-0.075*	(0.044)
Retired from work force					0.075**	(0.032)
Separated from spouse					-0.232***	(0.027)
Victim of physical violence					-0.234***	(0.041)
Region (Base = Sydney)						
NSW	0.075	(0.050)	0.062	(0.052)	0.074	(0.055)
Melbourne	-0.010	(0.063)	-0.017	(0.066)	-0.040	(0.065)
Victoria	-0.003	(0.076)	-0.008	(0.079)	-0.009	(0.077)
Brisbane	0.056	(0.059)	0.040	(0.061)	0.057	(0.062)
QLD	0.107*	(0.061)	0.104	(0.064)	0.079	(0.063)
Adelaide	0.110	(0.085)	0.112	(0.088)	0.059	(0.086)
SA	0.099	(0.096)	0.099	(0.101)	0.071	(0.098)
Perth	-0.027	(0.075)	-0.021	(0.079)	-0.021	(0.081)
WA	0.076	(0.108)	0.095	(0.113)	0.049	(0.117)
Tasmania	0.001	(0.102)	-0.051	(0.108)	-0.051	(0.104)
Northern	0.027	(0.102)	0.011	(0.110)	0.007	(0.116)
ACT	0.072	(0.092)	0.062	(0.096)	0.093	(0.102)
Observations	121,202		121,202		107,110	
Number of individuals	22,474		22,474		20,968	
Adj. R-squared	0.050		0.005		0.062	

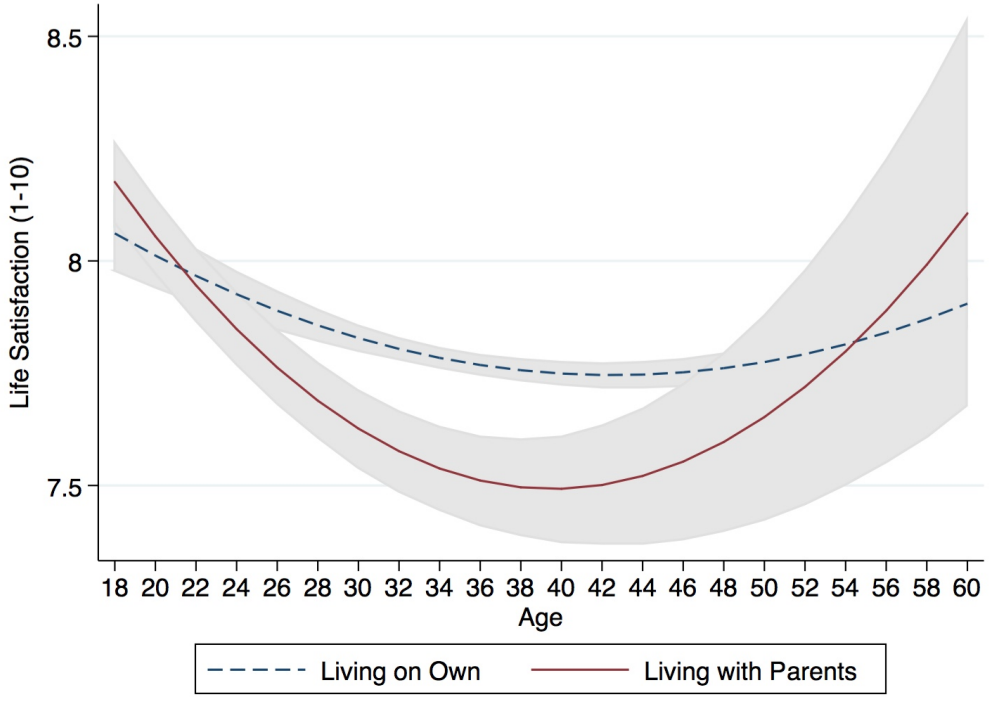
Note: *** p<0.01, ** p<0.05, * p<0.1. All models are fixed effects with robust standard errors (shown in parenthesis) clustered at the individual level. All models include controls for household size and household type.

Figure 2: Age-Happiness Profiles by Living Arrangement, Model 2



Note: The figure shows mean life satisfaction conditional on age, age squared, and regional and individual fixed-effects (model 2 of Table 3). Shaded areas represent 95% percent confidence intervals.

Figure 3: Age-Happiness Profiles by Living Arrangement, Model 3



Note: The figure shows mean life satisfaction conditional on age, age squared, marital status, education, employment, health, log of income, recent life events, household characteristics, and regional and individual fixed-effects (model 3 of Table 3). Shaded areas represent 95% percent confidence intervals.

Table 4: Propensity Score Matching Results

Part I: Ages 23-45

Panel A: Nearest neighbor matching, without replacement, caliper=0.0001, Covariates list 1

	N	N	Average Outcome	Average Outcome	ATT	S.E.	T-stat
Outcome	Treatment	Control	Treatment	Control			
Life satisfaction	2,201	45,656	7.315	7.831	-0.515	0.046	-11.220

Panel B: Nearest neighbor matching, without replacement, caliper=0.001, Covariates list 2

	N	N	Average Outcome	Average Outcome	ATT	S.E.	T-stat
Outcome	Treatment	Control	Treatment	Control			
Life satisfaction	2,201	45,656	7.355	7.565	-0.210	0.108	-1.960

Panel C: Nearest neighbor matching, without replacement, caliper=0.001, Covariates list 3

	N	N	Average Outcome	Average Outcome	ATT	S.E.	T-stat
Outcome	Treatment	Control	Treatment	Control			
Life satisfaction	1,934	39,972	7.445	7.807	-0.362	0.064	-5.680

Part II: Ages 15-22

Panel A: Nearest neighbor matching, without replacement, caliper=0.0001, Covariates list 1

	N	N	Average Outcome	Average Outcome	ATT	S.E.	T-stat
Outcome	Treatment	Control	Treatment	Control			
Life satisfaction	8,962	13,898	8.202	7.940	0.262	0.020	12.900

Panel B: Nearest neighbor matching, without replacement, caliper=0.001, Covariates list 2

	N	N	Average Outcome	Average Outcome	ATT	S.E.	T-stat
Outcome	Treatment	Control	Treatment	Control			
Life satisfaction	8,962	13,898	8.054	7.859	0.196	0.055	3.550

Panel C: Nearest neighbor matching, without replacement, caliper=0.001, Covariates list 3

	N	N	Average Outcome	Average Outcome	ATT	S.E.	T-stat
Outcome	Treatment	Control	Treatment	Control			
Life satisfaction	8,075	12,330	8.116	8.048	0.068	0.053	1.290

Source: Authors' calculations based on HIDLA (2001-2013)

Notes: Summary of results from caliper propensity score matching, average treatment effects. The treatment group is respondents living with their parents. The control group is respondents not living with their parents. The number of observations refers to observations in the treatment and control groups in the common support area given the caliper. The covariates used in the matching satisfy the balancing property. In all matching procedures, exact matching by age, gender, year, and region is applied. In Panel A, the matching covariates are: age, age squared, gender, region, and year. In Panel B, the matching covariates are: age, age squared, gender, region, year, marital status, education, log income, an interaction for gender and age, an interaction for marital status and gender. In Panel C, the matching covariates are: age, age squared, gender, region, year, and 21 different life events ranging from a death of a spouse to becoming unemployed.

Appendix B: Propensity Score Matching Analysis

To complement our analysis, we investigate how the average life satisfaction of the 'stay-at-homers' differs from those who manage to escape the family nest by estimating the Average Treatment Effect on the Treated (ATT) using Propensity Score Matching (PSM). PSM (e.g., see Rosenbaum and Rubin, 1983) is an increasingly popular method for evaluating economic policy interventions that helps reduce bias associated with estimation of treatment effects from observational datasets. The advantage to using PSM is that it helps correct for sample selection bias due to observable differences between the treatment (people who live with their parents) and comparison group (people who live on their own). PSM is also semi-parametric and it does not require some of the usual assumptions associated with the outcome equation and the error term. However, PSM does not eliminate all bias and requires a large dataset of relevant covariates to be able to pick up the right pre-treatment variables. Moreover, if the model is correctly specified, OLS is more efficient.

The goal of the PSM analysis is to find a group of people who are not living with their parents (control group), but have similar characteristics to those who are still living at home (treatment group) based on the observables in the survey data. To do this, we use one-to-one nearest neighbor matching and choose a more conservative caliper (maximum allowable distance between propensity scores) of 0.001. To check whether the matching was successful, we examine the differences between the sample means of the treatment and control groups for those covariates used for the matching. We also calculate the mean standardized bias before and after matching. In all cases, the t-tests are statistically insignificant, with a mean bias of less than 2.5%, implying that the matching was successful (i.e., we find no statistically significant differences between

the individuals from the two groups that we match based on the observable characteristics used for the matching).[16]

Because in the main models from Table 3 we find that the effect of living at the parental home is non-linear with age, and the ATT estimates differences in means, we report results for two of the relevant age groups: (1) 23-45 and (2) less than 23.[17] We choose this particular threshold based on the results from the previous section, which suggest that the association between living at the parental home and life satisfaction become negative around the ages 20-22. Part I of Table 4 shows the results for the first group of respondents, young adults between the ages of 23-45. In Panel A, we start with the most basic set of matching covariates: age, age squared, gender, region, and year. We force exact matches based on age, gender, region and year. In Panel B, we add to the list of matching covariates marital status, education, log of individual income, and interaction variables between gender and age as well as marital status and gender. Panel C further includes 21 different life events ranging from death of a spouse to becoming unemployed. In all three panels, we find a statistically significant difference between the two groups. In the most basic matching case (Panel A), we find that the difference in life satisfaction is -.515 and is statistically significant at the 1% level (t-stat =-11.20). Not surprisingly, the difference is smaller when we use a larger set of matching covariates, but it is still negative and statistically significant. In the most precise matching case (Panel C), we find that people who live with their parents (the treatment group) are -.362 points less happy than those who live on their own. Finally, we repeat the same

[16] We do not display these tables in the main text, but they are available upon request.
[17] We use the stata add-on psmatch2 to perform the analysis. See Leuven and Sianesi. (2003). "PSMATCH2: Stata module to perform full Mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing". http://ideas.repec.org/c/boc/bocode/s432001.html.

analysis for individuals between the ages of 15 and 22 and report the results in the bottom half of Table 4. As expected, we find that at younger ages living at the parental home is associated with higher life satisfaction. The difference between the two groups is statistically significant in two out of the three cases presented. Overall, the results from the PSM analysis confirm our hypothesis and provide further support for the results in the previous section.

While PSM is a useful tool that complements our analysis, the results should be treated with caution. It is only possible to reduce the total bias if we use a very large number of covariates or by having knowledge of the exact factors that influence individuals to live with their parents (Steiner et al., 2010). We do not have knowledge of the selection process, but by including a large number of covariates we are able to create treatment and control groups that are sufficiently similar, which is the main goal of PSM (Steiner et al., 2011). However, the t-statistics used to evaluate our matching results are calculated using assumptions such as normal disturbances and are particularly sensitive to the sample size.