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IS IGNORANCE BLISS?
Exploring the links between education, expectations and happiness¹

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Abstract: The emerging “happiness” literature within the economics discipline, which takes self-reported happiness as an alternative measure of wellbeing, has provided a number of challenges to the policy inferences drawn from analyses of wellbeing based on the traditional theory of utility. Much of the happiness literature has focused on how different demographic, personality and economic factors effect happiness, and particularly the importance of income. The results from multivariate regression models in a number of these papers have shown an unexpected negative relationship between educational attainment and happiness, although this result has largely passed without comment. In setting out to investigate this result, we anticipated that the negative association appeared because education has a positive effect on other variables, such as employment status, earnings and health, which are controlled for in the models. A reduced-form model that removed these indirect effects would, surely, show a positive relationship between education and happiness. Remarkably, we find that the negative relationship between higher educational attainment and happiness persists in such a model based on data from the Household, Income and Labour Dynamics in Australia Survey. We hypothesise that the relationship arises because of the interrelationships between individuals’ educational attainment and their life expectations, but tests of several model specifications designed to capture expectations do not negate the finding that more educated people are less happy. The results pose a quandary for the acceptance of self-reported happiness as a valid measure upon which to draw policy inferences.

¹ This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) survey. The HILDA Project was initialised and is funded by the Australian Government Department of Families, Community Services and Indigenous Affairs (FaCSIA) and is managed by the Melbourne Institute of Applied Economic and Social Research (MIAESR). The findings and views reported in this paper, however, are those of the author and should not be attributed to either FaCSIA or the MIAESR.

² The findings and views reported in this paper are those of the author and should not be attributed to the Commonwealth Bank of Australia.

1. Introduction

“To design effective social and economic policies, policymakers need a measure of individuals' "well-being."” (Picker 2007, 1)

It is generally accepted that the ultimate objective of economic activity is to increase the total wellbeing of the population, and economists use the concept of utility as a relative measure of ‘happiness’ or ‘wellbeing’. Utility explains the choices and behaviour of a consumer who is both rational and welfare maximising. Microeconomic theory suggests that for a given budget constraint an individual will choose a certain level of goods, services and leisure, and this choice will in turn reveal the consumer’s preferences for these goods. Thus if the budget constraint is relaxed the consumer will be able to expand their choices between the goods and services and they will achieve a higher level of utility, which consequently must lead to increased ‘wellbeing’ or ‘happiness’.

This traditionalist view of objective utility has been challenged in recent decades, as economists from across the world have taken to applying measures of self-reported levels of happiness as a subjective measure of individuals’ utility. While many have countered this challenge as ‘unscientific’, there is a growing acceptance that self-reported happiness is a valid approximation for subjective utility and happiness theory is starting to emerge as a complementary measure to objective utility.

As a relatively new area in the field of economics many papers to date have focused on measuring self-reported levels of happiness and the different factors that affect an individual’s happiness. Income and unemployment are the two main factors that have been featured in the literature to date³. Each of these papers have regressed the dependent variable happiness, over a number of socio-demographic and economic factors, including age, gender, marital status, health, income and education, in an attempt to determine whether these factors have a positive or negative relationship with self-reported levels of happiness, and to understand the different ways in which these factors interact.

One interesting finding that has arisen from a number of these multivariate studies is what appears to be a negative relationship between an individual’s achieved level of education and their happiness level. While this is a most unexpected result, none of these papers have directly attempted to investigate why this negative relationship may exist, and surprisingly few other papers have addressed the issue of the relationship between education and happiness. It has been well established that persons with higher levels of education have better health, higher earnings and employment opportunity, and secure ‘better’ jobs than the low-educated. Thus they should be able to achieve a higher budget constraint and greater utility. In line with economists’ utility approach, they will be ‘happier’. However, the multivariate models typically control for these mediating effects of education. Given that education is widely seen as a key ingredient to personal and economic development, we anticipated that a reduced-form model which estimated the ‘total’ effect of education by removing these confounding variables would show that more educated people were happier. Remarkably, our initial results confirm that more educated people are less happy.

³ See Clark and Oswald (1994); Dockery (2004); Easterlin (1974); Headey and Wooden (2004); Luttmer (2004); Stutzer (2004)

This paper explores this seemingly paradoxical relationship using wave five of the Household, Income and Labour Dynamics in Australia Survey (HILDA). We propose that that people with higher levels of education also form higher expectations of life outcomes as an explanation for their lower levels of reported happiness. Previous hypotheses that have sought to explain empirical findings on the factors that effect happiness, and how variables such as income and unemployment can be most suitably specified, have emphasised the role of individuals' expectations. These include the concepts of rivalry and adaptation to account for the 'Easterlin Paradox', in which a positive relationship between income and happiness is observed in cross-sectional data, but average happiness levels do not increase over time as real incomes rise. We offer two hypotheses on how expectations may account for the negative relationship between level of education and happiness. First, peoples' socio-economic background determines expectations about the level of education they should achieve, and it is their level of educational attainment *relative* to this expectation that shapes happiness rather than their *absolute* level of educational attainment. Second, the level of education an individual attains raises their expectations of earned income and other life outcomes, thus reducing happiness, all other things held equal. The first of these hypotheses is tested by incorporating a variable for expected education levels into multivariate models of happiness. This is shown to reduce, but not eliminate, the estimated negative impact of higher education. Devising plausible empirical tests of the second hypothesis is the focus of ongoing research.

Chapter 2 provides a review of the literature in the areas of happiness as an economic concept, specifically focusing on the issue of subjective utility. It also outlines how expectations of education are created, and how these expectations might impact upon the effect of education within the standard happiness model. Chapter 3 sets out the data and methodology used and Chapter 4 presents the results from multivariate models of the link between education and happiness and how the inclusion of a variable to capture expectations affects this relationship. Chapter 5 provides a summary of the implications of these results.

2. Literature review

The use of self-reported happiness as a measure for utility has been highly debated amongst economists, since Easterlin (1974) ventured down the somewhat controversial path of happiness as an economic construct. His paper "*Does economic growth improve the human lot? Some empirical evidence*" focused on the assumption that sustained economic growth will lead to increasing happiness. Easterlin concluded that while incomes and economic growth increased substantially between 1946 and 1973, this was not accompanied by a corresponding increase in happiness. The results of Easterlin's paper fundamentally contradict the traditional theory of utility as a relative measure for individual happiness. As a consequence of this paper more specialised research has been undertaken to understand the effects of people's activities and assets on their self-reported level of happiness. Income and employment are two particular factors that have been studied extensively, however, the effects of education on happiness have been left relatively unexplored.

2.1 Happiness and Utility

Traditional economic theory uses an objective approach to measuring utility, based on the observable choices of combinations of available commodities that consumers make, which in turn, reveals what it is that generates their utility (Bannock, Baxter, and Davis 1998). This revealed-preferences approach to utility has been used to not only measure individual utility and well-being but also as a measure of social-welfare. Not all economists, however, have conformed to this idea of objective utility, indeed many have used non-objectivist theoretical analysis in their work and have reported significant findings to support the use of a subjective measure of utility. These findings, together with the anomalies of consumer decision-making, question whether utility can really be derived from observable choices.

Whilst Subjective utility has been rejected as being “unscientific” because it is not objectively observable, self-reported levels of happiness have been shown to provide an almost perfectly complementary path to the traditional objective view of utility. This approach also offers a much broader concept of utility, by capturing human well-being directly, and in turn creating a basis for testing fundamental assumptions and propositions in economic theory (Frey and Stutzer 2002b).

Subjective utility recognises that everyone has differing views of happiness, and that observable behaviour alone is not a satisfactory measure for individual well-being. Economic tradition shows that an individual’s judgement is a reliable source of information for the person involved. Indeed, people evaluate their level of well-being through past experiences, current circumstances, comparisons with relevant others and expectations of the future. Thus, Frey and Stutzer (2002b) state that self reported levels of happiness are an acceptable empirical approximation of utility. As such, this paper draws upon the life satisfaction questions within the HILDA survey as a measurement of happiness.

2.2 Measuring and Modelling Happiness

The word happiness is a seemingly elusive word in terms of clear cut definition. For the purpose of this paper happiness is defined as the ‘overall enjoyment of your life as-a-whole’ (Veenhoven 2004). It is worth noting that many terms are used interchangeably within this paper to denote subjective utility including happiness, subjective well-being and satisfaction.

In order to measure a person’s subjective utility, academics have often relied upon the self-reported levels of happiness gained through individual surveys and questionnaires, where respondents rate their happiness or satisfaction on a Likert scale. A few common examples of surveys used in previous studies include, the single item question on a three-point scale from the *General Social Survey* which asks “Taken all together, how would you say things are these days – would you say that you are very happy, pretty happy, or not too happy?” (Davis, Smith, and Marsden 2001). The *World Values Survey* asks “All things considered, how satisfied are you with your life as a whole these days?” with life satisfaction being assessed on a Likert scale from one (dissatisfied) to ten (satisfied) (Inglehart 2000). The HILDA survey, used in this paper, takes a similar approach to the *World Values Survey*. Respondents are asked, “All things considered how satisfied are you with your life? Pick a number between 0 and 10 to indicate how satisfied you are.” where 0 is totally dissatisfied and 10 is totally satisfied (HILDA Survey 2005).

As subjective surveys are based on individual judgment, they are often prone to a number of biases. However, as the main application of the happiness measure within this paper is not to compare absolute levels, but rather to identify the determinants of happiness. It is not necessary to concern oneself with these biases as the subjective data can be treated ordinally in econometric analyses so that higher reported levels of subjective happiness reflects higher happiness of an individual.

Philosophers and psychologists have long been studying what exactly happiness is, and what factors affect it. With economists joining the debate it can be said without reservation that no consensus has been reached on the factors that actually define happiness. Psychologists and sociologists focus upon personality factors (such as optimism and self-esteem) and demographic factors (such as age and gender) in determining one's happiness. From an economist's point of view, these factors are not of principal importance, as they have limited policy relevance. That said, in order to measure the direct effects of economic factors on happiness, personality and demographic factors need to be incorporated into the estimation of happiness in order not to fall prey to any estimation bias (Frey and Stutzer 2002a).

Studies in economics have had a heavy focus on the effects of income upon happiness, as this relates directly to the traditionally theory of utility, that increasing one's income increases one's ability to consume and thus their utility. Heady and Wooden (2004), however, included a wealth variable as well as the income variable, arguing that wealth is a far greater determinant of consumption than income and therefore should be included in the measurement of subjective utility. Their results indicate that not only is wealth a significant determinant of happiness, it actually has a far greater influence on well-being than income. Wealth is also said to have an impact upon other factors that influence happiness such as economic security, therefore, one is able to argue that it is these intangible benefits of wealth that have an additional positive influence on happiness that income alone simply does not provide. Headey and Wooden also highlight the need to incorporate government taxes and transfers, rather than just pre-tax pre-transfer income, to account for the role the government plays in redistributing well-being.

Stutzer (2004) focused specifically on the reasons why people's happiness is not increasing even though their incomes are. His paper concentrated on the role of income aspirations on individual happiness, and identified two main concepts that affect income aspirations. The first is the notion of relativity, which can be defined as the social comparisons individuals make of themselves to relevant others. Stutzer states that it is not the absolute level of income, but rather one's position relative to others that matters in determining an individual's happiness. The second concept is adaptation. Where additional material goods and services initially provide extra pleasure, but over time these effects wear off and people get used to this level of consumption. That is to say, it becomes the expected standard and people's happiness will no longer increase. Stutzer's empirical data was regressed over a number of socio-demographic characteristics, including education.

Many happiness papers to date have focused upon different variables that affect an individual's happiness level. Thus far most have focused upon the income and employment variables; it is in the empirical results of many of these papers that a

negative relationship between happiness and education can be observed⁴. This result seemingly undermines the predictions of utility theory, as economists assume education will lead to higher income in the future, and higher incomes create greater levels of utility, thus higher education should lead to a higher utility. While the empirical result itself is not in question, the reason behind this inverse relationship between education and happiness remains largely unknown.

The objective of this paper is to identify if the negative relationship between educational attainment and happiness is in fact caused by individuals' expectations. Education has a positive influence on a number of life outcomes, namely income, employment opportunity and health⁵, which have a positive relationship with happiness. It could be assumed, therefore, that the reason behind the negative relationship between happiness and education is the inclusion of these life outcomes within the happiness model, as it is the indirect effects of education and not the direct effect that would cause education to increase happiness. If life outcomes that are affected by education were to be removed from the happiness model then a positive relationship between education and happiness should be observed.

The results presented in model 2.2 of table 2, show that the relationship between education and happiness does not in fact become positive when life outcomes are removed from the model. While the negative effect is smaller in magnitude, it still remains significant. There must be some other underlying cause behind this relationship. This paper aims to test whether education creates expectations of future life outcomes, which play a large role in influencing the correlation between education and happiness.

2.3 Education, Expectations and Happiness

Literature surrounding the influence of education on happiness or some form of subjective well-being, thus far, has only measured the direct effects, although the possibility of indirect effects has often been mentioned. Michalos (2007) emphasises that to only measure the direct effect of highest level of education obtained on individual's happiness levels is to create a seriously misspecified model. Ross and Willigen (1997) suggest that any decrease in satisfaction, or dissatisfaction, results from a deviation from one's expectations. As such, the hypothesis of this paper is that educational attainment creates expectations which influence the individual's self-reported happiness level.

Expectations of education can be created by a number of different aspects of people's lives. Some of these factors have been cited in previous papers that have focused on measuring people's happiness. The adaptation and relativity theories that Stutzer (2004) used in his analysis of the effects of income on happiness are two such concepts that could create expectations of education. Empirical support for the adaptation level theory can be readily found throughout the literature. The theory of adaptation suggests that people adopt new social norms according to what they are 'used to'. "It is deviations from the individual's perceived norm that invokes heightened or diminished satisfaction" (Dockery 2004, 4). This concept can be applied to education as a determinant of

⁴ See Dockery (2004), Headey and Wooden (2004), Clark and Oswald (1994)

⁵ Education is believed to have a positive and increasing effect upon the likelihood of having better health in the future. For further reference see Hartog and Oosterbeek (1998)

happiness. Over time the minimum level of education that people are expected to obtain has risen quite considerably. In the past finishing high school was not considered a minimum expectation for many people, as most training was completed through on the job learning. Now completing a minimum level of high school has been made compulsory in many Australian States and Territories and even completing a university degree or some other form of tertiary education is seen as the expected norm. As people are now expected to achieve higher levels of education than previously, this expectation has been transferred into the requirements of many jobs. Therefore, if one does not achieve this new expected level of education they may find it difficult to gain employment in the job of their choice, which may result in a net change in the individual's self-reported level of happiness.

It is not only the circumstances people are accustomed to that will effect their level of happiness but also their circumstances relative to others around them that matter (Dockery 2004). The theory of relativity effects what people expect to gain from their education. People will compare themselves with others who have achieved the same level of education as them. This concept has been used in many papers relating to the measurement of human capital. Individual's of a certain age with a certain level of educational attainment will base their future income expectations upon current earnings of someone of the same sex, the same level of education qualifications and one year older than themselves (Wei 2004). If people perceive themselves to be worse off than this relative other then this will have a negative impact on their happiness levels.

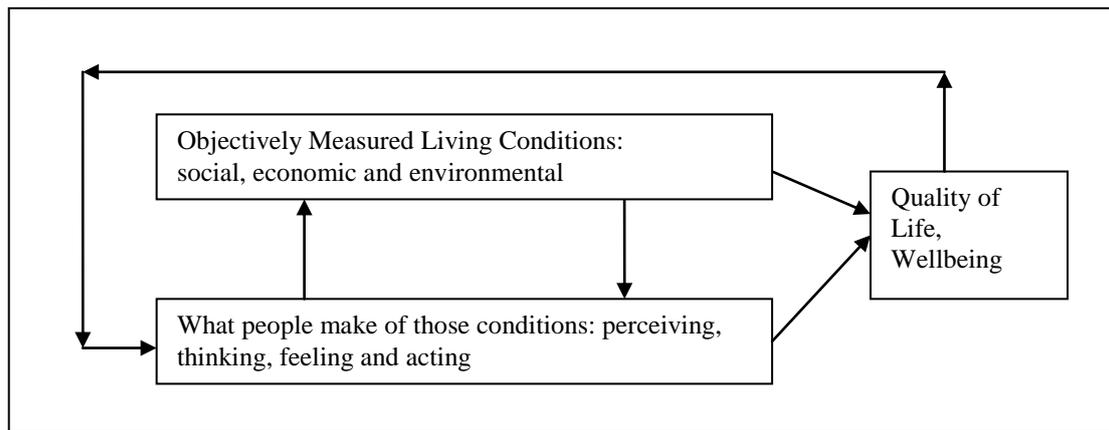
It is important to note, however, that this notion of 'rivalry' is not solely based upon income expectations, a better education is seen to give better job opportunities, greater job security, a larger freedom of choice, and thus an overall happier lifestyle. Clark and Oswald (1994) found that individuals with higher levels of education who were unemployed reported far lower levels of happiness than those with lower levels of education. They attributed these results to the greater opportunity cost of individuals with higher educations being unemployed.

Each individual will compare different facets of their lives with relevant others. "Individuals are motivated at least partly about concerns about relative position" (Luttmer 2004, 1). Therefore most will agree that individuals seek to obtain a certain level of education so that they can achieve 'more' in the future, and as such, if this education does not help them to achieve what is expected, then this will have a negative influence on their levels of happiness.

2.4 Accounting for the Negative Effect

Michalos (2007) introduced the General Quality of Life Model to explain the concept of a how a person's perceptions, or in this case, expectations affect an individual's happiness or well-being. Michalos states that quality of life or well-being is a function of an individual's actual life conditions and what the person makes of these conditions. In turn what the individual makes of these conditions is a function of how these conditions are perceived, what is thought and felt of these conditions, what is done and finally, what consequences follow. People's perceptions, thoughts, feelings and actions, then have an impact on their own and others' living conditions. The conceptual model of the General Quality of life theory is shown in figure 2.1.

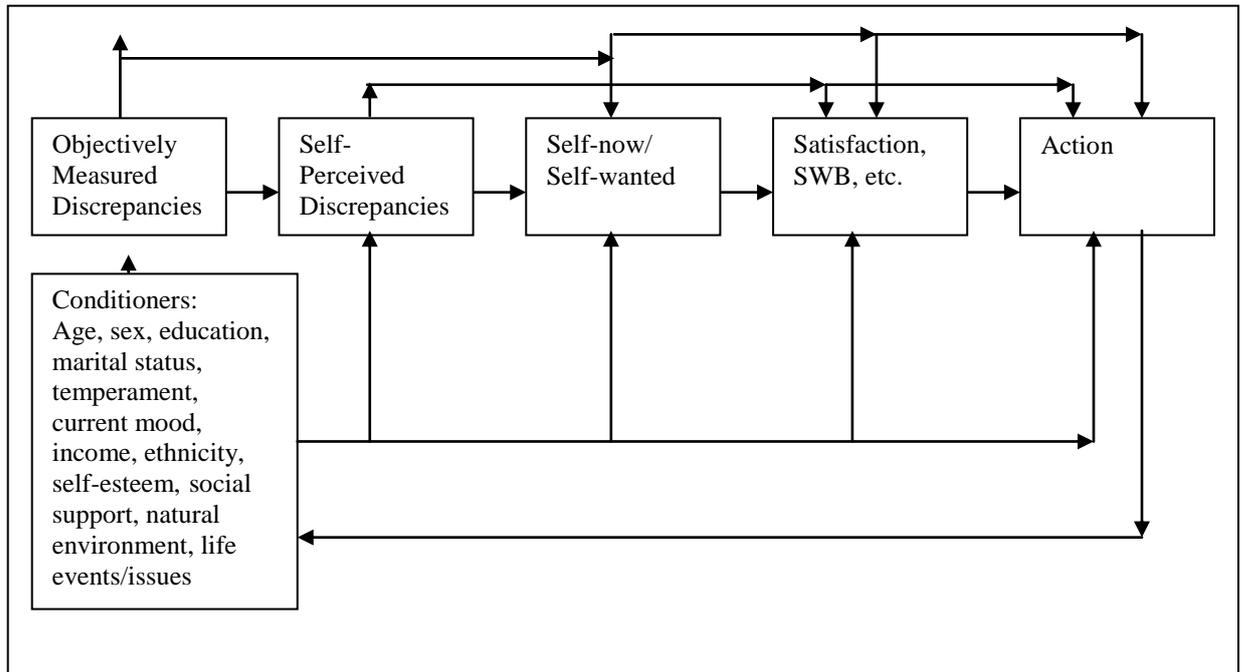
Figure 2.1 - General Quality of Life Theory



(Michalos 2007, 22)

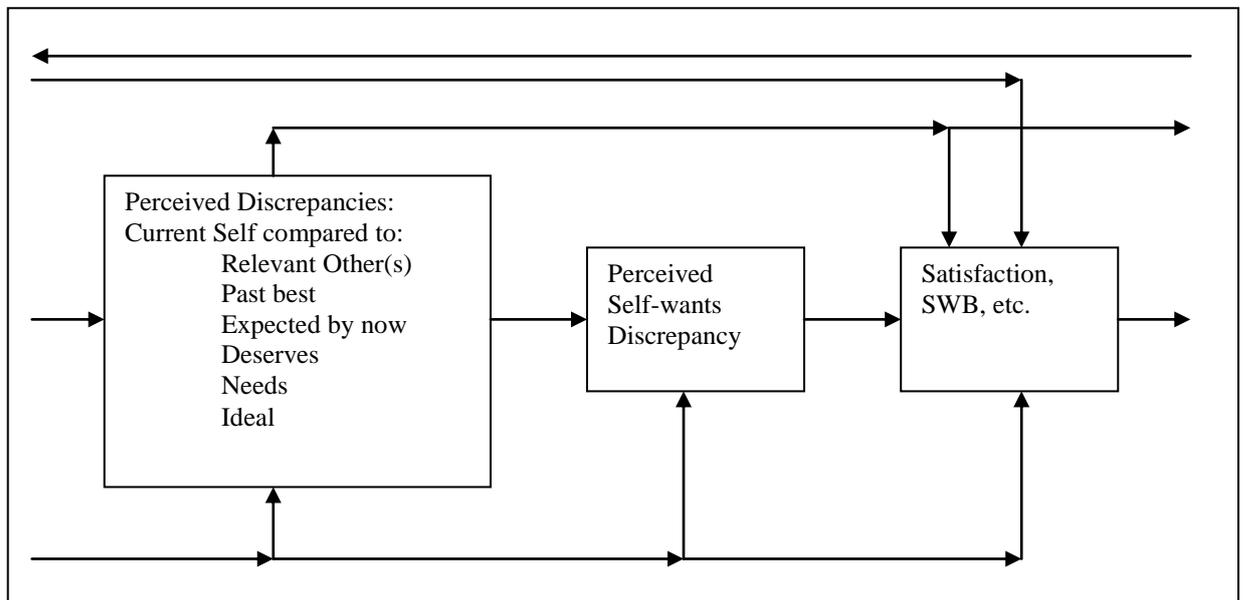
Michalos (2007) continued his investigation of perceptions using the Multiple Discrepancies Theory (MDT) in which the differences between what one has, and what they want, as determined by a number of self-perceived discrepancies, creates a divergence that in turn lowers happiness. The pursuit of happiness is what motivates human action in direct response to their expectations of their net happiness level. Figures 2.2 and 2.3 explain MDT on a more conceptual level. These models show how life satisfaction is a function of certain life conditioners such as, age, sex, education, marital status, etc. and how self perceived discrepancies are created by people comparing themselves to relevant others, past best, deserves, needs and expected by now. This last point highlights the fact that expectations need to be considered when determining peoples' happiness, especially expectation in regards to the specified life conditioners, one of which is education. By exploring the effects of expectations upon education one should be able to determine if there are any self-perceived discrepancies that may cause a decrease in happiness, that is not a direct effect of education itself.

Figure 2.2 – Multiple Discrepancies Theory (MDT)



(Michalos 2007, 23)

Figure 2.3 – Perceptual Core of MDT



(Michalos 2007, 24)

In order to explain the negative relationship between education and happiness, this paper aims to incorporate the self-perceived discrepancies that occur due to the expectations people have regarding education. This paper distinguishes between two potential sources of expectations relating to education. One, the expectations placed upon people to achieve

a certain level of education. In this regard, it proposes that these expectations are created based upon individuals' age, sex and socio-economic background. Second, the expectations that people have of their future life outcomes based on the level of education they have obtained. If discrepancies are present between self-now and self-expected by now, then this will have a negative effect on the individual's self-reported happiness, as shown in figure 2.3 the perceptual core of MDT.

3. Data and Methodology

Data from HILDA are used to investigate the relationship between happiness and education, and the role of expectations. HILDA is a household panel survey with the reference population being private dwellings in Australia. It collects information relating to each household in the sample and from each individual within these households aged 15 years and over through a personal interview and a self completion questionnaire. Individuals who come into the scope of the survey are interviewed each year. If they change households, any members of their new household aged 15 and above also become part of the sample, such that the sample grows in line with household dissolution and formation.

The HILDA questionnaires generate data on extensive range of individual characteristics, socio-economic background and circumstances, and labour market activities. The person questionnaire⁶ includes a single item measure of 'overall life satisfaction'. Respondents are asked "All things considered, how happy are you with your life?" given choices on a 0 to 10 Likert scale. The extreme variables were labelled as 0 = totally dissatisfied and 10 = totally satisfied. While single item scales are not the best measures of wellbeing available, they are widely used in international surveys and have been found to have acceptable levels of reliability and validity. People are regarded to be able to make sound and relatively accurate global judgements in survey interviews, especially in regards to their own life satisfaction (Headey and Wooden 2004).

Education is defined as the highest level of formal education attained including secondary and tertiary education leading to diplomas and degrees. The HILDA data set classifies individuals into groups according to the Australian Standard Classification of Education (ASCE)⁷. Detailed statics on level of education attained by age and gender are provided in Appendix Table A1. For the purposes of the descriptive statistics presented here, highest level of education attained is divided into six categories, as shown in Table 1 which presents mean levels of life satisfaction by education. We also focus on Wave 5 data. This is the data primarily used in the modelling as only in wave 5 was information collected on parents' education level, a variable important to the modelling approach. For both males and females, it can be seen that there is a direct negative bivariate relationship between happiness and the level of education attained. For both males and females, those who did not complete Year 12 have the highest mean happiness, and those with a Bachelor's degree have the lowest mean happiness. There is however, some 'recovery' in happiness for males who go on to complete a post-graduate degree.

⁶ Three different questionnaires relate to each respondent in each wave of the survey – a Household questionnaire for which only one member of the household aged 15 or over responds, a person questionnaire administered through face-to-face interviews and a separate self-completion questionnaire.

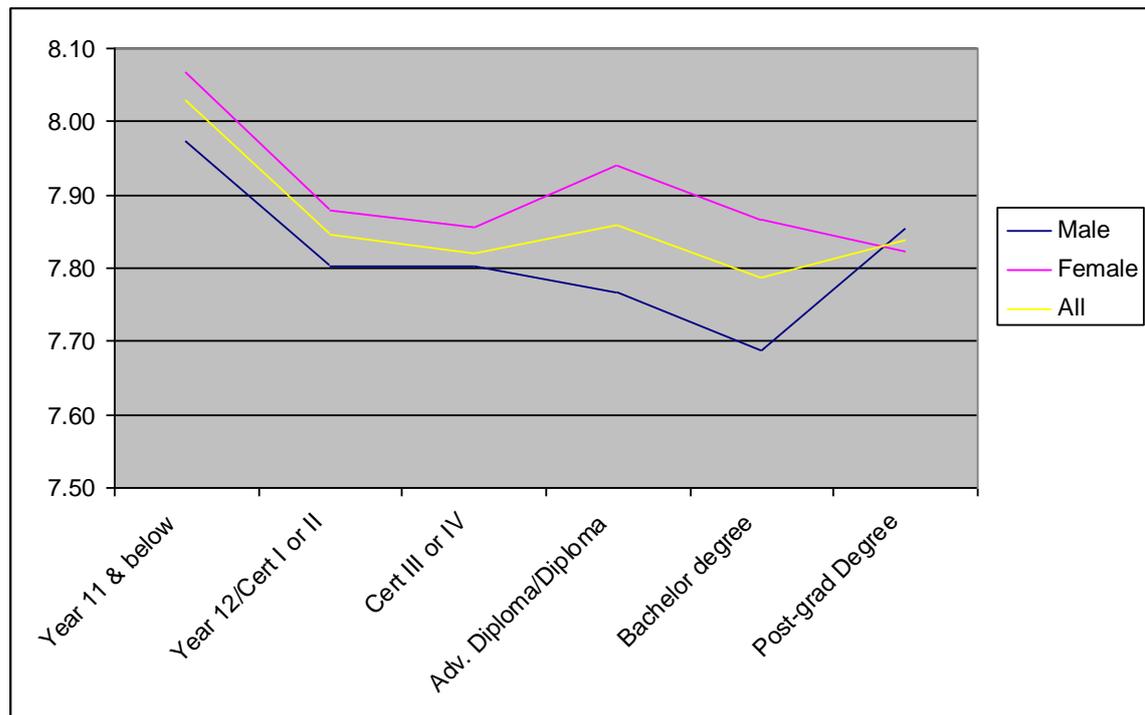
⁷ For further information see Australian Bureau of Statistics – Australian Standard Classification of Education (ASCED) (Australian Bureau of Statistics 2001)

Table 1: Mean life satisfaction by highest level of education achieved and gender, HILDA Wave 5.

| | Male | Female | All |
|----------------------|--------|--------|--------|
| Year 11 & below | 7.97 | 8.07 | 8.03 |
| Year 12/Cert I or II | 7.80 | 7.88 | 7.85 |
| Cert III or IV | 7.80 | 7.86 | 7.82 |
| Adv. Diploma/Diploma | 7.77 | 7.94 | 7.86 |
| Bachelor degree | 7.69 | 7.86 | 7.79 |
| Post-grad Degree | 7.86 | 7.82 | 7.84 |
| All | 7.85 | 7.95 | 7.90 |
| (Standard deviation) | (1.47) | (1.50) | (1.48) |

Although the differences in means between education levels are small, the responses on such self-reported happiness scales tend to be tightly clustered around 7-8, such that the standard deviations are low and even small differences in mean values can represent quite large differences in happiness. The relationship can be seen clearly in Figure 3.1. Thus, we see the surprising finding that, even ignoring income levels, well educated Australians are less happy with their lives than are low-educated Australians. This stands in complete contrast to the common perception of education as a means to personal development and improving one's lot in life.

Figure 3.1: Mean life satisfaction by highest level of education achieved and gender, HILDA Wave 5.



Further analysis of the data shows mean happiness follows a U-shape over the life-cycle, with people in the 35-44 age group reporting the lowest levels of happiness. This concept is supported in a number of empirical works, including Blanchflower and Oswald (2007). Males report lower happiness for every age group, consistent with all empirical studies of happiness in Australia, but this is not the case in any other western country (Hickson 2007). A further universal finding in happiness studies is that married people tended to be happier than unmarried people. Thus happiness is correlated to other demographic characteristics, and it is necessary to estimate multivariate models to control for differences in the demographic characteristics of the highly educated and the low-educated. To do so, standard ordered probit models are estimated with self-rated happiness as the dependent variable.

The modelling strategy implemented is as follows. First we estimated what is termed a ‘standard’ happiness model of the form:

$$(1) \quad H_i = \alpha D_i + \beta E_i + \delta Y_i + \varepsilon_i$$

where D is a vector of demographic factors including age, gender, marital status and disability status⁸, with associated vector of coefficients α , E equals highest level of education obtained; Y is a vector of ‘life outcome variables’ likely to be determined, at least partially, by the level of education attained, with associated vector of coefficients to be estimated, δ : and ε a well-behaved error term. Among life outcomes we include income, employment status and self-assessed health.

⁸ Long term disability is used as an ‘exogenous’ health variable within the standard model of happiness, as opposed to self-assessed health, which is treated as an ‘endogenous’ life outcome, as it is influenced by educational attainment, and is therefore included in the model as a control for life outcomes.

This standard model is similar to that used in a number of other multivariate studies to date. As discussed, the fact that higher education also contributes to improved life outcomes, such a specification does not capture the total impact of education on happiness. An upper bound of this ‘net effect’ of education can be obtained by omitting these life outcome variables and estimating:

$$(2) \quad H_i = \alpha D_i + \beta E_i + \varepsilon_i$$

To test the affect of expectations on the relationship between education and happiness, two possible sources of expectations are recognised. First, we distinguish between the level of education individuals may be expected to achieve and their actual level of education. Socio-economic environment including, parents’ level of education and parents’ occupation, contribute to creating expectations of the level of education one believes they should obtain. Cohort effects also play a large role in creating expectations of the level of education people believe they should obtain. As can be seen in Table A.1, an increasing number of people are continuing on to higher education than in previous generations. This finding is supported by the Australian Bureau of Statistics (ABS) who reported that in 1969 only 20% of Australians aged between 25 and 64 continued on to complete a ‘non-school’ qualification⁹. In 2005 this proportion had increased significantly to 51% of the population attaining either a vocational or higher education (Australian Bureau of Statistics 2002, 2007b). People are likely to consider this higher level of educational attainment as new social norm. To test the hypothesis that it is the level of education acquired relative to one’s expected level of education that determines happiness, two models are estimated:

$$(4a) \quad \hat{E} = f(\text{age, gender, father’s education, mother’s education})$$

$$(4b) \quad H_i = \alpha D_i + \beta_1 E_i + \beta_2 \hat{E}_i + \varepsilon_i$$

The education variable is a continuous variable ranging from one (Year 11 or below) to nine (post-graduate masters or Doctorate degree), and including intermediate categories as set out in Table A1. Equation (4a) is estimated by ordinary least squares regression, and the coefficients then used to predict \hat{E} , the expected level of education.¹⁰ This paper hypothesises, that it is expected level of education (\hat{E}) that explains the negative relationship between education and happiness, predicts that the coefficient on \hat{E} will be negative, while the coefficient on the actual level of education (E) should be become non-negative.

An alternative hypothesis relating to expectations, and one that we have not yet devised a way to test, is that the relationship between education and expected life outcomes is more elastic than that between education and actual life outcomes. That is to say, peoples’ expectations of what they should achieve in life grow at a faster rate than their actual life outcomes, as their level of education increases. Thus, as more educated individuals’ actual life outcomes fall short of their expectations, their happiness is adversely affected.

⁹ Non-school qualification refers to the award of attainment from any accredited educational institutions as the result of formal learning. Accredited educational institutions include vocational (e.g. TaFE) and higher educational (e.g. universities) institutions.

¹⁰ Details of the results of the OLS regression are contained in Appendix B.

This effect will be captured in the specification given by (4a) and (4b) above to the extent that the socio-economic background factors that influence expected educational attainment similarly shape expectations in other spheres of life. However, directly creating predicted income variables is problematic because of their strong correlation with education.

4. Results

Data from Wave 5 of HILDA are used, as this is the only wave for which the education levels of the respondents' parents were collected. The sample is further restricted to persons above the age of 25 because people below this range will not yet have completed their highest level of education and indeed many are still in full-time education. Therefore it is not possible to observe the highest level of education they will achieve, nor the impact this might have on life outcomes and their expectations. The confidential unit record file from wave five of HILDA contained data from 7,125 respondent households and 12,759 individuals aged over 15 years. After applying the age restriction and allowing for missing observations on the dependent and explanatory variables, there were 10,402 and 9,333 observations available for the estimation of the reduced form and "standard" happiness models, respectively.

The probit model results are presented in Table 2. Model (2.1) presents the results for what we consider a relatively standard happiness model. Being male, being single, separated/divorced or widowed as opposed to being married and having a long-term disability all have significant and negative effects on happiness. Apart from the gender co-efficient, these results are consistent with common perceptions, that these factors would indeed decrease happiness. There are no real common perceptions about whether males or females are happier in general, although the negative co-efficient for males found in this paper shows that in Australia, women are slightly more likely to report higher levels of life satisfaction than men. While this result is different from those in most other western countries, it is consistent with those found in all other Australian studies. Another result that is statistically consistent with previous studies is that a person's self-reported happiness has a U-shaped relationship with age. We can see that satisfaction with life for Australians is lowest for the default age category of 35-44. Similar findings have been observed in Dockery (2004) and Blanchflower and Oswald (2007). As expected employed people, those with better health and those with higher incomes are happier.

The level of education variable ranges from 1 (low education) to 9 (high education).¹¹ The coefficient is negative (-0.0348) and highly significant, in line with results observed in previous papers. Model 2.2 reports the reduced form equation. Any increase in happiness that results from the improved life outcomes of the more highly educated is now captured in the coefficient on education. As foreshadowed from the simple comparison of means, the estimates still show a negative and highly significant net effect of education on happiness, after controlling for differences in basic demographic characteristics. The co-efficient does become less negative (-0.0176), but the surprising result that more educated people are less happy persists. As previously mentioned, this seems at odds with common perceptions.

¹¹ If a series of dummy variables are used to capture the effect of education instead of the continuous variable, as reported in Hickson 2007, Appendix A, the conclusions remain essentially unchanged.

Table 2 – Probit Model of Life Satisfaction

| Dependent Variable: life satisfaction | | 2.1 Standard Model | | | 2.2 'Reduced form' Model without Life outcomes | | | 2.3 With Expected Education | | | 2.4 With Expected Education and life outcomes | | |
|---------------------------------------|--------------------|-----------------------|-------------------|--|--|-------------------|--|--------------------------------|-------------------|----------------------|---|--|--|
| | Parameter | Estimate | Sig. | | Estimate | Sig. | | Estimate | Sig. | Estimate | Sig. | | |
| Demographic | Male | -0.0921 | 0.0001 *** | | -0.1005 | 0.0001 *** | | -0.0899 | 0.0001 *** | -0.0700 | 0.0038 *** | | |
| | Age (25-34) | 0.0025 | 0.9395 | | 0.0486 | 0.1178 | | 0.0540 | 0.0846 * | 0.0134 | 0.6889 | | |
| | Age (35-44) | - | - | | - | - | | - | - | - | - | | |
| | Age (45-54) | 0.1125 | 0.0004 *** | | 0.0846 | 0.0051 *** | | 0.0835 | 0.0057 *** | 0.1091 | 0.0006 *** | | |
| | Age (55-64) | 0.3854 | 0.0001 *** | | 0.3758 | 0.0001 *** | | 0.3629 | 0.0001 *** | 0.3573 | 0.0001 *** | | |
| | Age (65+) | 0.6913 | 0.0001 *** | | 0.6781 | 0.0001 *** | | 0.6514 | 0.0001 *** | 0.6342 | 0.0001 *** | | |
| | Married | - | - | | - | - | | - | - | - | - | | |
| | Separated | -0.3803 | 0.0001 *** | | -0.3755 | 0.0001 *** | | -0.3756 | 0.0001 *** | -0.3806 | 0.0001 *** | | |
| | Widowed | -0.2905 | 0.0001 *** | | -0.2889 | 0.0001 *** | | -0.2879 | 0.0001 *** | -0.2880 | 0.0001 *** | | |
| | Single | -0.1353 | 0.0062 *** | | -0.1087 | 0.0178 ** | | -0.1094 | 0.0171 ** | -0.1368 | 0.0057 *** | | |
| | Disability | -0.0890 | 0.0018 *** | | -0.3728 | 0.0001 *** | | -0.3730 | 0.0001 *** | -0.0875 | 0.0021 *** | | |
| Life Outcomes | Employed | - | - | | | | | | | - | - | | |
| | Unemployed | 0.1504 | 0.0482 ** | | | | | | | 0.1493 | 0.0499 ** | | |
| | NILF | 0.1894 | 0.0001 *** | | | | | | | 0.1891 | 0.0001 *** | | |
| | Disposable Income | 1.6x10 ⁻⁶ | 0.0004 *** | | | | | | | 1.6x10 ⁻⁴ | 0.0003 *** | | |
| | Health (Excellent) | 1.3989 | 0.0001 *** | | | | | | | 1.4025 | 0.0001 *** | | |
| | Health (Good) | 0.9519 | 0.0001 *** | | | | | | | 0.9530 | 0.0001 *** | | |
| | Health (Fair) | 0.5754 | 0.0001 *** | | | | | | | 0.5750 | 0.0001 *** | | |
| | Health (Poor) | - | - | | | | | | | - | - | | |
| | Expected Education | | | | | | | -0.0198 | 0.1463 | -0.0434 | 0.0028 *** | | |
| | Education (1-9) | -0.0348 | 0.0001 *** | | -0.0176 | 0.0001 *** | | -0.0158 | 0.0001 *** | -0.0311 | 0.0001 *** | | |
| | Observations | 9333 | | | 10402 | | | 10402 | | 9333 | | | |
| | Log-Likelihood | -15062.92 | | | -17446.36 | | | -17445.31 | | -15058.47 | | | |

* = Significant at 0.1 ** = Significant at 0.05 *** = Significant at 0.01

Model 2.3 presents the results of the probit regression when expected education is controlled for as a separate variable within the reduced form happiness model. The construction of the expected education variable is detailed in Appendix B. The inclusion of the expected education variable reduces the negative effect of education on happiness as hypothesised, but the reduction is only marginal (-0.0176 in model 2.2 to -0.0158). The coefficient for this expected education variable is negative as predicted, however, it is not statistically significant.

When included in the standard model of happiness (2.4), it can be seen that the expected education variable has a much larger negative effect upon happiness, but more importantly it is now statistically significant. This result supports the assumption that when people face higher expectations for the level of education they should 'achieve', and perhaps for other socio-economic outcomes, they will report lower levels of happiness, all other things being equal. When expected education is not controlled for within the model this negative effect presents itself through the education co-efficient. However, when controlled for, as in this model, we should see a reduced negative effect of education upon happiness. From the results presented in 2.4 we can see that the negative effect of education upon happiness is again only marginally reduced within the standard model of happiness (from -0.0348 to -0.0311). While achieving a statistically significant and negative effect of expected education, the ensuing change in the education variable is not significant enough to confirm that expected education is what causes the negative effect of education upon happiness.

5 Conclusions

Traditionally economists have used the objective concept of utility to measure an individual's and society's 'happiness' or 'well-being'. Objective utility is derived from the revealed preferences approach that says for a given budget constraint a consumer will maximise their utility through a trade-off between work, consumption and leisure and that through their choices they will reveal what really makes them happy. That said, a happy person would be considered someone who works little, consumes lots and has plenty of free time. (Heady and Wooden, 2004)

This orthodox view of utility has been challenged in recent times with the emergence of 'Happiness Economics', the study of self-reported satisfaction as a measure of individual well-being. Happiness economists argue that the link between money and happiness is not as simple as the objective utility model would lead you to believe, and they have been backed up by numerous empirical studies.

It is within a number of these empirical studies that the motivation behind this paper lies. Clark and Oswald (1994), Dockery (2004) and Heady and Wooden (2004), to name a few, reported a negative relationship between education and happiness. This result seems to defy the expected relationship that education would have with happiness, as education is said to provide the individual with better life outcomes in the future and thus have a positive effect on happiness. While a negative result was present within these studies, none of the authors elaborated on the possible explanations or causes for this seemingly paradoxical result. Its inconsistency with the received social wisdom and potential implications are too important to leave unexplored.

This research marks the authors' first attempt to explain the empirical, negative relationship between happiness and level of educational attainment. The most obvious explanation was quickly dispelled. Given education has a positive influence upon life outcomes such as income, employment opportunity and health, a reduced form happiness model that does not control for these life outcomes was estimated to determine whether or not the 'net' effect of education on happiness is positive. The results show that, in fact, the 'net' relationship between education and happiness is negative. The impact of this negative relationship, however, is far lower than in the standard happiness model, when life outcomes are controlled for separately.

A second hypothesis tested whether this negative relationship still exists when a measure of expected education is included in the explanatory variables along with actual education. The results of this estimation reveal only a marginal reduction in the negative relationship between education and happiness. It appears expectations do play a significant role but, in our specification at least, could not account for the negative relationship between actual education and happiness. We propose a further hypothesis – that expectations of life outcomes increase faster with education than do actual outcomes – but due to the lack of a satisfactory means of measuring changes in expectations conditional upon education, we have not as yet been able to test this hypothesis.

Tentative as they are, these results have potential implications for both psychologists and economists. For the psychology literature the implications are straight forward, and involve a greater understanding of what shapes subjective well-being. The implications for economists are a little more subtle. If we accept that education improves individuals' life outcomes but also results in them having less happy lives, as the evidence presented here suggests, then what advice would we offer someone who is contemplating going on to university? This problem is extremely complex for policy makers.

Accepting the evidence would suggest that we should discourage people from gaining higher education. We suspect, however, that very few people would agree with this policy. Yet to reject it, is to reject the validity of happiness economics and the basic principle that this is a legitimate measure of utility, simply because it conflicts with traditional economic measures. For some reason, in the case of education we are not willing to accept that an individual should choose happiness over economic outcomes. Yet in other cases, the happiness literature has been quite persuasive in its argument that we have been overzealous in our pursuit of income, consumer goods and other economic outcomes because it comes at the expense of (measured) happiness.

Preventing people from forming unrealistic expectations, say through the provision of better information, would be considered a sensible policy option. However, what seems to be at issue is the far broader question: is it acceptable to suppress people's aspirations in order to increase their happiness?

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Appendix A

**Table A1: Highest level of education attended, by gender and age;
HILDA Wave 5 (percent)**

| | Aged 15-24 | Aged 25-34 | Aged 35-44 | Aged 45-54 | Aged 55-64 | Aged 65+ | Total |
|--------------------------------|---------------|---------------|---------------|---------------|---------------|-------------|---------|
| Males | | | | | | | |
| Postgrad/masters/doctorate | 0.0 | 4.1 | 5.0 | 6.3 | 5.1 | 2.5 | 3.8 |
| Grad diploma, grad certificate | 0.4 | 4.2 | 5.3 | 7.0 | 4.5 | 2.7 | 4.0 |
| Bachelor | 5.5 | 19.9 | 13.6 | 12.4 | 9.5 | 6.4 | 11.3 |
| Adv diploma, diploma | 2.0 | 9.8 | 9.2 | 10.7 | 10.8 | 10.1 | 8.6 |
| Cert III or IV | 11.1 | 29.2 | 32.2 | 31.0 | 26.4 | 27.3 | 26.0 |
| Cert I or II | 2.6 | 1.0 | 1.5 | 1.0 | 1.0 | 0.7 | 1.4 |
| Cert not defined | 0.2 | 0.1 | 0.2 | 0.4 | 0.8 | 0.7 | 0.3 |
| Year 12 | 25.8 | 17.3 | 8.8 | 7.6 | 9.9 | 5.5 | 12.9 |
| Year 11 and below | 52.3 | 14.3 | 24.1 | 23.6 | 32.0 | 43.9 | 31.7 |
| Undetermined | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.2 | 0.1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (Sample) | (1141) | (986) | (1168) | (1052) | (799) | (884) | (6030) |
| Females | | | | | | | |
| Postgrad/masters/doctorate | 0.1 | 3.3 | 4.3 | 3.4 | 2.3 | 1.2 | 2.5 |
| Grad diploma, grad certificate | 0.6 | 7.0 | 8.3 | 8.9 | 6.3 | 1.3 | 5.4 |
| Bachelor | 9.1 | 26.2 | 14.2 | 13.0 | 8.8 | 6.0 | 13.0 |
| Adv diploma, diploma | 4.0 | 10.3 | 12.0 | 9.3 | 8.4 | 6.7 | 8.5 |
| Cert III or IV | 12.7 | 13.3 | 15.0 | 14.6 | 11.0 | 6.2 | 12.3 |
| Cert I or II | 2.8 | 1.0 | 1.7 | 2.1 | 2.6 | 1.4 | 1.9 |
| Cert not defined | 0.4 | 0.3 | 0.5 | 1.0 | 1.1 | 1.9 | 0.8 |
| Year 12 | 24.2 | 18.9 | 14.0 | 12.0 | 8.0 | 6.5 | 14.3 |
| Year 11 and below | 46.1 | 19.8 | 29.9 | 35.6 | 51.5 | 68.8 | 41.2 |
| Undetermined | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (Sample) | (1207) | (1073) | (1339) | (1175) | (855) | (1080) | (6729) |
| Persons | | | | | | | |
| Postgrad/masters/doctorate | 0.0 | 3.6 | 4.6 | 4.8 | 3.7 | 1.8 | 3.1 |
| Grad diploma, grad certificate | 0.5 | 5.6 | 6.9 | 8.0 | 5.4 | 1.9 | 4.8 |
| Bachelor | 7.4 | 23.2 | 13.9 | 12.7 | 9.1 | 6.2 | 12.2 |
| Adv diploma, diploma | 3.0 | 10.1 | 10.7 | 10.0 | 9.6 | 8.2 | 8.5 |
| Cert III or IV | 11.9 | 20.9 | 23.0 | 22.4 | 18.4 | 15.7 | 18.8 |
| Cert I or II | 2.7 | 1.0 | 1.6 | 1.6 | 1.8 | 1.1 | 1.7 |
| Cert not defined | 0.3 | 0.2 | 0.4 | 0.7 | 0.9 | 1.4 | 0.6 |
| Year 12 | 25.0 | 18.2 | 11.6 | 9.9 | 8.9 | 6.1 | 13.6 |
| Year 11 and below | 49.1 | 17.1 | 27.2 | 29.9 | 42.1 | 57.6 | 36.7 |
| Undetermined | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (Sample) | (2348) | (2059) | (2507) | (2227) | (1654) | (1964) | (12759) |

Appendix B

The following OLS regression was run

$$(4) \quad E = \beta_1 A + \beta_2 G + \beta_3 FE + \beta_4 ME$$

The coefficients obtained from this regression were then used to generate Expected Education (\hat{E}), for each individual.

$$\hat{E} = 3.22 + 0.61(\text{male}) + 0.04(\text{age25_34}) + 0.1(\text{age45_54}) - 0.47(\text{age55_64}) - 1.1(\text{age65+}) + 0.85(\text{dad_highschool}) + 0.73(\text{dad_other}) + 1.75(\text{dad_uni}) + 0.35(\text{mum_highschool}) + 0.77(\text{mum_other}) + 1.36(\text{mum_uni})$$

The following sets of variables are dummy variables unless otherwise stated.

The HILDA variable is listed in brackets (bold and capitals).

E = Highest Level of Education Obtained (EEDHIGH): Continuous Variable: Education levels from 1-9. As Derived from the Australian Standard Classification of Education.

A = Age (EHGSEX): Age, broken up into groups with each year having 10 year intervals e.g. group 1 is 25 to 34 (the default is 35-45)

G = Gender (EHGSEX): Female (default is Male)

FE = Father's highest level of Education (EFMFHLQ): If Father completed high school what was his highest level of education. University, Other Qualification (default is Father completed high school)

ME = Mother's highest level of Education (EFMMHLQ): If Mother completed high school what was her highest level of education. University, Other Qualification (default is Mother completed high school)

Appendix C

The following sets of variables are dummy variables unless otherwise stated. The HILDA variable name is listed in brackets (bold and capitals).

Demographic

Age (EHGAGE): Age, broken up into groups with each year having 10 year intervals e.g. group 1 is 25 to 34 (the default is 35-45)

Gender (EHGSEX): Female (default is Male)

Marital Status (EMRCMS): Single, Separated / Divorced, Widowed (default is Married / de facto)

Long-term disability (EHGLTH): Has long term health disability (default is no disability)

Education

Highest Level of Education Obtained (EEDHIGH): Continuous Variable: Education levels from 1-9. As Derived from the Australian Standard Classification of Education.

Life Outcomes

Income (ETIFDIP): Financial year disposable income (whole dollars)

Employment Status (EESBRD): Unemployed, Not in Labour Force, (default is employed)

Expectations

Father completed High School (EFMFSCH): Father did not complete high school (default is Father completed high school)

Mother completed High School (EFMMSCH): Mother did not complete high school (default is Mother completed high school)

Father's highest level of Education (EFMFHLQ): If Father completed high school what was his highest level of education. University, Other Qualification (default is Father completed high school)

Mother's highest level of Education (EFMMHLQ): If Mother completed high school what was her highest level of education. University, Other Qualification (default is Mother completed high school)