

“I just want to get married – I don’t care to who!”

Marriage, Life Satisfaction and Educational Differences in Australian Couples

Shane Mathew Worner¹
Economics Program
Research School of Social Sciences
The Australian National University

Abstract

The empirical literature involved with marriage and partnership suggests that those individuals who are partnered exhibit increased life satisfaction, compared to those who remain single. In addition, we also see non-random patterns in traits brought to a partnership. So then how does the type of partnership affect levels of happiness? Following the existing literature we use the Housing, Income and Labour Dynamics in Australia (HILDA) Survey and standard panel data techniques to firstly investigate whether those individuals who are legally married exhibit significantly higher levels of life satisfaction. We then depart from the existing literature to investigate what type of partnership makes an individual happier. Results indicate that married Australians do experience higher levels of happiness, the equivalent of \$100,000+ in extra income, with life satisfaction levels increasing and then decreasing in the years around marriage. The happiness benefits of being married are much greater for males than for females. A spouses’ education seems to only matter for males with educational differences increasing the level of happiness for females only.

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The data used in this study are from the first wave of the Household, Income and Labour Dynamics in Australia (HILDA) survey. HILDA is a confidentialised file and is managed by the Melbourne Institute of Applied Economic and Social Research. The findings and views reported in the paper are from the author, and should not be attributed to the Melbourne Institute. A data appendix with additional results, and copies of the computer programs used to generate the results presented in the paper, are available from the author upon request.

“My advice to you is to get married. If you find a good wife, you’ll be happy; if not, you’ll become a philosopher”.

- Socrates

1 Introduction

When one considers life satisfaction and the decision to marry the psychology, sociology and demography literature all agree, that those individuals who choose to marry exhibit significantly higher levels of life satisfaction than those individuals that do not. Similarly, patterns in partnership formation exhibit a non-random selection influence. This non-random matching of traits within a partnership is referred to in the literature as assortative mating.

It is a commonly held belief in the empirical literature that across a number of traits individuals bring to a partnership, that these same traits exhibit some sort of positive relationship (Mare 1991, Pencavel 1998). This is regardless of whether marriage or cohabitation is used as the definition of partnership. We therefore propose the following questions: First, are married individuals significantly happier than those who are not? If so, are there any indirect happiness benefits, over and above that of marriage, experienced by an individual due to their spouses' traits? Finally, do differences in those same traits between partners exert any happiness premium? These are questions that this paper intends to address.

Why are we interested in the influence, if any, traits brought to a partnership exert on the level of self-reported life satisfaction? *A priori*, we have no reason to expect certain traits, and the interaction of these same traits, to exhibit any extra happiness benefits over and above that experienced by the act of marriage. Becker's seminal work in family economics, however, gives us an economic platform to hypothesise how traits brought to a partnership may relate to life satisfaction. Becker's family economics work, based in gains from trade (1973,1977,1991), shows that welfare increases can be brought about in a partnership through labour specialisation between the household and market sectors. Further, Becker shows that the welfare gains are maximised when certain traits brought to the partnership exhibit positive assortative mating (in the case of education and income) or negative assortative mating (in the

case of wage rates).^{2,3} Hence, the traits that individuals bring to a partnership can have consequences for the overall utility of the partnership. Since economists believe that people are the best judges of their overall quality of life (Frey and Stutzer 2002), life satisfaction provides us with a proxy measure of utility. Therefore, empirically understanding how traits affect the overall happiness of individuals to a partnership can not only help us better understand the overall well being of partnerships, but in addition, better understand the concept of utility as a whole.

Using the first 4 waves of the Household, Income and Labour Dynamics in Australia Survey (HILDA) and by exploiting the panel nature of the survey, we intend to investigate the following: Whether, if any, spousal traits, and the differences in those traits between partners in a marriage, exhibit any sort of happiness premium over and above marriage. We investigate the above questions using the trait education. Why education? The level of education an individual receives has important implications for division of household labour and consumption. First, education increases the productivity of an individual in both the labour market and within the household. Further, education is highly correlated with the potential income an individual can receive.

We make two important departures from the current, albeit small, empirical literature in this area. First, apart from the standard econometric techniques of analysis in the life satisfaction area, our analysis is conducted using a fixed effects model using individual level specific cut points. Second, our analysis also includes how life satisfaction changes in the years preceding and succeeding marriage.

Our results indicate that marriage does make individuals happier, and further, there is some weak evidence to suggest that the education level of the spouse has life satisfaction implications over and above marriage. Differences do not matter. Finally, life satisfaction exhibits a distinct inverted U-shaped pattern around the year of marriage.

² Other authors present theories that focus on the maximisation of joint consumption or joint wealth. See Ermisch (2003)

³ Assortative mating is a hypothesis that tries to explain why we see non-random patterns in traits brought to a partnership.

The rest of this paper is outlined as follows. Section 2 introduces the theoretical and empirical implications of marriage, traits brought to marriage and happiness. Section 3 introduces the methodology used to analyse our questions of interest followed by Section 4, which outlines the summary statistics with preliminary analysis of the raw data. Section 5 introduces the results with Section 6 concluding.

2 Empirical and Theoretical Implications

There is a large psychological, social behaviour and economic literature that investigates the effects of marriage on the happiness of an individual. Considerable evidence has been found to support the notion that the potential benefits from marriage go beyond increased income and economies of scale in household production. Psychologists and health researchers report that married individuals have better mental and physical health compared to single people (Vandenberg 1971; Gove *et al* 1983), married people live longer (Gardner and Oswald 2004; Wilson and Oswald 2005), with the longevity benefit being much more pronounced for males (Gove *et al* 1983) and married people have lower rates of depression (Simon and Marcussen 1999; Simon 2002) and suicide (Stack 1990,1992; Koivumaa-Honkanen *et al* 2001).^{4,5} In addition to these mental and physical health benefits, researchers have found that marriage influences the level of self-reported life satisfaction for those individuals in a partnership.⁶

There has been increased interest in recent times on the effect of marriage on an individual's self-reported happiness and it has been found that marriage is associated with higher levels of life satisfaction (Glenn and Weaver 1988; Di Tella *et al* 2003). Married people report higher levels of self-assessed life satisfaction compared to those who are single, divorced or widowed. Married men are happier than single men, with a similar pattern also prevalent for females. Married men and women have very

⁴ Wilson and Oswald (2005) show that the longevity benefit of marriage is as large as the benefit from giving up on smoking.

⁵ For a further discussion and literature review on the emotional and health problems pertaining to unmarried men and women, please see Coombs (1991).

⁶ Throughout this chapter the terms Life satisfaction, well-being, happiness, utility and welfare will be used interchangeably.

similar levels of life satisfaction; therefore happiness benefits are not biased towards one gender or the other. Cohabitating couples report higher levels of happiness compared to those who are single, divorced or widowed, however they are unhappier than married individuals (Brown and Booth 1996).⁷ Even remarriage has the same positive effects on life satisfaction as a first marriage (Easterlin 2003).

Having said that, there is a potential selection issue. Are married people happier, or do happier people get married?⁸ The literature in this area is still a little grey. Some authors find that happier singles are more likely to opt for marriage (Frey and Stutzer 2006), although in some of their earlier work, Frey and Stutzer (2003) find that mean happiness increases closer to the marriage date then reverts back to the previous level after some time.⁹ Others (Easterlin 2003) point out that at the age where most men and women have not yet married (between the ages of 16 and 25), their mean happiness is virtually the same. Therefore the happiness gap between married and single cannot be due to selection issues. Although it could be argued that those who choose to marry have a greater propensity for future happiness and therefore Easterlin's argument fails to capture a more sophisticated form of marriage selection.

Empirically, there have been happiness effects of marriage found across a number of countries with those same effects being remarkably similar across countries with different cultural and social backgrounds (Stack and Eshleman 1998). Carroll (2007) even places a dollar value on the happiness effect of marriage. The author finds that marriage is the equivalent of \$106,000 for males and \$146,800 for females. Blanchflower and Oswald (2004), in an American context, find a similar result with marriage the equivalent of \$100,000 a year.

⁷ However, as Frey and Stutzer (2006) point out, this pattern with cohabitating couple is very much dependant upon societal factors. People who cohabit and live in individualistic societies are, in some cases, happier than single and married people. Whereas those that live in collectivist societies are much happier alone.

⁸ The sociology literature refers to this as the social selection theory, which contends that those with already high levels of psychological health and financial status are more likely to marry.

⁹ Psychologists refer to this phenomenon as the “Set-Point Theorem”. Set-Point theory postulates that each person has a pre-determined level of happiness, subject to genetics and personality trait. Any “life moments” that move the level of happiness for the pre determined level will only have a transient effect because an individual will eventually adapt to their new condition and happiness will revert back to their given “set point”.

There are many reasons across the different social science fields as to why marriage contributes to increased well-being. Economic theory postulates that individuals in a partnership can increase their welfare by specialising in either household production or marketplace production (Becker 1973). Specialisation allows an individual in a partnership to exploit their comparative advantage (usually human capital advantage) in the labour market, with the labour market returns reflected in increased wages and salaries for married individuals (Korenman and Neumark 1991; Hersch and Stratton 2000; Breusch and Gray 2004; Birch and Miller 2006) and indirect effects of the partnership likely to increase these labour market returns (Brynin and Francesconi 2004).

Other economic theories suggest that individuals gain by exploiting the economies of scale brought about through marriage (Becker 1991); or through the consumption of joint incomes, via an income-sharing rule; or via the consumption of other joint household public goods, for example, children (Ermisch 2003). Others suggest marriage acts like insurance or a “safety net”, providing economic protection by allowing uncertainty and shocks (e.g. unemployment, child birth) to be “smoothed” across dual incomes via intra-family transfers (Kotlikoff and Spivak 1981). To this end, economists have generally been concerned with material effects, assuming that if income increases (both actual and relative), then overall life satisfaction will trend in the same direction (Easterlin 2001; Frey and Stutzer 2002; Fritters *et al* 2004; Ferrer-i-Carbonell 2005).¹⁰

In contrast, the sociology and psychology fields recognise a variety of circumstances and traits besides material effects that influence life satisfaction. Many of the theories involve simple assertions that individuals need relationships, companionship and sex. Marriage provides this (Gove *et al* 1983). Marriage also provides an extended social support network for the married partners. In addition, with further implications for economists, Geerken and Gove (1983) show that the allocation of household tasks amongst family members has a significant impact on an individual's self-reported life

¹⁰ Recently, there have also been a number of works in the economic literature interested in other external factors that might affect life satisfaction. Labour force Status (Carroll 2007), Labour force participation (Booth and Van Ours 2005) and Climatic changes (Carroll 2006) have all been found to influence an individual's reported well-being.

satisfaction. In other words, the division of labour can have important implications for well-being.

Becker (1973,1977,1991) shows that there are gains to marriage due to specialisation in the production of household goods (which is found to depend negatively on the ratio of the wife's to husbands wage rates) and labour market activities. Further, individuals will choose to marry if and when the utility in the married state exceeds the utility gained when single. More specifically, given differences in the marginal products of marketplace capital and household capital between the two individuals to a partnership, due to different “experiences” (be it biological, sexual or environmental), welfare improvements can be gained through the division of labour within the household unit. Individuals to a union will “specialise” in either the marketplace or household sector.

Moreover, depending on the trait of interest, Becker shows that these welfare gains can be maximised when the traits of individuals to a partnership are either complements (in the case of education and income) or substitutes (in the case of (shadow) wage rates). ¹¹ Therefore the type of partnership that is entered into can potentially have important implications for an individual's well being. However, these findings are made under the assumption of frictionless markets and non-transferable utility. Under transferable utility, payoffs can be transferred between two individuals to a partnership. For example, an individual can make a monetary transfer to their partner for the utility gained above that experienced by marriage. Burdett and Coles (1999) show that under transferable utility the marriage market can experience multiple equilibria and that the education level of two individuals to a marriage can be substitutes, since the other person can financially compensate the other for the utility difference.

In addition to the economic literature, much of the psychology literature on happiness puts forward a view that an individual has a preference for a young and highly

¹¹ When traits between individuals to a partnership are complements, they are said to be positively assortatively mated. When traits are substitutes, the individuals are negatively assortatively mated. Note it is possible to be both positively assortatively mated and negatively assortatively mated in a partnership depending on the trait of interest. For example it is possible for a couple to be positively assortatively mated on education and for that same couple to be negatively assortatively mated on age.

educated partner. However, relative to males, females have a higher preference for a partner that can look after them financially. Although there is an opposing view that suggests that happiness within the partnership is higher among those individuals who differ very little in a measurable trait. That is, complementarities between the two individuals' traits increase the level of happiness those individuals experience. Therefore, this hypothesis suggests that happiness is a decreasing function of any gap in a measurable trait.

Empirically, there has been little done in the way of investigating the effects traits to a partnership relate to self-reported life satisfaction. To our knowledge, there are only two papers in the economics field that provided some insight into this area with the findings being mixed. Groot and Van Den Brink (2002) analyse whether age and education differences between spouses have an effect on self-reported happiness in The Netherlands. Using Wave 1 of the Centre for Economic Research on Retirement and Ageing Survey, the authors employ an ordered response model to investigate their question. Their results indicate that the actual difference in age between husbands and wives has a positive effect on life satisfaction for both men and women alike. That is, life satisfaction increases for both males and females as the age disparity between a husband and a wife increases. In addition, the absolute difference between husbands and wives education has a positive effect on life satisfaction for females only. Life satisfaction increases as the educational disparity increases. These results indicate that on education and age, the more dissimilar individuals to a partnership are, the higher their self-reported life satisfaction level.

However, given the cross-sectional nature of their analysis, the results need to be interpreted with some caution. Analysis of cross-sectional data fails to provide conclusive evidence for external influences on two accounts. First, individual influences and unobserved characteristics are captured in the error term, and if correlated with the observable characteristics, can bias the estimates. That is, the results could be positively biased by any positive correlation in the measurement error between marriage and life satisfaction. As Hamermesh (2001) points out the results may be “because of this type of heterogeneity rather than any causation...” and therefore “...prevent us from drawing structural inferences”. Second, spousal

similarities may be due to positive assortative mating. That is, men and women with similar levels of life satisfaction may be more likely to marry each other.

Following, Frey and Stutzer (2006), using the first 17 waves of the German Socio Economic Panel Survey (GSOEP) and a fixed effects framework, investigate the differences in the benefits of marriage. In terms of our question, the authors find that above median differences in the education levels of partners impacts negatively on reported life satisfaction, compared to those partnerships that exhibited small differences in education levels.

In the Psychology literature, Gaunt (2006) finds that greater similarity between partners on many traits such as values, family role attitudes, socio-demographic characteristics and marital satisfaction is associated with higher levels of life satisfaction. These results confirm previous work done in the area (Blum and Mehrabian 1999, Luo and Klohnen 2005).¹²

Our work progresses from the current economic literature in several ways. First, we investigate in an Australian context the effect on life satisfaction influences by marriage and educational attainment. Second, we investigate the question of interest using new methodology, which takes into account individual cut points and therefore our estimation are based on more information that would not be available under standard fixed effects modelling. Finally, we draw comparisons about the dynamic nature of life satisfaction in the years around marriage. The first four waves will be analysed using panel data techniques, including those developed by Ferrer-i-Carbonell & Frijters (2004). By exploiting the panel nature of the survey, we intend to draw comparisons about individuals in two different states within the HILDA sample.

3 Estimation Methodology

As previously mentioned in Section 2, the HILDA survey is a panel survey. A panel survey is one were the data represents repeated observations on a number of characteristics of the same individuals over time. This paper primarily utilises

¹² Although some of the literature points out that some of this similarity maybe to due to convergence of traits rather than selection (Luo and Klohnen 2005).

econometric methods that can take advantage of this panel aspect of the HILDA survey. The main advantage of panel data is that it allows us to control, under certain conditions and assumptions, for different issues such as omitted variables, unobserved heterogeneity and dynamics. The dependant variable for the analysis is life satisfaction, which is an ordinally ranked variable that ranges in value from 0-10.

As part of the formal econometric analysis, we employ three standard panel methods to analyse our questions of interest. Since there is a logical ordering to the responses given to the life satisfaction question in HILDA, the most common technique used to analyse the effect of a vector of controlling variables on an ordinal ranked variable, such as life satisfaction, is through the use an ordered response model. The most common of these models is an ordered logit.

The ordered logit model takes the form of:

$$y^* = \mathbf{x}'\mathbf{b} + \varepsilon \quad (1)$$

where: y^* is unobserved and,
 $y = j$ if $\mu_{j-1} \leq y^*$

A standard approach in the literature on life satisfaction is to presents results from the ordered logit model. The ordered logit model is generally used on the pooled cross section, where each observation is the unit of analysis. However, a pooled regression model assumes common co-efficients across the cross section unit. No systematic individual influences are assumed with any individual influences captured in the error term, ε .

Given these issues with the pooled regression; results without fixed effects are simply not credible. Therefore we refrain from analysing the pooled sample in our paper – instead, we opt to focus our entire life satisfaction estimates based on the same individual before and after marriage.

Our estimates use a standard panel data technique, namely three versions of the fixed effects model.¹³ Given that the existing ordered logit fixed effect model is quite

¹³ Another standard methodology that is used to analyse panel data is the Random Effects model. The underlying assumption of the Random Effects model is that the unobservable, time invariant characteristics, which are captured in the fixed effect term, α_i , are uncorrelated with the control variables. We refrain from presenting the

restrictive in its assumptions, we collapse the life satisfaction variable into a binary variable (0,1). The variable takes the value of 1 if a high life satisfaction score is reported and 0 otherwise.¹⁴ Subsequently, the estimation can take place using Chamberlain's (1980) conditional fixed effect logit estimator.

Lets assume the following underlying model:

$$\begin{aligned} y^*_{it} &= \alpha_i + x'_{it}\beta + \varepsilon_{it} \\ i &= 1, \dots, n \\ t &= 1, \dots, T_i \end{aligned} \tag{2}$$

Where y^*_{it} is a continuous latent unobserved index of self reported life satisfaction of individual i at time t . x'_{it} is a vector of explanatory variables with ε_{it} representing an unobserved error term and α_i is a fixed effect term that takes account differences in the underlying satisfaction and unobservable time invariant characteristics. Since we do not directly observe y^*_{it} , we assume that an individual chooses a life satisfaction level if it exceeds a certain threshold level, which can be set to zero without loss of generality. Consequently, we observe the following:

$$y_{it} = \begin{cases} 1 & \text{if } y^*_{it} \geq 0 \\ 0 & \text{otherwise} \end{cases} \tag{3}$$

we can estimate the probability that $y_{it} = 1$ for a given x_i as

$$\Pr(y_{it} = 1 | \alpha_i, x_{it}) = \frac{\exp(\alpha_i + x'_i \hat{\beta})}{1 + \exp(\alpha_i + x'_i \hat{\beta})} \tag{4}$$

Chamberlain's conditional fixed effects method estimates coefficients conditional on the number of ones and ignores individuals with no variations. That is, the conditional likelihood function is free of the individual specific effects parameter by α_i .

The problem with the method of estimation is that it is only concerned with those observations that move across the arbitrary cut point, in this case any observations

results of this model in our main discussion, as we believe that the unobservable characteristics are correlated with the control variables. The error term, in this case, would capture traits such as motivation, personality and psychology traits, all of which could influence the decision to partner and overall life satisfaction.

¹⁴ For the purposes of the main analysis, we have defined a high life satisfaction score as being 7 or above. Crouchley(1995) points out that if the model for a dependent variable is correctly specified, then the co-efficients of the β are not affected by the choice of an arbitrary cut point. However, in the robustness checks, we relax this cut point to test the sensitivity of our results.

that in any given two waves move above or below a life satisfaction level of 7. In doing so the conditional fixed effects estimation discards all observations with no variation, and therefore, could be potentially discarding a large amount of information.

To account for this problem we employ as one of our estimation techniques an ordered logit method in which we introduce individual level specific cut points (Ferrer-i-Carbonell & Frijters 2004). The authors show that by introducing individual specific cut points, the ordered fixed effects logit model is akin to a binary fixed effects model. Subsequently, this model can then be estimated using Chamberlain's conditional fixed effects method. Therefore, instead of choosing an "across the board" cut point we formulate an individual specific cut point by following Booth & Van Ours (2005), where the individual specific cut point, k_i , is calculated as the individual's average happiness over the number of waves we observe that same individual. More formally, in our estimations;

$$k_i = \sum \frac{y_{it}}{n_i} \quad (5)$$

where: y = self reported life satisfaction score of individual i

n = the total number of observable observations of individual i

Therefore our life satisfaction dependant variable is defined as:

$$z_i = \begin{cases} 1 & \text{if } y_{it} > k_i \\ 0 & \text{otherwise} \end{cases} \quad (6)$$

The advantage of this methodology is that by using individual specific averages to define the cut points then, by definition; we have at least one observation above and one observation below the average for an individual that we observe over at least a two wave period.

The final fixed effects estimation technique is the fixed effects OLS model, which takes the form of Equation 2 above. The OLS results provide us with a point estimate of the effects our control variables have on an individual's reported life satisfaction.

Data and Descriptive Statistics¹⁵

For the empirical analysis we use an unbalanced panel from the first 4 waves of the HILDA survey. The HILDA survey is well suited to investigate matters of partnership and life satisfaction since it has information on partnership formation (both legally married and cohabiting) along with attitudinal variables about the individuals and their roles within a partnership. In addition, HILDA also provides information on how satisfied an individual is in their life. It is this information that forms the basis of our life satisfaction variable.

Along with these partnership and life satisfaction variables, HILDA also contains information on other variables that potentially could impact on the decision to partner and an individual's overall happiness, such as income, age, sex, labour force participation, health status and number of offspring. For the purposes of the descriptive statistics and regression analysis to follow below, we include all individuals (i.e. single, widowed etc), but we limit the sample to those who are working age (i.e. aged between 16 and 64) since we believe that those individuals who are at retirement age are systematically different to the working age population.

3.1 Life Satisfaction

The level of life satisfaction is an ordinally ranked variable that takes a number between 0 and 10 inclusive. The life satisfaction question is phrased as following: “All things considered, how satisfied are you with your life? Again pick a number between 0 and 10 to indicate how satisfied you are”.

Table 1 below presents the distribution of the responses to the above-mentioned question disaggregated by sex. The table reports that 8 percent of males and females report a life satisfaction of between 0 – 5, 60 percent and 56 percent of male and females respectively report a life satisfaction between 6 – 8 with 31 and 36 percent of males and females reporting life satisfaction of 9 or 10. Overall, there is a similar distribution of answers between males and females, with over 85 percent of the

¹⁵ Although they will not be discussed in this section, descriptive statistics on all controlling variables used in the analysis can be found in the Appendix – Table 1.

respondents reporting a life satisfaction score of between 7 and 10. Given the results of the Table 1, it is now natural ask if these patterns change across the different waves.

Table 1: Disaggregated Life Satisfaction by Gender

Life Satisfaction	Male		Female	
	Number	Percentage	Number	Percentage
0	42	0.2	52	0.24
1	41	0.2	43	0.19
2	103	0.5	96	0.43
3	202	0.98	170	0.77
4	330	1.61	303	1.37
5	973	4.74	1,119	5.06
6	1,439	7.01	1,310	5.93
7	4,180	20.36	4,150	18.78
8	765	32.95	6,922	31.32
9	3,998	19.47	4,766	21.57
10	2,459	11.98	3,168	14.34
Total	20,532	100	22,099	100

Notes: 1. Based on the Life Satisfaction variable as described in HILDA.

2. Data is based on the pooled, unbalanced panel

3. Data represents those individuals aged 16-64 only

Source: Household, Income and Labour in Australia Survey, Waves 1-4

Table 2 below presents life satisfaction results disaggregated by sex and by wave and provides us with a rudimentary way of exploring how life satisfaction patterns of both males and females have changed. The results also indicate that a similar proportion of males and females report a life satisfaction score of between 7-10 across the different waves. The table indicates that 84-85 percent and 85-87 percent of males and females respectively, report a life satisfaction of between 7 and 10.

Table 2: Disaggregated Life Satisfaction by Wave and Gender

	Wave 1	Wave 2	Wave 3	Wave 4
Life Satisfaction	<i>Gender: Male</i>			
0	16	7	10	9
1	8	9	13	11
2	38	28	13	24
3	62	47	44	49
4	84	82	81	83
5	264	292	217	200
6	393	351	347	348
7	1046	1,117	1,012	1005
8	1,683	1,700	1,711	1,671
9	991	965	1,062	980
10	800	607	540	512
Total	5385	5205	5050	4892
	<i>Gender: Females</i>			
0	15	13	13	11
1	17	10	12	4
2	22	27	21	26
3	45	44	47	34
4	73	86	83	61
5	334	312	224	249
6	330	360	317	303
7	984	1,111	1,017	1038
8	1,712	1,724	1,749	1,737
9	1,102	1,180	1,311	1,173
10	981	758	724	705
Total	5615	5625	5518	5341

Notes: 1. Results based on the Life Satisfaction variable as described
in HILDA 2. Data Represents those individuals aged 16-64 only
Source: Household, Income and Labour in Australia Survey, Waves 1-4

As part of the HILDA survey individuals are asked to report on their current marital status. Much of the psychology and sociology literature points to the fact that those individuals that are partnered exhibit greater life satisfaction. Table 3 presents the results of life satisfaction disaggregated by marital status and sex.

Table 3: Disaggregated Life Satisfaction by Marital Status

	Married	Cohabiting	Separated	Divorced	Widowed	Single
Life Satisfaction	<i>Gender: Male</i>					
0	9	1	8	6	0	18
1	11	1	8	4	2	15
2	32	11	13	22	0	25
3	66	14	24	27	2	69
4	121	30	32	38	1	108
5	365	88	81	100	10	329
6	596	136	77	134	6	490
7	1,953	470	143	284	16	1,314
8	3,728	667	167	423	21	1,759
9	2,294	361	79	221	7	1,036
10	1,313	207	65	137	20	717
Total	10,488	1,986	697	1,396	85	5,880
	<i>Gender: Female</i>					
0	10	2	12	12	2	14
1	11	4	9	4	1	14
2	30	6	12	22	4	22
3	60	13	22	31	2	42
4	108	25	28	51	18	73
5	409	101	136	193	32	248
6	541	121	92	168	36	352
7	1,873	428	207	416	81	1,145
8	3,628	712	293	605	150	1,534
9	2,885	423	113	332	116	897
10	1,912	271	82	213	86	604
Total	11,467	2,106	1,006	2,047	528	4,945

Notes: 1. Based on the Life Satisfaction variable as described in HILDA.

2. Data is based on the pooled, unbalanced panel

3. Data represents those individuals aged 16-64 only

Source: Household, Income and Labour in Australia Survey, Waves 1-4

For those individuals that report a life satisfaction score between 7 and 10, the results indicate that for those legally married individuals their life satisfaction, as a proportion of the entire sample, is slightly greater than other marital status categories reported by HILDA. Table 3 also reports that 89 percent of legally married males and females respectively report having a life satisfaction of between 7 and 10. Surprisingly, as a proportion of the entire sample, those individuals that are in a cohabiting relationship report some of the lowest life satisfaction scores as a proportion of the rest of the sample. Only 64 and 69 percent of males and female respectively report having a life satisfaction score between 7-10.

Table 4 presents the results of the proportion of each group that reports their life satisfaction level at 7 or above by gender and duration of partnership.¹⁶ A similar proportion of males and females with short-term married relationships report a high satisfaction level (89.79% for males; 90.51 for females). The magnitude of the result is slightly less for long term married but the proportions between the two genders remains roughly the same (88.14% for males; 89.58% for females). In general, there is a greater proportion of females who report a high satisfaction level.

Table 4: Proportion with High Satisfaction by Gender and Partnership Duration

	Male	Female
Short Term Married	89.79	90.51
Long Term Married	88.14	89.58
Other	81.57	83.69

Notes: 1. Long term described as being in a partnership of 7 years or more
 2. Data represents those individuals aged 16-64 only
 3. "Other" refers to those single, widow or divorced

Source: Household, Income and Labour in Australia Survey, Waves 1-4

Following, Table 5 presents the results of the proportion of individuals by gender and duration disaggregated by wave. It provides a guide as to the stability of each group who reports a high life satisfaction level. For both males and females alike, the proportion of short-term and long-term married individuals reporting a high satisfaction level is quite stable, with the results ranging 88 -90 percent for both genders. Once again, for the majority of waves, a greater proportion of females compared to males report a high satisfaction level across the four waves.

¹⁶ For the purposes of this graph, we have defined long-term and short-term partnership durations. Long-term is defined as being in a legally married partnership for 7 years or more.

Table 5: Proportion with High Satisfaction by Gender and Partnership Duration Disaggregated by Wave

	Wave 1	Wave 2	Wave 3	Wave 4
<i>Gender: Male</i>				
Short Term Married	90.59	89.13	89.59	89.77
Long Term Married	88.14	87.39	88.89	88.19
Other	79.25	81.75	83.11	82.45
<i>Gender: Female</i>				
Short Term Married	90.26	89.6	90.53	91.72
Long Term Married	89.53	88.46	90.14	90.29
Other	83.39	82.14	84.12	85.23

Notes: 1. Long term described as being in a partnership of 7 years or more

2. Data represents those individuals aged 16-64 only

3. "Other" refers to those single, widow or divorced

Source: Household, Income and Labour in Australia Survey, Waves 1-4

3.2 Happiness Around the Time of Marriage

Given that the nature of our empirical work will be focusing on the same person before and after marriage, it is natural to preliminarily investigate the flow of people into marriage. The following section graphically investigates how happiness changes around the year of marriage. Figures 1 and 2 below looks at the flow of people into marriage within the HILDA sample and, further, how their average level of life satisfaction has changed in the time periods around the year of marriage. 95 percent confidence intervals are presented in addition to mean results. The preliminary results are based on a sub-sample size of 544 observations. The results are disaggregated by sex with Figures 1A and 2A presenting the raw averages (i.e. without controls) for males and females respectively; Figures 1B and 2B present the controlled averages (i.e. after controlling for age, income, labour force status, number of children etc) for males and females respectively and are calculated from those individuals that marry within the panel only and are based on some 2500 observations of 544 individuals.

Figure 1A: Average Male Life Satisfaction - Before, At and After Marriage (Raw)

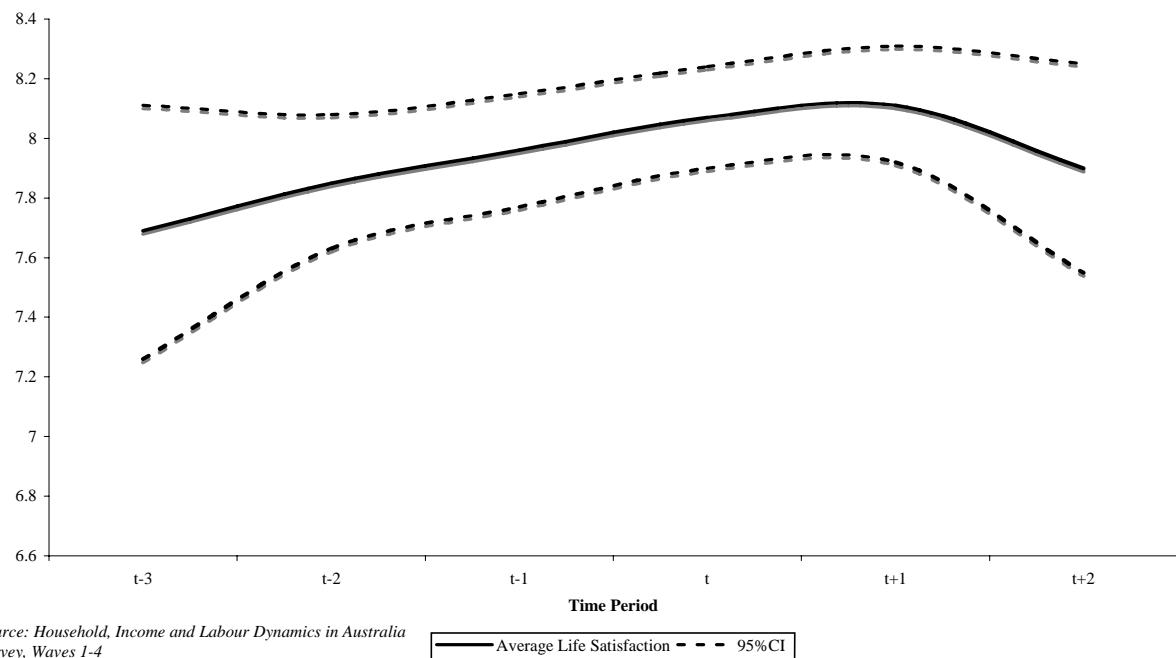


Figure 1B: Average Male Life Satisfaction - Before, At and After Marriage (Controlled)

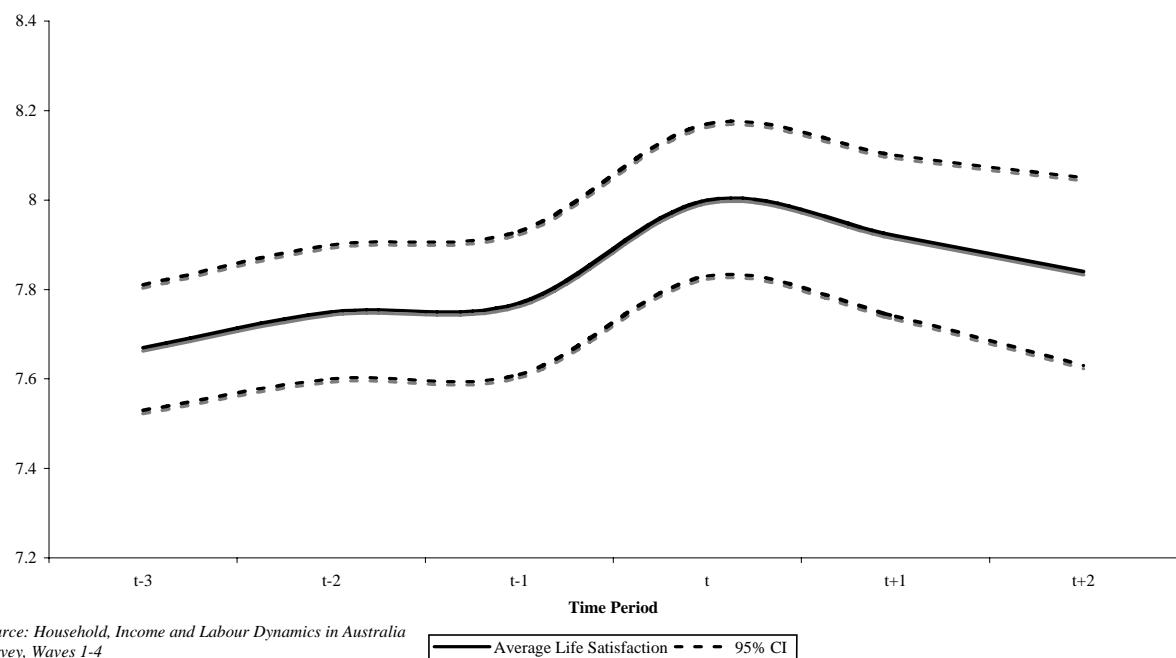


Figure 1A above presents the raw average male life satisfaction in the time periods before, at and after marriage. For males, the general pattern in average life satisfaction is increasing even after the year of marriage. Average life satisfaction level fall in the second year after marriage. Figure 1B presents average male life satisfaction calculated after age, income, educational attainment, labour force status and number of children are controlled for. The results show a similar pattern to that of the raw data. Average male life satisfaction is an increasing function of time before marriage and a decreasing function after marriage, although not by much.

Figure 2A: Average Female Life Satisfaction - Before, At and After Marriage (Raw)

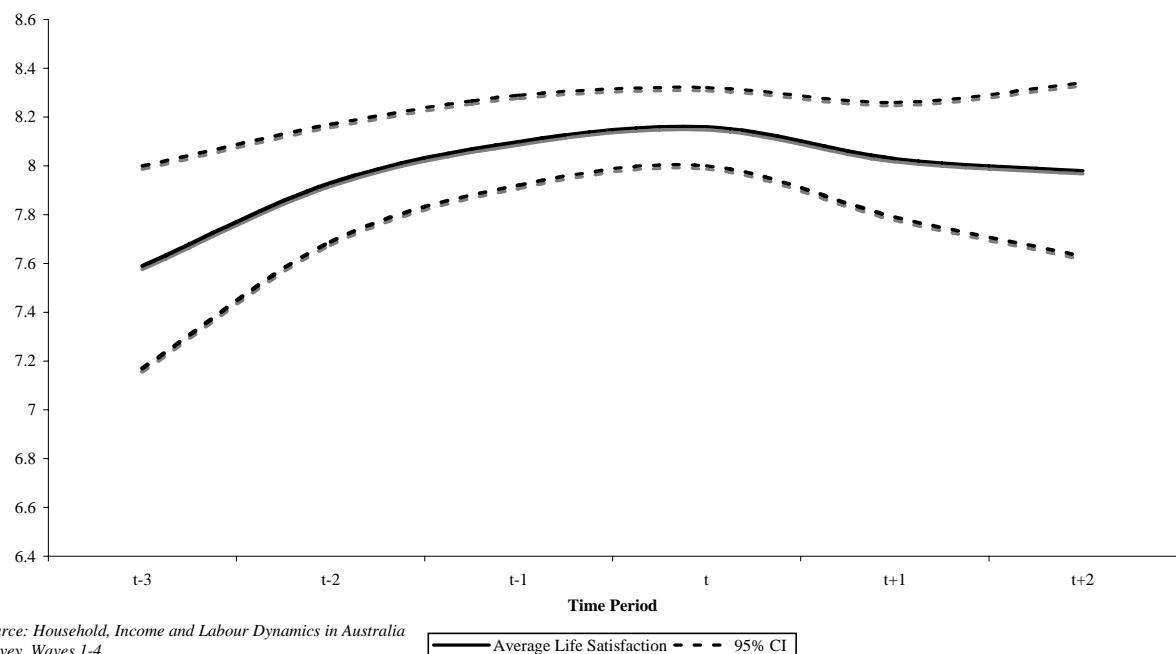


Figure 2B: Average Female Life Satisfaction - Before, At and After Marriage (Controlled)

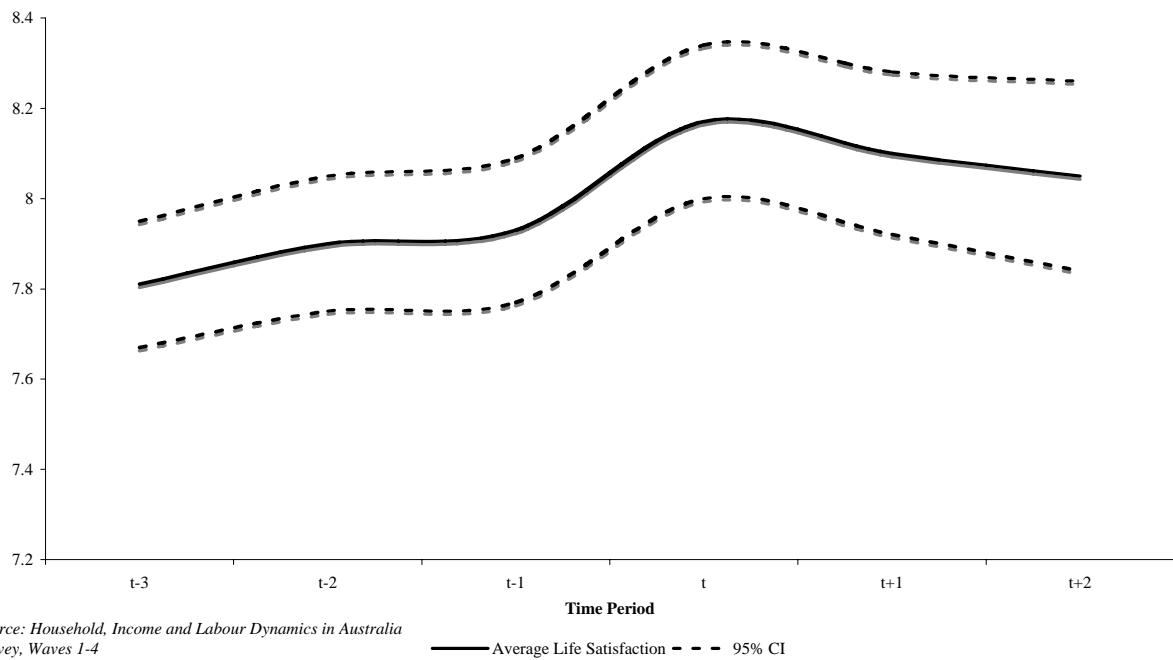


Figure 2A presents the raw results for females. The figure shows that for females, there is an inverted u-shaped pattern in the average level of life satisfaction. In the years preceding marriage the average level of life satisfaction increases, peaking in the year of marriage. Succeeding marriage, the average level of life satisfaction decreases.

Figure 2B presents the results for the average female after controlling for age, income, labour force status and number of children. The figure shows a clear pattern in the years around marriage. We see that there is a distinct upward trend in average life satisfaction in the years preceding marriage. Happiness, for females, peaks in the year of marriage, then decreases in the years succeeding marriage. The figure also indicates that the level of happiness in the two years after marriage is still higher than the level of happiness in the years before marriage.

3.3 Other Variables included in the Analysis

The estimations in Section 4 to follow include a range of other factors that may be correlated with life satisfaction. In line with the findings of other authors (Frijters 2004; Booth & Van Ours 2005; Carroll 2006) we control for factors that have been

shown to impact on life satisfaction. These variables include labour force status, income, education, age and state of residence.

Table A1 in the appendix reports the summary statistics for the variables used in the various estimation models. The average age for the sample across the four waves is 39 years, with between 51-52 percent of the sample female. 50 percent are employed fulltime with 23 percent being employed part-time; 4-5 percent are unemployed; 23 percent are not in the work force. Other important statistics include: 25 percent report having a kid in the household aged 5-14; around 60 percent report being legal married, with this result being quite stable across the four waves; and income is \$23,000 in wave 1 to \$27,500 in wave 4 (in respective year dollars).

4 Results

From Section 3 we saw that legally married individuals, compared to all other individuals, were more likely to report a higher self reported life satisfaction score. To examine the degree to which life satisfaction differences are driven by observable and unobserved characteristics, we introduce results from several different fixed effects regression procedures based on the unbalanced panel. These procedures are fixed effects OLS and the fixed effects logit both standard and accounting for individual specific cut points.

4.1 *The Relationship Between Marriage and Life Satisfaction: Does Marriage Make You Happier?*¹⁷

Given our proposed research questions, it is natural to begin our analysis by asking whether legally married Australians are in fact happier than their non-partnered counterparts. Results are presented below in Table 6. All results are presented as odds ratios, except for Specification 2, which presents the co-efficients based on the OLS estimates. Odds ratios are interpreted in the following way; a co-efficient greater than 1 implies that the independent variable exerts a positive influence on the chosen dependant variable. More specifically, if the independent variable increases in size there is a higher likelihood of reporting a high life satisfaction. Three specifications of

¹⁷ For the purpose of the main part of this paper, results for the variables of interest will only be presented. Results and effects of all other controlling variables are presented separately in the appendix.

our econometric model are presented, with each specification estimated separately for males and female alike.

Table 6: Results of Various Regression Estimations of Life Satisfaction and Marriage

ls	Specification1 Fixed Effects (Logit) (ls>7)		Specification2 Fixed Effects (OLS)		Specification 3 Ferrer/Frijters (ls>k)	
	Male	Female	Male	Female	Male	Female
Married	2.31*** (0.474)	1.63*** (0.279)	0.732*** (0.110)	0.387*** (0.108)	2.35*** (0.362)	1.52*** (0.204)
Age	0.87* (0.064)	0.86** (0.060)	-0.088*** (0.030)	-0.074** (0.030)	0.84*** (0.043)	0.85*** (0.043)
Age^2	1.00* (0.001)	1.00** (0.001)	0.001** (0.000)	0.001*** (0.000)	1.00** (0.001)	1.00*** (0.001)
Inc ('000)	1.00 (0.002)	1.01 (0.003)	0.002 (0.001)	0.001 (0.001)	1.00 (0.001)	1.00 (0.002)
Inc^2 ('000)	1.00 (0.000)	1.00 (0.000)	0.000 (0.000)	0.000 (0.000)	1.00 (0.000)	1.00 (0.000)
Employ: FT	1.47** (0.237)	1.00 (0.176)	0.222*** (0.082)	0.133 (0.082)	1.37*** (0.163)	1.13 (0.142)
Employ: PT	1.45** (0.232)	1.28 (0.199)	0.191** (0.080)	0.212*** (0.076)	1.34** (0.158)	1.35*** (0.151)
NIW	1.38** (0.226)	1.45** (0.216)	0.144* (0.086)	0.198** (0.076)	1.25* (0.149)	1.32** (0.142)
Offspring:	YES	YES	YES	YES	YES	YES
Education:	YES	YES	YES	YES	YES	YES
Duration:	YES	YES	YES	YES	YES	YES

Notes: 1. Base categories for comparison - Labour Force Status: Unemployed 2. Offspring and Education dummies variables and Marriage Duration were controlled for but not presented.
 3. Results are based on a sample where individuals were aged 16-64 and married only
 4. *** Significant at 1%, ** Significant at 5%, * Significant at 10% 5. Specification 1 is based on the pooled sample. Results in Specification 2 and 3 calculated on the unbalanced panel 6. Standard Errors presented in parenthesis for Spec1 & 3; Robust SE for Spec 2

Source: Household, Income and Labour in Australia Survey, Waves 1-4

Specification 1 results are from a fixed effects logit model, which controls for time invariant unobserved individual level characteristics. The dependant life satisfaction variable equals 1 if life satisfaction is greater than 7, zero otherwise. The estimate is based on an individual level sample. The results are estimated using Chamberlain's conditional fixed effects estimator.

The first result that emerges from Specification 1 is that a married male is 131 percent more likely to report a high life satisfaction level (once income, age education, labour

force participation, duration of partnership and family characteristics are controlled for). However, for females, the results are different once unobserved heterogeneity is controlled for. The effect of marriage is positive, although the effect is much less, with a married female now 63 percent more likely to report a high life satisfaction level.

Specification 2 in Table 6 provides results from an OLS fixed effects estimation. The co-efficients on the married variable confirms our finding in Specification 1. We find that for both men and women marriage is associated with a significant increase in life satisfaction. The point estimates shows that married men, on average, report a life satisfaction level that is 0.73 higher than other individual within the sample. Similarly for females, the co-efficient indicates that a married woman reports a life satisfaction level that is on average 0.39 higher than all other individuals.

Our final specification employs a method of estimation where individual specific cut points are introduced. The major criticism of the conditional fixed effects estimation is that it is only concerned with those observations that cross over a common arbitrary threshold, thereby discarding potential information. By introducing individual specific thresholds we are able to create more variation within the dependant variable and keep in our sample any individual with two or more observations within the panel.

Specification 3 provides the results from the fixed effects with individual specific cut point estimation. Once again the results indicate a positive relationship between being married and life satisfaction. For males the marriage effect is slightly stronger than under the standard fixed effects models. A married male is 135 percent more likely to report a high life satisfaction level. This is in contrast to the effect found in Carroll (2007). Although both estimates exerts a positive influence on the level of life satisfaction, our result is much less than other authors with Carroll (2007) finding that a married male is 196 percent more likely to report a higher life satisfaction level.¹⁸

For females the effect of marriage is much less pronounced. A married female is more likely to report a high satisfaction level by 52 percent. Once again this result is much

¹⁸ Apart from having different control variables, Carroll (2007) includes all cohabiting couple in their estimation, a sub group that we have excluded from our estimation.

less positive than under the fixed effects and pooled regression models and in contrast to the female results presented in Carroll (2007) with the author finding married females having an 85 percent greater likelihood of reporting high happiness levels.

In summary, we find significant effects of a positive relationship between marriage and the level of self reported life satisfaction. This result is true for both females and males alike, with the probability of reporting high levels of happiness much greater for male than for females. For males, the results remain positive and quite stable across the two different logit specifications (i.e. after controlling for unobserved heterogeneity and introducing individual specific cut points). Females are more likely to report a high level of life satisfaction with the result smaller in size, compared to males, when unobserved heterogeneity and individual specific cut points are controlled for. The point estimate also indicates that both married males and married females report a higher life satisfaction, with the happiness benefit being much greater for males than it is for females.

4.2 *How much is Marriage Worth to You?*

The following sub section asks the following question, “if marriage in fact does make you happier, then how much is it worth?” Male and female results are presented for comparison.

For males, the decision to marry is the equivalent of receiving an additional \$136,000 in annual individual income. The additional income figure is similarly large for females albeit smaller than the result for males with additional \$122,000 in annual income required for a single female to experience the same levels of life satisfaction as those females that are married.¹⁹

¹⁹ Both figures are calculated from the results presented in Specification 1 and are calculated as follows:
 $x = \ln(1/\beta_1(\text{married})/\ln(\beta_2\text{income}))$

4.3 The Indirect Effects of Spouses' Education on Life Satisfaction²⁰

Following on from our initial analysis of whether married individuals are significantly happier than their non-partnered counterparts, we further examine the idea that your spouse's education can have some indirect influence on the level of self-reported life satisfaction. Table 7 below presents the results of the effects of spousal education, as measured in years of schooling, on an individual's level of life satisfaction. Similar to the previous section, three econometric models are introduced; logit fixed effects; OLS fixed effects and logit fixed effects with individual specific cut points. All co-efficients are once again odds ratios except for Specification 2. The variable of interest is the co-efficient on the "spouses education" variable as measured by number of years of schooling. We interpret this as the extra happiness effect a married person gains from their spouse's education.

Specification 1 of Table 7 presents the logit fixed effects results, with Specification 2 providing results for the OLS fixed effects model. These results provide contrasting results for both men and women. For men the logit fixed effects results reveal that spousal education has a positive and significant effect on the likelihood of a high happiness level. If you are married, for every one more year of education your spouse has the likelihood that you will report a high level of happiness (i.e. above a score of 7) increases by 8 percent. In fact, closer inspection reveals that within the fixed effects framework the co-efficient for the married variable, although still positive, now becomes insignificant with the inclusion of the spousal education variable. However, the point estimates in Specification 2 indicate that a married male reports a significantly higher level of life satisfaction compared to all other individuals. The results indicate a married male reports, on average, a life satisfaction score that is 0.475 higher than other male counterparts. This provides us with an interesting finding in conjunction with the logit fixed effects in Specification 1. For a male, being married does not make it more likely that you will experience a high level of life satisfaction, but marriage will make you significantly happier.

²⁰ As a robustness check we defined spousal education as a three level category variable indicating whether the spouse had a High (University), Medium (Other Post School) or Low (High School or below) education. This change in specification did not change our results.

Table 7: Results of Various Regression Estimations of Life Satisfaction, Marriage and Spousal Education

ls	Specification1 Fixed Effects (Logit) (ls>7)		Specification2 Fixed Effects (OLS)		Specification 3 Ferrer/Frijters (ls>k)	
	Male	Female	Male	Female	Male	Female
Married	1.02 (0.446)	2.15** (0.758)	0.475** (0.211)	0.423*** (0.150)	1.48 (0.462)	1.52* (0.363)
Spouse Educ	1.08** (0.041)	0.975 (0.027)	0.024 (0.016)	-0.003 (0.010)	1.04* (0.027)	1.00 (0.018)
Age	0.87* (0.064)	0.86** (0.060)	-0.089*** (0.030)	-0.074** (0.030)	0.84*** (0.043)	0.85*** (0.043)
Age^2	1.00* (0.001)	1.00** (0.001)	0.001** (0.000)	0.001*** (0.000)	1.00** (0.001)	1.00*** (0.001)
Inc ('000)	1.00 (0.002)	1.01 (0.003)	0.002** (0.001)	0.001 (0.001)	1.00 (0.001)	1.00 (0.002)
Inc^2 ('000)	1.00 (0.000)	1.00 (0.000)	0.000 (0.000)	0.000 (0.000)	1.00 (0.000)	1.00 (0.000)
Employ: FT	1.47** (0.237)	0.99 (0.175)	0.222* (0.082)	0.133 (0.082)	1.37*** (0.163)	1.13 (0.142)
Employ: PT	1.45** (0.233)	1.27 (0.198)	0.192** (0.080)	0.211*** (0.076)	1.34** (0.159)	1.35*** (0.151)
NIW	1.38** (0.226)	1.45** (0.215)	0.144* (0.086)	0.198** (0.076)	1.25* (0.149)	1.32** (0.142)
Offspring:	YES	YES	YES	YES	YES	YES
Education:	YES	YES	YES	YES	YES	YES
Duration:	YES	YES	YES	YES	YES	YES

Notes: 1. Base categories for comparison - Labour Force Status: Unemployed 2. Offspring and Education dummies variables and Marriage Duration were controlled for but not presented.

3. Results are based on a sample where individuals were aged 16-64 and married only

4. *** Significant at 1%, ** Significant at 5%, * Significant at 10% 5. Specification 1 is based on the pooled sample. Results in Specification 2 and 3 calculated on the unbalanced panel 6. Standard Errors presented in parenthesis for Spec1 & 3; Robust SE for Spec 2

Source: Household, Income and Labour in Australia Survey, Waves 1-4

However, for women a different pattern emerges. The inclusion of spousal education decreases the effect of the married variable, compared to results in the comparable specification in Table 6. A married female is now more likely to report a high level of happiness by 115 percent. The result in Specification 2 confirms this finding, with a married female reporting a happiness level 0.42 higher than other female counterparts. The spousal education term indicates that spouse's education for females has a negative relationship with and individual's happiness, although the result is not significant. This results is confirmed, once again, in Specification 2 with the coefficient on spousal education have a negative sign. The result is again not significant.

The final specification of Table 7 introduces the results with individual level specific cut points. Once again different patterns emerge for men and women. For men, the magnitude of the spousal education co-efficient has decreased with every one more year of education your spouse obtains increasing your likelihood of reporting a high satisfaction level by 4 percent. Compared to the standard fixed effect results of 8 percent, this result represents a halving in the effect of spousal education conditional on being married. The effect of being married is positive and increases the likelihood of reports high life satisfaction by 48 percent, although, once again, this result is not significant.

Turning attention to the results for women, the co-efficient for spouse education is now positive but not significant. So we conclude that for married women the level of spousal education, as measured by years of education, has not significant influence on the likelihood of reporting a high happiness level. The inclusion of individual specific cut points for females has decreased the effect of the marriage variable under this fixed effects framework a married female is 50 percent more likely to report a high life satisfaction level, down from 115 percent in the standard fixed effect model.

4.4 Do Differences in Education Make You Happier?

The next question that we ask, and one of the main focuses of this paper is how does the difference between an individual's education and the education level of their spouse affect an individuals self-reported life satisfaction? Table 8 below presents the results of the effects of spousal education, as measured in years of schooling, on an individual's level of life satisfaction. Similar to the previous section, three econometric models are introduced, fixed effects logit/ OLS and fixed effects with individual specific cut points. All co-efficients are once again odds ratios, with the exception of Specification 2. The variable of interest is the co-efficient on the "education difference" variable, which measures the absolute difference between an individual's years of schooling and their spouse's years of schooling. We interpret this effect as the extra happiness a married person obtains from the difference in educational levels between themselves and their spouse.

Table 8: Results of Various Regression Estimations of Life Satisfaction, Marriage, Spousal Education and Education Differences

ls	Specification1 Fixed Effects (Logit) (ls>7)		Specification2 Fixed Effects (OLS)		Specification 3 Ferrer/Frijters (ls>k)	
	Male	Female	Male	Female	Male	Female
Married	1.08 (0.526)	2.15** (0.758)	0.534** (0.244)	0.393** (0.153)	1.50 (0.530)	1.43 (0.347)
Spouse Educ	1.08** (0.042)	0.97 (0.028)	0.021 (0.017)	-0.005 (0.010)	1.04 (0.028)	1.00 (0.018)
Educ. Diff	0.99 (0.040)	1.00 (0.030)	-0.010 (0.019)	0.019* (0.011)	1.00 (0.028)	1.03 (0.020)
Age	0.87* (0.064)	0.86** (0.060)	-0.09*** (0.030)	-0.073** (0.030)	0.84*** (0.043)	0.85*** (0.043)
Age^2	1.00* (0.001)	1.00** (0.001)	0.001** (0.000)	0.001*** (0.000)	1.00** (0.001)	1.00*** (0.001)
Inc ('000)	1.00 (0.002)	1.01 (0.003)	0.002** (0.001)	0.001 (0.001)	1.00 (0.001)	1.00 (0.002)
Inc^2 ('000)	1.00 (0.000)	1.00 (0.000)	0.000 (0.000)	0.000 (0.000)	1.00 (0.000)	1.00 (0.000)
Employ: FT	1.47** (0.238)	0.99 (0.175)	0.222*** (0.082)	0.133 (0.082)	1.37*** (0.163)	1.13 (0.142)
Employ: PT	1.45** (0.233)	1.27 (0.198)	0.193** (0.080)	0.212*** (0.076)	1.34** (0.159)	1.35*** (0.151)
NIW	1.38** (0.226)	1.45** (0.215)	0.145* (0.086)	0.197** (0.076)	1.25* (0.149)	1.32** (0.141)
Offspring:	YES	YES	YES	YES	YES	YES
Education:	YES	YES	YES	YES	YES	YES
Duration:	YES	YES	YES	YES	YES	YES

Notes: 1. Base categories for comparison - Labour Force Status: Unemployed 2. Offspring and Education dummies variables and Marriage Duration were controlled for but not presented.
 3. Results are based on a sample where individuals were aged 16-64 and married only
 4. *** Significant at 1%, ** Significant at 5%, * Significant at 10% 5. Specification 1 is based on the pooled sample. Results in Specification 2 and 3 calculated on the unbalanced panel 6. Standard Errors presented in parenthesis for Spec1 & 3; Robust SE for Spec 2

Source: Household, Income and Labour in Australia Survey, Waves 1-4

Specification One of Table 8 presents the logit fixed effects results, with the model estimated for each gender separately. The results presented provide a contrast between men and women. First, turning our attention to the results for females. Our findings indicate the difference between partners' education levels has an extra happiness effect. More specifically, educational differences do not increase the likelihood of reporting a high satisfaction level, however, the positive co-efficient in Specification 2 indicates that the larger the educational difference, the happier a married female is. For males, however, once marital status and spousal education are

controlled for, the results indicate educational differences have no positive effect. In fact, the odds ratio result indicates that males are less likely to have a high satisfaction level. The negative co-efficient in Specification 2 confirms this result.

Other results confirm findings presented in previous sections. Married females are not only happier but are more likely (by 115 percent) to report a high satisfaction level. Where as for males, marriage makes them happier, in terms of levels (Specification 2) but they are unlikely to report a high satisfaction level. Spousal education only has an effect on males with every year extra year of education that a spouse has, increases the likelihood that male will report a life satisfaction level by 8 percent.

The final specification presents the results with individual specific cut-points. In this model we find once again find no evidence to suggest that the difference between partners education levels exert an extra happiness premium. In fact we can see that the effects of marriage, spousal education and education differences for both males and females, exhibit no significant relationship with reported life satisfaction.

5 Conclusion

In this paper we have investigated four main premises; Does marriage make you happy?; If so does your spouse's education have any extra indirect effect on your own happiness and to what extent to those difference in education level affect your own happiness? Finally, how is your happiness affected around the time of marriage?

Results indicate that there are marked differences in the effects of marriage; spousal education and education difference on self reported life satisfaction. On average, married people are happier than their non-partnered contemporaries with average happiness increasing, and then decreasing, in the years preceding and succeeding the year of marriage. Of those who are married, the wife is more likely to report higher levels of happiness than the husband. In addition, the husband tends to be more educated than the wife, but the higher the education level of the wife, the happier the husband is. Further, the educational differences between the husband and wife seem to have an extra happiness premium for the wife only.

Of course, these findings raise more questions. From a consumption point of view, if economic theory suggests that two highly educated individuals to a marriage should be happier then why is it that a highly educated wife makes a husband happier but not the reverse? Why do differences in education only make wives happier? Why do we see a difference in the happiness gains between married males and females? Further, why is it that we see an increase and then decrease in average happiness levels in the years before and after marriage? To answer these questions we can only speculate.

It may have something to do with personal preferences for certain characteristics in a partner. Women may prefer males that are higher educated than themselves to ensure financial security. Males may prefer the consumption benefits of a highly educated spouse. Or maybe it is just a case of negative assortative mating, that is, opposites really do attract. Whatever the answer, we do know one thing - marriage makes you happier.

References

- Becker, Gary S. (1973): “A Theory of Marriage: Part 1”. *The Journal of Political Economy* 81: 813-846
- Becker, G.S; Landes, E and Michael, R.T (1977): “An Economic Analysis of Marital Instability”, *Journal of Political Economy* 85(6): 1141 - 1188
- Becker, Gary S. 1991: A Treatise on the Family, Cambridge: Harvard University Press
- Birch, E and Miller, P.W (2006): “How does Marriage Affect the Wages of Men in Australia?”, *The Economic Record* 82(257): 150 164
- Blanchflower, D.G and Oswald, A.J (2004): “Well-Being over time in Britain and the USA”, *Journal of Public Economics* 88: 1359 - 1386
- Blum, J.S and Mehrabian, A (1999): “Personality and temperament correlates of marital satisfaction”, *Journal of Personality* 67(1): 93 - 125
- Breusch, T and Gray, E (2004): “Does Marriage Improve the Wages of Men and Women in Australia?”, paper presented at the 12th Biennial Conference of the Australian Population Association, September, Canberra
- Booth, A.L and Van Ours, J.C (2005): “Hours of Work and Gender Identity: Does part-time Work Make the Family Happier?”, Unpublished Working Paper, Centre for Economic Policy Research Discussion Paper Series No. 507
- Brown, S.L and Booth, A (1996): “Cohabitation versus Marriage: A Comparison of Relationship Quality”, *Journal of Marriage and the Family* 58(3): 668 - 678
- Brynin, M and Francesconi, M (2004): “The Material Returns to Partnership: The Effects of Educational Matching on Labour Market Outcomes and Gender Equality”, *European Sociological Review* 20: 363 - 377
- Carroll, N.E (2006): “Essays on the consequence of Unemployment and Low Income”; ANU PhD thesis.
- Carroll, N.E (2007): “Unemployment and Psychological Well-Being”, *The Economic Record* (forthcoming)
- Coombs, R.H (1991): “Marital Status and Personal Well-Being: A Literature Review”, *Family Relations* 40: 97 - 102
- Crouchley, R (1995): “A Random-Effects Model for Ordered Categorical Data”, *Journal of the American Statistical Association* 90(430): 489-498
- Di Tella, R; MacCulloch, R.J and Oswald, A.J (2003): “The Macroeconomics of Happiness”, *The Review of Economics and Statistics* 85(4): 809 - 827

Easterlin, R.A (2001): "Income and Happiness: Towards a Unified Theory", *The Economic Journal* 111: 465 - 484

Easterlin, R.A (2003): "Inaugural Article: Explaining Happiness", Proceedings of the National Academy of Sciences of the United States of America 100(19): 11176 - 11183

Ermisch, J (2003): An Economic Analysis of the Family, Princeton University Press

Ferrer-i-Carbonell (2005): "Income and Well-being: An Empirical Analysis of the comparison income effect", *Journal of Public Economics* 89: 997 - 1019

Ferrer-i-Carbonell, A and Frijters, P (2004): "How Important is Methodology for the Estimates of the Determinants of Happiness?", *The Economic Journal* 114(Jul): 641 - 659

Frey, B.S and Stutzer, A (2002): "What can Economist Learn from Happiness Research?", *Journal of Economic Literature* 40(2): 402 - 435

Frey, B.S and Stutzer, A (2003): "Testing Theories of Happiness", Unpublished Working paper, University of Zurich Working paper series No. 147

Frey, B.S and Stutzer, A (2006): "Does marriage make people happy, or do happy people get married?", *The Journal of Socio-Economics* 35: 326 - 347

Frijters, P; Haisken-DeNew, J.P and Shields, M.A (2004): "Money Does Matter! Evidence from Increasing Real Income and Life Satisfaction", *The American Economic Review* 94(3): 730 - 740

Gaunt, R (2006): "Couple Similarity and Marital Satisfaction: Are Similar Spouses Happier?", *Journal of Personality* 74(5): 1401 - 1420

Geerken , M and Gove, W.R (1983): At Home and at Work: The Families Allocation of Labor, Beverley Hills: Sage, Glenn, Norval

Glenn, N.D and Weaver, C.N (1988): "The Changing Relationship of Marital Status to Report Happiness", *Journal of Marriage and the Family* 50(2): 317 - 324

Gardner, J and Oswald, A (2004): "How is mortality affected by money, marriage and stress?", *Journal of Health Economics* 23: 1181 - 1207

Gove, W.R; Hughes, M and Style, C.B (1983): "Does Marriage have Positive Effects on the Psychological Well-Being of the Individual?", *Journal of Health and Social Behaviour* 24(2): 122 – 131

Groot, W and Ven Den Brink, H.M (2002): "Age and Education Difference in Marriages and their effects on Life Satisfaction", *Journal of Happiness Studies* 3: 153 – 165

Hamerlijst, D.S (2001): “The changing distribution of Job Satisfaction”, *Journal of Human Resources* 36(1): 1-30

Hersch, J and Stratton, L.S (2000): “Household Specialisation and the Male Marriage Wage Premium”, *Industrial and Labor Relations Review* 54(1): 78 - 94

Koivumaa-Honkanen, H; Honkanen, R; Viiamaki, H; Heikkila, K; Kapiro, J and Koskenvuo, M (2001): “Life Satisfaction and Suicide: A 20-Year Follow-Up Study”, *The American Journal of Psychiatry* 158(3): 433 - 439

Korenman, S and Neumark, D (1991): “Does Marriage Really Make Men More Productive?”, *The Journal of Human Resources* 26(2): 282 - 307

Kotlikoff, L.J and Spivak, A (1981): “The Family as an Incomplete Annuities Market”, *Journal of Political Economy* 89(2): 372 - 391

Luo, S and Klohn, E.C (2005): “Assortative mating and marital Quality in Newlyweds: A Couple-Centred Approach”, *Journal of Personality and Social Psychology* 88(2): 304 - 326

Mare, R.D (1991): “Five Decades of Assortative Mating”, *The American Sociological Review* 52: 15 - 32

Pencavel, J (1998): “Assortative Mating by Schooling and the Work Behaviour of Wives and Husbands”, *The American Economic Review* 88(2): 326 - 329

Simon, R.W (2002): “Revisiting the Relationships among Gender, Marital Status and Mental Health”, *American Journal of Sociology* 107: 1065 - 1096

Simon, R.W and Marcussen, K (1999): “Marital Transitions, Marital Beliefs and Mental Health”, *Journal of Health and Social Behaviour* 40: 111 - 125

Stack, S (1990): “New micro level data on the impact of divorce on suicide, 1959-1980: A test of two theories”, *Journal of Marriage and the Family* 52(1): 119 – 127

Stack, S (1992): “Divorce and Suicide in Japan”, *Journal of Marriage and the Family* 54(2): 327 - 334

Stack, S and Eshleman, J.R (1998): “Marital Status and Happiness: A 17-Nation Study”, *Journal of Marriage and the Family* 60(2): 527 – 536

Vandenberg, S.G (1971): “Assortative Mating, or Who marries Whom?”, *Behaviour Genetics* 2(2/3): 127 – 157

Wilson, C.M and Oswald, C.M (2005): “How Does Marriage Affect Physical and Psychological Health”, Unpublished Working Paper, University of Warwick, Department of Economics Research Papers No. 728

Appendix - Table A1: Summary Statistics for selected variables by wave

Variable	Wave 1		Wave 2		Wave 3		Wave 4	
	Mean	Std. Dev.						
Life Satisfaction	7.86	1.648	7.78	1.571	7.86	1.528	7.84	1.520
Female	0.51	0.500	0.52	0.500	0.52	0.500	0.52	0.500
Age	38.58	13.163	38.98	13.153	38.97	13.264	38.99	13.362
Married	0.63	0.482	0.61	0.488	0.60	0.490	0.60	0.490
Duration of Marriage	12.13	12.874	12.36	12.981	12.21	12.976	11.99	13.028
Spouse Educ	6.86	5.765	6.54	5.898	6.44	5.947	6.46	6.008
Educ Diff	1.57	2.293	1.69	2.580	1.70	2.617	1.69	2.635
PhD/Masters	0.03	0.162	0.03	0.167	0.03	0.174	0.03	0.178
Grad.Dip	0.04	0.207	0.05	0.216	0.05	0.218	0.05	0.221
Bachelors	0.12	0.329	0.13	0.335	0.13	0.334	0.13	0.341
Ad.Dip	0.09	0.279	0.09	0.281	0.09	0.280	0.09	0.281
Cert 3 & 4	0.18	0.386	0.19	0.390	0.19	0.394	0.19	0.396
Cert1 & 2	0.01	0.088	0.01	0.093	0.01	0.099	0.01	0.105
Cert	0.00	0.070	0.00	0.068	0.01	0.071	0.01	0.072
Yr12	0.16	0.368	0.16	0.364	0.16	0.363	0.15	0.361
Yr11 or Below	0.36	0.481	0.35	0.477	0.34	0.474	0.33	0.470
Inc ('000)	23.07	29.131	24.28	29.290	25.58	30.986	27.49	36.920
Employ: FT	0.49	0.500	0.50	0.500	0.50	0.500	0.51	0.500
Employ: PT	0.22	0.411	0.23	0.418	0.23	0.419	0.23	0.421
Unemploy	0.05	0.217	0.04	0.207	0.04	0.195	0.04	0.188
NIW	0.24	0.428	0.23	0.423	0.23	0.420	0.22	0.417
Kids: 0-4	0.16	0.367	0.15	0.359	0.15	0.355	0.15	0.353
Kids: 5-14	0.25	0.435	0.25	0.434	0.25	0.435	0.25	0.433
Kids: 15-24	0.15	0.354	0.16	0.366	0.16	0.366	0.16	0.367
Kids: 25+	0.03	0.167	0.03	0.172	0.03	0.170	0.03	0.167
No. of observations	10998		10826		10548		10221	

Source: Household, Income and Labour in Australia Survey, Waves 1-4

Table A2: Results of Pooled Logit Regression on Life Satisfaction, Marriage, Spousal Education and Education Differences

ls	Specification 1 Pooled Logit (0-10)		Specification 2 Pooled Logit (0-10)		Specification 3 Pooled Logit (0-10)	
	Male	Female	Male	Female	Male	Female
Married	2.21*** (0.099)	2.28*** (0.082)	2.00*** (0.167)	1.81*** (0.150)	1.78*** (0.168)	1.74*** (0.148)
Spouse Educ	-	-	1.01 (0.007)	1.02*** (0.007)	1.01** (0.007)	1.02*** (0.007)
Educ. Diff	-	-	-	-	1.02*** (0.009)	1.02** (0.008)
Age	0.84*** (0.008)	0.91*** (0.008)	0.84*** (0.008)	0.91*** (0.008)	0.84*** (0.008)	0.91*** (0.008)
Age^2	1.00*** 0.000	1.00*** (0.000)	1.00*** (0.000)	1.00*** (0.000)	1.00*** (0.000)	1.00*** (0.000)
Inc ('000)	1.00*** (0.001)	1.00 (0.001)	1.00*** (0.001)	1.00 (0.001)	1.00*** (0.001)	1.00 (0.001)
Inc^2 ('000)	1.00 (0.000)	1.00 (0.000)	1.00 (0.000)	1.00 (0.000)	1.00 (0.000)	1.00 (0.000)
Employ: FT	1.72*** (0.137)	1.50*** (0.136)	1.72*** (0.137)	1.51*** (0.137)	1.73*** (0.138)	1.51*** (0.138)
Employ: PT	1.69*** (0.142)	1.77*** (0.148)	1.69*** (0.142)	1.77*** (0.148)	1.69*** (0.143)	1.77*** (0.148)
NIW	1.17* (0.095)	1.42*** (0.116)	1.17* (0.095)	1.43*** (0.117)	1.17* (0.096)	1.43*** (0.117)
Offspring:	YES	YES	YES	YES	YES	YES
Education:	YES	YES	YES	YES	YES	YES
Duration:	YES	YES	YES	YES	YES	YES

Notes: 1. Base categories for comparison - Labour Force Status: Unemployed 2. Offspring and Education dummies variables and Marriage Duration were controlled for but not presented.
 3. Results are based on a sample where individuals were aged 16-64 and married only
 4. *** Significant at 1%, ** Significant at 5%, * Significant at 10% 5. All Specifications are based on the pooled sample. 6. Standard Errors presented in parenthesis

Source: Household, Income and Labour in Australia Survey, Waves 1-4