

**The paradox of
subjective well-being and tertiary education**

**An investigation of Australian data using a heterogeneity and
life-domain approach**

By

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In the well-being literature an association is commonly drawn between higher education levels and higher income, better health, better employment opportunities, or even happier marriages. Despite such objective outcomes, most socio-economic studies of well-being have identified a negative or zero relationship between subjective well-being (SWB) and higher educational achievement. However, there is little understanding of the grounds of this relationship. Some scholars, in explaining the link, have called for further research into the theoretical and empirical relation between education and well-being. Using empirical data from national surveys, this thesis explores the relation between SWB and higher educational achievement in the Australian context.

In this thesis, the relationship between SWB and higher educational achievement is conceptualised in a life-domain approach and by exploring the heterogeneity of SWB by higher education. The thesis employs cross-disciplinary theories, building on concepts from life course theory, stress research, quality of life theories, social capital theory and the capabilities approach to education. Time-series cross-sectional (TSCS) data from the Household, Income and Labour Dynamics (HILDA) in Australia survey, the Longitudinal Survey of Australian Youth (LSA) and the Australian Survey of Social Attitudes (AuSSA) was analysed.

The results challenge the well-being literature at both the methodological and theoretical levels. One of the key findings of the thesis is that accounting for differences in individuals' conceptualisation of SWB is fundamental in the accurate evaluation of self-assessed well-being. The analysis establishes that the tertiary-educated (TE) and the non-tertiary-educated (NTE) have different concepts of 'what counts' towards their well-being. The negative relationship between tertiary educational achievement and SWB previously identified in the literature is found to be the result of biases or measurement errors incorporated in traditional, single-item measures of subjective well-being (such as overall satisfaction, or overall happiness). When an alternative, multiple-item measure of SWB is computed as the average of the levels of satisfaction with key domains of life, the tertiary-educated are identifiably more satisfied than the non-tertiary-educated. These findings allow for the conclusion that there is no 'puzzle' or 'paradox' of SWB and tertiary education in Australia.

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Acknowledgements

This thesis addresses not just a research question but also a personal curiosity. Almost four years ago I enrolled in a doctoral program thinking that obtaining a PhD was the next natural step in one's education and career. Not before long, I started doubting this initial thinking and wondered if investing time and energy in 'yet another degree' was worthy. As I got closer to completion I became convinced that 'spending that many more years in school', as my parents called it, was the right choice. Of course, now my parents are proud of me, and I am proud of them. I want to thank them for having allowed me to choose my paths in life, even if it meant being several continents away for over a decade now, and for the continuous support and love they have provided me with.

The past twelve months have been eventful and intense. With the support of my supervisors Professor Elizabeth Fernandez and Professor Peter Whiteford I have managed to see this project towards an end. I want to thank them for having provided me with valuable feedback and guidance when the 'natural' feeling of 'being stuck' was about. I have also managed to feel good and proud about having experienced the excitement of a PhD.

This, however, came at a cost. I would like to acknowledge my friends and their understanding of my absence from the 'social stage'.

I would like to make a last but not least important acknowledgement of 'the best thing' in my life. I didn't think I would change my title from 'Miss' to 'Mrs' before having experienced the 'Dr' first, but I did. My life has taken an unexpected but fortunate turn when I have met and married the love of my life, Gaby. I have never dreamt I would have someone like you in my life, but here you are. Your special way of being, your attention to detail, the moral and emotional support you give me, and most importantly the love you show me make every day an adventure.

Abstract

In the well-being literature an association is commonly drawn between higher education levels and higher income, better health, better employment opportunities, or even happier marriages. Despite such objective outcomes, most socio-economic studies of well-being have identified a negative or zero relationship between subjective well-being (SWB) and higher educational achievement. However, there is little understanding of the grounds of this relationship. Some scholars, in explaining the link, have called for further research into the theoretical and empirical relation between education and well-being. Using empirical data from national surveys, this thesis explores the relation between SWB and higher educational achievement in the Australian context.

In the past decade subjective well-being has become an important item on the agenda of governments and measures of subjective well-being are often used to assess the costs and benefits of policies. Most governments and international organisations (such as the OECD) regard SWB as the most comprehensive measure of wealth, replacing traditional measures like Gross Domestic Product and some social indicators. However, subjective wellbeing is a complex concept developed mainly through inferential measures, individuals being asked to evaluate their wellbeing by answering either of the two questions (or their close derivatives): *'Generally speaking, how happy are you these days?'* or *"All things considered, how satisfied are you with your life?"*. Furthermore, psychologists argue that individuals have different perceptions of what contributes to their well-being.

In this thesis, the relationship between SWB and higher educational achievement is conceptualised in a life-domain approach and by exploring the heterogeneity of SWB by higher education. The thesis employs cross-disciplinary theories, building on concepts from life course theory, stress research, quality of life theories, social capital theory and the capabilities approach to education. Time-series cross-sectional (TSCS) data from the Household, Income and Labour Dynamics (HILDA) in Australia survey, the Longitudinal Survey of Australian Youth (LSA) and the Australian Survey of Social Attitudes (AuSSA) was analysed.

The results challenge the well-being literature at both the methodological and theoretical levels. One of the key findings of the thesis is that accounting for

differences in individuals' conceptualisation of SWB is fundamental in the accurate evaluation of self-assessed well-being. The analysis establishes that the tertiary-educated (TE) and the non-tertiary-educated (NTE) have different concepts of 'what counts' towards their well-being. The negative relationship between tertiary educational achievement and SWB previously identified in the literature is found to be the result of biases or measurement errors incorporated in traditional, single-item measures of subjective well-being (such as overall satisfaction, or overall happiness). When an alternative, multiple-item measure of SWB is computed as the average of the levels of satisfaction with key domains of life, the tertiary-educated are identifiably more satisfied than the non-tertiary-educated. These findings allow for the conclusion that there is no 'puzzle' or 'paradox' of SWB and tertiary education in Australia.

Generalising these results, the thesis argues that there should not be a 'one size fit all' measure of SWB. Instead, in order to identify sources of well-being, or to find ways to increase well-being, researchers and policy makers should first understand what counts for the SWB of target groups of individuals (for example for low, middle, and high income groups, or males and females), then find the best means to increase their well-being accordingly.

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Chapter 1 Introduction

For decades economists, sociologists and policy makers have been interested in understanding ‘what makes the good life’, principally by exploring possible sources of well-being (McKain, 1939; Sewell, 1940; Cottam, 1941; Hagood, 1941; Mangus, 1942; Bauer, 1966; Easterlin, 1974, 2004; Diener, 1984; Zapf, 1984; Schuessler and Fisher, 1985; Headey, 1988; Diener, Diener and Diener, 1995; Veenhoven, 1996; Noll, 2000; Cummins, 2000; Diener, Lucas and Scollon, 2006; Muffels and Headey, 2009). However, there have been frequent disagreements over how to measure and define well-being, and the terms ‘quality of life’, ‘happiness’, ‘satisfaction’ or ‘well-being’ have often been interchangeably used (e.g. Veenhoven, 1999; Cummins, 2000; Easterlin, 2007; Michalos, 2007; Oswald and Powdthavee, 2007). Nevertheless, there is a generally accepted distinction between objective (measurable) well-being, assessed through economic and social indicators¹, and subjective (self-assessed) well-being, consisting of three main components: positive affect (pleasurable feelings), negative affect (un-pleasurable, painful feelings) and life-satisfaction² (Diener, 1999).

Using survey data, empirical researchers have explored determinants of subjective well-being (SWB)³ by including demographic and socio-economic factors like age, gender, geographic location, socio-economic and cultural backgrounds, or educational achievement in multivariate equations to investigate observable factors that affect well-being. The findings of such empirical explorations do not always align with general expectations. For example, Inglehart (1990) finds that happiness⁴ follows a U-shape trajectory over the life-course, with the youngest and oldest being happiest. Women traditionally report higher levels of happiness than men but recently there has been a decline in their relative levels of happiness (Stevenson and Wolfers, 2009). Married people are happier than singles (Diener, 1984; Mastekaasa, 1994), and, dependent of sociodemographic factors, having children increases the happiness

¹Economic indicators such as Gross Domestic Product (GDP) or social indicators like life expectancy at birth, literacy and numeracy rate, or unemployment rate.

² Psychologist Ed Diener coined the term Subjective Well Being (SWB) as the empirically measurable aspect of happiness, and suggested these three components of SWB. These aspects of SWB are later discussed in Chapter 3, section 3.4.

³ Throughout this thesis ‘subjective well-being’ and ‘SWB’ are used alternately.

⁴ In Section 3.2.1 the distinctions between happiness, satisfaction, positive affect, well-being and quality of life are discussed. In this context, happiness refers to self-reported well-being, i.e. subjective well-being.

of couples (Myrskylä and Margolis, 2012). Money ‘buys happiness’, but only in a limited fashion (Blanchflower, 2001), and the richest are not any happier than average wage earners (Cummins, 2000). Having a tertiary degree does not increase self-reported well-being, despite its socio-economic advantages (Veenhoven, 1999; Hickson and Dockery, 2008; Dockery, 2010). However, results from such multivariate analyses of determinants of happiness are not consistent across countries (Hartog and Oosterbeek, 1998; Peiro, 2006).

Most research in social science has focused on the impact of these and other socio-economic and demographic variables on subjective well-being (e.g.: Easterlin, 1974; Diener, Diener and Diener, 1995; Headey, Muffels and Wooden, 2004; Stevenson and Wolfers, 2008; Easterlin, 2007), the change in subjective well-being over time (e.g.: Easterlin, 1974; Veenhoven, 1993), and the differences in subjective well-being between countries (e.g.: Peiro, 2006; Veenhoven, 2006). Some studies have sought to assess differences between the levels of subjective well-being reported by individuals from different demographic groups, such as men and women (Blau, 1998; Bjornoskov, Dreher and Fischer, 2007), or variations in subjective well-being by age (Plagnol, 2010) or by income group (Clark, Etilé, Postel-Vinay, Senik and Van der Straeten, 2005). However, less attention has been given to the impact of education on subjective well-being (Dockery, 2010:12), the difference in the levels of subjective well-being or the differences in ‘what counts’ for the subjective well-being of individuals with varying education levels.

After a review of the subjective well-being literature, Dockery (2010) counts only six empirical studies that had as a main concern the relationship between education and subjective well-being: Hartog and Oosterbeek (1998); Hickson and Dockery (2008); Michalos (2007); Ross and Van Willigen (1997); Stevenson and Wolfers (2008); and Witter et al. (1984) (Dockery, 2010:14). Given that the area of subjective well-being has been researched for more than eight decades, this is a surprisingly small number⁵.

The paucity of research matters because education is positively correlated with objective well-being at both social and individual levels (human capital theory, Becker (1962)), but recent studies have found that tertiary educational attainment makes a zero or negative contribution to subjective well-being (e.g.: Veenhoven, 1996; Hartog and

⁵ Although the term subjective well-being was only coined in the 1980s (Diener, 1984), the area has been researched for decades. A comprehensive insight into the development of the subjective well-being research is offered in Chapter 3, Section 2 of this thesis.

Oosterbeek, 1998; Cummins, 2000; Dockery, 2003; Hickson and Dockery, 2008). Such studies have attempted to explain the controversial finding through various theories of well-being such as the ‘adaptation’ theory, or the ‘hedonic treadmill’ theory (later discussed in Section 2.2.1). However the complexity of the relationship has only recently come to the attention of empirical researchers, such as Gong, Cassells and Keegan⁶ (2011), who have called the negative or zero relationship between subjective well-being and tertiary educational achievement ‘the puzzle of subjective well-being and higher education’ and explored it using Australian survey data⁷. Some scholars (Desjardins, 2008; Dockery, 2010), in explaining the link, have called for further research into the theoretical and empirical relation between education and well-being (Dockery, 2010: 12; Desjardins, 2008: 33).

Through an original conceptualisation of subjective well-being in the context of higher educational achievement, this thesis reassesses the relationship between subjective well-being and higher education in Australia, using national data from secondary sources. While acknowledging the benefits of qualitative data collection and analysis, a quantitative approach is employed to explore the paradox⁸ of subjective well-being and higher educational achievement.⁹ The main results draw on the pooled cross-sectional analysis¹⁰ of 2001-2009 Household, Income and Labour Dynamics in Australia (HILDA) survey data and a cross-sectional comparison of the 2009 and 2001 data from the same source. HILDA data was available on request from the Melbourne Institute of Applied Economic and Social Research,

⁶ Researchers at the National Centre for Social and Economic Modelling (NATSEM) within the University of Canberra have recently begun a research project looking into the puzzle of higher education and subjective well-being. While their research is innovative in relation to the analysis of happiness in the light of education and age in Australia, their conceptualisation and theoretical grounds differ from those explored in this thesis.

⁷ Although this study uses the same data as the present thesis, their approach differs from the one employed here. These differences are discussed in Chapter 4 when the methodological approach of the thesis is explained.

⁸ The availability of cross-sectional and longitudinal data in ready-to-use format (SPSS and Stata) is one of the main advantages of using secondary data sources. The economy of time and money given the limitations of a PhD research project are other important reasons why quantitative secondary data analysis is preferred to qualitative interviews. These aspects are further discussed in Chapter 4.

⁹ In this thesis, the negative relationship between SWB and higher education is referred to as ‘the paradox of SWB and higher education’, in line with other such controversial relationships such as the Easterlin Paradox (Easterlin, 1974).

¹⁰ Baird et al. (2008) explain how participating in consecutive year surveys that inquire about subjective well-being has an effect on respondents’ levels of SWB (i.e. a participation bias). Pooled cross-sectional rather than longitudinal analysis is hence preferred for the exploration of SWB across years. The reasons behind using a refreshed sample (repeated and fresh respondents), and not repeated samples of the same individuals are discussed in Chapter 4.

at the University of Melbourne. SWB was measured in this survey as satisfaction with eight key aspects of life, and as overall satisfaction with life.

An alternative measure of SWB was explored in this thesis using data from the Australian Survey of Social Attitudes (AuSSA), where SWB was measured as happiness. This data however is limited in comparison with that available from HILDA, and the results from this analysis are only reported in Appendix C.

To capture the moment of transition from school to tertiary education and work, the subjective well-being of young people is analysed using data from the Longitudinal Survey of Australian Youth (LSAY). The data was accessed from the Australian Social Science Data Archive (ASSDA) at the Australian National University. The analysis conducted in this thesis using the LSAY data is longitudinal and investigates how completing tertiary qualifications affects the lives of young people. SWB is measured as happiness with life, and happiness with key aspects of life. It must be noted however that the aspects of life investigated in this survey are different from those in the HILDA survey. The main reason is that young people assess their well-being through different items from those included in HILDA (such as school performance, or getting along with parents and friends)

The reasons behind using these surveys, as well as the advantages of adopting a quantitative rather than qualitative analysis, are discussed in Chapter 4. Although the methodology employs secondary data analysis through econometric models, the theoretical approach and conceptualisation place this thesis in the social science of well-being and not in the economics of welfare or well-being. The findings have methodological and theoretical implications, and social policy recommendations.

1.1 Background: Subjective well-being and tertiary education in Australia

This section offers background information to the study of subjective well-being in Australia. Aspects of tertiary education in Australia, such as policy and participation, are also presented. The importance of education to subjective well-being is discussed.

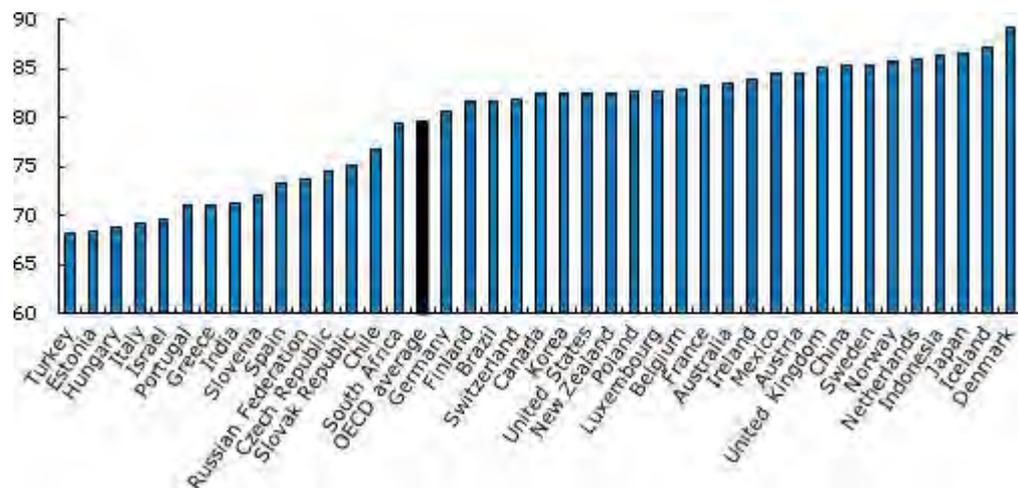
1.1.1 Subjective well-being in Australia

The term subjective well-being (SWB) was coined by Diener (1984). His article titled 'Subjective Well-Being' was published in the *Psychological Bulletin* in 1984 and has been

cited over 1300 times. SWB is often referred to as happiness, and various indicators to measure SWB have been developed across decades.

The recent OECD (2011) report compares the percentages of people reporting more positive than negative emotions in one typical day across member countries (Fig.1.1). Australia ranks well above the OECD average, being in the top 30 per cent.

Fig 1.1 Percentage of people reporting more positive than negative emotion in one typical day, 2010



Source: OECD (2011)

The acknowledged measure of SWB in Australia is the Personal Wellbeing Index (PWI). The index was developed in 2001 by Professor Cummins at Deakin University as an updated version of the Comprehensive Quality of Life Scale. The PWI is comprised of questions on satisfaction with eight domains of life: standard of living, health, achieving in life, relationships, safety, community-connectedness, future security, and spirituality/religion (Cummins, 2006).

PWI uses an 11-point end-defined response scale, and satisfaction levels are ranked from 0 to 10, with 0 being completely dissatisfied and 10 completely satisfied. For ease of understanding and comparison with other well-being measures, the total is transformed to a 0 to 100 scale. The index is published quarterly to monitor the well-being of Australians. Although minor changes do occur each quarter, the PWI maintains a mean value of around 75 (out of 100).

The Australian Unity Wellbeing Index (AUWI), assesses through subjective measures how Australian feel about their lives and life in Australia. Both personal and national aspects

of satisfaction are ranked, for example, satisfaction with personal relationships, or satisfaction with government. Results are published on the Australian Unity website¹¹. Similar to the levels of SWB measured through the PWI, since 2007 the AUWI has had values between 74 and 76 on a scale from 0 to 100.

A problem that is constantly discussed in the literature is the choice of domains of life when the ‘multiple-item’ measure¹² of SWB is computed. For example, psychologists argue that using the same life-domains for individuals across all ages and stages of life is far from straight-forward. This is because it is necessary to control for variations in stressors and conceptualisations of well-being across stages of the life-course¹³. In this thesis the multiple-item life domain satisfaction is computed using the levels of satisfaction with eight domains of life: employment opportunities, financial situation, amount of free time, health, home, local community, neighbourhood and safety¹⁴.

Although the measurement of SWB continues as a cross-disciplinary debate, more governments have embraced subjective well-being as an important indicator of wellbeing, to complement if not replace traditional economic measures of wellbeing such as GDP, GNP, or utility. Hence the accurate and precise measure of SWB is of extreme importance, as subjective well-being is becoming an important measure in shaping national policy.

1.1.2 Tertiary education in Australia

Following the European model, between 1974 and 1988 tertiary education in Australia was free to all qualified students. However, from 1989 onwards a system of partial contribution to the full cost of education was introduced through the taxation system. That system, called the Higher Education Contribution Scheme (HECS) was designed so that students would make compulsory payments only after they were earning a minimum amount in the paid labour

¹¹<http://www.australianunitycorporate.com.au/Community/auwi/Pages/results.aspx>.

¹² The multiple-item measure of SWB refers to the assessment of SWB by inquiring about satisfaction with various domains of life. The single-item measure of well-being on the other hand, inquires about satisfaction with life overall. These measures are discussed throughout the thesis, see Section 3.4.4.

¹³ This issue is complex and is discussed in-depth at various points across the thesis. In Chapter 3 the topic is addressed in the body of a literature review that presents the psychological aspects of the assessment of wellbeing. The debate is also discussed in the context of the findings, in Chapters 6, 8, and 9.

¹⁴ Testing whether the computation of an aggregate well-being measure from the levels of satisfaction with these domains of life is appropriate is reported in Chapter 5. The high levels of correlation between satisfaction with domains of life and overall satisfaction confirm the relevance of these items to overall satisfaction and the good fit of the aggregate measure for assessing SWB.

market, in most cases after completing their studies. Students also had the option of paying up front, at a discounted rate (Marginson, 1993). The next major change in the costs of Australian higher education came in 1997 when HECS rates were partially liberalised. Student payments were differentiated according to the expenses involved in providing the course, and to market demand. Postgraduate coursework programs gradually charged full fees however, and with increased internationalisation and the opening up of education to overseas students, fee incomes to education providers have increased significantly (Marginson and Considine, 2000).

Access to tertiary education is not free, and access and equity have long been central items on the agenda of education policy in Australia (Bradley, Noonan, Nugent and Scales 2008). The Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA, 2009) reports that about 55 per cent of Australian young people aged 15 to 24 who are no longer enrolled in education have not progressed further than secondary school, and of these only about half have completed Year 12. The same report finds that education completion rates are highly dependent on demographics like gender, socio-economic status, indigenous status, or geographic remoteness

At the international level, although Australian young people perform well in education compared to young people in other developed countries (FaHCSIA 2009), Australia is losing ground, falling from 7th (in 1996) to 9th (in 2009) within the OECD countries with respect to the percentage of 25- to 34-year-olds to have completed tertiary studies. However, in the past two decades tertiary education in Australia has shifted from an elite system to a mass, highly internationalised system (Ramia, Marginson, Sawir and Nyland, 2011). Growth since 2000 has been particularly high, the percentage of Australians aged 15 to 64 years who have obtained tertiary qualifications to Bachelor level or above increasing from 17 per cent in 2001 to 23 per cent in 2009 (ABS, 2010).

The Review of Australian Tertiary Education, 2008 (the Bradley Review) recommends that in order to remain competitive at international standards, Australia must increase the percentage of young people aged 24 to 35 who have completed tertiary education to 40 percent by 2020. In 2010, only 34 per cent of Australians age 24 to 35 years had achieved a tertiary qualification. While such recommendations are appropriate in the context of a global knowledge economy, it is important to ensure that socio-economic and

demographic factors do not become roadblocks to education and the objective and/or subjective outcomes it brings.

The next section introduces the argument of the thesis and how subjective well-being is conceptualised and analysed in relation to tertiary educational achievement.

1.2 The heterogeneity of SWB, the paradox of SWB and tertiary education, and the central thesis question

True, we have a divine desire for knowledge and wisdom, but with knowledge come also differences of points of view.

(Lin Yutang, 1937:55)

Studies like Shin and Johnston (1978), Diener (1984) and Rojas (2004, 2006) argue that individuals rarely have the same perception of what ‘happiness’ is, and focus on different aspects of their lives when answering the generic questions, ‘How satisfied are you with your life overall?’ or ‘All things considered, how happy are you these days?’ These differences between individuals in terms of their perceptions of well-being are discussed in the literature as the ‘heterogeneity’ of SWB (Rojas, 2009). The studies that have so far accounted for heterogeneity (or between-groups differences) in reported well-being are relatively scarce and have so far been reduced to exploring differences in well-being by gender (Crosby, 1982; Blau, 1998; Bjornoskov, Dreher and Fischer, 2007), age (Plagnol, 2010), or income (Clark et al., 2005). In Section 4.4.1 the heterogeneity of SWB is further discussed within the conceptualisation of the Life-domain approach.

The objective of this thesis is to explore the paradox of SWB and tertiary education in Australia. Because individuals have different perceptions of what contributes to their well-being (Lin, 1947; Clark et al., 2005; Rojas, 2006; OECD, 2011), the heterogeneity approach to SWB is proposed, arguing that there should not be a single measure of SWB for all individuals. Instead, in order to identify sources of well-being, or to find ways to increase well-being, researchers and policy makers should first understand what counts as SWB for target groups of individuals (for example, low, middle, and high income groups, or males and females), and then find the best means to increase their well-being accordingly.

Using Mexican data, Rojas (2004) explored the heterogeneity of SWB by demographic characteristics through a life-domain approach. The life-domain approach implies an evaluation of overall subjective well-being as the result of happiness or satisfaction with various domains of life (e.g. work, financial situation, home, etc.). He found that the importance of domains of life to the SWB of Mexicans varied across demographic groups by age, gender and education level, thus showing the heterogeneous nature of SWB in Mexico. Other studies that have taken some account for the heterogeneity of SWB (such as Clark et al., 2005) argue that individuals in the same demographic groups would have similar levels of SWB¹⁵. However minimal attention has been paid to the conceptual differences in ‘what counts’ when satisfaction or happiness are ranked. These conceptual differences are important because not all individuals give the same weight or importance to aspects of life when assessing ‘overall satisfaction’ or how ‘happy’ they are, ‘all things considered’.

The heterogeneity approach to SWB tested by Rojas (2004) in Mexico and proposed for the purpose of this thesis accounts for differences in individual perceptions of what ‘counts’ as well-being. As a particular application of the approach, the thesis explores the heterogeneity of SWB in the light of higher educational achievement in Australia to answer the central research question: **Is there a paradox of subjective well-being and higher education in Australia?**

The heterogeneity of SWB by educational achievement is embraced in this thesis and SWB is separately assessed for individuals with tertiary studies at Bachelor level or above, and for those without tertiary studies. The thesis aims to untangle the paradox of tertiary education and SWB and is hence focused on exploring the differences in SWB that occur between tertiary- and non-tertiary-qualified individuals. Additional disaggregation of the non-tertiary-educated population by highest degree or school level (i.e. Certificate I, II, III or IV, Year 12, Year 11, Year 10 and below), and that of tertiary-educated individuals by the distinction obtained (Bachelor, Diploma and Advanced Diploma, Masters, Doctorate) is also possible. However, these differences in SWB are outside the scope of the thesis. The aim is to understand if, and if yes, why, the tertiary-educated have lower levels of subjective well-being than the non-tertiary-educated (i.e. explore the paradox of SWB and tertiary education).

¹⁵ This similarity refers to the actual numeric level, usually on a scale from 0 to 10. A hypothetical example would be that women have a level of SWB around 8.5 while men rank their SWB around the level 8.3. This would allow the conclusion that SWB is (empirically) heterogeneous by gender.

SWB is heterogeneous for other demographics such as gender, age or socio-economic background as well, but identifying these levels of heterogeneity is also outside the scope of this thesis.

The theoretical approach of the thesis builds explanatory support for the argument that perceptions of well-being change with higher educational achievement. The thesis uses a number of approaches to measuring well-being. In the subjective well-being approach (i.e. exploring individual well-being through subjective measures), the measures of well-being are inferential and subjective in nature (Rojas, 2004). In the ‘multiple discrepancies theory’ (MDT, Michalos, 1985), ‘reported net satisfaction is a function of perceived discrepancies between what one has and wants, relevant others have, the best one has had in the past, expected to have three years ago, expects to have after five years, deserves and needs’ (Michalos, 1985:347). In the capability approach, education is mapped as a capability enabling individuals, and changing attitudes and expectations (Sen, 1985; Saito, 2003). Drawing on these theories, the thesis argues that perceptions of well-being vary across the population and that SWB is heterogeneous by higher educational achievement. The socio-economic and demographic variables that impact on the SWB of the tertiary-educated and non-tertiary-educated are then investigated to explore whether, and if so, why there is a paradox of SWB and higher education in Australia.

1.3 Thesis objective, hypotheses, and central argument

The central objective of this thesis is to explore the relationship between tertiary educational achievement and subjective well-being in Australia. Three hypotheses have been generated to serve this objective. The first hypothesis is designed to compare the levels of subjective well-being of the tertiary-educated and the non-tertiary-educated using first a single-item measure (overall satisfaction) and then a multiple-item measure (average satisfaction) derived from the levels of satisfaction with domains of life. This first hypothesis is:

- 1) *The highly educated a) are more satisfied with most aspects of life and b) are more satisfied with life overall.*

Hypothesis 1-a builds on human capital theory (Becker, 1964) and argues that education enhances individual growth, and hence individual satisfaction with areas of life

such as work, health or wealth. Based on the life-domain approach¹⁶ to subjective well-being, hypothesis 1-b proposes that the higher levels of satisfaction with most domains of life that are associated with educational achievement translate into higher subjective well-being (overall satisfaction with life).

The single and multiple-item measures of subjective well-being lead to diverging conclusions with respect to the paradox of subjective well-being and higher education, pointing to the need for further investigation.

The second hypothesis explores whether perceptions of well-being change with tertiary educational achievement:

- 2) *a) SWB is heterogeneous by higher educational achievement¹⁷ and b) socio-economic and demographic factors impact the SWB of the tertiary-educated and the non-tertiary-educated to a different extent.*

The literature identifies a strong age effect of subjective well-being (Frey and Stutzer, 2002; Heady and Warren, 2008; Blanchflower and Oswald, 2004). Cross-disciplinary studies argue that change in the stressors¹⁸ and perceptions of well-being throughout the life-course are the main cause of the large variations in SWB across the stages of life (Plagnol, 2010), and especially during late adulthood (65 years and older). Employing a life-course approach to SWB and drawing on life-course theory, life-span development and stress research¹⁹, the final hypothesis of the thesis proposes that subjective well-being is heterogeneous by age, and furthermore, that differences between the levels of subjective well-being of the tertiary-educated and the non-tertiary-educated are likely to change throughout the life-course. The third and final hypothesis of the thesis is:

¹⁶ It has been flagged on p.10 that the life-domain approach implies an evaluation of overall subjective well-being as resulting from happiness or satisfaction with various domains of life. This approach is also discussed in Chapter 3, Section 4.

¹⁷ I.e. the factors that 'count' for the subjective well-being of highly educated and non-highly educated are not same.

¹⁸ Stressors are defined as the factors that create situations when 'pressure exceeds one's perceived ability to cope' (Lazarus and Folkman, 1984). There are various types of stressors: eventful stressors (such as getting married, having children, having disruptive conflicts); chronic stressors, mainly caused by changes in the ambience; and quotidian stressors occurring at the micro level (Pearlin and Skaff, 1996). Section 2.2.3 discusses these concepts in depth.

¹⁹ These theories are discussed in-depth in Section 2.2.3 where the importance of accounting for stages of life in subjective well-being research is argued.

- 3) a) *SWB is heterogeneous throughout the stages of the life course and b) Socio-economic and demographic factors that impact SWB vary throughout the life-course.*

The results of the analysis stemming from the testing of the hypotheses are detailed in Chapters 5 to 9, the results chapters. In summarising these results, the central argument of the thesis is that subjective well-being is heterogeneous by tertiary educational achievement and stage of the life-course. The findings of the thesis indicate that biases resulting from the conceptualisation of subjective well-being shed light on the paradox of tertiary education and subjective well-being. Bias is defined in the thesis as occurring when a response to a test item tends to be altered in such a way that it indicates something other than what it is intended to measure Runquist (1950).

The timeliness and importance of the research are discussed in the next section and the wider contribution to knowledge of the thesis is discussed in Section 1.5.

1.4 Significance of the research

Current education policies promote increased participation in tertiary education in Australia (Bradley et al., 2008). Nevertheless, recent Australian empirical studies conclude that completing education at tertiary levels, while increasing the material (or objective) well-being of individuals and societies, does not add to individual happiness or satisfaction with life (Hickson and Dockery 2008; Dockery, 2010).

The zero or negative relationship between higher education and subjective well-being has been identified both in Australia and internationally (Veenhoven, 1999, Hartog and Oosterbeek, 1998, Peiro, 2006, Hickson and Dockery, 2008). However, few studies have aimed to explore the bases of this relationship. Through a non-conventional approach this thesis answers the need for a theoretical and empirical exploration of the relationship between tertiary education and subjective well-being, by arguing the heterogeneous nature of subjective well-being by higher educational achievement and age.

While the statistical computations and econometric models are not new, the methodological and theoretical conceptualisations of the thesis bring novelty to the study of subjective well-being in the field of the social sciences. The thesis argues that a ‘one size fits all’ measure of SWB is not appropriate to assess SWB at national level as individuals have different perceptions of ‘what counts’ for their well-being. The correlates of subjective well-

being are separately assessed for the tertiary-educated and non-tertiary-educated individuals, their levels of overall subjective well-being are evaluated, and factors that increase the subjective well-being of each group are explored. Differences by age are also considered. The innovation of the thesis is the argument that the paradox of subjective well-being and higher educational achievement is the result of perceptions and conceptual biases in the assessment of the single-item measure of subjective well-being.

1.5 Structure of the thesis

In pursuit of the central research question, the remainder of the thesis is divided into nine chapters. Chapter 2 discusses the theories that the thesis builds on, namely theories of quality of life and the life-course, human capital theory, and the capability approach. Theories of quality of life help develop an approach to the study of subjective well-being and a theoretical explanation of the changes in self-reported well-being in the wider context of overall well-being. Life-course theory, triangulated with aspects of life-span development, underlines the importance of age-cohort effects in the analysis of ‘what makes the good life’. This offers the theoretical grounding for further investigation of well-being across the stages of life. And finally, human capital theory and the capabilities approach conceptualise tertiary education as a life-changing event, worth of further investigation in the context of well-being.

Chapter 3 is a critical review of the relevant literature. Section 3.2 discusses the confusion that often occurs between the terms ‘quality of life’ and ‘well-being’, offering a working definition of subjective well-being for this thesis. Section 3.3 is an in-depth review of the subjective well-being literature, and for this purpose four bodies of literature have been distinguished. Studies that explored the relationship between socio-economic and demographic factors and well-being are first reviewed, followed by a compendium of studies that explored the relationship between these socio-economic and demographic factors and education. The third body of literature is a critical review of studies that explored the relationship between educational achievement and well-being. Finally, studies that take a life-domain approach to explain well-being are reviewed to understand how the relationship between well-being in areas of life and overall well-being has been discussed in the literature. Section 3.4 discusses conventional methods that have explored subjective well-being, and Section 3.5 explains how this thesis contributes to the subjective well-being literature through its theoretical approach, its methodology and its conceptualisation of subjective well-being in the context of higher educational achievement.

Chapter 4 addresses the methodological approach of the thesis. The advantages of the life-domain approach are discussed. Differences in measuring subjective wellbeing and how they are controlled for in the thesis are then detailed. The datasets and their limitations are also explained, and the operational research questions that led to the testing of the hypotheses are framed in the context of the empirical analysis.

Chapter 5 is the first chapter of analysis and results. Subjective well-being by higher educational achievement is explored in the context of the adult population (over 25 years) through a pooled cross-sectional analysis of the Household, Income and Labour Dynamics in Australia (HILDA). The chapter starts with an investigation of the change in levels of satisfaction with domains of life between 2001 and 2009. How the levels of satisfaction with employment opportunities, finances, free time, health, safety, home, neighbourhood, and local community have changed in the past decade is then explored, and the statistical significance of the differences between the tertiary-educated and non-tertiary-educated is mapped. The second part of the chapter explores in a life-domain approach the changes in subjective well-being and in well-being in life domains between 2001 and 2009. Two measures of subjective well-being are assessed: overall satisfaction with life, obtained as the answer to the general question, ‘All things considered, how satisfied are you with your life?’; and average satisfaction, calculated as the arithmetic average of levels of satisfaction with the eight domains of life included in the satisfaction with life module of HILDA. The purpose of the chapter is to explore the relationship between SWB and tertiary education using different measures of SWB—overall and at life-domain level.

Chapter 6 uses the heterogeneity of SWB to explore the paradox of subjective well-being and tertiary education. The heterogeneity of subjective well-being by educational achievement is tested and the extent to which satisfaction with aspects of life impact on the subjective well-being of tertiary- and non-tertiary-educated Australians is examined. Whether socio-economic and demographic factors equally affect the subjective well-being of tertiary-educated and non-tertiary-educated is explored in Chapter 7.

Chapter 8 takes a life-course perspective, assessing the heterogeneity of subjective well-being by educational achievement throughout each stage of the life-course. The analysis is conducted using adult population data from HILDA, 2009.

The Longitudinal Survey of Australian Youth (LSAY) provides youth-specific information, and the subjective well-being of young people is separately analysed in Chapter

9 using this data. How the subjective well-being of young Australians changes as they transit from school to further education is explored in order to understand whether differences in well-being at national levels are due to intrinsic characteristics and prevail from a young age, or whether young people with tertiary qualifications are happier than their counterparts, but become less happy later in life (Headey et al, 2004; Hickson and Dockery, 2008; Dockery, 2010). Access to education is also discussed in the light of the capabilities approach.

Chapter 10 discusses the findings of the thesis in the current socio-economic and political context of Australia, assessing the policy implications. The chapter presents the key findings and outlines the contribution to knowledge brought by this thesis through its methodological, theoretical and policy implications. The short-falls of the analysis are identified and potential for expansion of the topic is discussed.

The questionnaires from the national surveys used in the analysis of this thesis are presented in Appendix A, and additional empirical results of the analysis are kept in Appendix B. Technical computations of the data have been performed to control for various methodological and conceptual biases, and are discussed in Appendix C, the technical appendix at the end of the thesis.

Chapter 2 A review of theoretical frameworks

2.1 Introduction

Education is traditionally positively correlated with aspects of objective well-being such as employment opportunities, income, wealth or health (Becker, 1962; Easterlin, 1974; Veenhoven, 1996; Peiro, 2006; Bradshaw, Hoelscher, and Richardson, 2006). Despite such objective advantages, it has been argued that the relationship between higher educational achievements and measures of subjective well-being such as happiness or satisfaction with life is zero or negative in developed countries (Hartog and Oosterbeek, 1997; Hickson and Dockery, 2008; Stevenson and Wolfers, 2008; Dockery, 2010). However, studies focusing on educational achievements and quality of life exclusively,²⁰ underline a lack of coherent theories linking the two concepts, as well as the need for further empirical and theoretical investigation of the links between them (this need was expressed by Dockery, 2010: 12 and Desjardins, 2008:33).

The purpose of this chapter is to discuss theoretical orientations relevant to the thesis and how they interact to frame the theoretical approach for the analysis. The chapter is structured in four sections. Section 2.2 introduces the relevant theories and explains how they interact with the thesis. The theoretical framework of the thesis is formulated in Section 2.3.

2.2 Relative theoretical orientations

2.2.1 *Theories of quality of life*

Several theories of quality of life have been developed in the past 30 years, such as the ‘adaptation level’ or ‘hedonic treadmill’ theory (Brickman and Campbell, 1971), ‘personality theory’ (Costa and McCrae, 1980), ‘multiple discrepancies’ theory (MDT, Michalos, 1985), ‘dynamic equilibrium’ theory (Headey and Wearing, 1992), ‘set point’ theory (Lykken and Tellegen, 1996), and the ‘homeostatic’ theory (Cummins, 1995). These frameworks are summarised in Table 2.1 and their relevant aspects are discussed below.

Set point theory argues that individual levels of happiness are determined by characteristics which one was born with or which are developed early in life; hence individual happiness is bound to remain unchanged at original (intrinsic) levels (Lykken and Tellegen, 1996). However, other scholars have questioned the accuracy of this theory and

²⁰ In a review of quality of life studies in the past four decades, Dockery (2010) identified only six studies exclusively concerned with the impact of educational achievement on quality of life.

argued that, as well as intrinsic characteristics, life goals are strong determinants of perceived happiness (Headey, 2006). Furthermore, recent studies have shown that it is not only one's own goals that can change one's level of happiness, but also the goals of others, for example, a partner's goals (Headey, Muffels and Wagner, 2010). Although some studies support the set point theory, such as Brickman and Coates (1978) who have found similar levels of satisfaction for lottery winners and paraplegics, others have found that, to the extent that it depends on need-gratification, happiness is not necessarily relative (Veenhoven, 1990).

Similar to the set point theory, hedonic treadmill theory argues that individuals tend to return to initial levels of happiness, regardless of the events that might temporarily change their happiness (Brickman and Campbell, 1971). Homeostatic theory compares this phenomenon to the tendency of the human body to maintain a constant temperature (homeostasis), and support for it has been found in Australian data (Cummins, 2000). Despite various theories in favour of the idea of a relatively stable, hardly fluctuating level of subjective well-being, many scholars disagree. Veenhoven (1990: 1) argues that 'happiness-is-relative' theories usually mistake 'overall happiness' for 'contentment'. While contentment implies a comparison of 'life-as-it-is' with 'how-life-should-be', he argues that happiness does not entirely depend on comparisons, but also on how one feels, which in turn depends on the gratification of basic bio-psychological needs. Furthermore, these needs don't adapt and they therefore represent 'the limits of human adaptability' (Veenhoven, 1990:1). Diener, Lucas and Scollon (2006) make five revisions to the hedonic treadmill theory while not totally rejecting it: first, individuals' set points are not hedonically neutral; second, individuals have different set points; third, a single person may have several set points; fourth, set points can change under some conditions; and finally, individuals have different levels of adaptability to external events (Diener et al., 2006:1). Although set-point theory, hedonic treadmill theory and homeostatic theory offer explanations of the limited changes in happiness that some individuals record over time, more theoretical development is necessary to explain why some individuals react to change more (or less) than others, and by what means, if at all, their levels of happiness may be increased.

Table 2.1 Relevant theories of quality of life

Theory	Theoretical statement	Author(s)
Adaptation Level Theory	Overtime individuals form expectations of the future, called frames of reference. Events that are more favourable than these expectations generate positive emotions, while those that are less favourable evoke negative emotions.	Helson, 1948, 1964
Hedonic Treadmill Theory	Individuals tend to return to initial levels of happiness, regardless the events that might temporarily change their happiness	Brickman and Campbell (1971, 1972)
Personality Theory	Five factors (the “Big Five”) describe the human personality: openness, conscientiousness, extraversion, agreeableness, and neuroticism. These personality factors have strong relationships to wellbeing, e.g. extraversion leads to positive affect and neuroticism to negative affect. The temperament version of personality theory suggests that certain personality traits like neuroticism and extraversion are enduring cognitive dispositions that directly affect wellbeing while other personality traits have an instrumental role.	Costa and McCrae, 1980 Costa and McCrae, 1991
Multiple Discrepancies Theory	Reported net satisfaction is a function of perceived discrepancies between what one has and wants, and what others have, the best one has had in the past, expected to have 3 years ago, expects to have after 5 years, and deserves and needs.	Michalos, 1985
Dynamic Equilibrium Theory	Self-esteem must be high enough to ensure that individuals feel confident about engaging in suitable behaviours and low enough not to feel complacent. The mood and satisfaction of individuals may be governed by the psychological system that evolved to maintain self-esteem.	Headey and Wearing, 1986, 1987, 1988, 1989 Headey, 2008
Set Point Theory	One’s level of happiness is close to impossible to change because it depends on characteristics one was born with or which are developed early in life	Lykken&Tellegen, 1996
Homeostatic Theory	Similar to homeostasis in the regulation of body temperature, the homeostasis of subjective wellbeing argues that mood and satisfaction regulate stability of well-being. Regardless of the ups and downs, the overall well-being tends to return to initial levels.	Cummins, 1998; Darven, Cummins and Stokes (2007)

In 1985 sociologist and philosopher Alex C. Michalos developed the multiple discrepancies theory (MDT) asserting that:

Happiness and satisfaction are functions of perceived gaps between what one has and wants, relevant to others have, the best one has had in the past, expected to have three years ago, expects to have after five years, deserves and needs.

(Michalos, 1985:347)

The MDT covers several aspects of other quality-of-life theories such as adaptability and relativity, and differentiates between happiness and satisfaction, the former being regarded as cognition and the latter as affect. The theory has six basic hypotheses:

1. Reported net satisfaction is a function of perceived discrepancies between what one has and wants, relevant to others have, the best one has had in the past, expected to have 3 years ago, expects to have after 5 years, deserves and needs.
2. All perceived discrepancies, except that between what one has and wants, are functions of objectively measurable discrepancies, which also have direct effects on satisfaction and actions.
3. The perceived discrepancy between what one has and wants is a mediating variable between all other perceived discrepancies and reported net satisfaction.
4. The pursuit and maintenance of net satisfaction motivates human action in direct proportion to the perceived expected levels of net satisfaction.
5. All discrepancies, satisfaction and actions are directly and indirectly affected by age, sex, education, ethnicity, income, self-esteem and social support.
6. Objectively measurable discrepancies are functions of human actions and conditioners.

(Michalos 1985:347-8)

The relationship between higher education and reported well-being is explored in this thesis in the context of Australian national data and the MDT. A controversial finding of studies of well-being is that individuals over the age of 50 have the highest levels of happiness, satisfaction and positive affect (Frey and Stutzer, 2002; Blanchflower and Oswald, 2004). The quality of life theories mentioned above (Diener et al. 2006) explain such findings through concepts of adaptation, or of comparison with peers or past events. Most of these concepts, however, share common ground with the life-course theory which explains the

human development throughout the life course. For these reasons, the life-course theory, its approaches and interaction with this thesis are discussed in the next subsection.

2.2.2 Life-Course Theory

The analysis of human life and origins has long been the concern of sociologists, and the need for a ‘longitudinal approach to life history’ has been emphasised since the 1920s (Thomas, 1920). Longitudinal studies of children in the 1920s and 1930s came as an answer when the cohorts were followed into youth and adulthood. However as results appeared, the issues that arose ‘could not be addressed satisfactorily by available theories’ (Elder 1998:1). Hence the life course theory(LCT) emerged in the 1960s, from necessity.

A life course is defined as ‘a sequence of socially defined events and roles that the individual enacts over time’ (Giele and Elder, 1998:22). Life course theory has four key principles: historical time and place; the timing of lives; linked or interdependent lives; and human agency (Elder, 1998: 4). All of these contribute to the conceptualisation of SWB in this thesis.

The first principle of the LCT states that the life courses of individuals are embedded in and shaped by the historical times and places they experience over their life-times. This principle touches one of the aspects embedded in measures of SWB, that perceptions of well-being are partly the result of the environment one lives in. Although it is difficult to control for the effects of time and place, it is important to acknowledge that scholarly findings are representative of a particular group of individuals, with specific characteristics of time and space. Accordingly, the findings and conclusions of this thesis are representative for the Australian population over the age of 25. Although the results may be applicable to other nations, particular aspects of the data used such as the time of collection, or the cultural characteristics of the Australian nation can mean that the findings are unlikely to be representative at the global level.

The second principle, the timing of lives, emphasises that the developmental impact of a succession of life transitions or events is dependent on when they occur in a person’s life. Based on this principle, and in the light of the literature suggesting a strong age effect on SWB, the relationship between higher education and SWB is explored while accounting for the stage of life at which individuals find themselves.

The third principle argues that lives are lived interdependently, and the network of shared relationships expresses social and historical influences. Measures of SWB are highly dependent on perceptions of the environment (Plagnol, 2010) and this third principle helps conceptualise and discuss the peculiar increase in SWB after the age of 50 that is presented in the literature.

Finally, the fourth principle, human agency, underpins the theoretical and methodological approach. It argues that individuals construct their own life course through the choices and actions they take within the opportunities and constraints of history and social circumstances. In the light of this principle, ‘attending tertiary education’ is theorised as an action that contributes to the construction of individual lives and societies. The objective outcomes of this action have been widely discussed and it has been concluded that education is a fruitful investment in human capital (Becker, 1964), generating individual and societal growth. The thesis however explores the individual subjective outcomes, and how higher education can change the life-course of individuals.

Complementing the second principle of the life-course theory (the timing of lives), the significance of age to development is further explored in this thesis, drawing on life-span development research. Santrock (2007) explains the importance of accounting not only for chronological age, but also for biological age, psychological age, and social age, for a complete analysis of individuals from a life-span perspective. These aspects are discussed in the next section.

2.2.3 Life-span development, life course and stressors

Life-span development and life course

The division of the life span into periods is a social construction, ‘an idea of the nature of reality that is widely accepted by members of a society at a particular time, on the basis of shared subjective perceptions or assumptions’ (Papalia-Olds-Feldman in Fernandez, 2010:9). Eight periods within the life span are generally accepted in western societies: infancy and toddlerhood (birth to age 3); early childhood (3 to 6 years); middle childhood (6 to 11 years); adolescence (11 to 20 years); young adulthood (20 to 40 years); middle adulthood (40 to 65 years); and late adulthood (65 years and older) (Fernandez, 2010:12-13).

The relationship between age and SWB is controversial and has been explored in cross-sectional and longitudinal studies (e.g.: Diener, Suh, Lucas and Smith, 1999; Casas,

Figuer, Gonzalez, Malo, Alsinet, and Subarroca, 2007; Krueger, Kahneman, Schkade, Schwarz and Stone, 2009; Cummins, 2010). Some studies have found a negative relationship between ageing and SWB (Wilson, 1967); others have found a U-shape relationship (with the youngest and oldest reporting the highest levels of happiness) that disappears when factors such as income, marriage, or employment are controlled for in fixed effects models (Frijeter and Beaton, 2011); and others have given the relationship a different consideration by accounting for morale (Kutner, Fanshel and Togo, 1956) or contentment (Veehoven, 1984). Despite the ongoing debate, lapses in the conceptualisation of SWB have been identified as possible biases, and the source of the age and SWB paradox by studies such as Ryff (1989) or Plagnol (2010).

This thesis accounts for the heterogeneity of SWB (also discussed by studies like Rojas, 2004, 2006 or Clark et al., 2005) primarily from the perspective of educational achievement. However, because age is an influential factor in perceptions of well-being, the latter part of the analysis brings an additional layer to this investigation by exploring the differences in SWB between the highly educated and the non-highly educated in the light of the life-course approach. In Chapter 8 the differences in SWB between the tertiary-educated and the non-tertiary-educated are explored at four stages of development: emerging adulthood; early adulthood; middle adulthood; and late adulthood (Santrock, 2007:13).

Following recent changes in the economic and historical context of developed countries, developmental psychologists have reconsidered the stages of the life course. Individuals aged 18-25 years, having left the dependencies of adolescence but not quite yet into full-adulthood, are now assessed as being at an emerging adulthood stage, a period of exploration of possibilities in work, love and worldview (Arnett, 2000:469). Although not yet considered a developmental stage per se by sociologists, emerging adulthood has drawn the attention of developmental psychologists as one of the periods of transition that 'can often be turning points in people's lives' (Santrock, 2007, p.14). Education, and in particular tertiary education, and the transition from education to work are the life-changing events during emerging adulthood. Hence 18- to 25-year-olds become important to the analysis of this thesis, and their SWB and access to tertiary education are explored in Chapter 9.

Stressors over the life-course

Life-course theory emphasises the necessity to analyse human life at different life stages due to the constant changes in the nature and quality of stressors, the exposure to these stressors along the life span, and the change in access to resources. Lazarus and Folkman (1984) argue that stress occurs as the result of an imbalance between demands and resources, or when 'pressure exceeds one's perceived ability to cope'. Pearlin and Skaff (1996) identify three types of factors which cause stress and affect the life-course: eventful stressors; chronic stressors; and quotidian stressors.

Eventful stressors refer to life-events such as getting a job, getting married, getting divorced, having children, changing jobs, or having disruptive conflicts. The occurrence of eventful stressors follows an inverted U-shaped relationship relative to age, reducing as people pass through mid-life (Ensel, 1991). However two types of eventful stressors are more likely to occur at later stages of life: the death of peers and the onset of illness and/or physical impairments (Pearlin and Skaff, 1996:240).

Chronic stressors are represented by ambient, role and quotidian strains, and are likely to appear along the life course at varying intensities. Ambient strains refer to changes in the environment – the community or the neighbourhood. These can give the elderly especially, not only feelings of un-safety and deteriorating surroundings, but also feelings of self-decline and regret for the 'good old days'. Role strains such as institutional roles, families and their interpersonal relationships may be a source of severe distress. They reach their highest levels during early and middle adulthood when responsibilities are relatively high. Health and financial problems are considered two additional chronic strains that may increase in frequency with age (Pearlin and Skaff, 1996:241).

Finally, quotidian stressors are stressors arising from the context of one's micro-environment and refer to 'the hardships that are experienced in satisfying the logistical requirements of daily life' (Pearlin and Skaff, 1996). These stressors are considered to be mainly related to physical capacities and become more obvious at the onset of old age in daily activities such as walking to shops, climbing stairs, etc. However, either these stressors are nullified and overtaken by positive events in elders' lives, or, they are not reflected in reported well-being (for whatever reason). This latter possibility is argued by studies like Blanchflower and Oswald (2007) and other studies which have found the U-shaped relationship between happiness and age.

Pearlin and Skaff's study of life stressors and life course development (Pearlin and Skaff, 1996) analysed coping, social support and mastery as partial explanations for people's different reactions to life stressors. Both understanding the change in life-stressors and the adaptation to them are valuable resources for this thesis. They help to explore not only the age and SWB relationship, but also that the relationship of education to SWB. How these life stressors and adaptations to them happen throughout the life span is described below.

Coping

Coping behaviour has been defined as the development and use of adaptive skills across the life course (Kahana, 1992). Pearlin and McKean Skaff (1996) have argued, however, that individuals tend to focus on managing the meaning of events, rather than trying to change difficult situations in their lives. And most frequently, meaning is the product of 'one's unique cognitive manipulations'. For example, graduating from high school could mean that the child is ready to enter the labour force and help the family financially, while in other families it could mean that the child is ready to go to college. Meaning, then, is 'shaped in part by the life-course context of problematic circumstances' (Pearlin and McKean Skaff, 1996:243). Two types of coping strategies in the management of meaning are: 1) comparison with others who are situated in similar positions – and sometimes have more aggravated stressors; and 2) shifting priorities to fit the changing reality – such as shifting a life domain down the list of priorities. Interestingly, these coping strategies are mirrored in the quality-of-life research concepts of multiple-comparison and adaptation (Michalos, 1985) discussed in Section 2.1.

Blonna (2007) discusses two types of coping: emotion-focused coping (changing the way one views potential stressors); and problem-focused coping (finding different ways to manage the potential stressor, rather than seeking an alternative to it). The concept of coping behaviour may in fact clarify two dilemmas which researchers in social science have identified and which are addressed in this study: the U-shaped relationship between reported happiness and age; and the lower levels of happiness reported by tertiary-education graduates. For example, older people can nullify the negative effects of decreased mobility and worsening health by comparing themselves to peers who are worse off, or by shifting their priorities to less physical activities and accepting their physical restrictions (as argued by Brandtstadter and Baltes-Gotz, 1990 in Pearlin and McKean Skaff, 1996:243). Similarly, individuals in emerging and early adulthood can tend to compare themselves to more

successful peers, and especially those with higher levels of education and higher expectations, and also set themselves goals that keep them constantly in a ‘working towards it’ or ‘almost there’ frame of mind while feeling a lack of accomplishment. With reference to another discipline, the concept of coping was used similarly in sociology but under a different name: adaptation. Adaptation refers to a person’s change in attitude and actions to suit the changes in their life (Diener, 1984), and explains paradoxes such as similar levels of happiness between lottery winners and average wage earners, or paraplegics and people who can walk (Diener et al., 1999). It is also one of the concepts at the foundation of studies that argue the heterogeneity of SWB (Rojas, 2004). As well, it grounds the setting for this thesis in theorising higher education as a life-changing event with echoes throughout the life-course.

Lazarus and Folkman (1984) further identify six types of coping resources: health and energy; positive beliefs; problem-solving skills; social skills; social support; and material resources. Some of these coping strategies are discussed by life-course researchers: Pearlin and Skaff also identify social support and mastery as key factors in the reaction to life stressors. Some of these coping strategies are briefly discussed below, while their relevance to this thesis is underlined.

Social Support

Social contact and social networks play an important role in supporting individuals, especially as they age, reducing feelings of loneliness, traditionally correlated with low levels of happiness. On the other hand, having seen ‘the fleet shrink’,²¹ apart from sadness and feeling of temporality, through comparison, or – as conceptualised in social science – through the relative evaluation of well-being, individuals tend to see themselves as ‘blessed’ or better off. This concept also supports the idea that reports of well-being amongst population aged over 65 are likely to be amplified by age-specific experiences.

Mastery

Mastery is defined as a global sense of control and has been proven to contribute to well-being (Cohen and Edwards 1989; Ryff, 1989 in Pearlin and Skaff, 1996). It has a dual role in the stress process: on the one hand it regulates the impact of stressors, while at the same time

²¹The convoy metaphor comes from Kahn and Antonucci (1980), as a way of describing the situation where the older people see most of their peers die, which results in feelings of loneliness and low levels of happiness.

it may be increased or decreased by exposure to stressor conditions (Skaff and Pearlin, 1994:243). In the case of old people, ‘domains of life over which people have lost a measure of control are moved out of a position of centrality and are replaced by those over which control is still exercised, such as balancing a chequebook. From the perspective of the observer, this kind of priority may seem to take up limited life space, but to the aging person it stands as salient evidence of continuing mastery’ (Pearlin and Skaff, 1996:243).

This concept further supports the methodological approach of this thesis. It can be argued that the differences in skills and abilities between the tertiary-educated and the non-tertiary-educated are differences of mastery. Furthermore, triangulated with the effects of ageing, it may be argued that the highly-educated and non-highly-educated have different levels of need for adjustment in activities.

2.2.4 Human Capital Theory

Education can be pure consumption or pure investment, or it can serve both these purposes.

(Schultz, 1960:571)

Although the concept of human capital was coming into usage as early as the 18th century, members of the Chicago School of economic thought (Schultz, 1961; Becker, 1964 and Mincer, 1974) are the pioneers of what is currently referred to as the human capital theory.

Stated simply, the theory argues that individuals gain knowledge and skills through education and training that increase their employability, make them more productive at work, and generate positive outcomes for both the individual and the employer. In short, education can be considered an investment in human capital. The returns to education have been assessed at both private and social levels. Mincer (1974) estimated the private returns to education by equating the present value of two constant earning streams and differentiating between the times when they start flowing: one earning stream starts at year 0 (no further investment in education), the other starts at year s , after having invested s years in education. As compensation for postponing earnings, an extra year of schooling increases annual earnings by the discount rate²². In other words, earnings grow multiplicatively by the discount rate (J. Hartog and H. Oosterbeek in J. Hartog and H.M. van den Brink, 2007:7-9).

²² The discount rate is the internal rate of return, salary after s years of education less salary after no years of education relative to the investment costs.

These rates of return to education are estimated to be between 5 and 15 per cent, varying between countries and by demographics such as gender or geographic location.

Alongside financial benefits, education has positive effects on civic participation (Milligan, Morettin and Oreopoulos, 2004), lower crime rates (Lochner and Moretti, 2004), and higher life expectancy (Lleras-Muney, 2005). After a review of the relevant literature, Lindahl et al (2007) conclude that the social returns are the same or slightly higher than the private returns to education (p.33). While such objective advantages are clear outcomes at private and social levels, there is little agreement on the extent to which education participates to individual subjective well-being, and especially in developed countries such as Australia (Dockery, 2010).

The Government's committee on the future of higher education in Australia in the 1960s (the *Martin Report*, 1964) stated: 'The Committee believes that economic growth in Australia is dependent on a high and advancing level of education' (p.1), and that individual benefits 'are only a fraction of the benefits accruing to society' (p.5). This stance is currently maintained: the most recent report on higher education (*The Bradley Report*, 2008) underlines the necessity to increase the proportion of 18- to 35-year-olds holding tertiary qualifications to 40 per cent by 2020, roughly double the year 2000 figure. The reasoning behind setting such targets is mainly the need for international competitiveness and for keeping up with technological advances requiring highly-educated employees. Despite the fact that the positive outcomes for society and the economic growth that follow from investing in education are hardly ever in doubt, there is a growing and ongoing debate over the negative impact of higher education on happiness or satisfaction with life at the individual level (Hartog and Oosterbeek, 1997; Hickson and Dockery, 2008; Stevenson and Wolfers, 2008; Dockery, 2010).

Human capital theory argues that there are both social and individual outcomes from education. Methodological and theoretical concepts derived from theories of quality of life (discussed in Section 2.2.1) support this thesis in arguing that tertiary education does increase the subjective well-being of Australians. Understanding that choices (such as obtaining tertiary qualifications) are not always voluntary but possibly constrained by social, economic or environmental conditions (principle 4 of life course theory), the capability approach (Sen, 1985) triangulated with aspects of the life-course theory provides further theoretical support for the ways in which education helps individuals construct their own life course.

2.2.5 Capabilities Approach

Welfare economist and philosopher Amartya Sen developed the concept of capabilities and the capabilities approach in the 1980s, arguing for the importance of freedoms in the assessment of a person's advantage, individual difference in the ability to transform resources into valuable activities, and the multivariate nature of activities that give rise to happiness (Sen, 1984; 1985). Sen distinguishes between the achievements of a person (what he or she manages to do or be – functionings), and their capabilities (the person's ability to achieve certain functionings). He explains the concept of capability in a rather straight-forward manner as the difference between choosing A when B is also available and choosing A when B is not available, or what Sen describes as 'real freedoms' (Sen et al., 1987: 36-37). He refuses to give a list that would constitute 'objectively correct' capabilities (Sen, 1984:47), but makes a point about basic capabilities that are 'intended to separate out the ability to satisfy certain crucially important functionings up to certain minimally adequate levels' (Sen, 1993:41).

Following Sen's theoretical approach, political and feminist philosopher Martha Nussbaum further developed the capability approach, which she considers 'the most important theoretical development in human rights during the past two decades' (Nussbaum, 2007). Unlike Sen, Nussbaum creates a list of ten 'central human capabilities' that ought to be on the agenda of every government of a developing country: life; bodily health; bodily integrity; senses; imagination and thought; emotions; practical reason; affiliation; other species; play; and political and material control over one's environment (Nusbaum, 2000: 72-5).

Both Sen and Nussbaum argue that the capabilities of human beings should not be allowed to fall below a certain floor, which they see as their basic human rights. Nussbaum argues that what individuals are capable of doing depends on combined capabilities, which in turn depend upon internal and basic capabilities. However, the internal, as well as the combined capabilities, depend on external conditions that are the domain of public and political action.

Tertiary education can be theorised in terms of the capabilities approach in more than one way. Firstly, having completed tertiary education is a proof of agency and draws unquestionable outcomes, i.e. functionings. However, external factors, such as socio-economic disadvantage, may impede the option of participation in tertiary education. Access

to education is present on any 'list' of capabilities: reading and communicating; taking part in literary and scientific pursuits (Sen, 1984); or (the fourth capability on Nussbaum's list of ten) 'senses, imagination and thought' (Nussbaum, 2000). There is a distinction between the basic right to education and the ability to complete higher education – a combined capability dependent not only on basic and internal capabilities but as well on external conditions – and this is analysed in this thesis in the context of higher education in Australia. Although nations have the freedom to decide their own lists of capabilities in their internal Human Development Report, the international report of the United Nations Development Programme (UNDP, 2010) lists tertiary enrolment among the basic needs of literacy, as well as primary and secondary education.

Within the capabilities approach, Sen and Nussbaum share two basic assumptions regarding education: that humans are ends, not means, and that therefore the education of humans should be concerned with realising freedoms and acknowledging diversity; and secondly, that education is both instrumentally and intrinsically valuable for human flourishing. They perceive that education is a basic capability promoting freedom and the agency to participate further in education and to enlarge freedoms – a perspective which contrasts with a commodified notion of education, that is, that only a basic minimum of schooling is necessary. However, the social context can constrain or enlarge capabilities for education and in education.

Using data from the Longitudinal Survey of Australian Youth (LSAY), the process whereby university students and graduates are 'selected' is investigated in Chapter 9 of the thesis. This chapter also investigates whether the choices to opt out of tertiary education are voluntary or whether they are imposed on young people by the 'constraints of history and social circumstances' (life course theory, Elder, 1974). The life course theory principle of human agency, that individuals construct their own life course through the choices they make and the actions they take within the opportunities and constraints of history and social circumstances, takes the capabilities approach one step further to understand the impact of capabilities, or alternatively of a lack of capabilities, on the life course.

2.3 Theoretical approach of the thesis

All of the theoretical frameworks reviewed above imply, directly or indirectly, that tertiary education has a positive impact on well-being²³. This thesis explores whether this is the case, focusing, however, on the subjective aspect of well-being.

The springboard for the analysis contained in the thesis is the heterogeneous nature of subjective well-being, in the notion that ‘what counts for happiness is everyone’s opinion’ (Lin, 1940 in Rojas, 2004). The thesis agrees with those authors who argue against a global measure of subjective well-being, while holding that scholars and governments should aim to understand what counts for groups of individuals, and explore ways of increasing the well-being of targeted groups of individuals (e.g. low, medium and high income, male and female, rural and urban). The central argument of the thesis is that what counts for the subjective well-being of the tertiary-educated is different from what counts for the subjective well-being of the non-tertiary-educated.

In explaining the negative relationship between subjective well-being and tertiary education previously observed in the literature, the thesis follows multiple discrepancies theory (MDT) in arguing that individuals tend to assess their well-being as functions of perceived gaps between what one has and wants, with reference to what others have, and the best one has had and expected to have in the past, expects to have in the near future, and deserves and needs (Michalos, 1985). The thesis also includes the view that life stressors change over time and with them the perceived well-being of individuals, as argued by stress theorists such as Blonna (2007) and empirical researchers such as Pearlin and Skaff (1996). Such studies have focused on the change in perceptions of well-being over the life-course. However, change in the perceptions of well-being has not yet been explored in relation to education. This thesis addresses this gap by exploring the heterogeneity of subjective well-being by tertiary educational achievement.

Studies which have explored factors that affect subjective well-being in Australia identify a negative or nil impact of tertiary education (e.g. Headey and Wooden, 2004; Dockery, 2010). Nevertheless, human capital theory argues that education and training are the most valuable investments in human capital, with positive outcomes at both the social and

²³ Well-being understood, according to the OECD definition, as the material, environmental and subjective aspects of well-being. The thesis, however, focuses on the subjective well-being aspect of overall well-being.

individual levels (Becker, 1964). Education is assessed in this thesis both as a capability enabling further functionings (Sen, 1984) and, as argued by life-course theory, through the principle of agency, that is, that individuals construct their own life course through the choices and actions they take within the opportunities and constraints of history and social circumstances (Elder, 1998). Finally, drawing on MDT, the thesis argues that discrepancies between reality and perceptions, and the effects of various factors on an individual's assessment of their own achievements, result in misperceptions of subjective well-being; hence the lower levels of subjective well-being reported by individuals with tertiary qualifications.

The heterogeneity of subjective well-being by age is also explored. A life-course approach to subjective well-being is undertaken, proposing that age-cohort-specific life stressors (Ryff, 1989) that become the drivers of perceptions (Pearlin and Skaff, 1996) translate into differences (or biases) in self-reported well-being along the life span.

The key principles of life course theory underline the importance of historical time and place, the timing of lives, linked or interdependent lives, and human agency (Elder, 1998: 4). The first two principles argue the importance of age-cohort control, while the last two, triangulated with the capabilities approach, underline the necessity to assess the impact of life-changing events (such as attending higher education) throughout the life span.

By understanding tertiary education as a capability or investment in human capital which enhances the functioning of both individuals and society, and by arguing the importance of cohort biases in self-assessed well-being, the relationship between tertiary education and subjective well-being in Australia is reassessed.

2.4 Conclusion

The purpose of this chapter has been to summarise relevant theoretical concepts and formulate a theoretical framework for the hypotheses of the thesis to build on. How theories of quality of life, life-course theory, life-span development and stressors, human capital theory and the capabilities approach help conceptualise this thesis was discussed in Section 2.2. Section 2.3 formulated the theoretical framework of the thesis and stated its argument.

The next chapter is an in-depth review of relevant bodies of literature that complement the theory reviewed in this chapter. Its objective is to assemble a background for the analysis

undertaken by the thesis. The gap in the literature is identified and how the thesis helps to fill the gap through its theoretical and methodological innovations is explained.

Chapter 3 Well-Being and Education: A review of literature and methods

3.1 Introduction

The aim of this chapter is to offer an up-to-date, in-depth review of studies that directly or indirectly explore the relationship between educational achievement and subjective well-being. The literature reviewed is critiqued in the light of the theoretical framework formulated in Chapter 2, drawing mainly on quality-of-life theories (multiple discrepancies theory), life-course theory, human capital theory and the capabilities approach.

The chapter is structured in six sections. Section 3.2 is a discussion of the distinctions between the terms quality of life, well-being, and objective and subjective well-being, as these have been discussed in the literature. The purpose of this section is to position the thesis within the broader field of literature on the social science of quality of life, and to formulate a working definition of subjective well-being. Section 3.3 is an in-depth review of the subjective well-being literature. The studies reviewed in this section are structured into four main bodies of literature: first, studies that explore the relationship between education and well-being; second, studies that explore the relationship between education and other socio-demographic factors; third, studies that explore the relationship between well-being and socio-demographic factors; and finally, studies investigating subjective well-being over the life-course. Section 3.4 reviews methodological approaches to the study of subjective well-being. Section 3.5 discusses the gaps in the literature and the contribution of this thesis to the scholarly debate.

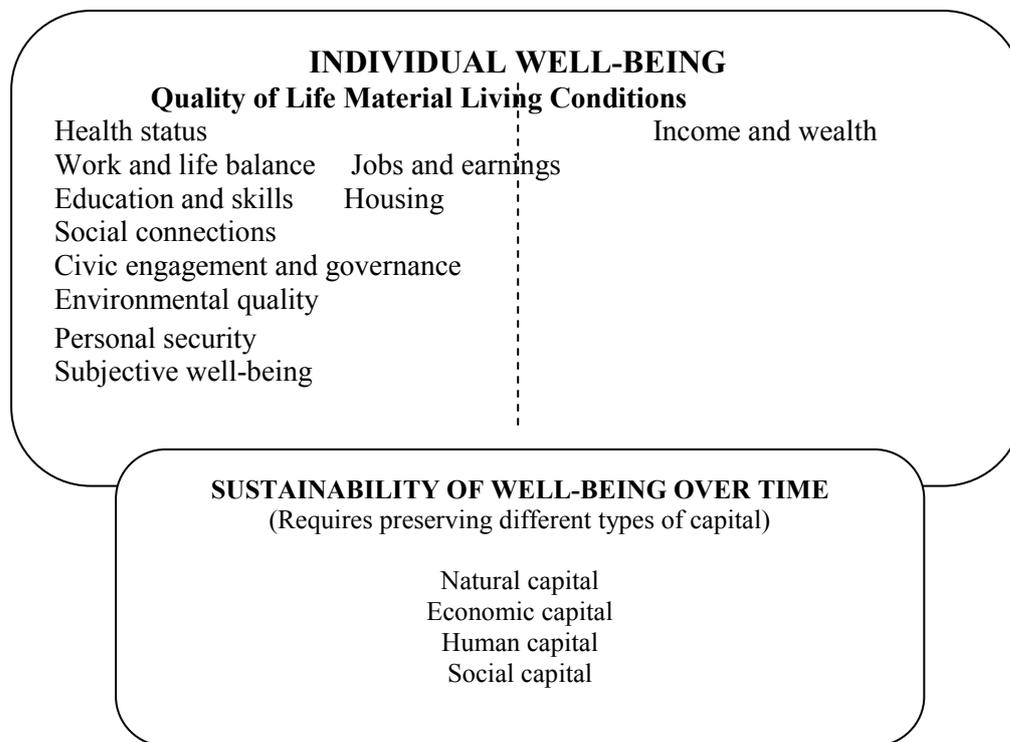
3.2 Definitions and terminology

3.2.1 Well-being and Quality of Life

The OECD (2011) recognises three dimensions of individual well-being: quality of life; material living conditions; and sustainability of well-being over time. Income and wealth, jobs and earnings, and housing are the material living conditions. The components of quality of life identified by the OECD are health status, work and life balance, education and skills, social connections, civic engagement and governance, environmental quality, personal security, and subjective well-being. The sustainability of well-being over time refers to the

preservation of different types of capital: natural capital, economic capital, human capital, and social capital (OECD, 2011:19, Fig. 3.1).

Fig. 3.1 Components of well-being



Source: adapted from OECD (2011: 19)

All these dimensions of individual well-being are essential to a comprehensive exploration of general well-being. However, because the purpose of the thesis is to explore the paradox of subjective well-being and tertiary education, only subjective well-being is explored here, explained further in Section 3.4.1.

Quality of life and well-being have been addressed in a variety of fields such as anthropology, economics, medicine, philosophy, politics, psychology, or sociology. While a review of studies from all these fields would represent a thesis all in itself, for the purpose of this chapter and the thesis as a whole, only the past four decades of socio-economic well-being research is reviewed. Studies that address well-being in the fields of medicine and psychology have proven especially fruitful to the conceptualisation of the thesis. The focus is

on studies that investigate well-being from a bottom-up perspective²⁴, seeking to understand how well-being in particular areas of life, together with socio-economic and demographic characteristics, affects overall well-being. An in-depth critical review of social science, economic and relevant cross-disciplinary studies (as well as the medical and psychological research) has been conducted, and the relevant findings are discussed in the remainder of this section.

First, a tendency has been identified in social science either to use the terms quality of life and well-being interchangeably, or to use one term to define the other (studies like Headey and Wearing, 1992; Veenhoven, 1999; Cummins, 2000; Ferris, 2004). Some studies (e.g. Farquhar, 1995) have pointed to the lack of theoretical frameworks and the need to conceptualise quality of life before conducting cohort-specific, life-domain-specific, or field-specific quality-of-life analysis. It is also necessary to distinguish between individual-level and population-level quality of life (Rapley, 2003). This thesis explores individual-level subjective well-being.

Another major note in the literature is the necessity to assess quality of life from both objective and subjective perspectives (Diener and Suh, 1997; Cummins, 1999; Noll, 2001; Stutzer and Frey, 2010). Objective quality of life can be assessed through economic indicators and objective social indicators such as health or safety (Erikson, 1993; Noll, 2001). However, due to its assessment at a personal level, subjective well-being is a complex, non-forward measure of quality of life (Diener and Suh 1997; Haas 1999; Noll 2002; Stutzer and Frey 2010), and happiness and satisfaction with life are the traditional ways of assessing it (Diener et al., 1999; Cummins, 2000; Headey and Wearing, 2010). Time-accounting methods (Justin 1985; Kahneman and Krueger 2006) which evaluate the flow of emotional experience during daily activities, are alternative ways to measure quality of life. Subjective well-being is assessed in this thesis using measures of satisfaction with life, assessing both overall satisfaction with life and satisfaction with domains of life. These aspects follow the recommendation in the literature, that researchers should be aware of the distinction between overall and domain-specific well-being. These refer to satisfaction with areas of life such as personal health, relationships, achieving in life, community-connectedness and future

²⁴ The bottom-up approach argues that high levels of satisfaction with areas of life such as work, family or health have the ability to increase overall well-being. It is contrasted with the top-down approach. Both approaches are further discussed in Section 3.4.4.

security (discussed by Diener 1999, Veenhoven 1999 and Cummins 2000, among others). Various indices have been utilised across countries to account for life-domain-specific well-being, and the Personal Wellbeing Index (PWI) is the most representative measure of subjective well-being for Australia. The index investigates satisfaction with eight domains of life: standard of living; health; achieving in life; relationships; safety; community-connectedness; future security; and spirituality/religion (Cummins, 2006). However, there is a question about whether some domains of life should be given greater weight in the computation of the index, and if so, by which means should such weights be allocated. The analysis in this thesis does not use the PWI to explore satisfaction with life and satisfaction with domains of life, but data from the Household, Income and Labour Dynamics in Australia (HILDA) survey.

Evaluating the overall and the domain-specific dimensions of quality of life raises a further question about the direction of causality, whether satisfaction in various areas of life generates an overall satisfaction, or whether a general high satisfaction with life generates satisfaction in various domains (Diener et al., 1999). The causality from life-domain to general satisfaction is investigated by those studies that take a bottom-up approach, while those looking at the spill-over of general happiness on satisfaction with domains of life are top-down approaches. This thesis employs a bottom-up, life-domain approach to subjective well-being. Such methodological computations are further discussed in Chapter 4.

3.2.2 The evolution of well-being and quality of life concepts²⁵

Although components of quality of life such as the ‘level of living’, employment status or social status have been considered important in sociology since the 1920s (Ferriss, 2004), the concept of quality of life was coined only much later on, in the 1960s, and the term was finally indexed in the Sociological Abstracts only in 1979 (Schuessler and Fisher, 1985).

²⁵ Definitions of quality of life and well-being:

Wellbeing: the state of feeling healthy and happy (Cambridge Dictionary); the state of being or doing well in life; happy, healthy, or prosperous condition; moral or physical welfare (of a person or community) (Oxford English Dictionary)

Quality of life: the level of enjoyment, comfort and health in someone’s life (Cambridge Dictionary); the standard of living, or degree of happiness, comfort, etc., enjoyed by an individual or group in any period or place; an instance of this (Oxford English Dictionary)

Throughout the past four decades the terms ‘quality of life’ and ‘well-being’ developed and gained recognition. Some scholars consider the terms conceptually different (e.g. Smith, 1973; Langlois and Anderson, 2002), others have used one term to define the other (Ferriss, 2004), and many use them interchangeably (e.g. Veenhoven, 1999; Cummins, 2000; Easterlin, 2007; Michalos, 2007; Oswald and Powdthavee, 2007).

Conceptions and definitions of well-being and quality of life have changed across the decades. Initially the terms ‘quality of life’ and ‘well-being’ were conceptually different. Smith (1973) theorised well-being as a concept measuring the objective life conditions of the population in general, and quality of life as a subjective assessment of individuals’ lives. Nearly four decades later, Gasper (2010) also argued that the two terms were conceptually different, but in the opposite way to Smith (1973), that is, he considered well-being applied more at individual level, and quality of life when discussing communities, localities, or societies. He acknowledged, though, the broad range of meanings that the terms have, and the frequent overlaps that occur (Gasper, 2010).

Farquhar (1995) reviews studies of quality of life across several disciplines and identifies the term ‘quality of life’ as often referring to specific aspects, such as health-related quality of life. Similarly, studies like Noll (2001) and Rapley (2003) underline the necessity to specify the exact items the concept investigates. From a theoretical perspective, Haas (1999) discusses concepts like well-being, satisfaction with life, functional status, or health status as borderline cases in quality of life research, representing *aspects* of quality of life (Haas, 1999:735).

Still, most social studies use the term ‘quality of life’ in conjunction or interchangeably with ‘well-being’ (Veenhoven, 1999; Cummins, 2000; Easterlin, 2007; Michalos, 2007; Oswald, 2007).

3.2.3 Working definition of SWB

The thesis acknowledges the approach to quality of life initiated by the Australian Centre on Quality of Life at Deakin University:

Quality of life is both objective and subjective. Each of these two axes comprises several domains which, together, define the total construct. Objective domains are measured through culturally relevant indices of objective well-being. Subjective domains are measured through questions of satisfaction.

(Australian Centre of Quality of Life, 2012)

The framework developed by the OECD (Fig. 3.1) is more detailed as it includes material living conditions, quality of life aspects such as health status, work and life balance, environment and subjective well-being, and the sustainability of well-being over time. In this thesis, subjective well-being is identified as the subjective component of quality of life, being classified as a component of the overall individual well-being.

3.3 Determinants of well-being

It is common in socio-economic studies to explore determinants of well-being by including in multivariate analyses factors like age, gender, socio-economic status, geographic location, income or health. Subsection 3.3.1 reviews such studies while focusing on the factors of interest to this analysis: gender, income, health, marital status and employment status²⁶. In Subsection 3.3.2 studies that address the relationship between these socio-economic and demographic factors and education are reviewed. The reason for the review of this body of literature is to understand the possible spill-over effects from education onto subjective well-being via outcomes like higher income or better health (as argued in studies like Blanchflower and Oswald 1994 and Cummins 2000). Subsection 3.3.3 reviews studies that directly or indirectly address the relationship between educational achievement and well-being. Finally, the relationship between age and subjective well-being is discussed in Subsection 3.3.4, laying the groundwork for the analysis of well-being by stage of the life-course in Chapter 8.

²⁶ The reasons for having selected these socio-economic and demographic factors are discussed in Chapter 4, Section 4.4 when the datasets that are being analysed in this thesis are discussed.

3.3.1 Socio-economic and demographic factors and subjective well-being

An in-depth review of empirical studies in the fields of the sociology and economics of happiness, complemented by results from medical and psychological research, has revealed concave relationships between socio-demographic factors like income, age, social relations, employment and education on the one hand, and subjective well-being on the other. For example, work that involves a mental challenge brings satisfaction, but too much mental challenge can reduce satisfaction to levels as low as that from jobs with no mental challenge at all (Clark, 1996). Some studies find upper-secondary graduates to be happiest, although higher education has a negative impact on happiness (Hickson and Dockery, 2008). Income increases happiness only to a certain extent, then it ceases to have a positive impact (Cummins, 2000; Easterlin, 2004). How these socio-economic and demographic factors relate to subjective well-being is discussed below.

Income

The relationship between income and subjective well-being is particularly important to the exploration of the relationship between education and subjective well-being due to the indirect, positive effect that higher educational achievement has on employment opportunities and salary rates (OECD, 2011). The relationship between income and happiness has been debated since the beginning of scholarship on the economics of happiness. Easterlin (1974) analysed the economic development and happiness of nations and noted that, although an increase in personal income generated higher levels of happiness of individuals, countries with high levels of economic growth did not report national levels of happiness higher than developing nations. This phenomenon came to be known as the 'Easterlin Paradox' (Easterlin, 1974). However, this finding has not met with unanimous agreement. Veenhoven (1999) finds that poor nations do in fact report lower levels of happiness than rich ones, and Veenhoven and Hagerty (2006) argue that average happiness has increased slightly in rich nations and considerably in the few poor nations for which data was available for analysis.

At the individual level, more income has been found to increase happiness only to a certain extent (Diener et al., 1999). Some studies argue that even great increases in income, such as winning the lottery, do not make one happier than the average wage earner (Janoff-Bulman, 1987). From an economic perspective it can be claimed that, after all basic needs are satisfied, the positive returns of income to happiness come at a decreasing rate.

Stutzer (2003) analyses not only the effect of income but also the effect of income aspirations on individual well-being. The main finding is that subjective well-being depends highly on the gap between income aspirations and actual income, rather than on the level of income. The relative utility concept has been found to be applicable to data collected from 6000 interviewees in Switzerland (Leu, Burri and Priester, 1997) and two waves of the Swiss Household Panel collected in 1999 and 2000 respectively: the higher the ratio between aspired income and actual income, the less satisfied people were with their life (Stutzer, 2003:20).

Nonetheless, a study of the population aged 50 years and over in ten European countries, found that income and financial net worth was positively correlated with high quality of life (Olaf von demKnesebeck et al., 2007). There was an income gradient in most countries and, furthermore, amongst individuals aged 50-64 years, being in the upper income group significantly increased the probability of higher quality of life scores in all ten countries analysed with the exception of Switzerland. Quality of life was measured with a short version of the CASP-19 questionnaire which defines 'quality of life' through four domains of needs particularly relevant in later life: control, autonomy, self-realisation and pleasure (Hyde et al., 2003 in Olaf von demKnesebeck et al., 2007).

A positive relationship between income and subjective well-being was found in Sweden. Using data from the Swedish Level of Living Survey, Gerdtham and Johannesson (2001) conducted a factor analysis to identify the determinant of subjective well-being measured as personal satisfaction ranked on a three-point scale. The probability of being happy most of the time for individuals in the lowest income quartile was 0.53, increasing to 0.61 for the population in the highest income quartile.

Adding another level of detail to the analysis of the impact of income on subjective well-being, Inglehart, Norris and Welzel (2002) analysed the impact of economic growth on gender differences in reported happiness. He found that higher incomes led to gender equality for individuals under the age of 45, but that there was no income effect for individuals older than 54. The gender differences in reported well-being are further discussed below.

Gender

Traditionally, women report higher levels of happiness or satisfaction than men (Headey and Wearing, 1992; Hartog and Oosterbeek, 1997; Wooden, 2005). Gerdtham and Johannesson

(2001) found that male respondents to the Swedish Level of Living Survey had lower probabilities of being happy all the time than women. A cohort study in the US found that men became less happy with their lives over time (Blanchflower and Oswald, 2007).

Analysing reported levels of happiness, Inglehart et al. (2002) initially identified no significant gender differences. However, such differences did become evident when age was considered: women under 45 were happier than men, while those over 45 had lower levels of happiness than men. The study used the World Values Survey, drawing on data from 122 surveys in 65 societies. Amongst the youngest group of respondents, 24 per cent of men and 28 per cent of women were found to be 'very happy', while in the oldest cohort only 20 per cent of women and 25 per cent of men described themselves as 'very happy'. This finding suggests that the levels of happiness of women decrease throughout the lifespan, while men experience stable or a slightly higher levels of happiness at later points in life than they did during their youth or early adulthood.

Australian data indicates greater gender differences by age: while only 34 per cent of men aged under 45 describe themselves as 'very happy' compared to 48 per cent of women in the same age group (a gap of 14 percentage points in favour of women), the relationship reverses for individuals over 54 years of age, when 44 per cent of men and 35 per cent of women consider themselves to be 'very happy' (a gap of 9 percentage points in favour of men) (Inglehart et al., 2002).

Nonetheless, some recent studies have found there are no significant differences between the levels of life satisfaction of men and women (Pinquart and Sorensen, 2001; Cummins, 2003). Furthermore, Stevenson and Wolfers (2009) argue that the gap in the reported levels of well-being has shifted since the 1970s, and women's happiness has declined both in absolute value and relative to men's happiness.

Marital status

Married individuals, both men and women, report the highest levels of satisfaction and positive affect, followed by those who live together as-married (Diener et al, 1995; Masterkaasa, 1995). It has been argued that the positive effect of marriage on subjective well-being is only temporary, the levels of subjective well-being decreasing each year after the first year of marriage to levels similar to those prior to marriage (Diener et al, 2006). But despite evidence of 'complete adaptation' to marriage (Easterlin, in Bruni and Porta, 2005), a

recent longitudinal study (Headey, Muffels and Wagner, 2011) revealed that married people are happier than singles. Age would seem to further amplify the positive effect of marriage (Barresi et al., 1983-84 in Langlois and Anderson, 2002), while unmarried men are less happy than unmarried women (Lee, Seccombe and Shehan, 1991 in Diener et al, 1999).

Studying the change in subjective well-being after marriage, Headey et al. (2011) found that one's life goals and expectations can have spill-over effects on the levels of happiness of one's partner. For example, although someone may have high initial levels of happiness and be happy with their marriage, their own happiness level may be negatively affected by their partner's level, for example, a gap between expectations and actual achievement (Headey et al., 2011:3). Such spill-overs can work either to decrease or to increase the subjective well-being of partners.

Health – Subjective well-being

Self-reported health, rather than objective (or professionally-assessed) health, has strong and significant effects on subjective well-being. However, the relation between self-rated health and subjective well-being is inflated by one's level of emotional adjustment (Diener et al., 1999). For example, although it is a medical fact that health declines with age, older people report higher levels of well-being (Oswald, 2007). Moreover, Brickman et al. (1978) found that people with paraplegia were not substantially less happy than those who could walk. Both these findings can be explained in terms of the hedonic treadmill theory (Brickman and Campbell, 1971), suggesting that individuals tend to return to initial levels of satisfaction once they have adjusted to the new environment. Other similar studies find that there is only a .08 level of correlation between objective health and happiness (Okun and George, 1984), and blind people have similar levels of happiness to individuals who can see (Feinman, 1978).

Not surprisingly though, poor mental health has a strong negative impact on subjective well-being (Dolan, Peasgood and White, 2008). Exploring determinants of well-being in Germany and Australia, Muffels and Headey (2009) identified a positive relationship between good physical and mental health and life satisfaction.

Employment status

The probability of being happy most of the time is lower for the unemployed (Gerdham and Johannesson., 2001), and the full-time employed have higher levels of subjective well-being

than those employed part-time (Ross and van Willigen, 1997). Non-alienated work²⁷ gives control over the working process and is correlated with psychological functioning (Kohn et al., 1990) and emotional well-being (Ross and van Willigen, 1997). The unemployed have been found to have between 5 and 15 per cent lower life-satisfaction scores (Di Tella et al., 2001; Frey and Stutzer, 2002; Helliwell, 2003; Stutzer, 2004).

While a considerable number of studies have explored in multivariate models the relationship between socio-economic and demographic variables and subjective well-being, not enough attention has been given to this relationship in the light of higher educational achievement. The questions emerging are:

- Do demographic and socio-economic variables affect the SWB of the tertiary-educated and the non-tertiary-educated to the same extent?

This question is addressed in the analysis conducted in this thesis. Exploring the impact of such factors on subjective well-being in the light of higher educational achievement is important because education has a positive impact on various aspects of life (as discussed in the literature reviewed below in Subsection 3.3.2). Hence, these factors may be indirectly influencing the impact of education on subjective well-being. The next section summarises studies that are concerned with evaluating how education and socio-economic and demographic factors relate.

3.3.2 Educational achievement and socio-economic and demographic factors

This section reviews studies that explore the relationship between education and socio-economic and demographic factors. The purpose is to understand how education can indirectly impact on subjective well-being via its impact on socio-economic and demographic factors. The reasoning behind the review of this body of literature draws on the capabilities approach, the human capital theory and the life course theory discussed in Chapter 2. The capabilities approach explains education as a basic human right and as enabling individuals to achieve higher goals in life. The most discussed outcomes are in the objective spheres of life

²⁷ The concept of alienated work draws on Karl Marx's theory of alienation, described in the economic context in *Economic and Philosophical Manuscript of 1844*. Under the capitalist mode of production Marx identified four types of alienation of workers: alienation of worker from the work he produces; alienation of the worker from the act of producing itself; alienation of the worker from himself as producer; and alienation of the worker from other workers or producers. Alienation leads to a loss of determination on the part of workers, the loss of their abilities to manage their own actions, their relationships in the market, and the value of what is being produced. Non-alienated work is the opposite of what Marx described in his theory, and sought after in democracies and free labour markets.

such as financial achievements, better work opportunities, safer jobs, more and better quality leisure time (Dolan et al, 2007). Some also argue that there are emotional outcomes from education, such as better marriage opportunities (Blanchflower and Oswald, 2000) and other intellectual liberties and abilities that come along with knowledge. Furthermore, education is regarded as the most valuable investment in human capital (Becker, 1964). The interaction between educational achievement and gender, income, health, employment status, and marital status is reviewed below.

Gender

In a perfect world, individuals would have equal life outcomes, regardless of their gender. However, gender inequalities still prevail in many societies and educational achievement often benefits men more than women. A Canadian study revealed that a higher percentage of male than female university graduates had jobs (Hayward, Pannozzo and Colman, 2005). In Australia the percentage of female students participating in higher education is higher than the percentage of male students (Marks et al., 2000). Nevertheless, the returns to education for women are lower than for men (Miller, 2005), and the gender pay gap in Australia has barely changed between 1990 and 2009, women receiving about 83 to 85 per cent of the average wage received by men (NATSEM, 2009). Further discussion of the relationship between tertiary educational achievement and income is provided below.

Income

The traditional view is that education provides better job opportunities and a corresponding higher income (Blanchflower and Oswald, 1994; Hickson and Dockery, 2008). Internationally, economic development is associated with higher percentages of tertiary-educated people. One additional year of education in OECD countries has been calculated to represent an estimated growth in long-term economic output of between 3 and 6 per cent (OECD, 2006:27). The relationship between education and income is then quite straightforward: higher levels of education are associated with higher incomes and economic growth.

However, the direction of the relationship of causality between income and higher education participation also needs attention. For example, in Australia the participation rate of young people from low socio-economic backgrounds in tertiary education is low (Phillimore and Koshi, 2010). The review of tertiary education in Australia (the Bradley

Review, 2008) suggested that, in order to remain competitive at international levels, Australia must increase its percentage of tertiary education graduates to 40 percent by 2020. However, unless educational policies are focused on supporting financially disadvantaged students' participation in tertiary education, the 'income-higher education' relationship risks remaining a 'vicious cycle', with mostly well-off students being able to afford to attend higher education, further leading to higher income, while students from low-income families remain trapped in their income group. This is not only a sign of inequality or increase in inequality, but also a failure on behalf of the government to assure equal access to education to all young people (i.e. education fails to be a capability in the terms of the capabilities approach).

Health

In more than one discipline health has been identified as positively correlated with education. The Cost of Obesity report (GPI Atlantic, 2005) found that the less educated are more likely to be overweight than those with higher levels of education. This supports previous findings of the Canadian National Population Health Survey that found education was positively associated with both health and a healthy lifestyle (Hayward, Pannozzo and Colman, 2005). A positive education-health relationship has also been found in the US and Australia (Cummins, 2000).

Employment status

Education is positively correlated with employability, easier access to jobs and opportunities for promotion, and better jobs (Blanchflower and Oswald, 1994). The tertiary-educated are more likely to have secure, high-wage, high-benefit jobs, while employees with high school education are more likely to have insecure, low-wage, no-benefit jobs (Hayward et al., 2005). Given the material and non-material benefits from better jobs, and the likelihood of the tertiary-educated to obtain those jobs, it is expected that job satisfaction would be higher for the tertiary-educated. However, investigating the levels of job satisfaction of 5000 Britons, Clark (1996) found that in fact individuals with the lowest levels of education had the highest levels of job satisfaction, followed by individuals with intermediate levels of education. The tertiary-educated ranked lowest on satisfaction with pay, work itself, and job overall (Clark, 1996:199). Clark and Oswald (1996) attribute such unforeseen results to the high expectations associated with higher levels of education. Furthermore, they found that

individuals with tertiary levels of education suffered more when unemployment occurred than those with lower levels of education.

Marital status

The relationship between education and marital status is often discussed in the context of gender or ethnicity. Education has been acknowledged to have different effects on the chances of marriage for white and black individuals in the US: tertiary education increases the chances to marry for black individuals and decreases them for whites (Bennett, Bloom, and Craig, 1998).

Studies in the 1990s argued that there was a ‘success penalty’ for women who invest time and resources in education and career. Qian and Preston (1993) found that while both men and women who achieved higher levels of education tended to postpone marriage, women were more likely to marry later, or not to marry at all. However, this ‘disadvantage’ in the marriage market experienced by successful women has gradually decreased in the past decade or two (Rose, 2003). Furthermore, demographic research has identified a negative impact of higher education on the likelihood of marital dissolution in countries like Japan (Raymo, Bumpass and Iwasawa, 2004), Norway (Lyngstad, 2005), or the U.S. (Martin, 2006).

3.3.3 Educational achievement and well-being

Education indicates ‘the accumulated knowledge, skills, values, and behaviours learnt at school’ (Ross and Van Willigen, 1997:276). ‘Education is a fundamental human right and essential for the exercise of all other human rights’ (UNDP, 2012). It is the most valuable investment in human capital (Becker, 1964), being a source of socio-economic outcomes generally sought after, such as financial wealth (Veenhoven, 1999), and better social connections and health (Diener et al., 1999; von dem Kneesebeck et al., 2007). Nonetheless the impact of educational achievement on subjective well-being is unclear (Desjardins, 2008).

There is little understanding of, or agreement upon, the impact of tertiary educational achievement on subjective well-being:

It is generally accepted that education enriches people’s lives. It is well established that higher educational attainment puts people on better career paths and is also believed to enhance outcomes in other life domains, such as health and relationships. One would therefore expect people who achieve higher levels of education to be happier, on average,

than those with lower levels of education. However, a number of studies in the rapidly growing literature on subjective wellbeing have observed precisely the opposite empirical relationship in developed countries – that higher levels of educational attainment are associated with lower self-rated happiness or life satisfaction. These include studies on data recently collected in Australia. If this empirical finding indeed holds, it poses a challenge to conventional thinking and policy on the value of further education and/or the validity of commonly used measures of subjective wellbeing. Surprisingly, however, it has received very little attention from researchers.

(Dockery, 2010:7)

In assessing the relationship between education and subjective well-being it is important to have a clear understanding of the definition and measurement of ‘education’ and ‘subjective well-being’. For example, subjective well-being can be measured as positive affect, as happiness, as satisfaction with life overall, or as satisfaction with particular domains of life. Similarly, conclusions about the relationship between education and subjective well-being differ depending on whether educational achievement is measured by highest level of education achieved or by total years of education (Dockery, 2010).

Michalos (2007) discusses differences in conceptualising the terms ‘education’, ‘influences’ and ‘happiness’. He identifies ‘narrow’ and ‘broad’ definitions for each of these terms. A narrow definition of education is formal education that leads to a degree. A robust definition of education is one that includes both formal and informal education. A narrow definition of happiness is one arrived at through calculations involving the standard single- or multiple-item index of happiness or satisfaction. On the other hand, the definition of happiness is considered robust if happiness is defined as ‘eudaimonia’, living well and doing well. Finally a narrow view of ‘influence’ is one involving direct impact. A robust definition of impact would consider the indirect as well as the direct impacts of education on well-being. Michalos concludes that the easiest and most frequently explored scenario is one that uses only a narrow view of education, happiness and influence, but the most preferable would be that of robust views of education, happiness and influence. However:

Given the great variety of research scenarios that may be constructed from our three essential variables, one should expect plenty of different answers to the basic political question [... Does education influence happiness and if so, how and how much?]. What public policies one ought to adopt and implement regarding the influence of education on happiness depends minimally on which of the great variety of research scenarios one adopts and maximally on lots of other things as well, e.g.,

what is politically possible, financially possible, technically possible, morally possible and so on.

(Michalos, 2007:3)

Studies of subjective well-being which have identified relationships between educational achievement and subjective well-being across countries, are mostly those which have used narrow definitions of education, happiness and influence. Some of these findings are discussed below.

That educational achievement up to secondary level has a positive impact on both subjective and objective well-being, is well discussed and acknowledged in the literature (Hartog and Oosterbeek, 1998; Headey and Wooden, 2004; Hickson and Dockery, 2008). Some studies have also found a positive relationship between tertiary educational achievements and subjective well-being. For example, Blanchflower and Oswald (2004) investigated the relationship between education and subjective well-being in the US and the UK, and found that a positive relationship prevailed. The study included data on 100,000 Americans and Britons from the early 1970s to the late 1990s. It measured education as years of education, and subjective quality of life as reported happiness and satisfaction. The highly educated were found to have higher levels of subjective well-being than individuals with lower levels of education, and the change in the levels of happiness across time is similar for the two groups.

Investigating the relationship between socio-economic position and quality of life of individuals over 50 years of age in ten European countries, von demKnesebeck et al (2007) found an education gradient in most countries: higher education levels increased the probability of higher quality-of-life scores. They measured socio-economic position through education, income, home- and car-ownership, and overall net worth, and the quality of life with an instrument developed by Hyde et al (2003) that assumes that quality of life in later life has four conceptual domains: control, autonomy, self-realisation and pleasure. In six of the ten countries, higher education was significantly related to higher quality of life at age 65 and over, and the effect of education was highest in the older ages in France, Germany, Greece and Spain. They found that only in Austria did the effect of education decrease in the older age.

However, other studies have found a non-linear, inverted U-shaped relationship between educational achievement and happiness, with upper-secondary graduates being the

happiest (Veenhoven, 1999; Stutzer, 2004). This is most frequent in developed countries, where having achieved tertiary education is found to decrease the levels of subjective well-being (Headey and Wooden, 2004). Dockery (2010) found that high school graduates and post-secondary but non-tertiary-educated individuals were the happiest in Australia. Interestingly, a study of 15 countries found that having a tertiary degree had an insignificant impact on self-reported happiness in most of the developed countries, except in Australia and Taiwan where positive relations have been found. However, when the impact of education on satisfaction with life is tested instead, the significant (and positive) relationship only holds for the Dominican Republic (Peiro, 2002). This confirms the sensitivity of the measures of subjective well-being in this kind of approach (i.e. inherently subjective and inferential) (Rojas, 2004). Clark and Oswald (1994), Dockery (2004), and Headey and Wooden (2004) have also found a negative relationship between tertiary education and self-reported happiness.

The past 40 years of quality-of-life or happiness research have rendered the relationship between tertiary education and subjective well-being unclear. The questions remaining, and addressed in this thesis are:

- Are the tertiary-educated more satisfied with aspects of their lives?
- Are the tertiary-educated more satisfied with their lives overall?

3.3.4 *Subjective well-being over the life course*

The subjective well-being literature reveals a strong and unforeseen effect of age on subjective well-being, and for this reason, this thesis investigates subjective well-being across stages of life, as well as exploring subjective well-being by tertiary educational achievement. Although some studies considering the relationship between age and well-being have found either a flat relationship or a slight increase of happiness with age (Myers, 1992; Diener et al., 1999; Argyle, 2001), more recent studies have found a U-shaped relationship between age and satisfaction with life or happiness (Frey and Stutzer, 2002; Blanchflower and Oswald, 2004; Frijters et al, 2004, 2005; Heady and Warren, 2008; Cummins, 2010). Using the Princeton Affect Time Survey (PATS), Krueger et al. (2008) found that unpleasant time substantially decreased after the age of 65, after having reached a peak in the 30s and 40s. However, the relationship between age and satisfaction with domains of life is not always U-shaped. For

example, although satisfaction with life overall increases with age, the feeling that ‘one’s own life is changing for the better’ shows a linear decrease with age (Cummins, 2002:176).

The relationship between age and subjective well-being has come to the attention of cross-disciplinary research and has been explained through concepts of life-course theory or stress research. Clark (1999) identified an obvious age cohort effect in the assessment of subjective well-being, and there is more than one theory suggesting that the definition of ‘the good life’ changes with age. Given the ‘age cohort adaptation’, ‘coping’, or ‘change in priorities due to change in mastery’ (Elder, 1997), gerontologists argue the importance of analysing satisfaction with life from a life-course perspective (Pearlin and Skaff, 1996). Furthermore, a study of two large-scale national panel studies (the German Socio Economic Panel Survey (GSOEP) and the British Household Panel Survey (BHPS)) found that life satisfaction did not decline during much of adulthood, but there was a steep decline in life satisfaction among people aged 70 and over. The analysis of the BHPS also indicated that there was an increase in satisfaction from the 40s to the early 70s. The study of these two national representative panel data sets concluded that age differences in well-being can be large, and that further theoretical and empirical attention is needed (Baird, Lucas and Donnellan, 2010).

This thesis focuses on the paradox of subjective well-being and higher education. However, it also addresses the need to account for the age effect on subjective well-being and on perceptions of well-being (Pearlin and Skaff, 1996; Plagnol, 2010). This is achieved by exploring the paradox of higher education and subjective well-being throughout stages of the life-course (discussed in Chapter 2, Section 2.2.2). Acknowledging that the conceptualisation of subjective well-being changes throughout the life-course, and in the context of the thesis and from the literature reviewed, the following question emerges:

- Do demographic and socio-economic variables affect the subjective well-being of the tertiary-educated and the non-tertiary-educated to the same extent throughout the life-course?

3.4 Approaches for the measure of subjective well-being

Relevant measures to assess subjective well-being are discussed in this section. The purpose of the thesis is to explore the paradox of tertiary educational achievement and subjective well-being, and so the first subsection explains the subjective well-being approach to well-

being. Differences between this approach and the objective approach to well-being are flagged. Subsection 3.4.2 and Subsection 3.4.3 discuss the two main measures of subjective well-being: satisfaction with life, and happiness respectively. Subsection 3.4.4 reviews studies that discuss the relationship between satisfaction with domains of life and satisfaction with life overall.

3.4.1 *Subjective well-being approach*

In a review of quality of life studies, Diener and Suh (1997) classify economic and social indicators as measures of objective ‘circumstances’, and address subjective well-being as the subjective measure of quality of life. Their approach is well supported by studies like Cummins (1997), Haas (1999) or Noll (2002).

Objective well-being ‘focuses on what people have (access to resources and opportunities), which constitute the objective conditions of the good life’ (Preedy and Watson, 2010:4274). There are two objective measures of well-being: economic indicators and objective social indicators (Diener and Suh, 1997). The use of economic indicators exclusively was appropriate to the period before the Second World War, but whether ‘more’ equalled ‘better’ became a debatable issue in a post-materialistic society (Inglehart, 1977) and social indicators soon came to be more reliable measures of the well-being of individuals, societies, and nations (Noll, 2002). Furthermore, as economies and societies developed, the notion that quality of life ‘must be in the eye of the beholder’ (Campbell and Converse, 1972:442) emerged, and this meant assessing not only economic and objective social indicators, but individuals’ perceptions of their lives as well.

Noll (2002) argues that objective social indicators are ‘statistics which represent social facts independent of personal evaluations’ and that they have two basic functions: to monitor social change and to monitor welfare. Such social indicators are not used in this thesis; instead, it assesses individual satisfaction with aspects like personal safety, health, local community, free time, and employment opportunities. These measures are used to calculate the multiple-item measure of subjective well-being and in conjunction with the single-item measure of subjective well-being (overall satisfaction with life) to explore the differences in well-being between tertiary-educated and non-tertiary-educated Australians. The thesis focuses on the paradox of subjective well-being and tertiary education. Although the importance of both objective and subjective aspects of well-being is acknowledged, for the purpose of this thesis well-being is assessed in a subjective well-being approach.

The study of subjective social indicators flourished in the 1970s (Diener, 1999), and proponents and supporters of these indicators as measures of quality of life came to be identified as the ‘American School’. Their argument was that well-being ‘includes positive elements that transcend economic prosperity’ (Diener et al., 1999:276). The development of means to measure subjective quality of life however created further debate, the assessment of subjective well-being being not as straight-forward as that of objective well-being. Commonly defined as ‘a person’s evaluative reactions to his or her life – either in terms of life satisfaction (cognitive evaluations) or affect (ongoing emotional reactions)’ (Diener and Diener, 1995:653), SWB grew to be described as ‘a broad category of phenomena that includes people’s emotional responses, domain satisfaction, and global judgments of life satisfaction’ (Diener et al., 1999:277). However, measures of subjective well-being, whether they are measures of affect²⁸, of satisfaction, or of happiness, are prone to individual biases such as personality (Diener and Lucas, 1999), comparisons of oneself with others, previous personal experiences, aspirations, or expectations (Michalos, 1985).

While some studies view happiness as an emotional evaluation of one’s current state or affect, and satisfaction as a cognitive measure (Campbell, Converse and Rodgers, 1976), and others define happiness as achieving satisfaction over most domains of life (Cummins, 2000), other studies use measures of subjective well-being such as happiness and satisfaction with life interchangeably (Hickson and Dockery, 2008). Still other studies use time-use measures or diary data to assess the pleasant and unpleasant times throughout the day (Kahneman and Krueger, 2006). Although the availability of alternatives may be seen as an advantage in creating a valid and reliable measure, these measures often generate different results across groups of individuals or populations. It is important in such situations that results are discussed in the context of the study and carefully placed in the general context.

Constructed to capture the desired outcomes of specific studies and answer particular research questions, indicators like happiness, satisfaction with life, or positive/negative affect are all used in the literature to describe the subjective well-being of individuals (Rappley, 2003). The available Australian data restrict the methodology of this thesis to the assessment of satisfaction with life and satisfaction with domains of life²⁹, and happiness³⁰ only to a

²⁸ As measured by studies that assessed well-being through the balance of positive and negative affect throughout the day (Justin, 1985; Kahneman and Krueger 2006); such studies flag a ‘happy’ moment when the positive affect it produces is greater than the negative affect.

²⁹ From the Household, Income and Labour Dynamics in Australia (HILDA, 2001 – 2009)

limited extent. The concepts of ‘satisfaction with life’ and ‘happiness’ are discussed in the next two subsections.

3.4.2 *Satisfaction with life*

Satisfaction with life is the judgmental measure subjective quality of life (Diener et al., 1999). Psychologists and some social scientists argue that life satisfaction is a function of multiple comparisons: of what one wants, with what others have, the best one has had in the past, what one expected to have in the past, what one expects to have in the future, what one deserves, and what one needs (Cummins et al., 2003). The multiple comparisons draw on the multiple discrepancies theory (Michalos, 1985), discussed in Chapter 2, Subsection 2.2.1.

However, there is some debate about whether it is more appropriate to calculate overall satisfaction with life or satisfaction with specific life domains (Campbell et al, 1976). Two types of scales are used to measure satisfaction with life: ‘single construct scales’ which use one item to inquire about the general life satisfaction (such as the Satisfaction with Life Scale, Diener et al., 1985); and ‘life domain scales’ in which individual items refer to specific life domains and the scores are averaged to produce an overall measure of well-being (Cummins, 2003, 2006). Although the second method allows for a better understanding of well-being through its overall and domain-specific items, it is debatable whether an average of domain-specific scores can be used to assess overall satisfaction, or whether some domains of life should be given greater weight (Baird et al., 2010). To explore differences between the two methods of assessment, the first step in this analysis is to compare the levels of overall satisfaction with life (single-item measure) against the average satisfaction with life (multiple-item measure). This comparison is conducted in Chapter 5 when the well-being of tertiary educated and non-tertiary educated is explored.

Cummins (1996) computed a comprehensive quality of life scale (ComQOL) measuring ‘the aggregate of satisfaction across life domains [which] yields Subjective Quality of Life’. More recently, the Personal Wellbeing Index (PWI) was computed as an improved version of the ComQOL scale. It investigates satisfaction with: standard of living, health, achieving in life, relationships, safety, community-connectedness, future security, and spirituality/religion. A separate question investigates satisfaction with life as a whole

³⁰ From the Longitudinal Survey of Australian Youth (LSAY, 1998 - 2009) and the Australian Survey of Social Attitudes (AuSSA, 2009)

(Cummins, 2006). Ranking on a scale from 0 to 100 (the higher the score the greater the satisfaction), the Australian population's satisfaction with life seems to have remained constant over the past ten years, with an average level of satisfaction between 70 and 80 (Cummins, 2006). As an alternative measure to the PWI, this study uses data provided in the Household, Income and Labour Dynamics in Australia (HILDA) to investigate overall satisfaction with life and satisfaction with eight domains of life³¹.

3.4.3 Happiness

Satisfaction with life is the cognitive measure of subjective well-being. 'Happiness' is the complementary, affective measure of subjective well-being (Diener et al., 1999).

Some studies have assessed happiness by directly inquiring about the level of happiness with general questions such as '*All things considered, how happy would you say you are these days?*' or the level of happiness with domains of life (Diener, 1999). Other studies assess happiness by creating a balance of pleasant and unpleasant affect (Bradburry, 1969), or by inquiring about time spent in pleasant activities (Juster, 1985; Kahneman and Krueger, 2006). Despite the distinction between cognitive and affective evaluation of well-being through satisfaction with life and happiness levels respectively (Diener, Suh, Lucas and Smith, 1999), many studies frequently assess happiness as 'an umbrella term for all that is good' (Veenhoven, 2008:212); and some scholars see happiness as a linear function of satisfaction with domains of life (such as Cummins, 2010), or as the achievement of enduring satisfaction with life as a whole (Veenhoven, 2008:213). Headey and Wearing (1992) interpreted happiness and satisfaction with life as 'virtually identical' and gave them the same value and weight in assessing subjective well-being. Other studies, however, support a distinction between cognitive and affective evaluations of well-being through the concepts of satisfaction with life and happiness respectively (Diener et al, 1999). Furthermore, Kahneman (1999) claims that the most appropriate measure of happiness is objective and recorded retrospectively. In such retrospective studies, individuals are asked to note on a scale, usually from 0 to 10, how happy they felt throughout the day during various activities. In other words, this retrospective recording objectively assessed their happiness throughout the day. These measures have great potential to record a precise and overall level of happiness as positive affect (Kahneman, 1999). However, there is a risk that comparing an activity to other

³¹ These aspects of life and the scales used are discussed in Chapter 5. See Annex A for the HILDA questionnaire.

activities throughout that day could lead to augmentation or diminution of the intensity of the positive or negative affect felt during an activity. Furthermore, such information on time-use is not available in Australia,³² and hence the approach is not central to this study.

3.4.4 Top-down and bottom-up approaches to subjective well-being

This section reviews studies exploring the relationship between satisfaction with particular domains of life and overall satisfaction with life. Building on Wilson's idea that as long as basic and universal human needs are satisfied, one is happy (Wilson, 1967), researchers have broadly taken a bottom-up approach to investigating how external factors, events, situations, expectations and demographics influence happiness (Diener et al., 1999). Top-down approaches explore the possibility that these factors might in fact be the consequences of subjective well-being (Diener, 1984, Veenhoven 1984, 1988).

Studies that have attempted to understand the consequences rather than the causes of well-being (top-down approaches) have concluded that the happy person was one who was 'young, healthy, well-educated, well-paid, extroverted, optimistic, worry-free, religious, married' (Wilson, 1967:294). Addressing both overall and life-domain satisfactions, Diener (1984) also claims that overall satisfaction generates satisfaction in all other domains of life. Such top-down approach studies argue that overall satisfaction with life generates high levels of satisfaction in all other domains of life, and that overall life-satisfaction is not a linear function of satisfactions at life-domain levels.

However, general life satisfaction and satisfaction in particular domains of life have also been addressed in bottom-up analyses in an attempt to demonstrate that high satisfaction with life was the consequence of high levels of satisfaction in various domains of life, and not vice-versa. Such studies (Headey and Wearing, 1992; Meadow et al., 1992; Veenhoven, 1996; Cummins, 1996, 2003; Bradshaw et al., 2006; Casas et al., 2004) consider various life-domains in their analyses, depending on the purpose of each study. Cummins (1996) identified seven life-domains when measuring life satisfaction in Australia: material well-being, health, productivity, intimacy, safety, community, and emotional well-being. Each life-domain satisfaction was measured on a scale from 1 to 10 and an aggregate measure was then computed. In a similar Australian study, Headey and Wearing (1992) looked at life-

³² Diary data has been collected since 1997 through the Australian Time Use Survey, however, its purpose is to track activities through diary data, not the feelings associated with these activities.

satisfaction in relation to leisure, marriage, work, standard of living, friendship, sex life, and health. Other studies have used other life-domains (sometimes less, sometimes more), and also aggregated measures to a level of general satisfaction (Veenhoven, 1996; Argyle, 2001).

Rojas (2006) found that domains of life such as family or work had different importance to the well-being of individuals depending on their position in Mexican society. For example, for working individuals with partners and children, satisfaction with family life was 'crucial' for life satisfaction while economic satisfaction was only 'relevant'. He also found that satisfaction levels in life-domains were correlated, and that it was possible to substitute satisfaction in one domain with satisfaction in another in order to maintain overall life-satisfaction. This finding is as well supported by Oswald and Powdthavee (2007) who found that having lost a partner or a child (low satisfaction with family life) can be compensated for by extra annual income (financial satisfaction). Similarly, gerontological studies that investigate the determinants of well-being in old age have found that adaptation to changing conditions and a shift in priorities and preferences keep general levels of satisfaction high, or even higher than they were at earlier stages of life (Pearlin and Skaff, 1996).

Plagnol (2010) claims the importance of a life-course approach to subjective well-being, noting that, not only do individuals change how they conceptualise their well-being, but the importance of aspects of well-being changes, too. The centrality of particular aspects of life has been tested decades ago in cross-sectional studies (Cantril, 1965), and personal concerns seemed to be similar across countries. People are mainly concerned with their health, family and finances and these results were first explored through the life-domain approach (Campbell et al., 1976; Campbell, 1981), and more recently by studies like Cummins (1996), or Van Praag et al. (2003). Most of these studies do not directly ask individuals to rank the importance of aspects of life to their well-being, but assess the relative weight of each domain to overall satisfaction with life in regression analyses (Plagnol, 2010). However the importance of such aspects changes as people age, and also differ by gender (Plagnol and Scott, 2008; Scott, 2008). The importance of age-specific indicators derived from age-relevant domains of life was also indicated by Bradshaw et al (2006). Casas et al. (2007) found that life-domain satisfaction correlates with general satisfaction in adolescence, but at levels that change with age.

Some events may affect only a few aspects of life, which in turn may affect the conceptualisation of ‘the good life’ to a greater or lesser extent. However, to understand the effect of an external event or factor on well-being, it is necessary to assess the individual’s conceptualisation of well-being (what matters most in life), which will also impact on their subjective evaluation of well-being (Plagnol, 2010:756-7).

Accordingly, in the analysis of the relationship between subjective well-being and higher educational achievement, this thesis accounts for conceptual differences in self-assessed well-being. The literature discussed above leads towards the following questions:

- Are domains of life equally important to the subjective well-being of the tertiary-educated and that of the non-tertiary-educated?
- Does the importance of particular domains of life change throughout the life course?

3.5 The need for research and contribution to knowledge

The higher objective outcomes that are associated with higher levels of education have long been discussed in the literature (Veenhoven, 1996; Hartog and Oosterbeek, 1998; Blanchflower, 2001; Headey, Muffels and Wooden, 2004). The tertiary -educated have better health, better jobs, most often higher pay rates, more wealth and better social networks than their counterparts with lower levels of education. Therefore the tertiary-educated should achieve higher utility, or overall well-being (Hickson and Dockery, 2008:3). However, when material wealth variables are controlled for, a negative relationship emerges between tertiary-education achievement and subjective well-being. While many studies have identified the negative relationship between tertiary education and subjective well-being in developed countries, few have attempted to explore its bases. Hickson and Dockery (2008) and Dockery(2010) have flagged the need of further investigation of this relationship. There is a gap around education and subjective well-being, not only in relation to theory, but also in the methodological approach (Desjardins, 2008). For example, number of years spent in education and highest level of education achievement give different results when used in factor analyses (Desjardins, 2008), indicating some of the weaknesses of the investigation.

Through its methodological and theoretical approaches this study answers the need for further theoretical and empirical investigation of education and quality of life (Desjardins, 2008; Dockery, 2010). It adds to the scholarly debate in the field of education and subjective

well-being in particular, and to the overall discussion of quality of life. The broader contribution to knowledge of this thesis is discussed in Chapter 10, Section 2 when the methodological innovations, theoretical implications and policy recommendations are discussed.

3.6 Conclusion

The purpose of this chapter has been to offer an in-depth review of the bodies of literature within which the thesis is located. The focus of the thesis is perceived well-being, hence the studies selected for review are those that have embraced a subjective well-being approach to individual well-being. Through a critical review of socio-economic and relevant psychological, medical and gerontological studies, the multidirectional relationship between subjective well-being, educational achievement, and socio-economic and demographic variables has been mapped. Relevant methodological approaches to the exploration of subjective well-being have also been reviewed.

The gap in the literature has been identified and how the thesis participates in the scholarly debate has been explained. Given the purpose of the thesis, empirical studies have been the main target of this literature review. As far as possible, reference has been made to the Australian context but the topic draws on wider perspectives by including international and cross-national studies of well-being.

The next chapter addresses the methodological approach of the thesis. The operational research questions that emerged from this review of literature are incorporated in the chapter. The datasets used to answer the research questions and test the hypotheses are described, and the advantages and limitations of the methodology are discussed.

Chapter 4 The method of study

4.1 Introduction

This thesis is an empirical exploration of the paradox of subjective well-being (SWB) and tertiary education in Australia. Both objective and subjective outcomes are important to the assessment of well-being, but subjective well-being is central to the thesis. The analysis builds on the subjective well-being approach and the life-domain approach discussed in Chapter 3, Section 3.4.

Longitudinal analysis of a repeated sample of individuals is conventionally preferred as the best way of capturing the effect of an event, in the case of this thesis, having obtained a tertiary degree. However, Australian longitudinal data allow for only up to ten consecutive years, and hence a longitudinal analysis would capture only a short-term effect of education on well-being. There are also other methodological concerns, such as the ‘instrumentation bias’ (Baird et al., 2010) that flags the necessity of a ‘refreshed’ and not repeated sample of respondents each year. This bias is discussed in the final section of this chapter. The thesis supports the heterogeneity of subjective well-being by higher educational achievement and explores the subjective well-being of tertiary-educated (TE) and non-tertiary-educated (NTE) Australians through ‘pre-post intervention’ and within- and between-group analyses.

In what follows, data from national representative surveys are analysed in cross-sectional models. The main body of analysis is conducted using nine waves of data (2001-2009) from the Household, Income and Labour Dynamics in Australia (HILDA). Information on a single-item measure for SWB (overall satisfaction with life) and satisfaction with key domains of life is available, reporting on satisfaction with employment opportunities, finances, free time, safety, health, home, local community and neighbourhood. An alternative, multiple-item measure of SWB is calculated in the analysis as the arithmetic average of the levels of satisfaction with these aspects of life³³. The methodological aspects of the multiple-item calculation are discussed in detail in Chapter 5, Section 5.2 when the analysis is conducted.

Although there is a possibility of measurement errors resulting from the use of happiness or satisfaction as measures of SWB, this thesis uses an alternative measure of

³³A weighted average is also calculated although, for the ease of understanding and for the purpose of the present analysis, the arithmetic average is sufficient and preferred (for further discussion of the difference between the two averages, see Rojas, 2004).

SWB, happiness with life, from the Australian Survey of Social Attitudes (AuSSA) to complement findings from the HILDA survey. This comparison is discussed in Appendix C at the end of the thesis. A comparison with the Personal Well-Being Index (PWI) is also provided in that appendix.

Data from the HILDA survey is analysed to investigate the SWB and satisfaction with certain domains of life of the adult population over 25. The SWB of Australians younger than 25 is explored using data from the Longitudinal Survey of Australian Youth (LSAY). In LSAY, SWB is measured both as a single-item, happiness with life, and through multiple items, happiness with the following aspects of life: work and study; free time; relationships; social life; finances; career prospects; future; life at home; standard of living; and home. The LSAY dataset is preferred for this group of individuals as it addresses youth-specific issues, which is essential in the conceptualisation of SWB.

The remainder of the chapter is structured into six sections. Section 4.2 discusses the advantages and limitations of quantitative data analysis in SWB research. Section 4.3 presents the datasets used in the analysis, as well as the steps taken in the analysis of each dataset. In Section 4.4 the research design is explained. How the operational research questions that emerged from the review of literature are answered to test the hypotheses of this thesis is discussed first. Then the life-domain approach and the heterogeneity of SWB, the methodological approaches employed in this thesis, are explained. Section 4.5 concludes with a discussion of the biases identified in studies of quality of life, and how this analysis addresses them.

4.2 Secondary quantitative data analysis

Secondary data in large, longitudinal datasets is often the preferred method of analysts in the social sciences for capturing past information, change and interactions between factors across long periods of time. For example, studies of quality of life or well-being traditionally analyse large sets of data collected at regional, national or global levels such as the British Household Panel Study (Blanchflower and Oswald 2004; Clark 2007; Baird et al, 2010), the American General Social Survey (Blanchflower and Oswald 2004), the German Socio-Economic Panel Survey (Wunder et al. 2009; Baird et al. 2010), the European Social Survey (Noll, 2006), the European Household Panel Survey (Christoph and Noll, 2003), the

Household, Income and Labour Dynamics in Australia (Headey and Wearing 1992; Headey 2010), and the World Values Survey (Veenhoven, 2009).

Although not employed in this thesis, qualitative research methods often provide valuable information that is not captured by quantitative data. An in-depth understanding of the human behaviour is often gathered through qualitative research, offering answers to why and how events happen, rather than when, where, and how often. Newman (2000) compiled a comprehensive comparison table of quantitative and qualitative research styles: quantitative research measures objective factors while qualitative research addresses social reality and cultural meaning; quantitative research focuses on variables while qualitative research focuses on interactive processes and events; in quantitative research reliability is key while in qualitative research authenticity is key; quantitative research uses statistical methods to analyse many cases while the qualitative research undertakes thematic analyses of fewer subjects (Newman, 2000: 16).

Assessing SWB is a challenging task and there is an on-going debate around ‘the right’ measure. The concept has both cognitive and affective components (Diener, 1994: 106), and psychologists argue that individuals give different answers to the general question ‘All things considered, how satisfied are you with your life these days?’ depending on contextual factors such as the time of the day or even the weather. Such issues often result in problems of validity and reliability in the indicators of self-assessed well-being (von Hoorn, 2007). For such methodological reasons conducting qualitative interviews to explore SWB is a complex task which necessitates extensive, multi-disciplinary training. Although a qualitative approach may be valuable to the exploration of SWB by higher educational achievement, given the time-frame for the completion of this doctoral thesis and resource constraints, quantitative methods are employed.

The breadth of data available and the savings of time and money are two major advantages of using secondary data in this research (see also Boslaugh, 2007). The collection of Australia-wide primary data was beyond the financial possibilities and time frame of this doctoral project, and the availability of reliable longitudinal data in electronic format allowed for a considerable amount of time to be allocated to testing hypotheses and models to answer the research questions posed by this thesis. The largest part of the analysis is conducted using data from the Household, Income and Labour Dynamics in Australia (HILDA) survey, restricted to the adult population aged 25 years and older. The purpose of this analysis is to

explore the relationship between educational achievement and SWB, hence the adult sample is confined to individuals who would have reached the tertiary-education completion age. In addition, the subjective well-being of young people is explored using data from the Longitudinal Survey of Australian Youth (LSAY).

Although the purpose of these surveys is much broader than the assessment of individual well-being by highest educational level achieved, both surveys provide information relevant to the thesis. LSAY inquires about young people's levels of happiness with life and domains of life, and HILDA contains a module measuring SWB as satisfaction with life and satisfaction with areas of life. The Australian adult population also ranked their happiness in the Australian Survey of Social Attitudes (AuSSA). This information in AuSSA is also analysed in an attempt to explore the differences between the cognitive measure (satisfaction) and the affective measure (happiness) of SWB. Results are compared with those obtained from the analysis of the HILDA data and reported in Appendix C.

The three national datasets are described in the next section: both the data collection process, and the variables of interest and their descriptive characteristics. The limitations of these datasets are also discussed. The questionnaires employed by these studies are presented in Appendix A.

4.3 Secondary data sets

4.3.1 Household, Income and Labour Dynamics in Australia (HILDA) Survey

Data collection

The HILDA survey is a household-based panel study collecting information about 'economic and subjective well-being, labour market dynamics and family dynamics' (Melbourne Institute, 2010). Both household and individual level data are collected. The survey is designed and managed by the Melbourne Institute of Applied Economic and Social Research (University of Melbourne) and was initiated and funded by the Australian Government, Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA). It began in 2001 and data was collected until 2008 (waves 1 – 8) by the Nielsen Company. Roy Morgan Research is in charge of collection the data from wave 9 (2009) onwards. This thesis uses Release 9 of the HILDA data (waves 1 to wave 9). Access was obtained through the license held by the University of New South Wales and data was accessed and analysed in SPSS and Stata formats.

Respondents to the HILDA survey have been randomly selected and all persons older than 15 years in eligible households are included and followed for consecutive years. If individuals change households or form new ones, the new households also enter the survey and form a 'refreshed sample' that adds to the initial sample. Individuals aged 15 and over from the new household as well become part of the survey, either as a responding person (completing the entire questionnaire) or as an enumerated person (when only socio-economic and demographic characteristics are recorded).

The data has been de-identified before release through measures such as withholding some variables (such as post code), aggregating some variables (such as reporting occupation at two digit level although was collected at four digit level), or top-coding³⁴ variables like age, income or wealth. Respondent data on demographics such as age, gender, marital status, geographic location, ethnic background, language spoken at home, family composition, highest school level or highest qualification obtained, and socio-economic measures such as wealth, health, income and social attitudes, are available in every wave of the data collection. Special modules on various topics are at times included, and a comprehensive module on SWB is present in all waves. Respondents are asked to rank on a scale from 0 to 10 their levels of satisfaction with life overall, and with eight aspects of life: the home they live in; employment opportunities; financial situation; safety; feeling part of the local community; health; neighbourhood; and the amount of free time they have.

Three types of datasets are available for each wave: household data; respondent data; and enumerated person data. The module inquiring about SWB was completed only by responding persons, hence the dataset used is the respondents³⁵. 13,301 respondents participated in the last wave (Wave 9, 2009), including individuals from new households (households that were not present in previous waves of data collection), or young people that reached the eligible age to be in the survey. From these 10,675 (in Wave 9) are

³⁴Top-coding substitutes an average value for all the cases which are equal to or exceed a given threshold. The substituted value is calculated as the weighted average of the cases subject to top-coding. As a result, the cross-sectional weighted means of the top-coded variable will be the same as the original variable (Source: www.melbourneinstitute.com/hilda/manual)

³⁵Wave 1 (in 2001) has a response rate of 66 per cent and the non-respondents are more likely to live in Sydney, be male or unmarried, born in a non-English speaking country, or aged 20 to 24 or over 65. 7,682 households have been interviewed, with an average of 2.4 people per household resulting into 19,914 people participating in the survey. However 4,787 are ineligible children (under 15) resulting in 13,969 responding individuals. The wave-on-wave attrition rates are highest in waves 2 and 3 (13.2 and 9.6 per cent respectively), falling below 6 per cent for waves 5, 6, and 7 and below 5 per cent for waves 8 and 9.

aged 25 years and older, and eligible for the purpose of this analysis. The data is modelled at individual level.

Following on from this present chapter, Chapter 5 explores the differences in overall satisfaction and the levels of satisfaction with various domains of life for individuals who completed tertiary studies and those who did not. ‘What counts’ towards the SWB of the tertiary-educated and the SWB of the non-tertiary-educated is explored in correlation and regression analysis in Chapter 6, where the heterogeneity of SWB by higher educational achievement is explored. Econometric models further investigate how the factors that influence SWB vary for the tertiary-educated (TE) and the non-tertiary-educated (NTE). Finally, in Chapter 7, SWB by higher educational achievement is explored in the light of life-course theory. The econometric models are explained within the respective chapters.

Data description

Table 4.1 summarises the descriptive statistics of the HILDA respondents in 2009. Information on the entire sample and three sub-samples of the survey is provided. The three sub-samples are: the adult respondents aged 25 and over; tertiary-educated adult respondents; and non-tertiary-educated adult respondents. The demographic differences between all HILDA respondents (Table 4.1-1) and HILDA respondents 25 years and over (Table 4.1-2) indicate: higher male-to-female ratios among the 15-24-year-olds; higher rates of young people from Aboriginal and Torres Strait Islander (ATSI) and Culturally and Linguistically Diverse (CALD) backgrounds; more young people living in major urban areas; and unsurprisingly, higher rates of single individuals aged 15 – 24 than among the whole population.

Demographic differences are also apparent between the TE (Table 4.1 – 3) and the NTE (Table 4.1 – 4). Within the TE sample the ratio of female-to-male respondents is higher than within the NTE sample, indicating that women have higher university participation rates than men. The ATSI population is underrepresented in the TE population compared to their representation in the general population. The proportion of CALD individuals with higher qualifications is higher than the proportion of CALD respondents without tertiary qualifications. Almost three-quarters of the TE respondents live in major urban areas, while just over half of the NTE respondents live in such large metropolitan areas. Not surprisingly, the TE are slightly younger than the NTE, a consequence of the expansion of tertiary education participation in the past few decades.

Table 4.1 Demographic characteristic of samples in HILDA (per cent)

Demographic characteristics		All HILDA respondents (1)	HILDA respondents 25 years and older		
			All 25+ (2)	TE (3)	NTE (4)
<i>Gender</i>					
	Male	49.4	47.0	44.5	47.9
	Female	50.6	53.0	55.5	52.1
	<i>ATSI</i>	3	2.6	1.2	3.1
	<i>CALD</i>	16.2	10.1	12.6	9.2
<i>Geographic area</i>					
	Major Urban	65.3	59.7	74.3	54.9
	Other Urban	21.2	24.0	14.9	27.0
	Rural	13.5	16.2	10.7	18.0
<i>Age group</i>					
	15-24	18	-	-	-
	25-34	17.5	19.6	26.3	17.4
	35-44	17.7	21.7	24.9	20.6
	45-55	17.2	22.2	24.3	21.5
	55-64	14.3	16.8	14.9	17.4
	65-74	8.7	11.0	6.7	12.4
	75+	6.7	8.7	2.8	10.6
<i>Marital Status & Children</i>					
	Single	27.9	12.3	12.6	12.2
	Married	57.7	66.2	72.6	64.1
	Separated	2.6	3.9	3.7	3.9
	Divorced	7	11.0	8.8	11.7
	Widowed	4.7	6.6	2.4	8.0
	Children	61.2	75.6	66.2	78.7
	<i>Long term health or disability</i>	23.2	26.7	16.5	30.1
<i>Employment Status</i>					
	Employed	63.5	64.2	79.4	59.1
	Unemployed	3.6	2.3	1.9	2.5
	NILF	32.9	33.5	18.6	38.4
<i>Education level</i>					
	Masters or PhD	3.5	4.5	18.0	-
	Grad diploma/certificate	4.7	6.1	24.7	-
	Bachelor or Hons	12.9	14.2	57.3	-
	Non-tertiary	78.9	75.2	-	100
	N	13,301	10,675	2,645	8,030

Source: HILDA, 2009, weighted sample; total N from un-weighted sample.

A higher percentage of TE individuals are married, although it is worthy of note that a higher percentage of NTE respondents have children³⁶. The descriptive statistics of the two sub-samples also indicate that fewer TE respondents have a long-term illness or disability, consistent with the literature reviewed in Chapter 3, Section 3.3.1. Predictably, a higher share of the TE than the NTE is employed. Population weights are used with each year of data to ensure that results from the analysis are representative for the general Australian population.

³⁶ Respondents were directly asked to state their marital status and whether they currently had children.

4.3.2 Longitudinal Survey of Australian Youth (LSAY)

Data collection

The Longitudinal Survey of Australian Youth (LSAY) is the most comprehensive research study on young people in Australia, managed and funded by the Australian Government Department of Education, Employment and Workplace Relations (DEEWR) with support from local governments. The project is ongoing, and the Wallis Consulting Group has been collecting the data by computer-assisted telephone interviewing (CATI) since 1995. Until 2003, young people were randomly selected from schools across all Australian states and territories. Since 2003 however, survey participants have been selected from amongst the young people participating in the Australian component of the Organisation for Economic Co-operation and Development's (OECD's) Programme for International Student Assessment (PISA) survey. Young people enter the survey when they turn 15 (or, prior to 2003 in Year 9), and are contacted annually for the next ten consecutive years for follow-up interviews. Groups of students that enter the survey at the same time (when they turn 15) are known as a 'cohort'. There are five cohorts: year 1995 cohort (Y95), year 1998 cohort (Y98), year 2003 cohort (Y03), year 2006 cohort (Y06) and year 2009 cohort (Y09). Each cohort initially consists of over 10,000 students. Although attrition rates are relatively high, attrition weights are provided and used in this analysis. De-identified data is available on request from the Australian Social Science Data Archive (ASSDA) at the Australian National University (ANU) in Canberra. For the purpose of the thesis, data were obtained and analysed in SPSS format.

Data description

The survey tracks young people as they move from school to further education, work and other destinations, and a variety of demographic and socio-economic characteristics are collected. Information on family, friends, social connectedness, physical and mental health, school performance, subjects studied at school, plans to complete school, plans for further education, work history, frequency of recreational activities, aspirations and social attitudes, and happiness with life overall and with various aspects of life, are just few of the aspects explored by the LSAY survey.

The Y95, Y98 and Y06 cohorts are of interest to this analysis. The Y95 and Y06 cohort data are analysed to explore school completion and tertiary-education participation in the light of the capabilities approach. The Y98 cohort provides the most recent information

on young people who have finished their transition from school to work. In Chapter 9 this cohort is explored longitudinally in order to investigate the differences between the TE and the NTE young people. The Y95 cohort consists of a random sample of 13,613 Year 9 students with an average age of 14.5 years at the time. The Y98 cohort consists of 14,117 students with an average age of 14.5 years at that time. 14,170 Australian students were selected in 2006 to participate in the PISA conducted by the OECD. The average age in 2006 was 15.7 years, and these students became the LSAY Y06 cohort³⁷. All members of a cohort are contacted for annual follow-ups and the condition for remaining in the survey is to miss no more than one wave of data collection. A disadvantage of the LSAY survey is the high attrition rates. Table 4.2 summarises the sample sizes and annual attrition rates recorded within each cohort throughout the years of data collection.

Table 4.2 Sample size and response rates Y95, Y98 and Y06 LSAY cohorts

Interview period (year)	Y1995		Y1998		Y2006	
	Sample size	Response rate	Sample size	Response rate	Sample size	Response rate
1	13613	100	14117	100	14170	100
2	9837	72.3	9289	65.8	9353	66.0
3	10307	75.7	9548	67.6	8380	59.1
4	9738	71.5	8777	62.2	7299	51.5
5	8783	64.5	7762	55.0		
6	7889	58.0	6905	48.9		
7	6876	50.5	5979	42.4		
8	6095	44.8	5356	37.9		
9	5354	39.3	4729	33.5		
10	4660	34.2	4210	29.8		
11	4233	31.1	3859	27.3		
12	3,914	28.8	3596	25.5		

Source: NCVER

Consistent with the recommendation of the National Centre for Vocational Education Research (NCVER), two weighting procedures have been applied to the LSAY data in this analysis, to ensure that it accurately represents the population aged 15 in the first year of collection. The first procedure involves sample weights which ensure that the sample matches the population from which it was drawn; the second procedure involves attrition weights which allow for the rather high attrition rates that characterise the LSAY survey. These weights are based on the overall achievement quartiles and gender, and reweighted to wave

³⁷ The Y06 cohort students were slightly older during their first wave of interviews in 2006 than the young people beginning their interviews in 1995. All young people in the Y95 cohort were in school Year 9 in 1995, while the Y06 cohort young people were in school Year 10. The waves are not linearly comparable and data from the first wave of the Y06 cohort is compared to the data from the second wave of the Y95 cohort to match characteristics like age or school year.

one (NCVER 2006). The two weights are combined into a final weight that both accounts for attrition and balances the sample to the population size. These final weights have been used in all LSAY technical reports and are also used in the analysis presented in this thesis.

4.3.3 Australian Survey of Social Attitudes (AuSSA)

The Australian Survey of Social Attitudes (AuSSA) is also used in the thesis to explore biases that occur from the use of affective (happiness) and cognitive (satisfaction) measures of well-being. Managed by the Australian Demographic and Social Research Institute (ADSRI) at the ANU, the AuSSA is a biennial survey of the social attitudes and behaviour of Australians. AuSSA was first conducted in 2003. It is a mail survey and approximately 4000 Australians aged 18 and above are randomly selected from the Electoral Roll at each round. To maintain the confidentiality of the information provided, the postcode variable is permanently embargoed.

The 2009 survey has two modules (AuSSA-A and AuSSA-B). Module A was sent to a sample of 5,002 individuals and module B to 5,002. The response rates were 37 per cent for AuSSA-A and 33 per cent for AuSSA-B. This thesis uses data from the AuSSA-A, which contained the module for the International Social Survey Program (ISSP) 2008 as well as information on happiness. Because the sample is biased – more women than men, and more of the highly-educated and of older people than the general population – the sample is weighted to have same properties as the Australian Bureau of Statistics (ABS) Census 2006 data.

The first question in Section A of the 2009 AuSSA-A questionnaire inquires about the general level of happiness, with answers ranked as very happy, fairly happy, not very happy and not at all happy. Section J asks about the personal background of the respondent –gender, year of birth, years of schooling, highest level of education achieved, current occupation, marital status and family background, ancestry and more.

Although the data provided by the AuSSA is not longitudinal, that is, the survey does not follow individuals across waves of data collection, the data provided by this survey is valuable in more than one respect. Firstly, it is representative of all Australians, as individuals have been randomly selected from all regions of Australia and across all age groups (18-year-olds and above). Secondly, the AuSSA survey allows for the computation of an alternative measure of SWB (happiness) to compare with the levels of satisfaction derived from the

HILDA survey. The results of this analysis of overall happiness, and the comparison with overall satisfaction with life, are included in Appendix C at the end of the thesis.

4.4 The design of the analysis

The framework of the thesis was developed in Chapter 2 and three hypotheses were formulated. Chapter 3 provided a critique of the SWB literature in the light of the paradox of SWB and tertiary education. The following research questions emerged from the literature reviewed:

- Are the TE less satisfied with aspects of their lives than the NTE?
- Are the TE less satisfied with their lives overall than the NTE?
- Are domains of life equally important to the SWB of the TE and the NTE?
- Does the importance of domains of life change throughout the life course?
- Do demographic and socio-economic factors affect the SWB of the TE and NTE to the same extent?
- Is there a paradox of SWB and tertiary education in Australia?

These operational research questions are addressed empirically. Changes in levels of satisfaction with certain areas of life and in overall satisfaction with life between 2001 and 2009 are first explored using data from the HILDA survey. Within-group and between-group comparisons of means are conducted. The within-group comparison of means explores how the levels of overall satisfaction with life (SWB) and satisfaction with domains of life have changed in the past decade for tertiary-educated and non-tertiary-educated Australians. The within-group focus is the change within each group of individuals, that is, the change in satisfaction for the TE between 2001 and 2009, and the change in satisfaction for the NTE between 2001 and 2009. The between-group comparison investigates the differences between the TE and the NTE with respect to their levels of overall satisfaction on the one hand, and their levels of satisfaction with certain areas of life on the other. In this instance, the focus is on the differences between the two groups, the TE and the NTE, occurring across time, rather than on the differences occurring within each group.

This comparative analysis gives a first indication of how Australians with different levels of education compare in terms of overall satisfaction with life and satisfaction with certain domains of life, addressing the first two operational research questions. The results

indicate that in 2009 the tertiary-educated had similar levels of subjective well-being to the non-tertiary-educated, pointing towards an initial resolution of the paradox of SWB and tertiary education in Australia. However, when an aggregate measure of SWB is calculated as the average of the levels of satisfaction with key areas of life, the tertiary-educated are found to be significantly more satisfied with their lives than the non-tertiary-educated. The paradox of SWB and tertiary educational achievement is both confirmed and refuted through this comparison analysis, and these diverging results flag the necessity for further exploration of the relationship between subjective well-being and tertiary-educational achievement.

Building on the theoretical framework developed in Chapter 2, this thesis supports the heterogeneous nature of SWB by higher educational achievement and age. The next stages of the analysis explore the heterogeneity of SBW by higher educational achievement, first through a life-domain approach, and later from a life-course perspective. For this purpose, correlation analyses of data from the 2001 and the 2009 HILDA surveys explored the question of whether particular domains of life were equally important to the SWB of the TE and the NTE, and how these correlations might have changed over the past decade. The factors that influence the SWB and satisfaction with aspects of life of the TE and the NTE are then explored in regression analysis, further testing the heterogeneous nature of SWB. Age is also an important factor in explaining perceptions of well-being, and for this reason the heterogeneity of SWB by tertiary-educational achievement and stage of the life-course is explored in Chapter 8.

The results of both the single-item and the multiple-item measures of SWB are explored, and the paradox of SWB and higher-educational achievement in Australia is reassessed. Both the life-domain approach and the heterogeneity approach to SWB are central to the design of the analysis, and are discussed below.

4.4.1 Life-domain approach and the heterogeneity of subjective well-being

The life-domain approach (Campbell et al., 1976; Campbell, 1981) is a bottom-up approach to exploring determinants of well-being. It assumes that overall well-being is driven by the levels of satisfaction with various domains of life.

Whether the relationship between life satisfaction in general and satisfaction with domains of life is additive (Moller and Saris, 2001; Cummins, 2010), or whether the relationship is instead semi-logarithmic or logarithmic, or whether constant elasticity of

substitution can be applied, is another debate in the assessment of SWB (Rojas, 2006). Using Mexican data, Rojas (2006) found that general life satisfaction is not a weighted average of life-domain satisfaction, and that the relationship between them is rather complex. Different weights have been found to apply to domains of life according to individual characteristics. For example, for working individuals with partners and children, satisfaction with family life is ‘crucial’ for life satisfaction, followed by satisfaction with health, personal life and job ranked as ‘important’. For the same group of people economic satisfaction is only ‘relevant’ while friendships and community domains become ‘irrelevant’ (Rojas, 2006:490-491). This suggests that some groups of individuals are different and the phenomenon of the various perceptions of well-being has been discussed as the ‘heterogeneity’ of the respective groups (Rojas, 2006).

Furthermore, drawing on the theoretical framework built in Chapter 2, the central premise of the thesis is that what makes the TE satisfied does not satisfy the NTE to the same extent. This phenomenon is discussed in this thesis as the ‘heterogeneity of SWB by tertiary-educational achievement’. For these reasons, a regression analysis with semi-logarithmic specifications (for a comparison of this model with other possible models – see Rojas, 2006) explores the influence of satisfaction with aspects of life on overall satisfaction with life for the TE and the NTE. The heterogeneity of SWB and tertiary-educational achievement is assessed through this analysis. If the levels of satisfaction with domains of life have a similar influence on overall satisfaction with life for the TE and the NTE, it can be concluded that areas of life have the same importance for individuals from the two groups, refuting the hypothesis of the heterogeneity of SWB by tertiary-educational achievement. Whether or not this is the case, whether in fact the TE and NTE have different concepts of ‘what counts’ for their well-being, is explored in Chapter 6.

The life-domain approach also assumes that external factors influence only some and not all aspects of life. For this reason, socio-economic and demographic factors (such as marital status, income group, employment status, or demographics like gender, age group, or ethnic background, factors traditionally assessed in studies of subjective well-being) that can affect satisfaction with life and satisfaction with domains of life are also explored. Whether the influence of these factors is the same for the TE and the NTE is explored, allowing conclusions to be drawn about whether ‘what makes the good life’ varies by level of

education. The results and detailed methodological specifications of the models are discussed in Chapter 7.

The life-domain approach and the bottom-up analysis of SWB are hence identified as suitable methodologies for the exploration of the paradox of SWB and tertiary education in Australia.

4.4.2 *Specifications of the analysis and its limitations*

When the purpose is to observe changes across individuals due to an intervention program or an event, time-series data analysis is preferred (Wooldridge, 2006):

Panel data sets are very useful for policy analysis and, in particular, program evaluation. In the simplest program evaluation setup, a sample of individuals, firms, cities and so on is obtained in the first time period. Some of these units, those in the treatment group, then take part in a particular program in a later time period; the ones that do not are the control group.

(Wooldridge, 2006:467)

However, although the effect of an event (completing tertiary education) is what this thesis seeks to explore, a pre-post intervention analysis is not appropriate here. The following scenario gives reasons for this decision: the first time-period (pre-intervention) is 2001, the first year of the HILDA data collection, and the post-intervention period is the last year of data collection, 2009. Obtaining a tertiary qualification (bachelor level and above) is the intervention. The first problem is that individuals who already had a tertiary qualification in 2001 would be omitted from the analysis, as they had already ‘received the intervention’. Secondly, the year of tertiary-qualification completion would vary across individuals within the remaining sample, as they could have completed a tertiary qualification at any point between 2002 and 2009. Thirdly, even if a control for the year of completion were to be introduced, for some individuals the effect of having completed tertiary qualifications would be a short-term effect (e.g. for those who have completed in between 2005 and 2009), while there would be a medium- to long-term effect for others who had completed tertiary education four or more years prior to the year of analysis. Accounting for the short- and long-term effects would reduce the sample size, presenting the analysis with further difficulties.

For these reasons, a ‘before-after intervention’, longitudinal analysis to isolate the effect of tertiary education completion on satisfaction with life is not appropriate given the

data available for analysis. Furthermore, a repeated sample of respondents is necessary to observe the change in time (Wooldridge, 2007). However, Baird et al. (2010) argue that there is a participation bias in repeated cross-sectional analyses of SWB: being asked each year to subjectively evaluate their lives, individuals may become more reflective and change their attitudes each year, their following year's answer being influenced by their participation in the survey the year before. For this reason, Baird et al. (2010) suggest that refreshed samples in unbalanced longitudinal panels should be used to control for this bias. This bias is addressed in the context of the HILDA survey and results are reported in Appendix Cat the end of the thesis. The analysis conducted throughout the thesis uses a refreshed longitudinal sample of respondents.

The analysis employed by this thesis divides the respondent sample into tertiary-educated (individuals who have completed studies at bachelor levels and above) and non-tertiary-educated individuals. All nine waves of HILDA data are initially considered, and all respondents (as opposed to the repeated sample only) are included to compare the change in levels of satisfaction with life and of satisfaction with domains of life for the TE and the NTE, between 2001 and 2009. This comparative analysis is conducted in Chapter 5.

In order to test the heterogeneity of SWB by tertiary-educational achievement discussed in the subsection above, an in-depth analysis is conducted of the influence on overall satisfaction of satisfaction with domains of life and of socio-economic and demographic factors. The analysis is done separately for the TE and the NTE, using 2009 HILDA data. The goal of this cross-sectional analysis is to explore whether the determinants of SWB are the same for the two groups. The same cross-sectional analysis is repeated using 2001 data and the results of this analysis are compared with the results from 2009. The purpose is to explore through a time-series cross-sectional comparison how determinants of well-being have changed between 2001 and 2009 for the TE and the NTE. A pooled cross-sectional analysis is the traditional method for exploring such changes in impact factors across periods of time. Dummy variables are usually included for each time period, and interaction terms created to differentiate between the impact of each factor in period 1 and period 2 respectively. However, in this analysis, the dependent variable (satisfaction with life) is conceptually different not only in the case of the TE and NTE (i.e. SWB is heterogeneous by higher educational achievement), but also in each year of assessment. Chapter 6, Section 6.2, shows that correlations between the levels of satisfaction with

domains of life and the levels of overall satisfaction are different for 2001 and 2009, and these correlations are also different for the tertiary-educated and the non-tertiary-educated. Chapter 6 concludes that SWB is heterogeneous by higher-educational achievement. This chapter also offers an empirical explanation for the inappropriateness of a pooled-cross-sectional analysis.

4.5 Methodological biases in quality of life research

Well-being studies have traditionally undertaken empirical analyses of large regional, national or international datasets³⁸. These studies include those investigating the determinants of objective or subjective well-being such as income (Easterlin, 1974; Diener et al., 1999; Veenhoven and Hagerty, 2006), gender (Headey and Wearing, 1992; Hartog and Oosterbeek, 1997; Inglehart et al., 2002), marital status (Diener et al, 1995; Masterkaasa, 1994; Gerdtham and Johannesson, 2001) and health (Gerdtham and Johannesson, 2001; Dolan et al., 2007), as well as those investigating the relationship between subjective and objective well-being (Wilson, 1967), and the relationship between satisfaction with areas of life and overall satisfaction with life (Diener, 1984; Veenhoven, 1988; Cummins, 1996; Headey and Wearing, 1992; Argyle, 2001; Moller and Saris, 2001; Rojas, 2006; Cummins, 2010).

However many studies have fallen victim to various biases of age, cohort effects or instrumentation effects. Some of the possible biases identified in well-being research are listed below. Whether the analysis in this thesis addresses them, and how it does so, is also explained.

1. Age group bias.

Many researchers included in the analysis of determinants of SWB continuous or dummy variables for age. Most studies conclude either that SWB does not change with age, or that there is a U-shaped relationship between age and SWB³⁹. However, very few studies have explored this relationship further. Plagnol (2010), however, argues that perceptions of well-being change with age, and that what makes the ‘good life’ can be a function of aspirations and roles individuals play at different points in life. Such discrepancies in how people define their well-being are addressed in the thesis through an analysis of SWB by a derived variable

³⁸For a list of some of these surveys see Section 4.3.

³⁹ For reference studies see Chapter 3.6.

of age; well-being is analysed at four stages of life: emerging adulthood, early adulthood, middle adulthood and late adulthood (Elder, 1974). Chapter 7 is entirely dedicated to the analysis of SWB through a life-course approach.

2. Cohort bias.

The times in which individuals are born can have a unique effect on their attitudes to life through specific historical events characteristic of their generation alone such as the Great Depression, the Cold War or the onset of the internet. People born in times of prosperity can be prone to assessing their lives as good, while those born and brought up under harsh socio-economic or political conditions can tend to understate their well-being (Baird et al., 2010). For example, one of the few longitudinal studies of quality of life and educational achievement (Hartog and Oosterbeek, 1998) investigated data collected over 40 years starting when respondents were 12. While valuable because it allows the observation of longitudinal change, the bias of a population that is born in the 1940s can be strong enough for the reader to argue that the results are not representative for current generations.

Respondents to the HILDA survey were born across seven decades (respondents are aged 18 to 95), hence the overall statistics of the sample are not biased towards a single generation. Such data make the results less susceptible to generational biases. However, individuals that changed their status from NTE to TE between 2001 and 2009 are likely to be in the same age bracket (that is, age 24 to 30), mature-age education being infrequent. Nevertheless, including all respondents in the analysis balances the data to represent as much as possible the general population. Furthermore, refreshed samples⁴⁰ (new respondents) are used with each wave to eliminate the possibility of an ageing repeated sample of respondents.

3. The centrality of life-domains across the life-course or ‘Focusing effect’ (Plagnol, 2010).

Many studies, including some of those using Australian data (Headey and Warren, 2008; Cummins, 2010) have found a U-shaped relationship between satisfaction with life overall and age. However, the relationships between age and satisfaction with domains of life are not always significant or U-shaped (Cummins, 2002), indicating that individuals have different appreciations of aspects of life, and of life overall across the life-course. The centrality of

⁴⁰ Opposed to a repeated sample that would suffer an ageing effect over 9 years of survey, this analysis includes new survey respondents each year, i.e. a refreshed sample (for clarifications around the use of refreshed rather than repeated samples see Baird et al., 2010).

different areas of life changes with individual characteristics such as marital status or the presence of children (Rojas, 2006). Plagnol (2010) argues the necessity to assess the importance of life domains to overall well-being, and then assess the impact of external factors.

This thinking is transposed to the analysis of SWB by higher educational achievement in Chapter 6, when the influence of satisfaction with domains of life on SWB is explored first, and then the ways in which external factors interact with SWB and satisfaction with domains of life are investigated.

How Australians conceptualise their well-being is taken from the HILDA survey. Respondents are asked to rank their satisfaction with various aspects of life and life overall, making this survey valuable to the evaluation of SWB through both a life-course approach and a life domain approach. Furthermore it is possible to differentiate between individuals by highest level of education attained, allowing an investigation into how the importance of particular aspects of life changes with age for the TE and NTE, and how the two groups changed between 2001 and 2009. This latter item is addressed in Section 8.3.

4. ‘Instrumentation biases’ (Baird 2010) – the use of longitudinal data without refreshed samples.

Baird et al. (2010) assessed SWB in two European countries using the British Household Panel Study (BHPS) and the German Socio-Economic Survey (GSOEP). They found that in Germany there was a strong ‘instrumentation bias’, by which they implied that having participated in the survey in fact influenced the respondents’ lives and how they reported their well-being the following year. To control for such instrumentation bias Baird et al (2010) recommend that results from longitudinal repeated survey samples be compared with results generated by a ‘refreshed’ sample of individuals that would answer each wave of the survey for the first time. If the differences between the two are statistically significant then it is advisable to use a refreshed sample, even in the data analysis of two or more periods.

Respondents to the HILDA survey are interviewed each year and followed if they change house or form new households (i.e. the survey follows the individual not necessarily the household). Furthermore, all individuals of the new household, if aged 15 or older, join the survey. These new respondents, and those from the old households who have just turned 15, represent the refreshed sample. Their answers are analysed and compared with those of

the repeated sample to investigate whether instrumentation effects such as those found by Baird et al (2010) alter the analysis of well-being in Australia. The calculations are presented in Appendix C, section 1.

5. Differences between subjective and objective levels of well-being.

While many studies argue they have identified the determinants of well-being or who is more likely to be happy, it is important to indicate ‘which quality of life’ or well-being the study refers to (Schuessler and Fisher, 1985; Farquhar, 1995), as some studies investigate for example the health-related quality of life, only refer to it as ‘quality of life’, creating confusion for readers from other fields (Farquhar, 1995).

After a clear indication is made as to ‘which quality of life’ the study investigates, it is important to differentiate between objective and subjective well-being (Noll, 2001; Veenhoven 1999), to understand how the self-assessed subjective well-being and the objective well-being interact and generate overall quality of life (Haas, 1999; Noll, 2000; Veenhoven, 1999, 2009).

These conceptual differences are acknowledged by this thesis. However, the objective well-being is outside the purpose of this analysis. The focus is on subjective well-being and the intentions of the thesis (to assess the relationship between tertiary education achievements and subjective well-being) have been made most clear in Section 3.2 when the working definition of SWB was formulated.

6. Potential differences between subjective well-being assessed as ‘satisfaction’ and SWB assessed as ‘happiness’

The debate around the terminology and measures of subjective well-being has been addressed in Chapter 3. The distinction between ‘happiness’ and ‘satisfaction’ originates in the field of psychology where they are defined as the affective and cognitive dimensions of wellbeing respectively (Argyle, 1987; Diener, 1984).

Satisfaction with life is assessed using HILDA and the main body of analysis draws on this survey. However, overall happiness is also calculated using the Australian Survey of Social Attitudes. While the simplicity of the AuSSA survey does not allow for complex manipulations, the simple comparison of the levels of satisfaction and those of happiness

across the general population is an indicator of the conceptual differences that can occur due to the two different measures. This comparison is presented in Appendix C. At that time, two measures of SWB using HILDA data (overall satisfaction and satisfaction with life), the measure of SWB using AuSSA (happiness), and the Personal Well-Being Index (PWI) are also compared.

4.6 Conclusion

The thesis addresses the necessity for theory formulation and empirical analysis of the relationship between education and subjective well-being, discussed amongst others by Desjardins(2008). National Australian data is explored in a life-domain approach and the heterogeneity of SWB by higher educational achievement is tested. The research aim, the theory and approaches to concepts place this thesis in the field of quantitative social science research.

This chapter has discussed the methodological approaches, including alternative measures of SWB, and introduced the data sets used in the analysis. The advantages and limitations of secondary data analysis have been addressed. The design of the analysis has been explained. Finally, the methodological biases that often become a concern in quality of life research and how they are controlled for in the analysis has been discussed.

The next chapter is the first chapter of analysis and results. The chapter is a time-series cross-sectional exploration of the paradox of subjective well-being and tertiary education and various measures of subjective well-being are compared. The first hypothesis of the thesis is tested in this chapter.

Chapter 5 Findings: Satisfaction with life and satisfaction with domains of life

5.1 Plan of the chapter

This is the first chapter of analysis and results. As theorised in Chapter 2 and supported by the literature reviewed in Chapter 3, the heterogeneity of SWB by higher educational achievement is supported in this thesis. For this reason the analysis in this chapter is structured to address separately the levels of satisfaction of the tertiary-educated and non-tertiary-educated.

The chapter is structured in six sections. The second section introduces the hypothesis that is tested in this chapter, and the methodological approach that is employed for this purpose. Section 5.3 compares the change in overall satisfaction with life and the levels of satisfaction with domains of life between 2001 and 2009. The purpose is to investigate if the tertiary-educated and the non-tertiary-educated have experienced the same changes in overall satisfaction and in satisfaction with life domains of life across the nine years of data analysed. Between-group and within-group changes are explored. In Section 5.4 an aggregate measure of subjective well-being is also calculated as the arithmetic average of the levels of satisfaction with domains of life. Satisfaction with life is explored through a life-domain approach.

5.2 Introduction to the analysis

The first hypothesis of the thesis examines the existence of the paradox of SWB and tertiary education in Australia (hereafter referred to at times as ‘the paradox’) and is tested in this chapter:

***H 1. The tertiary-educated a) are more satisfied with aspects of life and,
b) are more satisfied with life overall.***

The methodological approach developed in Chapter 4 discussed the application of the subjective well-being approach,⁴¹ life-domain approach,⁴² and heterogeneity approach to the

⁴¹ SWB approach refers to the assessment of individual well-being through a direct question asking the individual to rank their happiness or satisfaction with life (e.g. How happy are you these days? How satisfied are you with your life overall?)

thesis. These approaches are employed in this chapter, and both overall satisfaction with life and satisfaction with domains of life are explored. An aggregate measure of satisfaction is also calculated as the average of the levels of satisfaction with key domains of life.

The chapter focuses on the differences in the levels of satisfaction with life and aspects of life of the tertiary-educated (TE) and not tertiary-educated (NTE) Australians. An individual is flagged as TE if at the time of the survey s/he had completed a tertiary qualification at Bachelor level or above (i.e. Bachelor, Masters, or Doctorate). Individuals with other qualifications, including post-secondary but not tertiary, are flagged as NTE. The analysis is not confined to a traditional approach of exploring factors that impact on SWB in multivariate regressions. Instead, the differences between the SWB of TE and the SWB of NTE are explored through within-group and between-group analyses. The theoretical and methodological reasons behind the choice of this analysis were discussed in Chapter 2, Section 2.3 and in Chapter 4, Section 4.4 respectively. The specifications of the econometric models are explained in Section 5.2.

Nine waves of data (2001 to 2009 inclusive) from the HILDA survey are analysed to investigate the changes in overall satisfaction with life and satisfaction with domains of life for the TE and NTE Australians. The interest is not in individuals per se, but in the two sub-populations, hence individuals are allowed to roam between the groups.⁴³ For example, while in 2001 one person may be in the NTE group, by 2009 they may have completed a tertiary qualification and moved to the TE group. The moment that the tertiary qualification is obtained is not of interest because such control would only capture short-term effects. The goal of the chapter is to explore how the SWB of individuals in the TE and NTE groups has changed over time, and how the two groups compare to each other⁴⁴

⁴² The life-domain approach assesses subjective well-being as a function of satisfaction or happiness with aspects of life. A linear relationship is most of the time assumed (Rojas, 2004) and the domains of life assessed are selected through either factor analysis, availability or based on the research goals.

⁴³ Because only a short impact of having obtained a tertiary qualification can be calculated (data is only available between 2001 and 2009), the analysis is conducted not at individual level but at group level, differentiating between tertiary educated and non-tertiary educated. The members of these groups however are not held constant (it is not a repeated sample), hence some individuals may obtain their degree between 2001 and 2009, changing from NTE group to TE.

⁴⁴ It was explained in Chapter 4 *Methodological approach* that in a perfect scenario longitudinal data that would allow following individuals across longer periods of time is generally preferred to assess change in time. This would allow to explore the effect of education of SWB in a pre – post intervention model. Given the data is available only for 9 years, only a short-term effect of education would be captured, hence the interest is not in individuals, but in exploring differences between groups of individuals.

Refreshed samples are used with population weights. The main reason for not having used a repeated sample (individuals that answered each wave of the survey) is to avoid a participation bias (explained earlier in Chapter 4, Section 4.4). The weaknesses of an analysis using a repeated sample are discussed in Appendix C at the end of the thesis. Only respondents aged 25 or older are included in the analysis in Chapters 5-8, otherwise the non-tertiary population would include young people who would not have had the chance to obtain a tertiary degree, due first of all, to their age. The SWB of young people is separately discussed in Chapter 9.

5.3 Changes in satisfaction between 2001 and 2009

5.3.1 Changes in overall satisfaction with life

In the HILDA survey, SWB is assessed as overall satisfaction with life. Respondents answered the generic question, ‘All things considered, how satisfied are you with your life these days?’ and ranked their overall satisfaction with life on a 0 to 10 scale, with 0 being least satisfied and 10 most satisfied. The changes in mean levels of SWB between 2001 and 2009 are summarised in Table 5.1 and are graphically represented in Fig.5.1. Error bars have been plotted in SPSS to explore whether the differences between the SWB of TE and NTE (Table 5.1) are statistically significant.⁴⁵ The econometric convention is that if the error bars overlap the difference between the items that are being compared is not statistically significant. However, the converse is not always true. If the error bars plotted for the means of two independent samples do not overlap, an unpaired t-test is necessary to test the significance level of the difference between the two means⁴⁶ (Wooldridge, 2006). For this reason in Table 5.1 to Table 5.10, the significance level is also noted. The convention is: *** for p-value between .001 and .005; ** for p-value between .005 and .01; and * for p-value between .01 and .05. For clarity, these p-values are discussed when the statistical significance of the differences graphed in Fig.5.1 to Fig. 5.10 are not clear, that is, when the error bars do not overlap indicating that the difference of means can be either statistically significant or not significant. When error bars overlap, as mentioned above, the difference between the two groups is not statistically significant.

⁴⁵ See for example Andy P. Field *Discovering Statistics Using SPSS* for the use of error bars in SPSS to explore the statistical significance of difference between groups (Field, 2009:103-120).

⁴⁶ If the p-value obtained from the t-test is less than 0.05 then the difference between the means is statistically significant (Wooldridge, 2006).

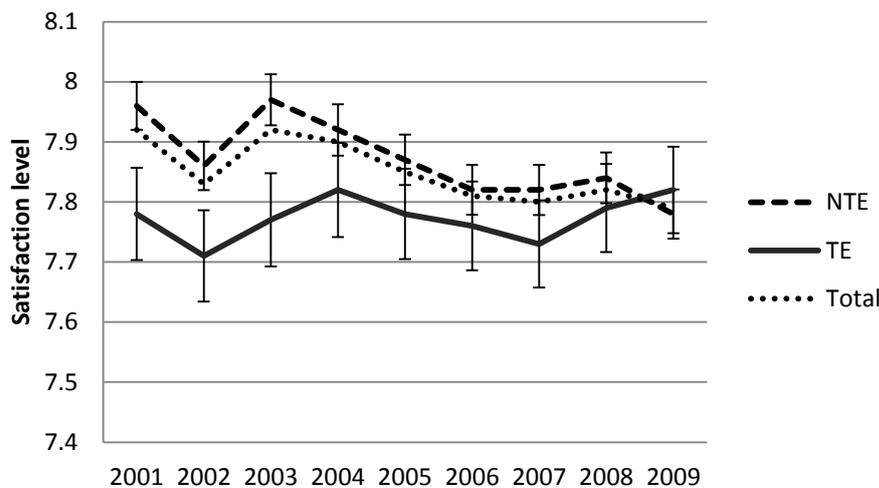
Table 5.1 Mean levels of satisfaction with life (SWB)

Year	NTE	TE	ALL	Difference ¹
2001	7.96	7.78	7.92	-0.18***
2002	7.86	7.71	7.83	-0.15***
2003	7.97	7.77	7.92	-0.2***
2004	7.92	7.82	7.9	-0.1***
2005	7.87	7.78	7.85	-0.09***
2006	7.82	7.76	7.81	-0.06
2007	7.82	7.73	7.8	-0.09
2008	7.84	7.79	7.82	-0.05
2009	7.78	7.82	7.79	0.04
Difference 2009 -2001 ²	-0.18***	0.04		

Source: author’s calculations using HILDA, 2001-2009, individuals age 25 years and older. Person weights were used. N=10,675.

1. Independent sample t-tests (2-tailed) have been run for each year data to check the statistical significance of the difference between the levels of satisfaction reported by the tertiary-educated and the non-tertiary-educated in the respective year. The statistical significance decreases as the p-value increases. If p-value is between .001 - .005, then the difference of means is highly significant and noted as ***. If the p-value from the t-test is between .005 - .01, the significance is noted as ** and if between .01-.05, the notation is *. If the p-value is greater than .05 the results are not statistically significant. Only statistically significant results are noted.
2. The statistical significance of the difference between the mean level of satisfaction with life in 2009 and in 2001 (between the first and last year of data collection) was tested through an independent sample t-test (2-tailed). P-value <.005 indicates the decrease in the mean SWB of non-tertiary-educated between 2001 and 2009 is statistically significant and a p-value >.05 suggests the difference in the levels of satisfaction in 2009 and 2001 is not statistically significant for the tertiary-educated

Fig. 5. 1 Overall satisfaction with life (SWB) 2001 – 2009 by education level



Source: author’s calculations using HILDA, 2001 – 2009

Between-group and within-group changes are discussed. Between-group changes confirm that between 2001 and 2005 there was a negative relationship between higher educational achievement and SWB (as claimed in the literature), and the tertiary-educated were significantly less satisfied with their lives than the non-tertiary-educated ($p < .05$). However, throughout the next 5 years (from 2006 until 2009) the difference between the two groups lost statistical significance ($p > .05$, or error bars overlap, see Fig.5.1). In 2009 the SWB of the tertiary-educated became higher than the SWB of the non-tertiary-educated, but this difference is not statistically significant. Changes within the two groups are explored next. Satisfaction with life increased for the tertiary-educated between 2001 and 2009, from 7.78 to 7.82, but this change is not statistically significant. Satisfaction with life decreased for the non-tertiary-educated from a mean level of 7.96 in 2001 to 7.78 in 2009. The significance of this change was tested through an independent sample t-test (Table 5.1).

The first conclusion based on these findings is that the tertiary-educated are a somewhat homogenous group, as their SWB suffers very little variation throughout the nine years of monitoring. The non-tertiary-educated, on the other hand, have become less satisfied with their lives overall, raising the question, ‘why?’ This question is further explored in Chapters 6 and 7 when in multivariate models the factors that impact the SWB of the tertiary-educated and that of the non-tertiary-educated are analysed.

The conclusion based on the between-group comparison of means is that satisfaction with life is not dependent on the level of education. To further explore the bases of this relationship, a life-domain approach to subjective well-being is employed in the next section. Through an analysis similar to the one conducted in this section, the purpose of next section is to explore in which areas of life the levels of satisfaction have changed between 2001 and 2009, and whether the same changes apply to the tertiary-educated and non-tertiary-educated Australians.

5.3.2 Changes in satisfaction with areas of life

a. Mean levels of satisfaction between 2001 and 2009

The change in satisfaction with eight areas of life is investigated in this section. The areas of life included in the ‘satisfaction with life’ module of HILDA are explored: satisfaction with one’s home, with their employment opportunities, financial situation, feeling safe, feeling part of the local community, satisfaction with health, neighbourhood, and the amount of free

time. This analysis is a preparatory step for the life-domain approach discussed in Chapter 4, Section 4.4., and employed in Chapter 6 to explore how satisfaction with domains of life impacts on overall satisfaction with life.

The levels of satisfaction with each domain are summarised in Table 5.2.a-h, and separate columns are included for the tertiary-educated (TE) and the non-tertiary-educated (NTE). A mean value for the entire population is also provided and labelled, 'Total' (Column (3) in Table 5.2.a-h). These changes are also graphed in Fig.5.2 to Fig.5.9. The level of satisfaction with the partner⁴⁷ (Table 5.2.i and Fig.5.10) is also included as a proxy for satisfaction with private life, aspect of life not explored in the HILDA module on satisfaction with life, but included in the module inquiring about family life.

Fig.5.2 to Fig.5.10 graph the changes in satisfaction with: financial situation, employment opportunities, the amount of free time, feeling safe, health, home, neighbourhood, feeling part of the local community, and partner respectively. For the simplicity of observation of within-group and between-group changes, the vertical scale in these figures is not the same, but the bottom and top values are adjusted to capture just around the minimum and maximum levels of the respective measure (for example, in Fig.5.2 the vertical axis starts from 5.8 and ends at 7.2, capturing a minimum of 6 and a maximum of around 7 of satisfaction with financial situation, while in Fig. 5.3 the vertical axis starts at 6.4 and ends at 7.8). For a general view of these changes, Fig. 5.11 graphs the levels of satisfaction with all these domains of life on the same scale. The changes within each domain of life are, however, difficult to observe in that graph, and the figure is only presented for the sake of an overall representation of the levels of satisfaction with domains of life. Relevant results are discussed below.

⁴⁷ Not all individuals had a partner hence the slightly lower response rate for this question.

Table 5.2a- i Satisfaction with domains of life and life overall, HILDA (2001 – 2009)

	a. The home in which you live				b. Your employment opportunities				c. Your financial situation			
	NTE (1)	TE (2)	Sig. ¹	Total (3)	NTE (1)	TE (2)	Sig. ¹	Total (3)	NTE (1)	TE (2)	Sig. ¹	Total (3)
2001	8.12	7.76	***	8.05	6.49	7.18	***	6.65	6.12	6.51	***	6.2
2002	8.03	7.67	***	7.96	6.54	7.19	***	6.71	6.03	6.42	***	6.11
2003	8.07	7.8	***	8.01	6.68	7.32	***	6.84	6.38	6.65	***	6.44
2004	8.08	7.8	***	8.02	6.73	7.44	***	6.91	6.36	6.72	***	6.44
2005	7.97	7.73	***	7.91	6.78	7.41	***	6.95	6.37	6.84	***	6.47
2006	7.96	7.79	***	7.92	6.84	7.55	***	7.03	6.39	6.74	***	6.47
2007	7.96	7.74	***	7.91	7.02	7.65	***	7.19	6.52	6.9	***	6.6
2008	7.95	7.77	***	7.91	7.02	7.66	***	7.21	6.43	6.9	***	6.54
2009	7.9	7.84	**	7.89	6.75	7.49	***	6.95	6.35	6.96	***	6.5
Sig. ²	-	-			***	***			***	***		
	d. How safe you feel				e. Feeling part of your local community				f. Your health			
	NTE (1)	TE (2)	Sig. ¹	Total (3)	NTE (1)	TE (2)	Sig. ¹	Total (3)	NTE (1)	TE (2)	Sig. ¹	Total (3)
2001	7.76	7.9		7.79	6.71	6.63		6.69	7.2	7.56	***	7.27
2002	7.77	7.83		7.79	6.66	6.64		6.65	7.12	7.46	***	7.19
2003	7.94	7.97	*	7.94	6.8	6.67		6.77	7.22	7.54	***	7.29
2004	7.98	8.13	**	8.01	6.8	6.77		6.79	7.12	7.48	***	7.2
2005	7.9	8.08	***	7.94	6.75	6.75	*	6.75	7.02	7.43	***	7.11
2006	7.93	8.05	***	7.95	6.79	6.72		6.77	7.04	7.43	***	7.12
2007	8	8.14	***	8.03	6.78	6.79	*	6.78	7.03	7.41	***	7.12
2008	7.99	8.22	***	8.04	6.71	6.84	***	6.74	7.02	7.43	***	7.12
2009	7.99	8.27	***	8.06	6.7	6.77	*	6.72	7	7.51	***	7.12
Sig. ²	***	***			***	**			***	**		
	g. The neighbourhood in which you live				h. The amount of free time you have				i. How satisfied are you with your partner			
	NTE (1)	TE (2)	Sig. ¹	Total (3)	NTE (1)	TE (2)	Sig. ¹	Total (3)	NTE (1)	TE (2)	Sig. ¹	Total (3)
2001	8.09	7.91	***	8.05	6.89	5.97	***	6.71	8.59	8.25	***	8.52
2002	7.96	7.82		7.94	6.77	6.06	***	6.63	8.47	8.2	***	8.42
2003	8.03	7.93		8.01	6.78	6.03	***	6.63	8.26	8.02	***	8.21
2004	8	7.93		7.99	6.87	6.1	***	6.71	8.21	7.99	***	8.16
2005	7.9	7.87		7.89	6.83	6.28	***	6.71	8.21	8.13		8.19
2006	7.86	7.75		7.83	6.75	6.11	***	6.6	8.29	8.23		8.27
2007	7.89	7.83		7.88	6.73	6.14	***	6.59	8.16	8.13		8.15
2008	7.81	7.81		7.81	6.8	6.24	***	6.67	8.23	8.23		8.23
2009	7.79	7.92		7.82	6.7	6.2	***	6.58	8.09	8.17		8.11
Sig. ²	***	-			***	***			***			

Source: Source: author's calculations using HILDA 2001 – 2009.

Person weights are used. N=10,675.

1. Unpaired t-test (2-tailed), if the p-value is less than .05, the significance level is indicated. Although the convention is to report the p-values, only significant values are flagged and the p-values are reported in Appendix C.

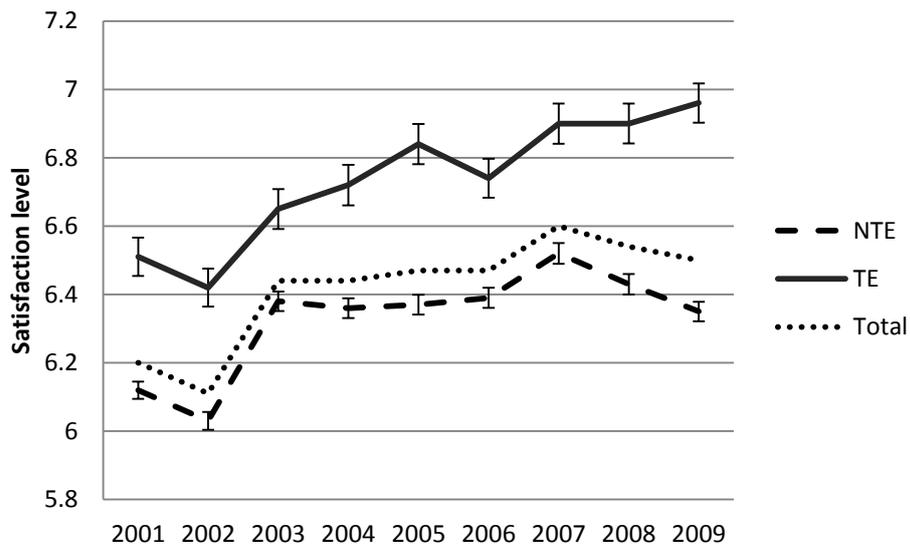
2. 3. Whether the difference between the mean levels of satisfaction in 2001 and 2009 is statistically significant is tested through an unpaired t-test (2-tailed).

***.001 - .005

** .005 - .01

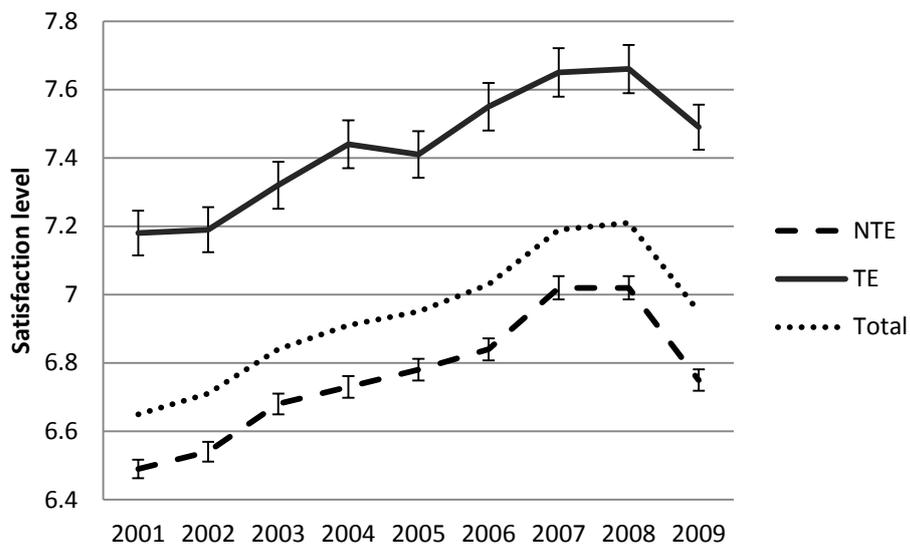
* .01-.05

Fig. 5.1 Satisfaction with financial situation 2001 – 2009 by education level



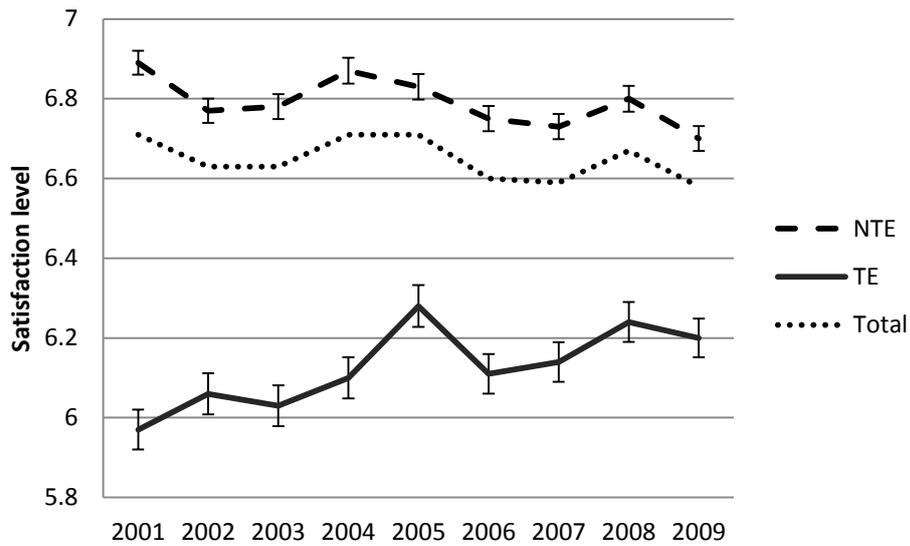
Source: author’s calculations using HILDA 2001 – 2009.

Fig. 5.2 Satisfaction with employment opportunities 2001 – 2009 by education level



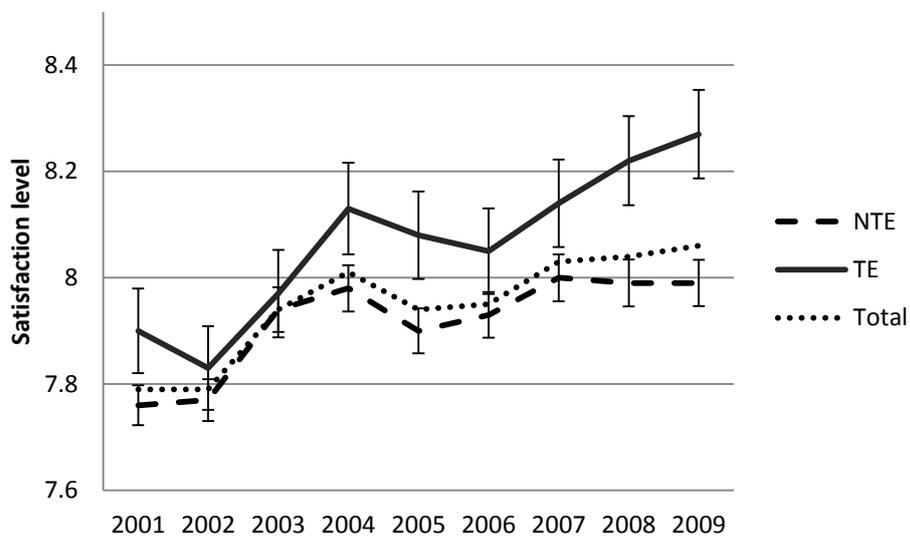
Source: author’s calculations using HILDA 2001 – 2009.

Fig. 5.3 Satisfaction with the amount of free time 2001 – 2009 by education level



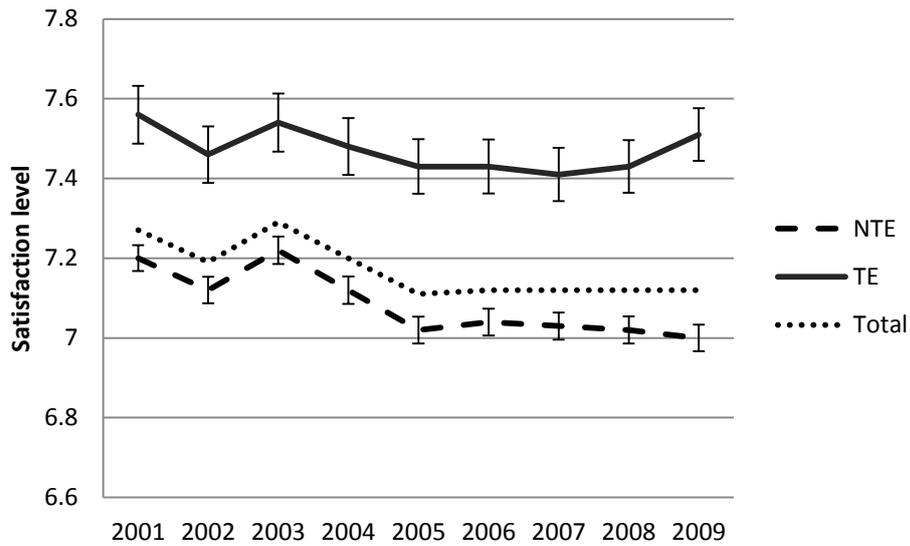
Source: author's calculations using HILDA 2001 – 2009.

Fig. 5.4 Satisfaction with feeling safe 2001 – 2009 by education level



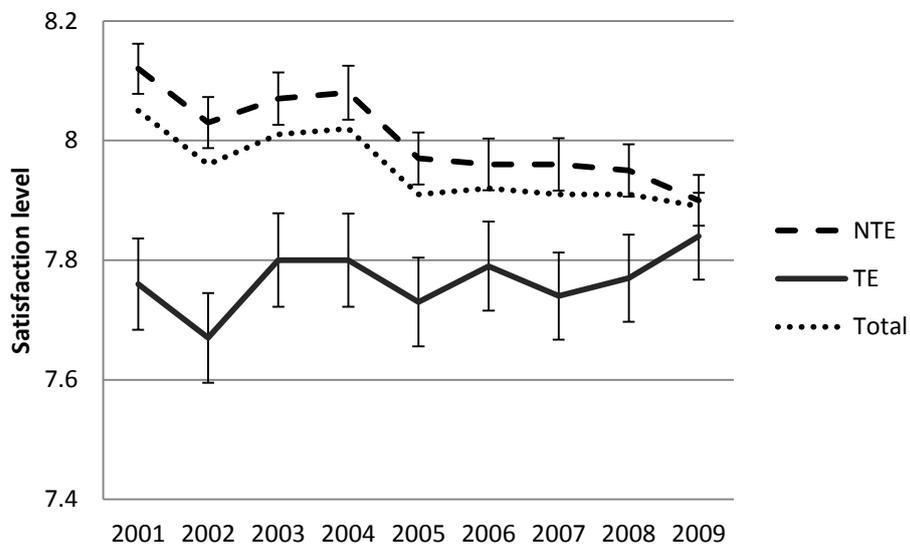
Source: author's calculations using HILDA 2001 – 2009.

Fig. 5.5 Satisfaction with own health 2001 – 2009 by education level



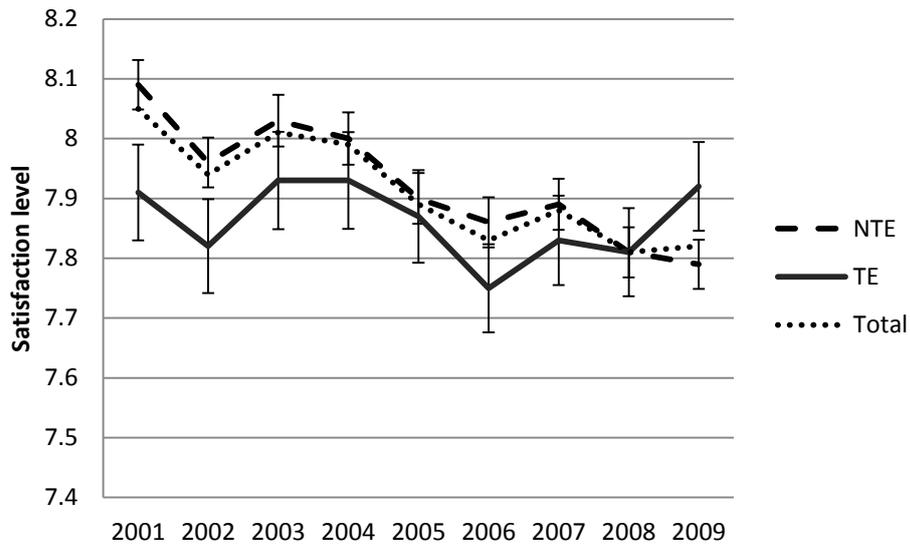
Source: author's calculations using HILDA 2001 – 2009.

Fig. 5.6 Satisfaction with own home 2001 – 2009 by education level



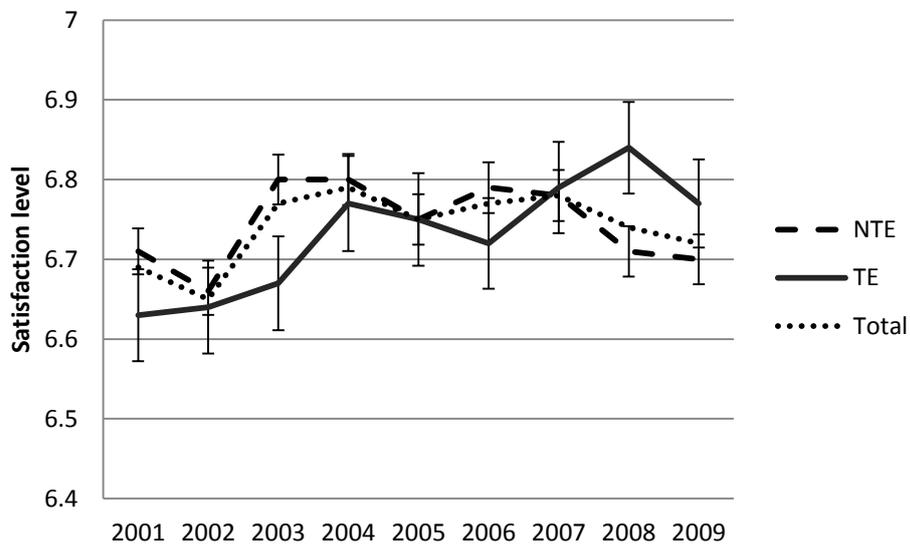
Source: author's calculations using HILDA 2001 – 2009.

Fig. 5.7 Satisfaction with own neighbourhood 2001 – 2009 by education level



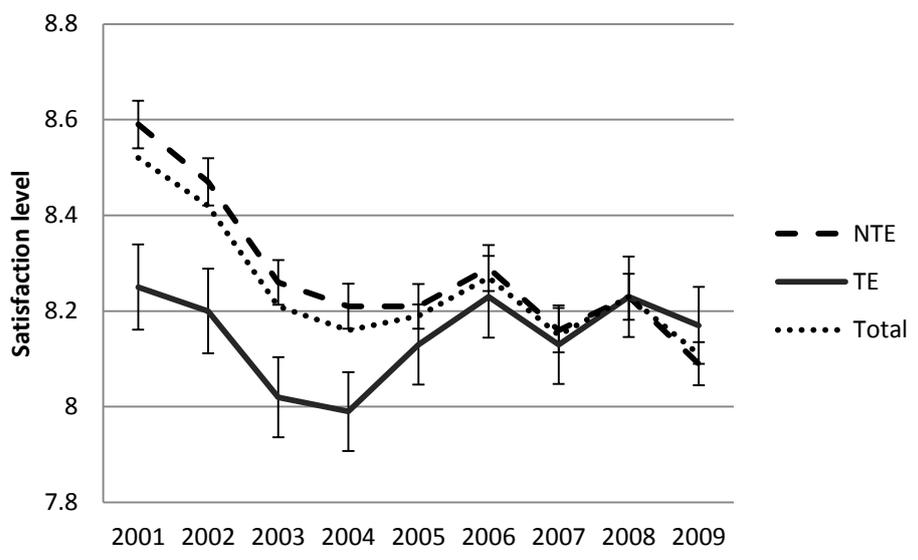
Source: author's calculations using HILDA 2001 – 2009.

Fig. 5.8 Satisfaction with feeling part of owns local community 2001 – 2009 by education level



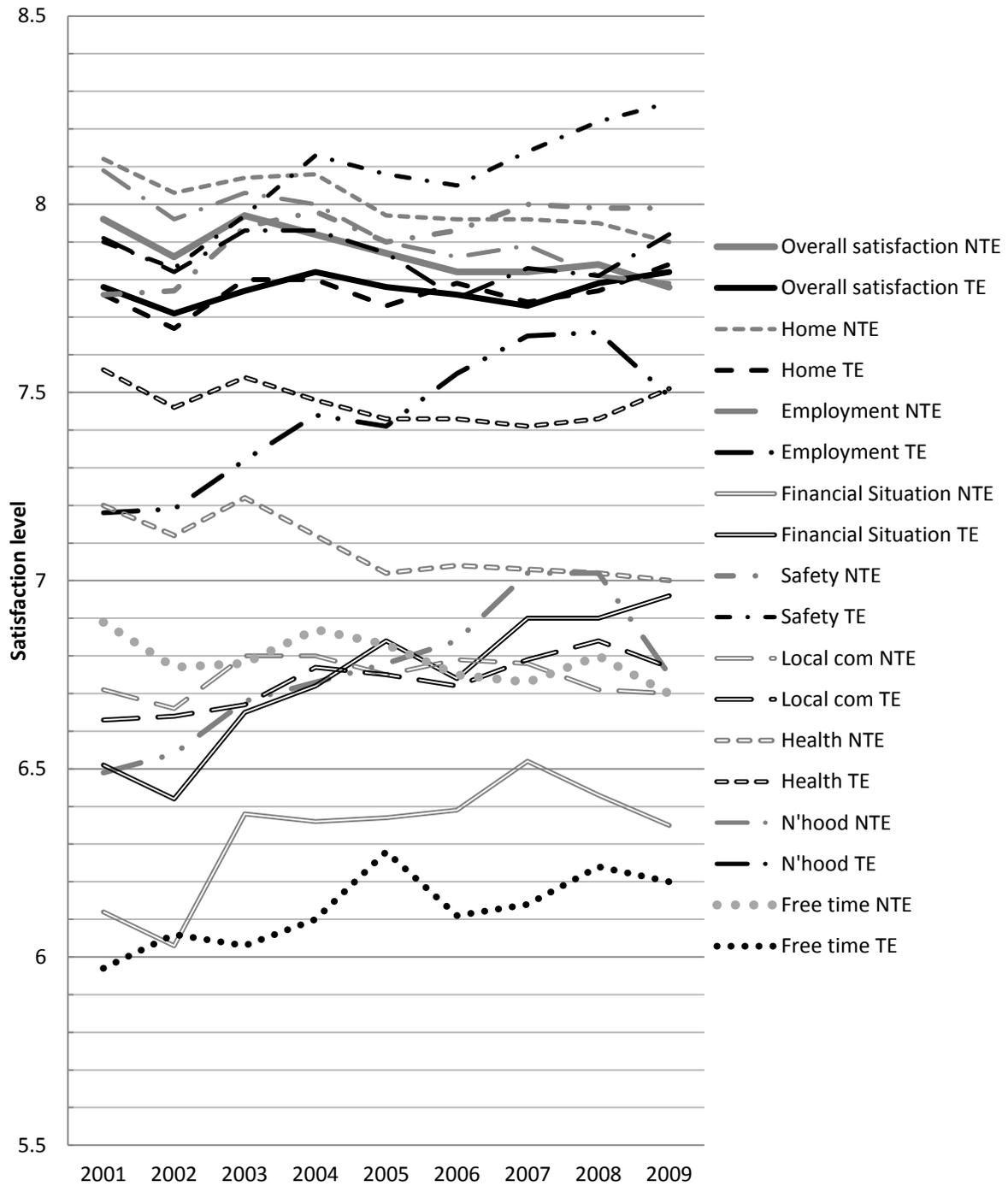
Source: author's calculations using HILDA 2001 – 2009.

Fig. 5.9 Satisfaction with the partner 2001 – 2009 by education level



Source: author's calculations using HILDA 2001 – 2009.

Fig. 5.10 Satisfaction with life and satisfaction with domains of life by higher educational achievement, 2001 – 2009



Source: Author's calculations using HILDA, 2001-2009.

In 2009 the tertiary-educated are significantly less satisfied than the non-tertiary-educated with only one out of nine domains of life: the amount of free time they had. Not surprisingly, the TE are more satisfied with their employment opportunities, financial situation and health, domains of life widely discussed in the literature of human capital development as being influenced by occupational status (Becker, 1964), a proxy for educational achievement. The tertiary-educated are also more satisfied with their safety (Table 5.2.d and Fig.5.5) and feeling part of their local communities (Table 5.2.e and Fig. 5.9), these findings confirming the higher levels of belongingness and trust associated with higher educational achievement (as discussed, for example, by van der Meer, 2010), but perhaps also the better and safer lifestyle that the tertiary-educated can generally afford.

Throughout the nine waves of data analysed, the tertiary-educated have higher levels of satisfaction with health than the non-tertiary-educated, and these results find support in the literature (for example, see Cummins, 2006). The novelty in these findings is that the gap between the levels of satisfaction of the two groups has increased from some 0.3 points in 2001 to over 0.5 points in 2009 ($p < .05$, see Table 5.2f). The increase in this gap can be attributed partially to higher levels of satisfaction for the tertiary-educated and the lower levels for the non-tertiary-educated compared to 2001 (Table 5.2-f and Fig. 5.6). These findings flag possible problems in the health system, or in access to health services. The policy implications of these findings are discussed in Chapter 10, Section 10.2.

The levels of satisfaction with areas of life relating to housing, such as neighbourhood (Table 5.2-g and Fig. 5.8) or local community (Table 5.2-h and Fig.5.9), have gone through most variation in the past decade. The tertiary-educated were constantly less satisfied with their homes ($p < .05$, Table 5.2-a, and Fig.5.7). Why this is the case is still to be explored. The reasons behind changes in satisfaction with domains of life are complex most of the time and may be fully explained only through further in-depth investigation (eg: studies that focus on satisfaction with housing per se). This is outside the purpose of the thesis. Chapter 7 does, however, explore how socio-economic and demographic factors impact on satisfactions with domains of life and the possible policy implications of these findings are discussed in Chapter 10.

Within-group comparisons show that satisfaction with employment opportunities, financial situation, and safety, increased between 2001 and 2009 for both the tertiary-educated and the non-tertiary-educated ($p < .05$, see Table 5.2.b-d). However, the between-group

comparisons reveal that the tertiary-educated are constantly more satisfied with these aspects of life than the non-tertiary-educated. Although the between-group differences are as small as 0.1 points, they are statistically significant ($p < .05$).

The analysis in this section has explored how the mean levels of satisfaction with life and satisfaction with nine domains of life have changed between 2001 and 2009. Different patterns of change have been identified for the tertiary-educated and for the non-tertiary-educated. It was concluded that in 2009 the tertiary-educated were significantly less satisfied with only one out of nine domains of life (satisfaction with the amount free time). They are more satisfied than the non-tertiary-educated with six domains of life (home, employment opportunities, financial situation, safety, feeling part of the local community, and health). Despite such higher levels of satisfaction with domains of life, the tertiary-educated are not more satisfied with their lives overall⁴⁸ (Table 5.1 and Fig. 5.1). This is controversial because, as discussed in studies that support the life-domain approach to well-being (Campbell, 1981; Campbell et al., 1976), higher satisfaction with domains of life should generate higher overall satisfaction. Such claims become the basis for a further exploration of whether the decrease in the SWB of the non-tertiary-educated population, and the increase in the SWB of the tertiary-educated population identified earlier in this chapter (Fig. 5.1 and Table 5.1) are, in part, due to the changes in satisfaction with domains of life. The impact of satisfaction with domains of life on overall satisfaction with life is examined in Chapter 6.

The conclusions of this section have been drawn after the statistical significance of the between-group and within-group differences between 2001 and 2009 was tested (unpaired sample t-test, significance levels reported in Table 5.2 a-i). To increase the statistical value of these findings, the between-group variations are further explored by investigating the frequency distribution of each population around the mean. The specifications of this analysis and its advantages are discussed below.

⁴⁸ Although in 2009 the mean levels of satisfaction with life overall are greater for the tertiary educated than for the non-tertiary educated, the difference between the two means is not statistically significant ($p\text{-value} > .05$, unpaired sample t-test, 2-sided)

b. Distribution of satisfaction with life and satisfaction with domains of life, 2009

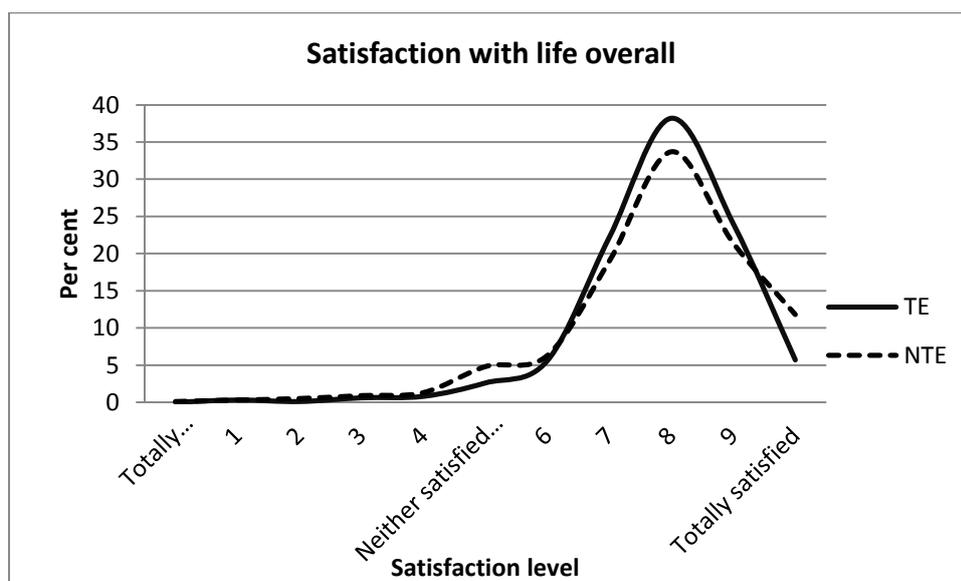
An analysis of the distribution of the satisfaction levels within the tertiary-educated and the non-tertiary populations is conducted in this section (Table B1 in Appendix B and Fig. 12 to Fig. 20 below). To illustrate the importance of the approach, consider the following example.

Group 1 and Group 2, consisting of five individuals each, have the same mean level of satisfaction, 5.2, measured on a scale from 0 to 10. Given this, it can be concluded that there are no differences in the satisfaction between the two groups. Consider, for example, that within Group 1, the satisfaction of the five individuals is 5, 5, 5, 5, and 6, giving a mean of 5.2. Within the Group 2, however, the individual levels of satisfaction are 2, 2, 2, 10, and 10, resulting, again, in a mean of 5.2. The difference between the two groups is that the first one is more homogeneous, with very few inequalities within the population. Within the second group, however, the individuals are clustered into either very unsatisfied (level 2) or very satisfied (level 10). The analysis of distributions explores such differences within populations, bringing further significance to the analysis of means conducted above.

The calculations in this section differentiate between the satisfaction levels of the tertiary-educated and those of the non-tertiary-educated. One of the most interesting findings is that more tertiary-educated than non-tertiary-educated individuals consider themselves somewhat satisfied with life overall (ranking from 6 to 9 on the 0-10 scale), and a higher proportion of the non-tertiary-educated consider themselves either neither satisfied or dissatisfied (score of 5 on the 0-10 scale) or totally satisfied (score of 9 and above on the 0-10 scale). This finding is rather revealing in the context of the analysis conducted in the first section of this chapter. Although the difference of mean scores is not statistically significant, the distribution of individual scores across the two groups is different, with more tertiary-educated having higher levels of satisfaction with life. The results suggest an overall larger proportion of tertiary-educated individuals to have above average levels of overall satisfaction.⁴⁹

⁴⁹ The higher proportion of NTE individuals to report a score or 10 (totally satisfied) is also an interesting finding; however, it is difficult to explain. It can be discussed from a methodological perspective (more outliers in the NTE sample). Psychologists interested in the study of happiness also discuss the rare cases when individuals find themselves 'totally satisfied', including the possibility of errors due to individuals inability to assess own wellbeing, such as in the case of mental illnesses. Veenhoven (1991) discusses the hell-Paradise scenarios, when for example one perceives his bad conditions as good (fake Paradise).

Fig. 5.11 Distribution of satisfaction of life overall by education level, 2009



Source: Author's calculations using HILDA 2009.

The distributions of scores across the two populations follow similar patterns for satisfaction with home (Fig. 5.13), employment opportunities (Fig. 5.14), financial situation (Fig. 5.15), feeling safe (Fig. 5.16), health (Fig. 5.18), and neighbourhood (Fig. 5.19). The common trend is that more tertiary-educated than non-tertiary-educated individuals rank their satisfaction above 6, and more non-tertiary-educated than tertiary-educated individuals rank theirs at or below 5. This finding is important because it reflects that the higher levels of mean satisfaction of the tertiary-educated are driven by a larger number of these individuals that are satisfied and very satisfied.

The tertiary-educated have been found to be significantly less satisfied with the amount of free time they had (Table 5.2-h and Fig. 5.4). However, when the distribution of satisfaction levels on the 0-10 scale in 2009 is examined (Fig. 20), the percentage of tertiary-educated individuals to score their satisfaction between 6 and 8 is much higher than the percentage of the non-tertiary-educated who have these scores. It can be claimed that the higher mean level of satisfaction with the amount of free time is driven by the non-tertiary-educated individuals who rank their satisfaction between 8 and 10.

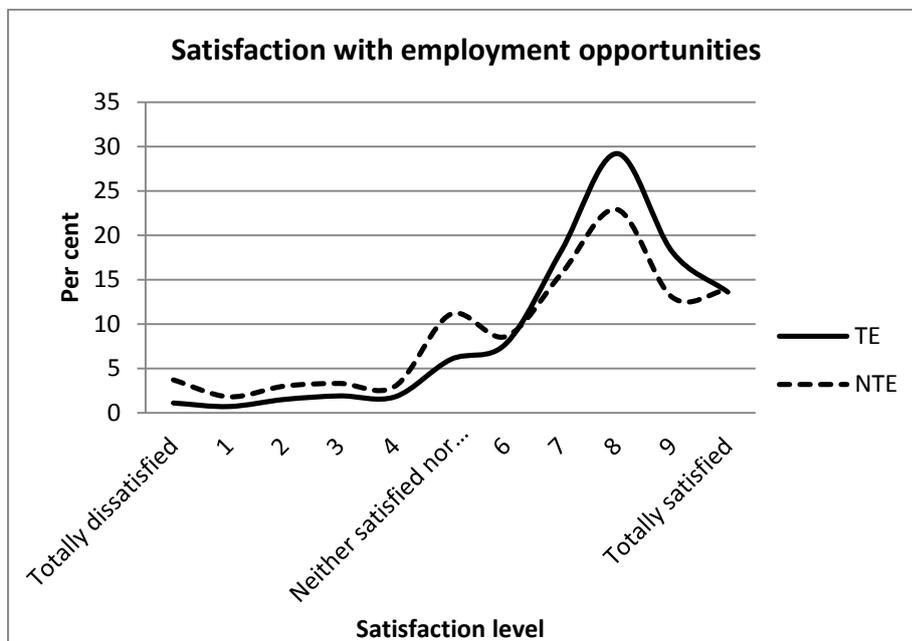
There is also a clear distinction in terms of satisfaction with feeling safe, employment opportunities, financial satisfaction and health, in that a much larger proportion of tertiary-educated individuals rank their satisfaction well above 8. This finding is to be noted because the overall satisfaction with life is around the value 7.8 (see Table 5.1).

Fig. 5.12 Distribution of satisfaction with home by education level, 2009



Source: Author's calculations using HILDA 2009.

Fig. 5.13 Distribution of satisfaction with employment opportunities by education level, 2009



Source: Author's calculations using HILDA 2009.

Fig. 5.14 Satisfaction with financial situation by education level, 2009



Source: Author's calculations using HILDA 2009.

Fig. 5.15 Satisfaction with feeling safe by education level, 2009



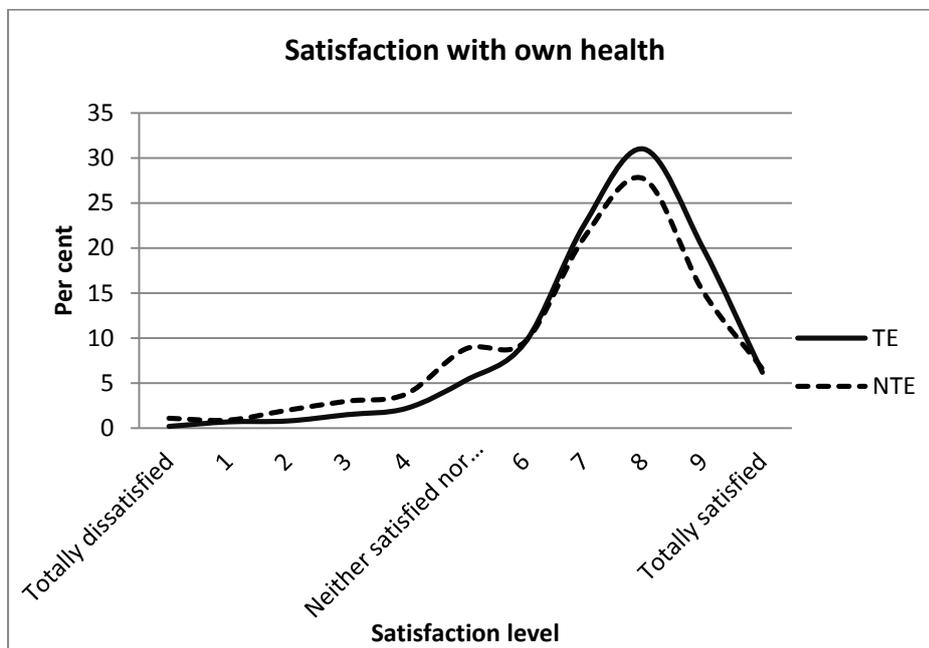
Source: Author's calculations using HILDA 2009.

Fig. 5.16 Satisfaction with feeling part of the local community by education level, 2009



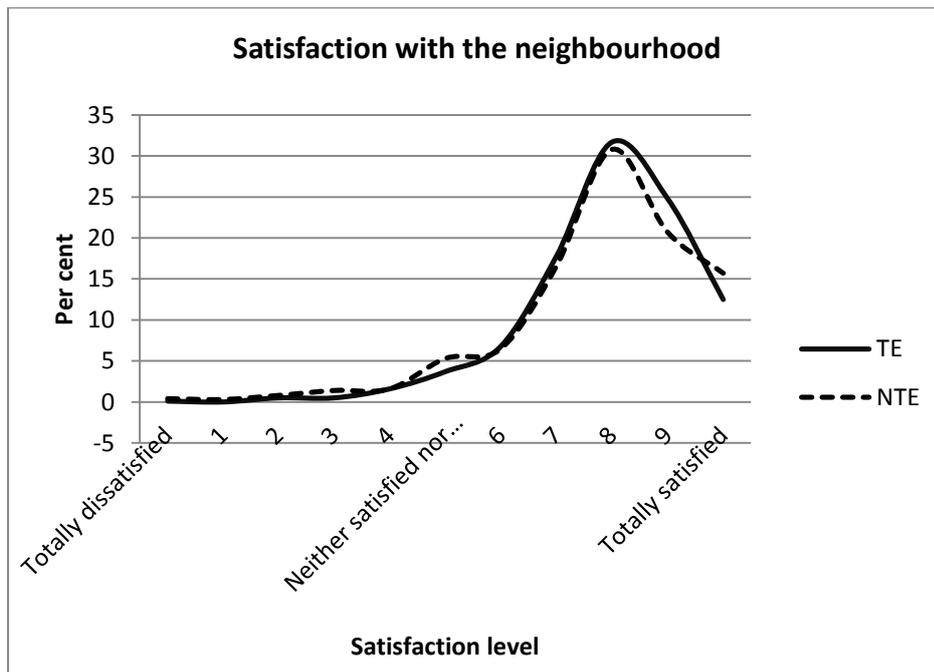
Source: Author's calculations using HILDA 2009.

Fig. 5.17 Satisfaction with own health by education level, 2009



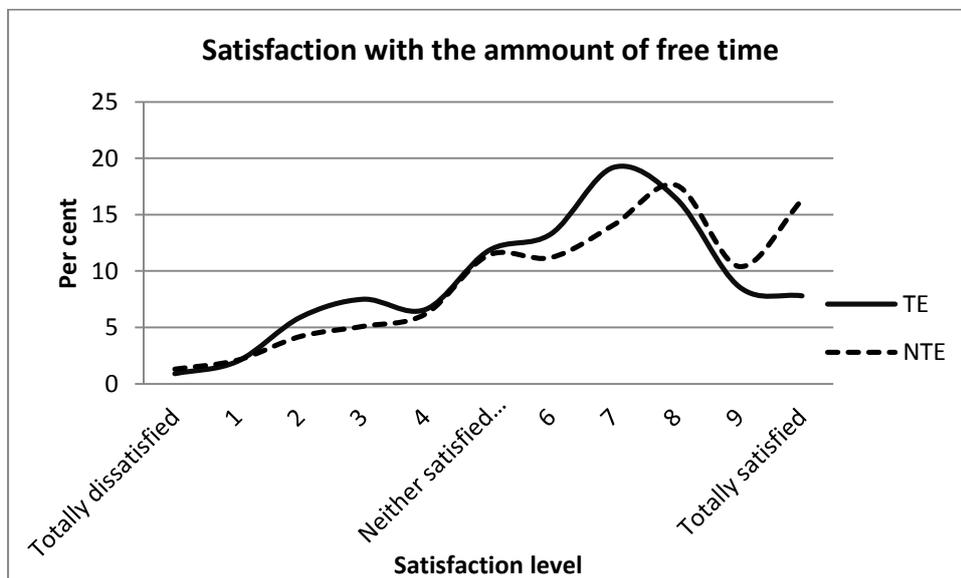
Source: Author's calculations using HILDA 2009.

Fig. 5.18 Satisfaction with the neighbourhood by education level, 2009



Source: Author's calculations using HILDA 2009.

Fig. 5.19 Satisfaction with the amount of free time by education level, 2009



Source: Author's calculations using HILDA 2009.

c) Summary of findings

Although across the nine years of data analysed, both the tertiary-educated and the non-tertiary-educated have experienced increases and decreases in satisfaction with domains of life, it is more often that the levels of satisfaction of the non-tertiary-educated decreased. In 2009 the tertiary-educated and non-tertiary-educated were found to be equally satisfied with life overall (overall satisfaction levels of 7.82 and 7.78 respectively, and the difference is not statistically significant; see Fig.5.1). Nevertheless, when the distribution analysis was conducted it was concluded that more tertiary-educated individuals rank their overall satisfaction between 6 and 8, and some non-tertiary-educated (a larger percentage than the tertiary-educated) rank their satisfaction around the values 5, 9, or 10. This suggests that the non-difference in satisfaction with life between the two groups is driven by a minority of the sample.

Furthermore, given the significantly higher satisfaction with six other domains of life (home, employment opportunities, financial situation, safety, feeling part of the local community, and health), it can be argued through a life-domain approach that the tertiary-educated should be more satisfied with their lives overall.⁵⁰ An aggregate measure of SWB is calculated to test this, exploring the difference in life-satisfaction between the tertiary-educated and the non-tertiary-educated in a top-up (or life-domain) approach.

The single item measure (used in the analysis so far) is calculated from the answer to the general question ‘How satisfied are you with your life overall?’, and the composite measure is calculated as the average of satisfaction with key domains of life. Whether these measures of SWB generate similar results is explored in the next section.

5.4 The single-item and multiple-item measures of well-being

5.4.1 Overall satisfaction and average satisfaction, 2009

Studies supporting the life-domain approach claim that life satisfaction is the result of satisfaction with key domains of life (Cummins, 1996, 2003; Headey and Wearing, 1992; Rojas, 2004; Veenhoven, 1996; van Praag and Ferrer-i-Carbonell, 2004). Complementary to the overall satisfaction with life (single-item measure of SWB), an aggregate measure of SWB is calculated in this chapter as the arithmetic average of the levels of satisfaction with

⁵⁰ The life-domain approach argues that overall satisfaction is the result of satisfaction with key domains of life, see literature reviewed in Ch.3, p. 64-66.

domains of life. Some studies argue against a linear relationship between satisfaction with domains of life and overall satisfaction, suggesting the necessity to allocate weights to domains of life, according to their importance to overall wellbeing, or consider logarithmic equations (Rojas, 2007). However, for the purpose of simple computations like between- and within- group comparisons of mean, the arithmetic average behaves just as well (Rojas, 2006).⁵¹

The arithmetic average is obtained through the summation of the levels of satisfaction with the eight⁵² domains of life included in the satisfaction with life module of HILDA (resulting into possible values between 0 and 80) and its division by 8 (as there are eight domains of life):

$$AverageSatisfaction = \frac{\sum_1^8 LD_i}{8}$$

where LD_i is the level of satisfaction with life-domain i . The result is an average measure of satisfaction with all aspects of life and takes a value between 0 and 10. This measure is referred to as ‘average satisfaction’.

Table 5.3 summarises the descriptive statistics of SWB measured as ‘satisfaction with life overall’, or ‘overall satisfaction’ and as average satisfaction. These values are separately assessed for the tertiary-educated and the non-tertiary-educated.

Table 5.3 Alternative measures of subjective well-being, 2009

	SWB – single item(1)		SWB – multiple item: arithmetic average (2)	
	NTE	TE	NTE	TE
Weighted mean ¹	7.78	7.82	7.16	7.36
Non-weighted mean	7.84	7.86	7.21	7.41
Std. Deviation	1.529	1.254	1.317	1.099
Std. Error Mean	0.017	0.024	0.015	0.021
N	8013	2644	8030	2645
Total N		10657		10675
Sig. ²		p>.05		p<.05 (***)

Source: Author’s calculations using HILDA 2009.

Notes: 1. The means from both weighted and non-weighted samples are reported.

2. T-test for equality of means, two-sided t-test (SPSS). The significance level is calculated using weighted samples. Standard deviation and standard error means are reported from the non-weighted sample.

⁵¹ And this thesis finds that the arithmetic average and the weighted average carry only second decimal differences, hence the simplified, arithmetic average version of the multiple-item indicator is considered to be equally efficient.

⁵² In order to maintain an adequate sample size throughout the analysis satisfaction with the partner is not included in the average measure as not all respondents to the HILDA survey are partnered.

In 2009 the tertiary-educated had –it’s in the past chronologically] higher levels of overall satisfaction than the non-tertiary-educated but the differences are not statistically significant (Table 5.3-(1)). This finding was also presented in Section 5.2.1, Table 5.1 where it was concluded that the tertiary-educated are not significantly more satisfied with their lives than the non-tertiary-educated, leading towards the confirmation of the paradox of subjective well-being and tertiary education in Australia. However, when subjective well-being is calculated as the arithmetic average of satisfaction with domains of life (Table 5.3-2), the difference between the well-being of the tertiary-educated and the well-being of the non-tertiary-educated is *positive and statistically significant*, indicating a positive association between subjective well-being and tertiary educational achievement. The single-item and multiple-item measures of SWB lead to diverging conclusions with respect to the paradox of SWB and tertiary education, suggesting the necessity to further investigate the relationship.

Some additional findings emerge from the comparison above. First, both the TE and the NTE overestimate their overall satisfaction,⁵³ the tertiary-educated ‘jumping’ in 2009 from an average satisfaction of 7.36 to an overall satisfaction of 7.86, and the non-tertiary-educated from an average satisfaction of 7.10 to an overall satisfaction of 7.84.

The second finding is that the standard deviation from the mean is higher for both tertiary-educated and non-tertiary-educated when SWB is measured as overall satisfaction (single-item measure) than the standard deviation when SWB is measured as average satisfaction. This suggests that the single-item measure is statistically less reliable (Wooldridge, 2006).

Finally, it is noteworthy that both standard deviations are greater for the non-tertiary-educated, pointing towards larger differences between individual levels and mean (and less consistency across the group, a finding also supported through the analysis of distributions, Fig. 5.12). The implications of these findings are discussed in Section 10.2, which addresses the methodological implications of this thesis. The current section concludes that the tertiary-educated and the non-tertiary-educated have different reports of SWB regardless of the measurement of assessment used.

The differences in average satisfaction and overall satisfaction between 2001 and 2009 are explored in the next section. The purpose is to investigate whether the relationship

⁵³ Or it can be argued that they underestimate their satisfaction with aspects of life.

found in 2009 is generally applicable or there have been significant changes in the past decade.

5.4.2 Overall satisfaction and average satisfaction between 2001-2009

In this section the between-group and within-group changes in overall satisfaction and average satisfaction between 2001 and 2009 are investigated. The purpose is to explore how the tertiary-educated and the non-tertiary-educated compare with respect to these measures.

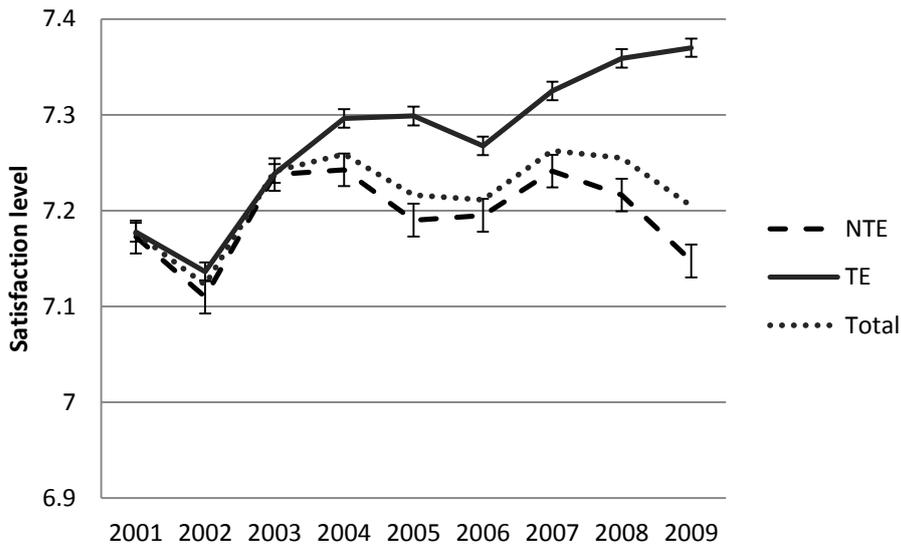
Table 5.4 summarises the mean levels of overall satisfaction with life and average satisfaction between 2001 and 2009. The first and third column report the values for non-tertiary-educated (NTE) and the second and fourth for the tertiary-educated (TE) respectively. Figure 5.21 maps the change in average satisfaction by higher educational achievement between 2001 and 2009. The changes in overall satisfaction between 2001 and 2009 were graphed earlier in this chapter, in Fig.5.1. The changes in average satisfaction are reported graphically in Fig. 5.21, and for the purpose of comparison in Fig. 5.22 the two measures are presented side-by-side.

Table 5.4 Overall satisfaction and average satisfaction by educational achievement, 2001-2009

	Overall satisfaction		Average satisfaction	
	NTE	TE	NTE	TE
2001	7.96	7.78	7.17	7.18
2002	7.86	7.71	7.11	7.14
2003	7.97	7.77	7.24	7.24
2004	7.92	7.82	7.24	7.30
2005	7.87	7.78	7.19	7.30
2006	7.82	7.76	7.20	7.27
2007	7.82	7.73	7.24	7.33
2008	7.84	7.79	7.22	7.34
2009	7.78	7.82	7.15	7.37

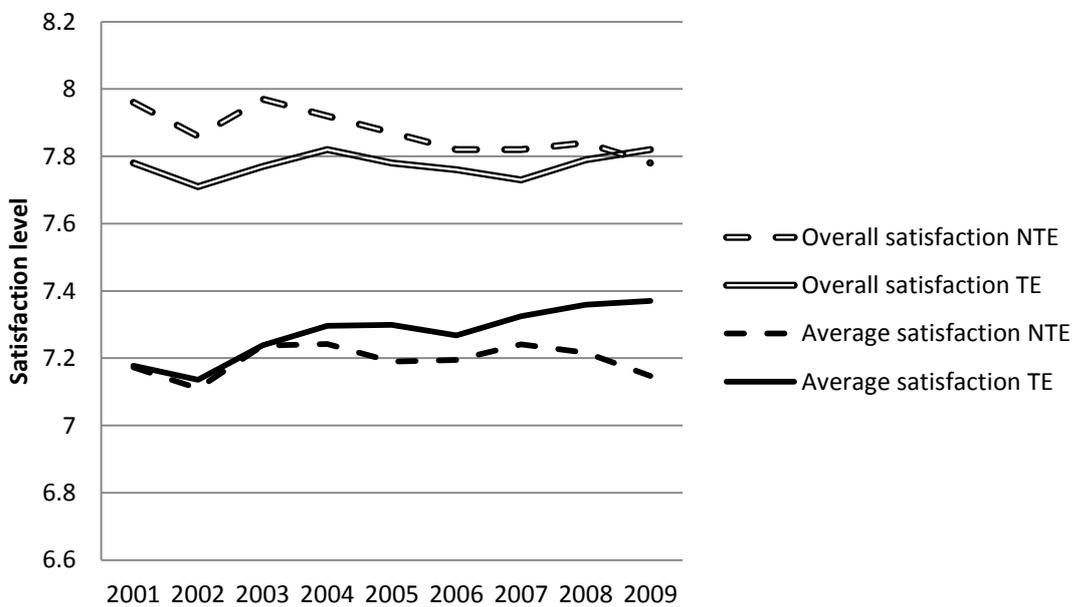
Source: Author's calculations using HILDA 2001-2009, weighted samples.

Fig. 5.20 Average satisfaction with life by education level, 2001-2009



Source: author's calculations using HILDA 2001 – 2009.
 Note: SWB was calculated as the arithmetic average of satisfaction with eight domains of life.
 Error bars are computed using the 2009 sample size.

Fig. 5.21 Overall satisfaction and average satisfaction by education level, 2001 – 2009



Source: author's calculations using HILDA 2001 – 2009.

The two indicators in Fig. 5.22 are measures of the same concept – subjective well-being.⁵⁴ However, the two indicators reveal various between- and within-group differences when their means are separately plotted for the tertiary-educated and for the non-tertiary-educated across the nine years of data analysed (2001-2009).

Firstly, overall, between 2001 and 2009 there is a considerable gap of approximately 0.5 points between the overall satisfaction and average satisfaction of both tertiary-educated and non-tertiary-educated individuals. Although marginally this difference may be considered relatively small, in the context of subjective well-being studies, such a gap is considered generous⁵⁵. Secondly, between 2001 and 2009 the average satisfaction of the non-tertiary-educated (single dotted line) has hardly changed (remaining approximately at 7.2), while that of the tertiary-educated has increased marginally. On the other hand, the overall satisfaction has hardly changed for the tertiary-educated (double continuous line) and has decreased for the non-tertiary-educated, a finding also pointed to in Section 5.2.1. Finally, at the between-group level, the overall satisfaction of the tertiary-educated and the non-tertiary-educated has converged towards the same value while the difference in average satisfaction of the two groups has widened; by 2009 the tertiary-educated having higher levels of average satisfaction than the non-tertiary-educated.

5.5 Conclusion

The aim of this chapter has been to investigate whether the tertiary-educated are less satisfied with life and with domains of life than the non-tertiary-educated. The analysis of the last available wave of data from the HILDA (2009) survey indicates that tertiary-educated Australians are more satisfied with 6 out of 9 domains of life, partially supporting Hypothesis 1-a of the thesis. Hypothesis 1-b, however, was more difficult to assess.

In Section 5.3 the difference between the levels of overall satisfaction with life of the tertiary-educated and of the non-tertiary-educated was identified as positive but statistically non-significant (Table 5.1). This was a primary reason to reject Hypothesis 1-b, which claims that there is no paradox of SWB and higher education in Australia.

⁵⁴Fig. 5.22 can be understood as the graphic representation of SWB as defined in the top-down and bottom-up approaches respectively. The bottom-up approach assumes that high overall satisfaction is the results of high satisfaction with domains of life (average satisfaction in Fig. 5.22), while the top-down approach assumes that satisfaction with life, measured as a single-item (overall satisfaction in Fig. 5.22) drives high satisfaction with various aspects of life.

⁵⁵SWB is a measure that rarely fluctuates (Cummins, 2000) and when they happen, fluctuations are minimal.

However, in Section 5.4 an alternative measure of SWB was calculated as the arithmetic average of the levels of satisfaction with domains of life. Results from this analysis were most surprising. Firstly, this average satisfaction was calculated around the value of 7.2 (on a 0 to 10 scale), compared to an overall satisfaction at the value of approximately 7.8 (see Table 5.4 and Fig. 5.22). Given that the two indicators are measures of the same concept, this finding is noteworthy. Secondly, the findings summarised in Table 5.4 and Fig. 5.22 above revealed that although in the past decade the tertiary-educated and the non-tertiary-educated have merged towards the same levels of overall satisfaction, the difference between their levels of average satisfaction widened out. Accordingly, the tertiary-educated have had significantly higher levels of average satisfaction (arithmetic average of satisfaction with domains of life) than the non-tertiary-educated since 2004, allowing for Hypothesis 1-b to be confirmed.

Therefore, the paradox has been both refuted and confirmed in this chapter. The conclusion is that the relationship between subjective well-being and tertiary educational achievement is dependent on the measure of subjective well-being employed. The thesis maintains through its theoretical approach that subjective well-being is sensitive to perceptions of well-being, and based on this it is maintained that average satisfaction is the ‘appropriate’ measure of SWB. However, to be able to conclude that there is no paradox of SWB and tertiary education it is also necessary to support the theoretical claims through empirical analysis. For this reason the next chapter explores how the tertiary-educated and the non-tertiary-educated conceptualise SWB, or ‘what counts’ towards their well-being.

Chapter 6 Findings: The heterogeneity of SWB by education

6.1 Introduction

In this chapter, the heterogeneity of subjective well-being by higher educational achievement is empirically explored. Its theoretical grounds have been discussed in Chapter 2. This empirical exploration has reached the conclusion that the negative relationship between SWB and higher education previously identified in the literature is the result of measurement biases⁵⁶

SWB is an inherently inferential and subjective measure of well-being (Rojas, 2006), prone to individual biases such as personality (Diener and Lucas, 1999), and the tendency to compare one's achievements with one's own and others' expectations, and with previous experiences (Michalos, 1985). Like studies such as those of Cummins (1998, 2003), Headey and Wearing (1992), Veenhoven (1996) and Rojas (2007), this chapter interprets life satisfaction as a general construct of satisfaction with key aspects of life.

The purpose of this chapter is to assess the heterogeneity of SWB by tertiary-educational achievement using national representative data from the HILDA 2001 and HILDA 2009 surveys, and test the second hypothesis (2-a) of the thesis:

2) a) *SWB is heterogeneous by higher educational achievement.*

The correlations between SWB and satisfaction with eight domains of life⁵⁷ (ranked from 0 to 10 with 0 least satisfied and 10 most satisfied) are explored in the second section of the chapter. This analysis sheds light on the 'bundle' of aspects of life that count towards the SWB of the tertiary-educated and non-tertiary-educated, and on whether the two sub-populations are different in this respect. The third section of the chapter is an in-depth investigation of the impact on overall satisfaction, of satisfaction with these domains of life.

⁵⁶ As explained in Chapter 1, Section 1.3, a bias is defined in the thesis as occurring when a response to a test item tends to be altered in such a way that it indicates something other than what it is intended to measure Runquist (1950)..

⁵⁷ The same eight domains explored in Chapter 5 are further explored in this chapter. Satisfaction with partner is not considered because not all respondents to the HILDA survey were partnered, and this has reduced the sample size.

6.2 Correlations between domains of life and satisfaction with life, 2001 and 2009

Changes in the levels of SWB between 2001 and 2009 were explored in Chapter 5 (Fig. 5.12), and it was concluded that the tertiary-educated and the non-tertiary-educated have converged in their overall satisfaction, but that the difference between the two groups in average satisfaction with domains of life has widened.

Studies exploring the relationship between single-item measures and multiple-item measures of SWB conclude that, while there are conceptual differences between the two means of measurement, ‘if the focus of one’s research is to get a relatively reliable and valid measure of well-being and one cannot afford to include a variety of self-report indicators, one can confidently assess these constructs using single-item measures’ (Diener, 2009: 88). This thesis has found, however, that the conceptual differences matter.

The correlation between the single-item (overall satisfaction) and multiple-item (average satisfaction) measures of SWB is tested for 2001 and 2009, both for the entire sample and separately for the tertiary-educated and the non-tertiary-educated. Pearson correlation tests have been conducted in SPSS and Table 6.1 summarises the results.

Table 6.1 Correlation levels between single-item and multiple-item measures of SWB, 2001 and 2009 by higher educational achievement

	2001	2009
All	.620**	.666**
NTE	.616**	.657**
TE	.660**	.709**

Source: Author’s calculations using HILDA, 2001 and HILDA 2009.

Note: Pearson Correlation, sig is 2-tailed. **correlation is significant at 0.01 level.

The two measures of SWB correlate more strongly in 2009 than in 2001, and the absolute increase in the level of correlation is similar for the NTE⁵⁸ and the TE. However, these correlations are higher for the TE. This is the first indication that the concepts of overall satisfaction and average satisfaction are not the same for the TE and the NTE.

The extent to which satisfaction with domains of life correlates with overall satisfaction is further explored. This correlation analysis is conducted for 2001 and 2009, and Table 6.2 summarises the findings for 2001. The top-right quadrant of the table reports the correlations between satisfaction with domains of life and satisfaction with life in general for

⁵⁸ As mentioned in the list of acronyms, although the author prefers to spell out these terms, the acronyms are used at a time when the results from the analysis are reported.

the NTE, and the bottom-left quadrant, under the blank diagonal reports the levels of correlation for the TE. The same rules apply to Table 6.3, which reports on the correlation levels in 2009. The centre of the table reports correlations between particular domains (e.g. correlation between satisfaction with finances and satisfaction with free time), but it is the first row and the first column in each table which are of interest to this chapter. They report the correlation between satisfaction with each domain of life and overall satisfaction with life for the NTE and TE respectively. These results are discussed below. ‘Overall satisfaction’ and SWB both refer to the same concept.

Table 6.2 Correlations between levels of satisfaction with domains of life and SWB, 2001

SATISFACTION in Domains of life										
Pearson's correlations across satisfaction with domains and with SWB, 2001										
	NTE									
TE	SWB	Fin	EmpOpp	Free	Hlth	Safe	Home	Lcomm	N'hood	Partner
SWB	-	.443	.322	.321	.399	.387	.383	.363	.369	.339
Fin	.473	-	.421	.239	.291	.329	.304	.283	.25	.203
EmpOpp	.422	.456	-	.042	.337	.222	.146	.234	.185	.122
Free	.369	.228	.106	-	.048	.187	.255	.198	.229	.14
Hlth	.434	.279	.276	.209	-	.279	.167	.242	.265	.097
Safe	.42	.377	.29	.195	.314	-	.259	.362	.38	.156
Home	.383	.304	.22	.252	.192	.244	-	.272	.399	.224
Lcomm	.383	.282	.253	.227	.253	.35	.263	-	.468	.148
N'hood	.422	.311	.251	.234	.328	.38	.419	.504	-	.174
Partner	.381	.218	.159	.18	.165	.157	.181	.144	.141	-

Source: Author's calculations using HILDA, 2001; all results are statistically significant at $p < .005$

Table 6.3 Correlations between levels of satisfaction with domains of life and SWB, 2009

Satisfaction in Domains of life										
Pearson's correlations across domains of life and with SWB, 2009										
	NTE									
TE	SWB	Fin	EmpOpp	Free	Hlth	Safe	Home	Lcomm	N'hood	Partner
SWB	-	.466	.35	.353	.497	.451	.427	.413	.429	.39
Fin	.503	-	.413	.25	.368	.353	.348	.284	.287	.219
EmpOpp	.438	.466	-	.094	.356	.27	.208	.249	.236	.161
Free	.329	.215	.078	-	.112	.204	.264	.224	.232	.184
Hlth	.531	.333	.321	.167	-	.327	.202	.309	.334	.167
Safe	.468	.374	.318	.196	.356	-	.328	.399	.474	.195
Home	.42	.335	.25	.187	.238	.291	-	.304	.444	.276
Lcomm	.424	.288	.25	.214	.319	.4	.29	-	.493	.153
N'hood	.43	.28	.283	.191	.375	.482	.405	.501	-	.186
Partner	.42	.19	.173	.127	.257	.218	.233	.179	.184	-

Source: Author's calculations using HILDA, 2009. All results are statistically significant at $p < .005$

The levels of correlation between SWB and satisfaction with the separate areas of life increased for most of the areas for both TE and NTE individuals between 2001 and 2009. The levels of satisfaction with finances, employment opportunities, free time, health, safety, home, local community, neighbourhood and relationship with partner have become stronger

predictors of SWB for both groups. However in 2009, satisfaction with some domains of life (financial situation, employment opportunities, health and partner) correlated more strongly with SWB for the TE than for the NTE.

It can be concluded that the levels of satisfaction with particular aspects of life relate to the levels of overall satisfaction (SWB) to a different extent for the tertiary-educated and the non-tertiary-educated. This is the first piece evidence supporting the hypothesis that SWB is heterogeneous by higher educational achievement. However, further regression analysis is necessary to assess the actual effect that the change in satisfaction with each of these domains has over the SWB of the two groups. This regression analysis is conducted in the next section.

6.3 Impact of satisfaction with domains of life on SWB, 2001 and 2009

6.3.1 Well-being in 2009

The impact on SWB of satisfaction with domains of life is explored using semi-logarithmic specifications⁵⁹ in an Ordinary Least Squares (OLS) regression of satisfaction with domains of life on overall satisfaction (SWB). The model used is:

$$SWB = \alpha_0 + \sum_{i=1}^9 \alpha_i \ln(LD_i) + \mu \quad (6.1)$$

The same domains of life as above are used in the analysis. However, the 0 to 10 scores are multiplied by 10 and expressed in logarithmic form. In the model above, LD_i are the respective life domains, α_i are the parameters to be estimated and μ is the error term to include factors unobserved and uncontrolled for. Results are summarised in Table 6.4. A reduced model was run first, using only the eight aspects of life included in the ‘satisfaction with life’ module in HILDA (Model 1 in Table 6.4). By controlling for satisfaction with the partner, a second model was regressed to explore how satisfaction with personal life relates to overall SWB (Model 2 in Table 6.4). Separate regressions for the TE (Bachelor, Masters and PhD) and the NTE (other post-secondary, secondary and less than secondary) are conducted, in order to explore the heterogeneity of SWB by higher educational achievement. To remind the reader, a regression for the entire population with controls for higher-educational level achieved was not conducted because this was the very purpose of the analysis, that is, to

⁵⁹ Rojas (2004) notes the importance of using semi-logarithm specification in assessing the impact on SWB of domains of life, because the more widely used linear specifications require strong and unrealistic assumptions (Rojas, 2004). The argument is that the impact on SWB of greater satisfaction in particular domains of life is contingent on individual initial levels of satisfaction, and as life-domain satisfaction increases the additional impact on SWB reduces (diminishing returns).

prove that there are conceptual differences in how the TE and the NTE assess their SWB. SWB cannot be the dependent variable in a regression model that includes both TE and NTE respondents.

Adjusted R-square values of over 0.450 indicate an appropriate goodness-of-fit for both models in Table 6.4. Results are discussed below. Because the model used is semi-logarithmic (independent variables have been log-transformed), the results are rather straightforward. If satisfaction with a domain of life increases by 100 per cent, the overall satisfaction (SWB) increases by the beta coefficient. Although such changes seem very small, they are relevant when assessed in the context of subjective well-being studies, where variations are generally small.

The results in Table 6.4 reveal that satisfaction levels with some domains of life have a greater impact on the SWB of tertiary-educated individuals than on that of the non-tertiary-educated.

For example, in Model-1 (when satisfaction with the partner is not included), satisfaction with finances, employment opportunities, and local community and neighbourhood, impact on the SWB of the TE more than on that of the NTE. On the other hand, levels of satisfaction with free time and home have a greater impact on the overall satisfaction of the NTE than on the that of the TE. These findings indicate that satisfaction with domains of life contribute to the SWB of the TE and the NTE to a different extent. In other words, the results from the semi-logarithmic model (6.1) support the heterogeneity of SWB by higher-educational achievement, confirming Hypothesis 2-a. A few other findings that point towards the differences between the tertiary-educated and non-tertiary-educated are discussed below.

Table 6.4 Impact of satisfaction with areas of life on SWB by education level, 2009⁶⁰

	Predictors of satisfaction with life (SWB), Population holding a Higher Qualification (TE)		Predictors of satisfaction with life (SWB), Population not holding a Higher Qualification (NTE)	
	Model-1	Model-2	Model-1	Model-2
Finances	.589*** (.058)	.458*** (.064)	.459*** (.036)	.363*** (.042)
Employment opportunities	.391*** (.610)	.320*** (.067)	.236*** (.035)	.228*** (.040)
Free time	.344*** (.037)	.309*** (.038)	.505*** (.028)	.460*** (.031)
Health	1.071*** (.067)	.883*** (.080)	1.008*** (.048)	.933*** (.054)
Safety	.972*** (.116)	1.058*** (.127)	.943*** (.067)	.782*** (.079)
Home	.602*** (.071)	.607*** (.078)	.746*** (.051)	.662*** (.060)
Neighbourhood	.401*** (.100)	.410*** (.110)	.252*** (.061)	.290*** (.070)
Local community	.410*** (.058)	.331*** (.062)	.357*** (.040)	.262*** (.046)
Partner		.754*** (.060)		.684*** (.043)
Constant	-12.628*** (.512)	-12.204*** (.580)	-11.315*** (.312)	-10.419*** (.367)
R-squared	0.491	0.497	0.446	0.466
N	2312	1735	5589	3789

Source: Author's calculations using HILDA, 2009.

Satisfaction levels with the areas of health and safety have a similar impact on the overall satisfaction of the tertiary-educated and on that of the non-tertiary-educated. Satisfaction with free time correlates less with the SWB of TE than with that of the NTE (as the analysis in the previous section indicated). This finding is also reflected in the lower impact satisfaction with this domain has on their SWB, as resulting from the regression analysis. Such a finding can be indicative of the intrinsic characteristics of each group, for example, the tertiary-educated are more work-orientated and less preoccupied with their leisure time.

The level of satisfaction with home impacts on the overall satisfaction of the NTE more than on that of the TE. Fig. 5.13 in Chapter 5, Section 5.2.1 revealed that a higher percentage of the TE ranked their satisfaction with home at 6 and above. But although more TE individuals are satisfied with their homes, satisfaction with home has a higher impact on

⁶⁰ The results of this analysis are interpreted as point-change in SWB (the beta-coefficients from the model) when satisfaction with the respective aspect of life increases by 1. For example, as resulting from Model-1, a 1 point increase in satisfaction with finances increases the SWB of TE by 0.589 points (over half a point) and the SWB of NTE by 0.458 points (under half a point)

SWB for the NTE. The implications of these findings are later discussed in the context of policy in Chapter 10.

Satisfaction with the partner has a slightly higher impact on the SWB of the TE than on that of the NTE. The introduction of this last factor into the analysis also slightly reduces the impact of the other domains of life on SWB. For example, financial satisfaction has a lower impact on SWB when satisfaction with the partner is considered, regardless of the level of education. Similarly, the impact on SWB of satisfaction with domains like employment opportunities, free time, health and local community, reduces for both the TE and NTE when satisfaction with the partner is controlled for. This reduction in coefficient, however, may also only be the effect of having introduced another control variable into the equation, reducing the elements in the error terms and increasing the number of factors that explain the variation in the dependent variable (Wooldridge, 2006).

Nevertheless, these results converge towards one main finding: satisfaction with domains of life does not have the same impact on the SWB of the TE and NTE. The heterogeneity of SWB by educational achievement is thus reinforced by these results, confirming hypothesis 2-a. The analysis in Chapter 5 identified various changes in the levels of SWB and satisfaction with domains of life, and more importantly, that these changes are different for the TE and the NTE. For this reason, the impact on SWB of satisfaction with domains of life is also explored using 2001 data.

6.3.2 Well-being in 2001, and comparison with 2009

The aim of this subsection is to explore the question of whether the contribution of satisfaction with various domains of life to the overall satisfaction of the tertiary-educated and the non-tertiary-educated has changed over time, and to explain the between- and within-group variations in SWB identified in Chapter 5.

The author acknowledges that the conventional model for exploring the impact of an independent variable on the same dependent variable across two periods of time is pooled-OLS (for a non-repeated sample), using year dummies and interaction terms (Wooldridge, 2006). However, this model cannot be applied because perceptions of well-being are likely to change across time (life-course theory). In other words, the dependent variable, although measured on the same 0 to 10 scale, is not the same conceptually across the two periods. Similarly, statistical significance was not calculated for the difference in coefficients for TE

and NTE, because doing so assumes that the same dependent variable SWB can be included in the multivariate equation for both the TE and NTE. But this is not the case – it is this very heterogeneity of SWB by higher-educational achievement that this analysis seeks to explore.

The same semi-logarithmic model as above (Section 6.1) is tested in this subsection using 2001 HILDA data. The results from the 2001 and 2009 analyses are then compared. Table 6.5 summarises these findings.⁶¹The left-hand side of the table reports on the factors that impacted on the SWB of the tertiary-educated in 2001 and 2009. The two columns on the right-hand side of the table report on the impact of satisfaction with domains of life on the SWB of the non-tertiary-educated in 2001 and 2009. Results are briefly discussed below, and their wider policy, theoretical and methodological implications are presented in Chapter 10.

Table 6.5 Semi-logarithmic analysis of the impact of satisfaction with domains of life on overall satisfaction 2001 and 2009

	Predictors of satisfaction with life (SWB), Population holding a Higher Qualification (TE)		Predictors of satisfaction with life (SWB), Population not holding a Higher Qualification (NTE)	
	2001	2009	2001	2009
Finances	0.585*** (.061)	.589*** (.058)	0.516*** (.032)	.459*** (.036)
Employment opportunities	0.422*** (.060)	.391*** (.061)	0.307*** (.032)	.236*** (.035)
Free time	0.358*** (.042)	.344*** (.037)	0.419*** (.026)	.505*** (.028)
Health	1.002*** (.080)	1.071*** (.067)	0.882*** (.046)	1.008*** (.048)
Safety	0.447*** (.093)	.972*** (.116)	0.702*** (.050)	.943*** (.067)
Home	0.562*** (.072)	.602*** (.071)	0.677*** (.045)	.746*** (.051)
Neighbourhood	0.369*** (.099)	.401*** (.100)	0.398*** (.051)	.252*** (.061)
Local community	0.430*** (.065)	.410*** (.058)	0.330*** (.036)	.357*** (.040)
Constant	-19.454*** (.755)	-12.628*** (.512)	-19.657*** (.431)	-11.315*** (.312)
R-squared	0.434	0.491	0.376	0.446
N	2129	2312	7860	5589

Source: Author's calculations using HILDA, 2001 and HILDA, 2009.

The impact of satisfaction with each domain of life on the SWB of the tertiary-educated and the non-tertiary-educated is discussed in order of their inclusion in the analysis and in Table 6.5. Satisfaction with finances became a weaker predictor of SWB for the NTE

⁶¹The extended model, which included satisfaction with the partner, was also run, but because the results were rather similar to those from the reduced model drawing on a larger population, the latter was chosen for presentation in this chapter.

in 2009 compared to 2001, while the impact of this domain of life on the SWB of the TE marginally increased in the same period of time.

Being satisfied with the amount of free time correlates better with the SWB of the NTE than with the SWB of the TE. Fig.5.4 in Chapter 5, Section 5.2.1 also showed that the non-tertiary-educated were more satisfied with their free time than the tertiary-educated, both in 2001 and 2009. These findings are important for the life-balance discourse. However, in the context of this analysis, the notable fact is that the two sub-populations are different in this respect.

Satisfaction with health is the area with by far the greatest impact on SWB, for both tertiary-educated and non-tertiary-educated individuals. Furthermore, the impact of this variable on SWB increased between 2001 and 2009 for both the TE and the NTE. However, the TE are more satisfied with their health than the NTE, and the gap between the two groups widened between 2001 and 2009 (see Fig. 5.6 in Chapter 5, Section 5.2.1). Despite the importance all individuals give to satisfaction with health, the needs of the NTE seem to be unmet. The policy implications of these findings are discussed in Chapter 10.

The largest change, for all individuals, occurred in the impact of safety on overall satisfaction with life. In 2001 satisfaction with safety had less of an impact on the SWB of the TE than on the SWB of the NTE. However, by 2009, the impact of satisfaction with safety on the SWB of the TE had increased dramatically. It nearly doubled, to a level higher than the impact of satisfaction with this aspect of life on the SWB of the NTE. Nevertheless, the impact of satisfaction with safety increased for the non-tertiary-educated as well, by about 20 per cent. Although this is a great change for both groups, it is difficult to know what might have caused this increase. It could be, for example, the international awareness of safety issues following the 9/11 terrorist attack on the U.S., or it could be something in Australia making people more aware of the importance of safety. Such explanations, however, can only remain at the stage of speculation until further in-depth analysis.

The impact on overall satisfaction of satisfaction with home has increased for the TE, and so has the impact of satisfaction with their neighbourhood. While the same trend is evident for the NTE in the case of satisfaction with home, satisfaction with neighbourhood has had less of an impact for this group. The NTE were more satisfied with home than the TE between 2001 and 2009, indicating a low level of satisfaction with housing on the part of the tertiary-educated. This in turn seems to be affecting their overall satisfaction with life at quite

a high rate. Whether these differences are due to poor housing conditions, or the scarcity of homes, or is just due to adaptation and comparison with peers, is yet to be explored. It is interesting, however, that housing is an area that the tertiary-educated are not satisfied with, and an increase in satisfaction with their homes could well increase their overall well-being.

6.4 Conclusion

Some studies explore subjective well-being through a life-domain approach and argue that individuals have different levels of SWB depending on demographics like gender, age or income (Clark et al., 2005, Rojas, 2006, Plagnol, 2010). This thesis claims that subjective well-being is heterogeneous (or clustered) by higher educational achievement, that is, the tertiary-educated and the non-tertiary-educated have different perceptions of ‘what counts’ towards well-being.

This chapter tested the heterogeneity of SWB by higher-educational achievement using a life-domain approach. Findings from correlation and regression analyses confirm the second hypothesis (2-a) of the thesis, that satisfaction with particular aspects of life contributes to the SWB of the tertiary-educated and the non-tertiary-educated to a different extent. This finding indicates that, when asked the general question ‘How satisfied are you with your life these days?’ the tertiary-educated and the non-tertiary-educated give different weights to the different aspects of their lives. The conclusion following from this finding is that this common indicator of SWB includes measurement errors, even though it is measured on the same 0 to 10 scale for both TE and NTE individuals. For example, the tertiary-educated give more weight to satisfaction with job opportunities, finances and safety when assessing their ‘satisfaction with life overall, all things considered’, while the non-tertiary-educated give more weight to satisfaction with their homes and free time.

The central finding in this chapter is that ‘overall satisfaction’, the single-item measure of SWB, incorporates conceptual differences. The conclusion is that the aggregate measure of well-being, as the average of the levels of satisfaction with domains of life, is a more accurate measure of well-being and is generally preferred. When SWB is assessed through this aggregate measure (Chapter 5, Fig.5.11), the paradox of SWB and tertiary education disappears.

Nevertheless, despite the possible conceptual errors it incorporates, the single-item measure of SWB is often used in national and international surveys and studies that inquire

about subjective well-being (e.g. World Values Survey, GSOEP). Findings from this chapter and from Chapter 5 lead to the conclusion that the relationship between SWB and tertiary education is not negative. The theoretical framework for the heterogeneity of SWB by higher-educational achievement was developed in Chapter 2, and this chapter brought the empirical support. Chapter 7 further explores why the differences in the reported well-being occur when the single-item and multiple-item measures of SWB are employed.

Chapter 7 Findings: The impact of socio-economic and demographic factors on well-being

7.1 Introduction

This chapter explores how socio-economic and demographic factors affect the SWB of the tertiary-educated and non-tertiary-educated. Relevant demographic factors like gender, marital status, geographic location, socio-economic status and cultural background are considered. Hypothesis 2-b of the thesis is tested in this chapter:

H 2-b) The factors that impact SWB are different for the tertiary-educated and non-tertiary-educated.

The aim of the chapter is to establish whether external factors have the same impact on the SWB of the tertiary-educated as on that of the non-tertiary-educated. The impact of these demographics on satisfaction with the eight domains of life is also explored. It is not appropriate to measure the impact of external factors on well-being averaged across the eight domains, because some demographics may impact differently on different domains of life, and an ‘aggregate effect’ obtained by regressing demographic variables on average satisfaction would neglect such individual interactions. For this reason SWB is measured as overall satisfaction.

The data, the regression model and the variables included in the analysis are described in Section 7.2. Section 7.3 presents the results of the analysis conducted using data from the HILDA 2009. How each explanatory factor impacts on overall satisfaction and on satisfaction with each of the domains of life is discussed, and the differences between the tertiary-educated and non-tertiary-educated are explained. In Section 7.4 the same analysis is conducted using HILDA 2001 data, and the results are compared to those obtained in Section 7.3. This comparison is important in the context of policy because it explores whether some factors have become stronger predictors of subjective well-being in the past decade.

7.2 The model and data description

Cross-sectional analysis of 2009 data is conducted, using the refreshed sample of 13,301 respondents, excluding those younger than 25 (remaining n=10,675 individuals). Population weights are used for means and standard errors, although the un-weighted samples are used

for regression analysis. An ordered logit regression in robust standard errors explores the factors that impact SWB and satisfaction with domains of life:

$$Y_{ij} = \alpha_j + \sum_{k=1}^K \beta_k x_{kji} + \varepsilon(7.1)^{62},$$

where Y is the dependent variable, the self-assessed satisfaction with domain of life j for individual i , α is the intercept (or constant) for each domain of satisfaction (j), β_k are the coefficients that indicate the size of the impact factors x_k have for individual i over life domain j ; x_k are independent variables included in the equation to control for demographics like gender, age, geographic area, marital status and whether the person has children, health or income. These variables are described in Table 7.1.

Table 7.1 Description of variables used in the ordered logit model of satisfaction with life and domains of life

Variable	Description
Life satisfaction	Self-declared satisfaction with life overall and with eight domains of life, with 0 most dissatisfied and 10 most satisfied
Female	Gender variable, takes value 1 if respondent is female
ATSI	Aboriginal or Torres Strait Islander (ATSI) background variable, takes value 1 if respondent is of ATSI background
CALD	Identifies individuals culturally and linguistically diverse (CALD), takes value 1 if respondent is of CALD background
Other Urban	Geographic location variable, takes value 1 if respondent lives in a metropolitan area other than major metropolitan
Rural	Geographic location variable, takes value 1 if respondent lives in a bounded locality and rural balance
Unemployed	Employment variable, takes value 1 if respondent is unemployed
NILF	Employment variable, takes value 1 if respondent is not in the labour force
Higher Education	Education variable, central to the thesis, takes value 1 if respondent completed a tertiary qualification (Bachelor, Graduate Diploma, Masters, PhD)
Single	Marital status variable, takes value 1 if respondent is single
Separated	Marital status variable, takes value 1 if respondent is separated
Divorced	Marital status variable, takes value 1 if respondent is divorced
Widowed	Marital status variable, takes value 1 if respondent is widowed
w/Children	Variable takes value 1 if respondent has children
Income: 1st quartile	Income variable, takes value 1 if respondent is in the first income quartile
Income: 2nd quartile	Income variable, takes value 1 if respondent is in the second income quartile
Income: 4th quartile	Income variable, takes value 1 if respondent is in the fourth income quartile
In bad health	Health variable, takes value 1 if respondent has a long term disease or disability

Source: HILDA, 2009.

The reference person in the regression model is male, age 35-44 years, living in a major metropolitan area, employed, married, without children, without tertiary education, in

⁶²This model was preferred for ease of comparison of results, as the independent variables are dummy variables taking the values 0 or 1. Under the specifications of this model, the response variable level is expected to change by its respective regression coefficient in the ordered log-odds scale.

good health, non-ATSI, non-CALD, in the third income quartile⁶³. This regression was first conducted for the entire sample, flagging individuals with tertiary qualifications through the inclusion of a dummy variable that equals 1 if the person had completed tertiary studies by 2009. Consistent with findings in the literature (Headey and Wooden, 2004; Dockery, 2010), the impact of tertiary education on SWB was not statistically significant. These results are not reported because the approach is outside the purpose of the thesis investigating the heterogeneity of SWB by educational achievement (i.e. a common measure of SWB should not be used for both the tertiary-educated and the non-tertiary-educated, because what counts for SWB is different for the two groups). Hence the model described above (Section 7.1), for exploring factors that impact on life-satisfaction and satisfaction with domains of life of each group, is separately tested for the tertiary-educated and the non-tertiary-educated. Results are reported and discussed in the next section. The interpretation of the results from the ordered logit model is that for a one unit increase in the predictor, the response variable level is expected to change by its respective regression coefficient in the ordered log-odds scale. See Wooldridge, 2007 for the complete specifications of the ordered logit model.

7.3 Findings, 2009

The impact of each demographic variable on overall satisfaction and satisfaction with each domain of life is discussed in order of their inclusion in the regression: gender, ethnicity, Aboriginal status, health status, employment status, geographic location, marital status, age, and income. The findings are summarised in Tables 7.2.a and 7.2.b.

⁶³ Household equivalised income is used in the main analysis and income quartiles were derived. Later in the chapter differences between this measure and the use of personal income are discussed. Household equivalised income is calculated as total household income divided by the square root of the total number of household members.

Table 7.2.a Factors impacting SWB and satisfaction with domains of life

	SWB		Free time		Health		Safety		Home	
	TE	NTE	TE	NTE	TE	NTE	TE	NTE	TE	NTE
female	0.18*	0.12*	-0.13	-0.18***	0.03	0.14**	-0.18*	-0.02	0.15	0.03
	(0.09)	(0.05)	(0.08)	(0.05)	(0.09)	(0.05)	(0.09)	(0.05)	(0.08)	(0.05)
CALD	-0.04	-0.12	0.07	-0.18	0.03	-0.11	-0.14	-0.04	-0.36	0.32
	(0.28)	(0.16)	(0.27)	(0.16)	(0.27)	(0.16)	(0.28)	(0.16)	(0.27)	(0.16)
ATSI	0.01	0.39**	0.48	0.18	-0.64	-0.00	0.24	0.49***	0.18	0.09
	(0.42)	(0.14)	(0.40)	(0.14)	(0.37)	(0.14)	(0.38)	(0.14)	(0.38)	(0.14)
Ill health	-0.72***	-0.65***	-0.13	-0.01	-1.70***	-1.65***	-0.47***	-0.28***	-0.39**	-0.07
	(0.13)	(0.06)	(0.12)	(0.06)	(0.13)	(0.06)	(0.12)	(0.06)	(0.12)	(0.06)
Unemployed	-0.32	-0.42**	1.45***	1.03***	-0.11	-0.33*	0.07	-0.07	0.60	-0.54***
	(0.35)	(0.16)	(0.31)	(0.16)	(0.33)	(0.15)	(0.33)	(0.16)	(0.33)	(0.16)
NILF	0.09	0.04	0.73***	0.72***	-0.24	-0.39***	0.09	-0.02	0.12	0.08
	(0.15)	(0.07)	(0.15)	(0.07)	(0.15)	(0.07)	(0.14)	(0.07)	(0.15)	(0.07)
OtherUrban	0.07	0.14*	0.23*	0.16**	0.12	0.02	0.36**	0.15**	0.10	0.18***
	(0.11)	(0.05)	(0.11)	(0.05)	(0.11)	(0.05)	(0.11)	(0.05)	(0.11)	(0.05)
Rural	0.34**	0.18**	0.18	0.07	0.14	0.11	0.54***	0.49***	0.40**	0.31***
	(0.13)	(0.06)	(0.13)	(0.06)	(0.13)	(0.06)	(0.13)	(0.06)	(0.13)	(0.06)
Single	-1.18***	-0.59***	0.48***	0.25***	-0.39**	-0.11	-0.33**	-0.28***	-0.10	-0.11
	(0.13)	(0.07)	(0.12)	(0.07)	(0.12)	(0.07)	(0.13)	(0.07)	(0.13)	(0.07)
Separated	-1.16***	-0.83***	-0.18	-0.03	-0.37	-0.20	-0.29	-0.35**	-0.69**	-0.41***
	(0.23)	(0.12)	(0.21)	(0.12)	(0.23)	(0.12)	(0.22)	(0.12)	(0.22)	(0.12)
Divorced	-0.31	-0.44***	-0.02	-0.10	-0.43**	-0.15*	-0.26	-0.18*	-0.36*	-0.19*
	(0.16)	(0.08)	(0.15)	(0.07)	(0.16)	(0.07)	(0.16)	(0.07)	(0.16)	(0.07)
Widowed	0.03	-0.25*	0.34	0.31**	0.11	0.07	-0.26	-0.05	0.23	0.22*
	(0.31)	(0.11)	(0.29)	(0.11)	(0.30)	(0.10)	(0.30)	(0.10)	(0.32)	(0.11)
Age25-34	0.25*	0.07	0.09	-0.08	0.20	0.07	0.34**	0.15*	-0.04	-0.20**
	(0.12)	(0.07)	(0.11)	(0.07)	(0.11)	(0.07)	(0.12)	(0.07)	(0.11)	(0.07)
Age45-54	-0.07	0.09	0.13	0.35***	-0.20	-0.04	0.22	0.04	0.15	0.14*
	(0.12)	(0.07)	(0.12)	(0.07)	(0.12)	(0.07)	(0.12)	(0.07)	(0.12)	(0.07)
Age55-64	0.57***	0.57***	1.23***	0.92***	0.39**	0.30***	0.63***	0.30***	0.54***	0.66***
	(0.15)	(0.08)	(0.15)	(0.08)	(0.14)	(0.08)	(0.15)	(0.08)	(0.14)	(0.08)
Age65-74	0.79***	1.03***	1.88***	1.36***	0.66**	0.84***	0.48*	0.40***	1.19***	1.06***
	(0.23)	(0.10)	(0.23)	(0.10)	(0.22)	(0.10)	(0.22)	(0.10)	(0.22)	(0.10)
Age75+	1.52***	1.41***	1.90***	1.44***	0.98**	1.03***	1.38***	0.67***	1.40***	1.30***
	(0.32)	(0.12)	(0.31)	(0.12)	(0.30)	(0.11)	(0.31)	(0.12)	(0.31)	(0.12)
\$ 1 st quartile	-0.40*	-0.21**	-0.06	-0.11	0.07	-0.24**	0.12	-0.08	-0.09	-0.27***
	(0.20)	(0.07)	(0.19)	(0.07)	(0.19)	(0.07)	(0.19)	(0.07)	(0.19)	(0.07)
\$2 nd quartile	-0.19	-0.14*	-0.17	-0.16**	-0.05	-0.06	-0.08	-0.14*	-0.21	-0.27***
	(0.13)	(0.06)	(0.13)	(0.06)	(0.13)	(0.06)	(0.13)	(0.06)	(0.13)	(0.06)
\$ 4 th quartile	0.01	0.05	0.19*	0.08	0.05	0.13	0.21*	0.16*	0.32**	0.07
	(0.10)	(0.07)	(0.10)	(0.07)	(0.10)	(0.07)	(0.10)	(0.07)	(0.10)	(0.07)

Source: Author's calculations using HILDA, 2009

Table 7.2 bFactors impacting satisfaction with domains of life continued

	N'hood		Local Community		Financial		Partner		Empl. Opp	
	TE	NTE								
female	0.34*** (0.08)	0.18*** (0.05)	0.42*** (0.08)	0.12* (0.05)	0.02 (0.08)	0.16*** (0.05)	-0.08 (0.08)	-0.09* (0.05)	0.10 (0.08)	0.00 (0.05)
CALD	0.06 (0.27)	0.06 (0.16)	-0.05 (0.26)	0.13 (0.16)	0.18 (0.27)	-0.21 (0.16)	-0.20 (0.26)	-0.54*** (0.16)	-0.15 (0.25)	-0.27 (0.15)
ATSI	-0.16 (0.39)	0.13 (0.14)	0.32 (0.35)	0.33* (0.14)	0.56 (0.36)	-0.16 (0.13)	-0.04 (0.40)	-0.29* (0.13)	0.48 (0.37)	0.07 (0.13)
Ill health	-0.46*** (0.12)	-0.35*** (0.06)	-0.28* (0.12)	-0.29*** (0.06)	-0.38** (0.12)	-0.49*** (0.06)	-0.18 (0.12)	-0.17** (0.05)	-0.30* (0.12)	-0.32*** (0.06)
Unemployed	0.11 (0.35)	-0.19 (0.16)	-0.37 (0.31)	-0.25 (0.15)	-1.07** (0.34)	-1.29*** (0.15)	-0.43 (0.33)	-0.20 (0.15)	-0.98** (0.33)	-1.36*** (0.14)
NILF	0.07 (0.15)	-0.06 (0.07)	0.23 (0.14)	-0.14* (0.07)	0.16 (0.15)	-0.29*** (0.07)	0.07 (0.14)	0.06 (0.06)	-1.81*** (0.16)	-2.16*** (0.08)
OtherUrban	0.17 (0.11)	0.11* (0.05)	0.34** (0.11)	0.25*** (0.05)	0.15 (0.11)	0.11* (0.05)	0.15 (0.11)	0.09 (0.05)	0.16 (0.11)	-0.09 (0.05)
Rural	0.58*** (0.13)	0.64*** (0.06)	0.49*** (0.13)	0.50*** (0.06)	-0.06 (0.13)	0.04 (0.06)	0.03 (0.13)	0.04 (0.06)	0.11 (0.13)	0.04 (0.06)
Single	-0.25 (0.13)	-0.17* (0.07)	-0.69*** (0.12)	-0.34*** (0.07)	-0.53*** (0.12)	-0.29*** (0.07)	-2.72*** (0.14)	-2.46*** (0.08)	-0.49*** (0.12)	-0.06 (0.07)
Separated	-0.25 (0.22)	-0.20 (0.12)	-0.20 (0.22)	-0.29* (0.12)	-1.12*** (0.22)	-0.79*** (0.12)	-2.39*** (0.22)	-2.22*** (0.12)	-0.28 (0.20)	0.00 (0.12)
Divorced	-0.44** (0.16)	-0.25*** (0.07)	-0.44** (0.15)	-0.38*** (0.07)	-0.65*** (0.16)	-0.65*** (0.07)	-1.85*** (0.16)	-1.70*** (0.08)	-0.43** (0.15)	0.10 (0.07)
Widowed	0.02 (0.30)	0.03 (0.11)	-0.27 (0.31)	-0.17 (0.10)	-0.33 (0.32)	-0.12 (0.11)	-2.70*** (0.28)	-2.84*** (0.10)	-0.41 (0.31)	-0.06 (0.12)
Age25-34	-0.04 (0.11)	-0.16* (0.07)	-0.14 (0.11)	-0.19** (0.07)	-0.01 (0.11)	-0.02 (0.07)	0.41*** (0.11)	0.09 (0.07)	0.11 (0.11)	0.04 (0.07)
Age45-54	0.19 (0.12)	0.11 (0.07)	0.10 (0.12)	0.19** (0.07)	-0.04 (0.12)	0.21** (0.07)	0.16 (0.12)	0.05 (0.07)	-0.24* (0.11)	-0.18** (0.07)
Age55-64	0.35* (0.14)	0.38*** (0.08)	0.35* (0.14)	0.43*** (0.08)	0.54*** (0.14)	0.65*** (0.08)	0.39** (0.14)	0.36*** (0.07)	-0.03 (0.14)	-0.46*** (0.07)
Age65-74	0.80*** (0.22)	0.77*** (0.10)	0.61** (0.22)	0.89*** (0.10)	0.97*** (0.23)	1.42*** (0.10)	0.36 (0.20)	0.64*** (0.09)	-0.98*** (0.25)	-0.97*** (0.11)
Age75+	0.85** (0.29)	1.09*** (0.11)	0.50 (0.31)	1.04*** (0.11)	1.21*** (0.31)	2.10*** (0.12)	0.09 (0.29)	0.43*** (0.11)	-0.87** (0.33)	-1.36*** (0.13)
\$ 1 st quartile	-0.08 (0.18)	-0.18* (0.07)	-0.14 (0.18)	-0.03 (0.07)	-1.20*** (0.19)	-0.82*** (0.07)	-0.05 (0.18)	-0.24*** (0.07)	-0.32 (0.18)	-0.32*** (0.07)
\$2 nd quartile	-0.15 (0.13)	-0.16** (0.06)	0.08 (0.13)	-0.07 (0.06)	-0.33* (0.13)	-0.40*** (0.06)	0.21 (0.12)	-0.09 (0.06)	0.16 (0.13)	-0.04 (0.06)
\$ 4 th quartile	0.10 (0.10)	0.03 (0.07)	-0.07 (0.10)	-0.13 (0.07)	0.57*** (0.10)	0.42*** (0.07)	0.32*** (0.10)	0.06 (0.07)	0.18 (0.10)	0.23*** (0.07)

Source: Author's calculations using HILDA, 2009

7.2.1 Gender

Within the same group of educational achievement, women are more satisfied with their lives (higher SWB) than men⁶⁴ and the differences between genders are greater within the tertiary-educated sample. However, Australian men and women with tertiary qualifications seem to be a more heterogeneous group in terms of satisfaction with areas of life. The TE women are no more or less satisfied than the TE men with their free time, finances, employment opportunities, health, their home, and partner. But they are more satisfied than men with their neighbourhoods and involvement in local communities, and less satisfied with their safety.

Such homogeneity between the genders, however, is not found among men and women with below tertiary-level educational achievements. Being a NTE woman (rather than a NTE man) decreases the level of satisfaction with the amount of free time, and increases the levels of satisfaction with health, neighbourhood and local community. Surprisingly, despite pay inequality, NTE women have higher levels of satisfaction with finances than the non-tertiary-educated men. NTE women are, however, less satisfied with their partners than men are, while TE women and men are equally satisfied with their partners. This finding comes is consistent with the literature that finds that relationships (marriages) last longer as the level of education of the partners increases.

7.2.2 Marital Status

A number of studies (e.g. Lucas, Clark, Georgellis and Diener, 2003; Johnson and Wu, 2002) maintain that being married is a demographic factor that increases SWB, even if only in the short run. In the analysis conducted in this chapter, the reference person is married and the impact of being a single, separated, divorced, or widowed person on SWB and satisfaction with domains of life has been assessed. The results indicate that the marital status affects tertiary-educated and non-tertiary-educated Australians in different ways.

In the first place, all individuals are better off (i.e. have the highest satisfaction with life) if married. But whereas being single, separated, divorced or widowed significantly reduces the SWB of the NTE, with the separated and single being 'the worst-off', being divorced or widowed does not have a significant impact on the SWB of the TE. This suggests that this group have more independence that enables them to 'carry on' after a divorce or the loss of a partner. Nevertheless, the negative impact of being single (n.b.: this does not

⁶⁴ Tertiary-educated women are more satisfied than tertiary-educated men, and non-tertiary-educated women are more satisfied than non-tertiary-educated men.

include divorced or widowed) on the SWB of TE Australians is twice as great as the negative impact of being single on the SWB of the NTE. Being separated also has a stronger negative impact on the overall satisfaction of the TE (a reduction of 1.16 compared to the reduction of 0.83 for the NTE). The strong negative impact of being single or separated on the SWB of the TE may have various interpretations. For example, it could reflect stronger negative feeling towards solitude. However, such conclusions can only be drawn after in-depth qualitative interviews have been conducted to explore the reasons behind feeling less satisfied with life if single or separated.

The finding that singles are more satisfied with their free time (and TE singles more so) is not surprising, given the difficulties married couples with children face attempting to balance work and leisure time (Craig and Mullan, 2010). Divorced individuals, regardless of their level of education, are less satisfied with their health than married people, confirming findings from the literature that individual health is better when in a couple (Ross et al., 1990). However, this negative effect of being divorced on satisfaction with personal health is stronger for the tertiary-educated. The single, separated and divorcees from both sub-populations are less satisfied with their finances (and again, the negative impact is stronger for the TE), which is rather obvious as the married may be better off financially through pooling their incomes.

A technical note is necessary, however. Both in the HILDA sample and the general population, widowed individuals are likely to be older, and the percentage of tertiary-educated Australians older than 65 is low. Hence the coefficients reporting on the impact of widowhood on satisfaction may be reflective of the older population, and in the case of the tertiary-educated, the sample may be small. These issues are, however, dealt with in Chapter 8 when the relationship between subjective well-being and higher educational achievement is further explored in a life-course approach.

7.2.3 *Employment status*

Dummy variables are used in the analysis to flag whether a person is not in labour force or unemployed. The results indicated that employment status does not affect the overall satisfaction of the TE individuals. This is a somewhat unexpected finding as the highly educated are thought to be more engaged with work, and not being in work would theoretically have at least some impact on their well-being. In contrast, being unemployed

decreases the SWB of the NTE. This negative impact is most likely a consequence of lower incomes – a negative impact of unemployment on satisfaction with finances has also been identified. However the negative impact is stronger for the non-tertiary-educated.

All the unemployed are less satisfied with their employment opportunities than those who are employed, flagging a population with difficulties reintegrating into the labour market. The negative impact of unemployment is strongly felt at the social and personal level by the NTE, in the fact that they are less satisfied than the TE with their health and with social involvement. This finds support in the unemployment literature, which has uncovered the multiple disadvantages the unemployed face (Reid and Ponio, 2004).

Although being unemployed or not in labour force increases everyone's satisfaction with the amount of free time, it is not clear from this analysis whether such individuals are also more satisfied with the quality of their free time. Qualitative analysis is necessary to further explore these issues; however, this is outside the scope of this thesis and beyond its time frame and financial possibilities.

7.2.4 Aboriginal and Torres Strait Islander (ATSI) background

Being of Aboriginal or Torres Strait Islander background impacts on SWB only if an individual is not tertiary-educated. This finding may be partially due to the under-representation of ATSI population in the sample of tertiary-educated individuals in HILDA, and in the general population.

The regression analysis finds that the non-tertiary-educated ATSI population are more satisfied with their life overall, with their safety, and with their local community than the non-tertiary-educated, non-ATSI population. Although they are less satisfied with their partners, they are more satisfied with their involvement in the local community and with their safety.

Qualitative interviews would be necessary to further explore the reasons behind such high levels of satisfaction experienced by the ATSI population, which the literature often identifies as highly disadvantaged (Commonwealth, 2011). Methodologically, these findings are indicative of the inherently subjective nature of SWB measures, and of the necessity to distinguish between perceptions of well-being and facts (Veenhoven, 2000).

7.2.5 *Culturally and Linguistically Diverse (CALD) background*

There is only one aspect of life with which individuals from CALD backgrounds are significantly different from the rest of the population: satisfaction with their partner (less satisfied); and this is only the case if they are non-tertiary-educated. It is remarkable how there are no major differences between the CALD population and Australian-born individuals, in terms of both SWB and satisfaction with domains of life, regardless of their levels of education.

It may be considered a fine achievement in terms of the socio-economic integration of the first and second generation of migrants, that they rank their satisfaction no higher or lower than the Australian-born population. A contributing factor may also be the selection of migrants through the various visa conditions, making the two populations more similar.

7.2.6 *Geographic location*

Living in rural communities rather than in large metropolitan areas has a positive impact on the subjective well-being of both TE and NTE Australians. They are more satisfied with their life overall, and the TE living in rural areas are more satisfied with their safety, homes, their neighbourhoods and involvement in the local community. However, living in such friendly and satisfying communities does not affect their satisfaction with the amount of free time, health, financial situation, employment opportunities, or partner.

Living in smaller urban areas, however, does increase the levels of satisfaction with financial situation and their homes for the NTE. This finding may be a reflection of the financial and housing difficulties this share of the population is facing in major cities.

Such particular differences are once again indicative of the differences in the factors that contribute to the well-being of the tertiary-educated and non-tertiary-educated, proving the heterogeneity of SWB of the two groups and that 'what matters is everyone's point of view' (Lin Yutang, 1940:9 in Rojas, 2004:10).

7.2.7 *Health status*

Not surprisingly, all individuals who have a long-term disability or illness are less satisfied with most areas of life than the rest of the population, regardless of their levels of education. This finding raises concerns about the applicability of theories of adaptation to the Australian context (such as hedonic treadmill or homeostatic theory). Those who suffer from long-term

illnesses do not seem to have managed to return to 'normal' levels of satisfaction yet, as claimed by such theories.

While efforts are made in Australia to integrate people with disabilities and assure proper care and involvement in work and society, individuals identifying themselves with a disability or long-term illness are still less satisfied with their employment opportunities and finances, with their safety, neighbourhoods and involvement in local community, than the rest of the Australian population. These findings indicate a population in need, requiring policy attention. In-depth investigations into the nature of the disability or disease, and the time since onset, could serve to identify those in most need, as well as possible means for enhancing their subjective well-being and satisfaction with areas of life, until they return to average levels of well-being.

7.2.8 *Financial advantage/disadvantage*

HILDA provides three measures to capture financial disadvantage: income poverty; subjective poverty; and financial stress (Marks, 2007). Because the dependent variables introduced in model 7.1 (overall satisfaction and satisfaction with domains of life) are subjective in nature, the author considered the use of a subjective factor (subjective poverty) an inappropriate control for income. Financial stress identifies individuals (or households) at extremes, with financial difficulties such as not being able to pay monthly bills or provide for meals. Because the goal of the analysis is to understand the impact of income on SWB at all levels, and not just at the extreme, this measure was also considered inappropriate. The measure used to mark how well individuals fared in terms of material well-being was disposable income (calculated as positive minus negative disposable income).

Two variables were calculated for 'per person income'. The first was personal disposable income. While this type of income may correlate with personal educational achievement, it is only an indication of one's personal finances, and does not allow for households where spouses can pool their incomes. The second variable, household equivalised income as total household disposable income divided by the square root of the number of household members, was calculated in order to capture this. The impact of partners' income is captured with this measure. Individuals are then included in the first, second, third or fourth quartile for each type of income (personal and household equivalised). The impact of income on SWB is tested in multivariate models, first for the entire sample (Table 7.3.a), then separately for the non-tertiary-educated (Table 7.3.b) and the tertiary-educated (Table 7.3.c). In each

Table 7.3 A, B, C Regression analysis of socio-economic factors on SWB by education level – Household income vs. Personal Income, 2009

	All (A)		NTE (B)		TE (C)	
	(1)	(2)	(1)	(2)	(1)	(2)
Tertiary Edu	0.02 (0.05)	0.04 (0.05)				
Female	0.13** (0.04)	0.15*** (0.04)	0.12* (0.05)	0.13** (0.05)	0.18* (0.09)	0.24** (0.09)
CALD	-0.11 (0.14)	-0.11 (0.14)	-0.12 (0.16)	-0.12 (0.16)	-0.04 (0.28)	-0.06 (0.28)
ATSI	0.35* (0.14)	0.32* (0.14)	0.39** (0.14)	0.37* (0.14)	0.01 (0.42)	-0.04 (0.42)
Ill health	-0.66*** (0.05)	-0.68*** (0.05)	-0.65*** (0.06)	-0.67*** (0.06)	-0.72*** (0.13)	-0.73*** (0.13)
Unemployed	-0.41** (0.15)	-0.46** (0.15)	-0.42** (0.16)	-0.49** (0.16)	-0.32 (0.35)	-0.26 (0.35)
NILF	0.05 (0.06)	-0.02 (0.06)	0.04 (0.07)	-0.06 (0.07)	0.09 (0.15)	0.18 (0.16)
OtherUrban	0.12* (0.05)	0.10* (0.05)	0.14* (0.05)	0.11* (0.05)	0.07 (0.11)	0.06 (0.11)
Rural	0.20*** (0.06)	0.17** (0.06)	0.18** (0.06)	0.14* (0.06)	0.34** (0.13)	0.34* (0.13)
Single	-0.73*** (0.06)	-0.75*** (0.06)	-0.59*** (0.07)	-0.62*** (0.07)	-1.18*** (0.13)	-1.23*** (0.13)
Separated	-0.91*** (0.11)	-0.95*** (0.11)	-0.83*** (0.12)	-0.86*** (0.12)	-1.16*** (0.23)	-1.24*** (0.23)
Divorced	-0.43*** (0.07)	-0.46*** (0.07)	-0.44*** (0.08)	-0.47*** (0.08)	-0.31 (0.16)	-0.37* (0.16)
Widowed	-0.23* (0.10)	-0.26** (0.10)	-0.25* (0.11)	-0.27* (0.11)	0.03 (0.31)	-0.04 (0.31)
Age25-34	0.12 (0.06)	0.14* (0.06)	0.07 (0.07)	0.09 (0.07)	0.25* (0.12)	0.27* (0.12)
Age45-54	0.05 (0.06)	0.07 (0.06)	0.09 (0.07)	0.11 (0.07)	-0.07 (0.12)	-0.06 (0.12)
Age55-64	0.57*** (0.07)	0.58*** (0.07)	0.57*** (0.08)	0.58*** (0.08)	0.57*** (0.15)	0.57*** (0.15)
Age65-74	1.00*** (0.09)	1.01*** (0.09)	1.03*** (0.10)	1.03*** (0.10)	0.79*** (0.23)	0.75** (0.23)
Age75+	1.42*** (0.11)	1.39*** (0.11)	1.41*** (0.12)	1.37*** (0.12)	1.52*** (0.32)	1.49*** (0.32)
\$ 1 st quartile	-0.23*** (0.07)		-0.21** (0.07)		-0.40* (0.20)	
\$2 nd quartile	-0.15** (0.06)		-0.14* (0.06)		-0.19 (0.13)	
\$ 4 th quartile	0.05 (0.06)		0.05 (0.07)		0.01 (0.10)	
Personal \$1 st q		0.05 (0.07)		0.10 (0.08)		-0.38* (0.17)
Personal \$2 th q		-0.06 (0.06)		-0.04 (0.06)		-0.10 (0.14)
Personal \$4 th q		0.09 (0.06)		0.08 (0.07)		0.10 (0.10)
N	8169.00	8169.00	6256.00	6256.00	1913.00	1913.00

Source: Author's calculations using HILDA 2009

Note: *p<0.05, **p<0.01, ***p<0.001. Model (1) uses income quartiles derived from household income (equivalised household income as square root of total household income (positive – negative) divided by the number of persons in household) and Model (2) uses income quartiles derived from own (personal) income.

case, model (1) used household equivalised income and model (2) used personal income. Notably, household and personal income impact SWB to a different extent.

The first (less predictable) finding is that only household income significantly affects overall satisfaction with life. Overall, the results confirm that there are increased returns in life satisfaction from extra income when individuals move from the first to the second and to the third income quartile (Table 7.3.a.1). However, moving into the top 25 per cent (fourth income quartile) does not increase SWB any further. Such positive but diminishing returns from income have also been found in other studies (e.g. Clark, Frijters, and Shields, 2007).

These results confirm the findings in the literature exploring the capacity of finances to increase subjective well-being (Easterlin, 1974; Clark et al., 2005) in more than one way. Firstly, it can be concluded that money does ‘buy a better life’ but only in a limited fashion, hence supporting the diminishing returns of income to subjective well-being. Secondly, it is not one’s own, personal income but household income that affects satisfaction with life.

The comparative analysis of the impact of personal and household equivalised income on the subjective well-being of the tertiary-educated and the non-tertiary-educated in Australia reveals that income has less of an impact on the SWB of the TE (see Table 7.3.c.1) than in the case of either the overall population or the NTE (see Table 7.3.a.1, b.1). TE individuals are only less satisfied with life if they fall within the bottom 25 per cent of household income. It would seem that, for the TE, money only ‘buys happiness’ to the extent that it keeps one within ‘decent’ standards, or in Adam Smith’s words – to the point of being ‘able to go out in public without shame’ (Smith, *The Wealth of Nations*). It is interesting that a similar impact of income on overall satisfaction of the TE is obtained when personal (not household) income is controlled for. Moving from the first to the second personal-income quartile increases the SWB of the TE, but moving from second to third and to fourth quartiles of income (household equivalised or personal) does not change the SWB of the TE.

Overall it can be concluded that, with some qualification, money does ‘buy happiness’ (or satisfaction). Furthermore, for the non-tertiary-educated, it is the household money, not own (personal) income. The tertiary-educated have a different perception of finances. Being in the bottom income quartile has a stronger negative impact on the SWB of the TE than on that of the NTE. But the SWB of the TE does not change with further income growth.

7.2.9 Age

Consistent with the literature, this analysis has identified a U-shaped relationship between age and SWB. However, the significance of age is dependent on which controls are inserted into the analysis (See Table 7.3.a.1 compared to Table 7.3.a.2).

The complexity of SWB by age has been conceptualised in disciplines like psychology, sociology, medicine or gerontology. This thesis is built on concepts of heterogeneity and the importance of perceptions, and age is a central factor affecting these aspects (Plagnol, 2010). For these reasons, rather than exploring the impact of age on subjective well-being in the multivariate model, the mean levels of overall satisfaction are compared (see Table 7.4).

SWB (overall satisfaction) by age has been mapped using age brackets of 10 years: individuals age 25-34 years, 35-44 years, 45-55 years, 55-64 years, 65-74 years and 75 years and older. SWB takes different values across these age groups as summarised in the last column in Table 7.4, and within each age group it also varies by educational achievement. The TE aged 25-34 and 35-44 have higher levels of life-satisfaction than the NTE in these age groups. This gap in SWB between the TE and NTE reduces in the next age group (45-55 years), as the SWB of the TE decreases and that of NTE increases.

It is interesting, however, that the SWB of both the TE and the NTE increases between the age of 55 and 64 years. Within this age group there are no differences in SWB between the two sub-populations.

The levels of SWB further increase in the next age bracket (65-74 years), and at this point the NTE become more satisfied with their lives than the TE. This comparison of the mean *levels of SWB*⁶⁵ of the tertiary-educated and the non-tertiary-educated across the six age groups is indicative of the heterogeneous nature of SWB first of all by education, and then by age. For these reasons, the change in ‘what makes the good life’ is further explored in Chapter 8 in a life-course approach.

⁶⁵ It is important to acknowledge that heterogeneity may be discussed in terms of similar levels of well-being, or similar perceptions of well-being. This difference was also addressed in Chapter 6 where the heterogeneity that follows from different mean levels of SWB was discussed, and the present chapter where the factors that affect SWB are explored.

Table 7.4 Mean satisfaction with life by education level and age group

Age	TE	NTE	Total
25-34	78.7	77.2	77.7
35-44	78.2	76.0	76.6
45-54	77.0	76.3	76.5
55-64	79.7	79.6	79.6
65-74	81.2	81.9	81.8
75+	81.5	83.1	83.0

Source: Author's calculations using HILDA, 2009.

Table 7.5 Distribution of the sample by age group

Age	Distribution of the sample by age group (n=10,675)	...of which TE	Distribution of the TE sample by age group (n=2,804)
25-34	19.6%	33.2%	24.8%
35-44	21.7%	28.5%	23.5%
45-54	22.2%	27.1%	22.9%
55-64	16.8%	22.0%	14.1%
65-74	11.0%	15.2%	6.3%
75+	8.7%	8.1%	2.7%

Source: Author's calculations using HILDA, 2009.

7.4 Findings, 2001

Model 7.1 introduced in Section 7.2 (ordered logit model) explored the impact of socio-economic and demographic variables on overall satisfaction and satisfaction with domains of life using data from HILDA 2009. While the main interest is in current, most recent data, the comparison with 2001 is necessary to understand whether the factors that currently affect the levels of SWB have been present throughout the past decade, or have only just recently emerged. How the impact of socio-economic and demographic factors on SWB has changed between 2001 and 2009 is presented in Table 7.5, and significant findings are discussed in the remainder of this section. The impact of these factors on satisfaction with domains of life in 2001 is reported in Appendix B.

Table 7.6 Socio-economic and demographic variates of SWB, 2001 and 2009

	TE		NTE		All	
	2001	2009	2001	2009	2001	2009
Tertiary educated					-0.22*** (0.05)	0.02 -0.05
Female	0.20* (0.09)	0.18* -0.09	0.16*** (0.05)	0.12* -0.05	0.17*** (0.04)	0.13** -0.04
CALD	-0.13 (0.26)	-0.04 -0.28	0.18 (0.16)	-0.12 -0.16	0.11 (0.14)	-0.11 -0.14
ATSI	-0.06 (0.54)	0.01 -0.42	0.24 (0.15)	0.39** -0.14	0.24 (0.14)	0.35* -0.14
Ill health	-0.49*** (0.14)	-0.72*** -0.13	-0.60*** (0.05)	-0.65*** -0.06	-0.60*** (0.05)	-0.66*** -0.05
Unemployed	-0.85* (0.38)	-0.32 -0.35	-0.46*** (0.13)	-0.42** -0.16	-0.52*** (0.12)	-0.41** -0.15
NILF	0.26 (0.16)	0.09 -0.15	0.18** (0.06)	0.04 -0.07	0.19*** (0.06)	0.05 -0.06
Other urban	0.26* (0.13)	0.07 -0.11	0.28*** (0.05)	0.14* -0.05	0.28*** (0.05)	0.12* -0.05
Rural	0.35* (0.14)	0.34** -0.13	0.29*** (0.06)	0.18** -0.06	0.31*** (0.05)	0.20*** -0.06
Single	-0.67*** (0.13)	-1.18*** -0.13	-0.67*** (0.07)	-0.59*** -0.07	-0.66*** (0.06)	-0.73*** -0.06
Separated	-1.11*** (0.28)	-1.16*** -0.23	-1.19*** (0.12)	-0.83*** -0.12	-1.18*** (0.11)	-0.91*** -0.11
Divorced	-0.59* (0.23)	-0.31 -0.16	-0.91*** (0.09)	-0.44*** -0.08	-0.88*** (0.08)	-0.43*** -0.07
Widowed	-0.35 (0.36)	0.03 -0.31	-0.40*** (0.10)	-0.25* -0.11	-0.41*** (0.10)	-0.23* -0.1
25-34years	0.18 (0.12)	0.25* -0.12	0.06 (0.06)	0.07 -0.07	0.08 (0.05)	0.12 -0.06
45-54years	0.18 (0.13)	-0.07 -0.12	0.28*** (0.07)	0.09 -0.07	0.25*** (0.06)	0.05 -0.06
55-64years	1.09*** (0.18)	0.57*** -0.15	0.67*** (0.08)	0.57*** -0.08	0.73*** (0.07)	0.57*** -0.07
65-74years	1.50*** (0.25)	0.79*** -0.23	1.17*** (0.09)	1.03*** -0.1	1.23*** (0.09)	1.00*** -0.09
75years+	1.79*** (0.43)	1.52*** -0.32	1.34*** (0.11)	1.41*** -0.12	1.41*** (0.11)	1.42*** -0.11
Income quartile 1	-0.71*** (0.21)	-0.40* -0.2	-0.16* (0.07)	-0.21** -0.07	-0.21** (0.06)	-0.23*** -0.07
Income quartile 2	-0.30 (0.15)	-0.19 -0.13	-0.03 (0.06)	-0.14* -0.06	-0.06 (0.06)	-0.15** -0.06
Income quartile 4	0.05 (0.11)	0.01 -0.1	0.15* (0.06)	0.05 -0.07	0.14* (0.05)	0.05 -0.06
N	1545.00	1913	6967.00	6256	8512.00	8169

Source: Author's calculations using HILDA 2001 and HILDA 2009. Ordered logit models. Reference person is male, non-CALD, non-ATSI, in good health, employed, living in large metropolitan area, and married, aged 35 – 44 and in the third income quartile (household equivalised income is used in this analysis).

Women have higher levels of subjective well-being than men, regardless of their levels of education. However the gender gap reduced between 2001 and 2009 for both the tertiary-educated and the non-tertiary-educated. In the case of the ATSI population, only in 2009 are they more satisfied with life than the non-ATSI, and these results are driven by the

non-tertiary-educated. In the case of those with a long-term disease or disability, its negative impact on the level of overall satisfaction with life is present both in 2001 and in 2009. Furthermore, while being in ill-health decreased the SWB of the tertiary-educated by 0.49 points in 2001, by 2009 the impact had nearly doubled, resulting in a reduction of their subjective well-being by 0.72 points. The negative impact of ill-health on subjective well-being also increased for the non-tertiary-educated, although the change is marginal.

The lack of impact of being unemployed on the SWB of the TE identified in the section above has only happened recently (2009). In 2001 being unemployed reduced the SWB of the tertiary-educated by 0.85 points. The (negative) impact of being unemployed on the subjective well-being of the non-tertiary-educated has remained nearly constant, with only a minor change between 2001 and 2009 of 0.02 points. Not being in the labour force did not have a statistically significant impact on the SWB of the TE in 2001 or in 2009.

Living in areas other than metropolitan (either other urban or rural) in 2001 increased the SWB of all individuals, regardless of their level of education. However, by 2009, living in an urban area other than metropolitan only increased the overall satisfaction of the NTE. Individuals living in rural areas in 2009 still had higher levels of satisfaction than those living in metropolitan areas, although the positive impact had decreased since 2001.

Marital status has affected the overall satisfaction of the tertiary-educated and that of the non-tertiary-educated in various ways across the years. Firstly, the negative impact of being single on SWB has doubled for the TE between 2001 and 2009 (from a reduction of 0.67 in 2001 to 1.18 points in 2009), while this negative impact slightly reduced for the non-tertiary-educated (from a reduction of 0.67 in 2001 to 0.59 points in 2009). For the NTE, the negative impact on SWB of being separated has reduced, from 1.19 in 2001 to 0.83 points in 2009. Divorced TE individuals were expecting a reduction in overall satisfaction of about 0.59 points in 2001, however, divorce is no longer an item affecting their overall satisfaction in 2009. On the other hand, the overall satisfaction of the non-tertiary-educated has been and still is negatively affected by divorce (although the negative impact has reduced, from 0.91 in 2001 to 0.44 points in 2009). Being widowed only affects the SWB of the NTE, and the negative effect has recently diminished (from 0.40 points in 2001 to 0.25 points in 2009).

In both 2001 and 2009, income had a significant negative impact on the SWB of the TE only for individuals in the bottom income quartile, has although it reduced between 2001 and 2009, from 0.71 to 0.40 points. For the NTE, on the other hand, the impact of income on

SWB has increased, non-tertiary-educated being 0.21 points less satisfied with life if in the first income quartile and 0.14 points less satisfied if in the second income quartile (the latter figure has changed from 0.03 in 2001). In 2001 they were also more satisfied with life if in the fourth income quartile, although by 2009 this statistic had lost significance.

Finally, the impact of age on the SWB of the TE and the NTE has also changed between 2001 and 2009. The U-shaped relationship between age and SWB discussed in the literature (Frey and Stutzer, 2002; Blanchflower and Oswald, 2004; Headey and Warren, 2008) is only partly visible from the analysis conducted in this chapter (see Table 7.6). The U-shape is nearly complete for the tertiary-educated in 2009, the younger and older being more satisfied with their lives (except for the 45-54-year-olds, whose levels of satisfaction are not significantly different from those of young or older individuals). A similar relationship was found for the NTE in 2001. Overall, it can be concluded that the impact of age on SWB has reduced between 2001 and 2009. As discussed in Section 7.2, age is an especially sensitive factor interacting with the conceptualisation of subjective well-being (Plagnol, 2010), and for this reason the next chapter explores SWB by employing a life-course approach.

It can be concluded that between 2001 and 2009 the impact of socio-economic and demographic factors on overall satisfaction with life has changed in intensity and statistical significance. These findings strengthen the argument of the thesis, that SWB is heterogeneous by educational achievement.

7.5 Conclusion

This chapter explored whether factors like gender, employment status, health or age impact on subjective well-being in the same way for both the tertiary-educated and the non-tertiary-educated. Hypothesis 2-b of the thesis was tested and confirmed: *Factors that impact subjective well-being are different for the tertiary-educated and the non-tertiary-educated.*

The findings in this chapter further support the analysis of the thesis that has been structured to separately assess the subjective well-being of the tertiary-educated and that of the non-tertiary-educated. When exploring SWB, a large body of literature discusses the crucial role of age, some studies arguing different perceptions of well-being by stage of the life-course (Plagnol, 2010). To control for age biases in the conceptualisation of SWB, the

next chapter adds another layer to the analysis by exploring the relationship between subjective well-being and tertiary education in a life-course approach.

Chapter 8 The life-course approach to subjective well-being

8.1 Introduction

The heterogeneity of subjective well-being by higher educational achievement has been tested in this thesis to explain the negative relationship between subjective well-being and higher education. Employing the life-domain approach, Chapter 6 verified that the levels of satisfaction with key aspects of life impact on the overall satisfaction of tertiary-educated and non-tertiary-educated individuals to different extents. Chapter 7 also concluded that the impact of socio-economic and demographic factors on subjective well-being is different in intensity and statistical significance for the tertiary-educated and the non-tertiary-educated.

Drawing on the life-course theory of Elder(1974), Plagnol (2010) underlines the necessity of accounting for changes in conceptualisation and evaluation of well-being throughout stages of the life-course:

It is important to take a life course perspective when examining people's subjective well-being since changes in the conceptualisation and evaluation of well-being may be linked to life course transitions and events.

(Plagnol, 2010:752)

A strong age effect on subjective well-being is identified in the literature (Blanchflower and Oswald 2004, 2008; Gong et al., 2011). Hyde et al (2003) investigate the impact of education on quality of life throughout stages of the life-course, and find that especially for individuals older than 65 years education has a strong positive impact in six out of the ten European countries for which data was analysed. Australia, however, has not been included in this study. This chapter addresses this gap.

Complementing the findings of the previous chapters, another level of analysis to the exploration of the relationship between subjective well-being and higher educational achievement is added in this chapter, by investigating the differences in subjective well-being by stages of the life course. The subjective well-being of the adult population is explored using data from the HILDA 2009 survey. As theorised by Elder (1974), five age brackets are considered: early adulthood (25-44 year olds), middle adulthood (45-64 year olds), late adulthood (65-74 year olds), and very late adulthood (individuals older than 75 years).

The remainder of the chapter is structured into four sections. Section 8.2 explains the importance of the life-course approach to the assessment of subjective well-being. The single-item measure and the multiple-item measure of SWB were discussed in Chapter 5. Section 8.3 explores the differences between these two measures of SWB across the stages of the life-course. In this section the differences in the mean values of satisfaction are calculated. Different mean levels of satisfaction by stage of the life-course would be a first indication that subjective well-being is heterogeneous by age. In Section 8.4 correlation and regression analyses explore the relationship between satisfaction with domains of life and SWB. The purpose in this chapter is to assess the heterogeneity of, or ‘what counts’ for, the subjective well-being of the tertiary-educated and the non-tertiary-educated at each stage of the life-course. The SWB of young people aged 18 to 24 is separately evaluated using youth-specific data from the Longitudinal Survey of Australian Youth (LSAY) in Chapter 9.

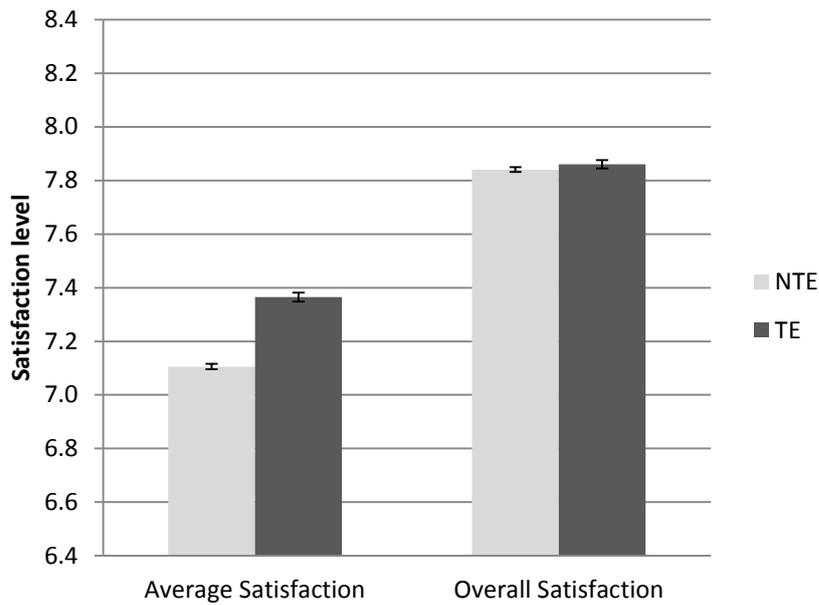
8.2 Overall Satisfaction and Average Satisfaction in adult life

8.2.1 Overview of the measures

Fig.8.1 shows the difference between the overall satisfaction and average satisfaction by higher educational achievement. When subjective well-being is assessed through the single-item indicator (overall satisfaction), the differences between the tertiary-educated and non-tertiary-educated Australians in 2009 are hardly noticeable (7.78 for the non-tertiary-educated and 7.82 for the tertiary-educated, when measured on a scale from 0 to 10), and statistically not significant (this relationship has been discussed in Chapter 5, see Table 5.1 in Section 5.2.1). However, when subjective well-being is assessed through the multiple-item indicator (average satisfaction, calculated as the average satisfaction with eight domains of life, discussed in Chapter 5, Section 5.3.1) the gap between the tertiary-educated and non-tertiary-educated is larger and statistically significant.⁶⁶Using this latter measure of subjective well-being, it can be concluded that the tertiary-educated are more satisfied with their lives than the non-tertiary-educated (Fig. 8.1, left side).

⁶⁶ See Fig.8.1 below. The left-hand side bars illustrate the average satisfaction of the non-tertiary educated and the tertiary educated respectively and the respective error bars indicate that the difference in the mean levels of the two groups are statistically significant (the error bars do not overlap). The statistical significance has also been tested through an unpaired sample t-test (see Table 5.3 in Chapter5, Section 5.3.1).

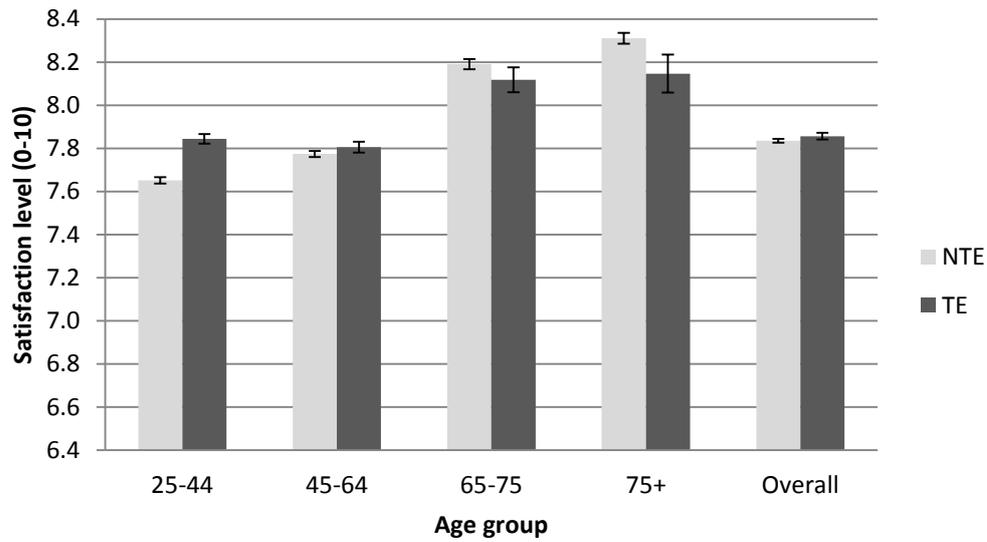
Fig. 8.1 Average satisfaction and overall satisfaction by higher educational achievement level, 2009



Source: Author's calculations using HILDA (2009), refreshed sample (n=10,657)

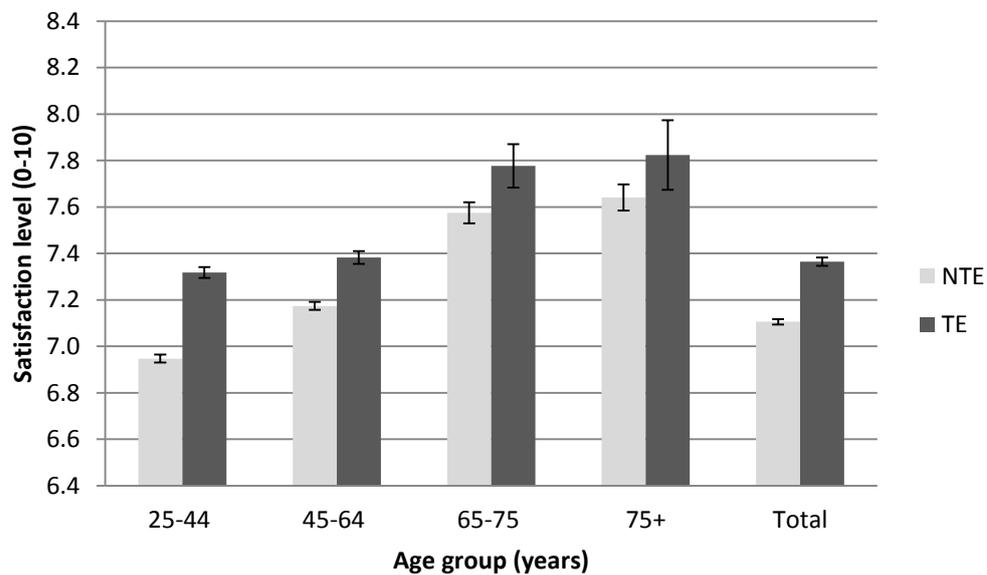
A disaggregation of subjective well-being measured as both overall satisfaction and average satisfaction by relevant stages of the life course (as theorised by Elder, 1974) reveals significant differences between the tertiary-educated and the non-tertiary-educated throughout the life course. Fig.8.2 graphs the overall satisfaction and Fig. 8.3 the average satisfaction of the two sub-populations during early adulthood, middle adulthood, late adulthood, and very late adulthood. The discussion of these figures follows.

Fig. 8.2 Overall satisfaction (OS) with life by stage of the life course



Source: Author's calculations using HILDA (2009), refreshed sample (n=10,657)

Fig. 8.3 Average satisfaction (AS) with life by stage of the life course



Source: Author's calculations using HILDA (2009), refreshed sample (n=10,657, missing=18)

Two levels of comparison are discussed: within-group and between-group changes in SWB across the life-course. Both overall satisfaction and average satisfaction are considered.

The within-group comparison discusses the variations in the levels of satisfaction across stages of the life-course for the tertiary-educated and the non-tertiary separately. The purpose is to explore how the satisfaction of individuals from the same group changes across the stages of life. The between-group comparison explores how the SWB levels of the tertiary-educated and those of the non-tertiary-educated compare to each other at each stage of the life-course. The purpose of the between-group comparison is to understand whether at some stages of life, differences by higher educational achievement are more obvious than at others.

8.2.2 Findings

The differences in overall satisfaction are first discussed. When the mean levels of overall satisfaction for the entire sample (no account of age) are compared (Fig.8.2, 'overall' bars), there are no significant differences between the TE and the NTE. However, when the levels of overall satisfaction of the two groups are compared at each stage of the life-course some differences become visible. For example, during early adulthood the TE have significantly higher levels of overall satisfaction than the NTE. Consistent with the literature (e.g. Hyde et al, 2003), this between-group balance changes with age, but in this context, by the age of 75 years the NTE are more satisfied with life overall than the TE. At the within-group level, the overall satisfaction of the NTE gradually and significantly increases throughout the stages of the life-course. A clustering of early and middle adulthood individuals on the one hand and late and very late adulthood individuals on the other is, however, visible. This trend exists, and is also more prominent, for the tertiary-educated. The TE individuals in early and middle adulthood have similar levels of overall satisfaction (around the value of 7.8), and those in late and very late adulthood experience overall satisfaction levels of about 8.1. It can be concluded that the relationship between the SWB of the TE and that of the NTE changes throughout the stages of life, giving a first confirmation of an age effect.

The average satisfaction of the TE, although changing in the same direction and almost at the same pace as that of the NTE, is constantly higher. The largest gap between groups is recorded during early adulthood. Although the gap narrows during middle adulthood, it does not diminish any longer throughout later stages of the life-course. The overall gap in average satisfaction between TE and NTE further widens when the age factor is considered. Similar to overall satisfaction, average satisfaction also increases from the earlier to the later stages of life.

Studies such as Pearlin and Skaff (1996) argue that the shift in stressors in life and changes in perceptions are causes of higher SWB during late and very late adulthood. Such change in stressors, however, do not seem to affect the SWB of the tertiary-educated and the non-tertiary-educated to similar extents. In the next section SWB is explored in a life-domain approach, investigating how satisfaction with domains of life contributes to SWB.

8.3 The heterogeneity of SWB by age

8.3.1 Correlation analysis

In Chapter 6 the levels of correlation between satisfaction with key aspects of life and overall satisfaction⁶⁷ have been compared for the tertiary-educated and non-tertiary-educated. It was concluded that the two sub-populations have heterogeneous perceptions of well-being, and these results are reproduced in the last two columns in Table 8.1, in the ‘All’ column. The exercise is repeated in this chapter to test whether this heterogeneity is equally visible at all stages of the life-course. Table 8.1 summarises the findings.

Table 8.1 Correlations between satisfaction with key aspects of life and overall satisfaction by age group and higher educational achievement, 2009

Satisfaction with...	Early adulthood 25-44 years		Middle adulthood 45-64 years		Late adulthood 65-74 years		Very late adulthood 75 years +		All	
	TE	NTE	TE	NTE	TE	NTE	TE	NTE	TE	NTE
	Finances	.479**	.481**	.538**	.474**	.484**	.371**	.465**	.328**	.503**
EmpOpp	.423**	.412**	.480**	.396**	.354**	.194**	0.36	0.039	.438**	.35**
FreeTime	.276**	.308**	.386**	.349**	.419**	.347**	.262*	.270**	.329**	.353**
Health	.522**	.507**	.553**	.509**	.451**	.350**	.672**	.422**	.531**	.497**
Safety	.482**	.477**	.483**	.452**	.378**	.411**	.328**	.386**	.468**	.451**
Home	.370**	.415**	.454**	.422**	.512**	.536**	.541**	.474**	.42**	.427**
N’hood	.399**	.398**	.468**	.442**	.495**	.418**	.326**	.403**	.424**	.413**
LocCom	.411**	.388**	.452**	.432**	.282**	.408**	.508**	.339**	.43**	.429**

Source: Author’s calculations using HILDA, 2009

Note: Pearson’s correlations. *** <.001 ** <.01 * <.05

The level of heterogeneity identified between the two groups in Chapter 6, Section 6.2 further increases when explored by the four stages of the life-course. The SWB of the TE correlates less with their financial satisfaction during emerging adulthood, but from that stage onward financial satisfaction correlates to SWB more strongly for this group than for the NTE.

⁶⁷ In Chapter 6 it was also explained why the overall satisfaction, and not the average satisfaction was used. See Section 6.2.

The level of satisfaction with employment opportunities correlates more strongly with the SWB of the TE than the SWB of the NTE. This gap between groups further increases during middle and late adulthood. Not surprisingly, this correlation between satisfaction with employment opportunities and SWB is not statistically significant for individuals older than 75. Satisfaction with one's health correlates more strongly with the SWB of the TE, and although it increases from early to middle adulthood, it decreases during late adulthood to pick up again in very late adulthood. The TE give less importance to satisfaction with their homes during early adulthood than the NTE, but satisfaction with this aspect of life correlates more strongly with the overall satisfaction of the TE during middle adulthood. In late and very late adulthood the importance of satisfaction with safety to SWB decreases for both the TE and the NTE, a somewhat surprising finding as old age is often characterised by feelings of insecurity (Santrock, 2007).

These correlations are indicative of the various aspects of life that count towards SWB, and of the differences that occur between the TE and the NTE across the four stages of life explored. The magnitude of the impact of satisfaction with each key aspect of life on SWB is explored in the next section through regression analysis.

8.3.2 *Regression analysis*

The impact of satisfaction with aspects of life on overall satisfaction has been explored through a semi-logarithmic model in Chapter 6, Section 6.3.1, and the model is re-tested in this chapter:

$$SWB = \alpha_0 + \sum_{i=1}^8 \alpha_i \ln(LD) + \epsilon \quad (8.1),$$

where SWB is overall satisfaction with life, ranked on a scale from 0 to 10, with 0 being least satisfied and 10 most satisfied. LD is the satisfaction level with the respective domain of life, ranked on a scale from 0 to 100, and $\ln(LD)$ is its natural logarithm. The preference for a semi-logarithmic specification has been discussed in Chapter 6 when this model is first used. α_i are the regression coefficients and their interpretation is that if satisfaction with a domain of life increases by 1 point, the overall satisfaction (SWB) increases by the beta coefficient divided by 100. α_0 is the constant term and ϵ the error term accounting for unmeasurable variables that may impact on the dependent variable (SWB) otherwise. Table 8.2 summarises the results of the analysis and results are discussed in the remainder of this section. The r-squares suggest that factors included in the regression explain 46 percent of the variation in

subjective well-being during early adulthood, 47 percent during middle adulthood, and 35 and 37 per cent respectively during late adulthood and very late adulthood. This is a first indication that perceptions of well-being change throughout the life-course.

Table 8.2 Impact of satisfaction with key aspects of life on overall satisfaction by age and by higher educational achievement

	EA	MA	LA	VLA	LVLA	TE	NTE
EmpOpp	0.32*** (0.05)	0.28*** (0.05)	0.02 (0.10)	0.08 (0.14)	0.04 (0.08)	0.39*** (0.06)	0.24*** (0.04)
Finances	0.50*** (0.04)	0.39*** (0.05)	0.63*** (0.17)	0.57* (0.29)	0.61*** (0.15)	0.59*** (0.06)	0.46*** (0.04)
FreeTime	0.36*** (0.03)	0.58*** (0.04)	0.84*** (0.15)	0.45 (0.30)	0.73*** (0.14)	0.34*** (0.04)	0.51*** (0.03)
Health	1.06*** (0.06)	1.00*** (0.06)	0.85*** (0.19)	0.87** (0.27)	0.87*** (0.15)	1.07*** (0.07)	1.01*** (0.05)
Safety	1.09*** (0.08)	0.83*** (0.09)	0.31 (0.26)	0.97* (0.41)	0.53* (0.22)	0.97*** (0.12)	0.94*** (0.07)
Home	0.54*** (0.05)	1.01*** (0.08)	0.73** (0.25)	1.79*** (0.39)	1.11*** (0.21)	0.60*** (0.07)	0.75*** (0.05)
N'hood	0.22** (0.07)	0.30*** (0.09)	0.66* (0.29)	0.78 (0.43)	0.67** (0.24)	0.40*** (0.10)	0.25*** (0.06)
LocCom	0.34*** (0.05)	0.39*** (0.05)	0.36* (0.18)	0.27 (0.29)	0.32* (0.15)	0.41*** (0.06)	0.36*** (0.04)
_cons	-11.04*** (0.36)	-12.50*** (0.42)	-10.69*** (1.48)	-16.88*** (2.49)	-12.90*** (1.28)	-12.63*** (0.51)	-11.31*** (0.31)
N	3993.00	3351.00	367.00	190.00	557.00	2312.00	5589.00
r ² a	0.46	0.47	0.35	0.37	0.36	0.49	0.45

Note: * p<0.05 ** p<0.01 *** p<0.001"

Source: Author's calculations using HILDA, 2009. Due to low sample sizes the models is also ran for the merged sample of individuals in late and very late adulthood (age 65 years and older)

Note: EA: early adulthood. MA: middle adulthood. LA: late adulthood. VLA: very late adulthood. LVLA: late and very late adulthood, this group was created to obtain a larger sample of individuals age 65 years and older.

The impact of satisfaction with key aspects of life on SWB is not constant throughout the life-course. Employment opportunities have a greater impact on subjective well-being during early adulthood. Financial satisfaction is a high-impact variable at all stages of life, indicating that although money may not 'buy happiness', it is an important component of life-satisfaction. The stronger impact at later stages of the life-course can be indicative of a general lack of financial satisfaction at those respective stages of life, and hence an increase in satisfaction with finances makes a useful addition to overall life-satisfaction.

Health is by far the most important aspect of life, contributing the most to overall satisfaction with life at all stages of the life-course. The impact of satisfaction with health reduces, however, during late adulthood and very late adulthood. Plagnol (2010) explains coping and mastery as means of adaptation to the shift in stressors throughout the life-course. The reduction in the importance given to satisfaction with health is a first confirmation of

such shift in priorities. As health worsens with age, satisfaction with health becomes less of a priority than overall satisfaction, and satisfaction with aspects of life such as free time, home or neighbourhood become more important (i.e. the impact of satisfaction of these aspects on overall satisfaction is higher).

Chapter 6 found that the TE and the NTE give different weights to aspects of their life when assessing their SWB. The analysis in this section has revealed that individuals also have different concepts of well-being throughout stages of their life-course. To conclude, the ‘two-layer’ heterogeneity of SWB by age and by higher educational achievement is explored. This investigation is conducted by using model 8.1 for ten sub-populations: the TE and the NTE at each of the four stages of the life-course. In addition, because the sample of individuals during very late adulthood with tertiary qualifications is very small, another sample is created for the analysis: individuals aged 65 and over (during late and very late adulthood). Results of these regressions are reported in Table 8.3.

Table 8.3 The impact of satisfaction with key aspects of life on overall satisfaction by age, by higher educational achievement

	EA-TE	EA-NTE	MA-TE	MA-NTE	LA-TE	LA-NTE	VLA-TE	VLA-NTE	LVLA-TE	LVLA-NTE
EmpOp										
p	0.46*** (0.09)	0.31*** (0.06)	0.47*** (0.09)	0.23*** (0.05)	-0.53 (0.30)	0.09 (0.10)	-0.47 (0.49)	0.09 (0.14)	-0.34 (0.26)	0.09 (0.08)
Finance										
s	0.54*** (0.08)	0.51*** (0.05)	0.58*** (0.09)	0.34*** (0.06)	1.13** (0.34)	0.51** (0.20)	1.54 (0.95)	0.47 (0.30)	1.18*** (0.33)	0.49** (0.16)
FreeTi										
me	0.22*** (0.05)	0.41*** (0.04)	0.56*** (0.06)	0.58*** (0.05)	0.56 (0.43)	0.90*** (0.17)	0.21 (0.69)	0.54 (0.33)	0.27 (0.37)	0.81*** (0.15)
Health	1.11*** (0.09)	1.04*** (0.07)	0.90*** (0.10)	1.03*** (0.07)	1.20* (0.48)	0.82*** (0.20)	2.90** (0.96)	0.73** (0.27)	1.66*** (0.45)	0.79*** (0.16)
Safety	1.15*** (0.16)	1.08*** (0.10)	0.75*** (0.18)	0.87*** (0.10)	1.36 (0.74)	0.20 (0.28)	-1.50 (2.34)	1.02* (0.42)	0.90 (0.73)	0.50* (0.23)
Home	0.42*** (0.08)	0.57*** (0.06)	1.06*** (0.13)	0.99*** (0.09)	0.24 (0.54)	0.93** (0.28)	4.96** (1.61)	1.59*** (0.41)	0.79 (0.55)	1.19*** (0.23)
N'hood	0.36** (0.14)	0.19* (0.08)	0.30 (0.15)	0.28** (0.10)	0.80 (0.75)	0.64* (0.31)	1.29 (1.13)	0.63 (0.46)	1.16 (0.62)	0.61* (0.25)
LocCo										
m	0.49*** (0.08)	0.30*** (0.05)	0.35*** (0.09)	0.41*** (0.06)	0.23 (0.37)	0.38 (0.20)	0.25 (1.17)	0.28 (0.30)	0.36 (0.37)	0.32* (0.16)
	-	-	-	-	-	-	-	-	-	-
_cons	12.49** (0.70)	10.93** (0.43)	13.41** (0.81)	12.30** (0.50)	13.53** (3.34)	10.99** (1.66)	31.61* (9.20)	15.02** (2.60)	17.78** (3.36)	-12.52*** (1.40)
N	1283.00	2710.00	935.00	2416.00	69.00	298.00	25.00	165.00	94.00	463.00
r2_a	0.46	0.46	0.54	0.45	0.44	0.35	0.67	0.34	0.45	0.35

Note: * p<0.05 ** p<0.01 *** p<0.001"

Source: Author's calculations using HILDA, 2009

The impact of satisfaction with domains of life on the SWB of the TE and the NTE is not constant throughout the stages of the life-course. Some of these variations are noted below. For simplicity of explanation, if for example the impact of satisfaction with a domain of life is larger for the tertiary-educated than for the non-tertiary-educated, it is reported that the tertiary-educated ‘give more importance’ or ‘greater weight’ to their satisfaction with the respective domain of life when assessing overall well-being. Satisfaction with employment opportunities and financial satisfaction is more important for TE, and the gap between the TE and the NTE with respect to these domains of life is most visible during middle adulthood. The importance of satisfaction with free time increases for both the TE and the NTE, and the increase throughout the life-course is larger for the TE. Given the results are not from a longitudinal analysis, it can also be argued these are generational differences, that the younger tertiary-educated generation value their free time less than the middle-age tertiary-educated generation. This, however, cannot be tested given the existing data, representing a limitation of this analysis by age.⁶⁸ The small sample size of tertiary-educated older respondents (only 25 respondents aged 75 or older) is another limitation in this analysis. Fewer factors explain variations in SWB during late adulthood and very late adulthood, regardless of the level of education.

Despite the various limitations encountered, there are sufficient significant differences in ‘what counts’ for the SWB of the TE and that of the NTE, and by stage of the life course for this section to conclude that SWB is heterogeneous by higher educational achievement and stage of the life-course.

8.4 Conclusion

The purpose of this chapter was to explore differences that emerge between the tertiary-educated and the non-tertiary-educated in terms of subjective well-being across four stages of the life-course: early adulthood, middle adulthood, late adulthood, and very late adulthood.

The first section of the chapter explained the importance of the life-course approach to the assessment of subjective well-being and the second section concluded that there are significant differences between the single-item indicator and the multiple-item indicator of SWB across the stages of the life-course. The third section of the chapter confirmed the

⁶⁸ This limitation however falls under the same category as those discussed in Chapter 6 and 7, that significance tests cannot be conducted between groups of individuals precisely because of the conceptualisation employed in this thesis, that SWB is a measure that incorporates between-group conceptual biases.

heterogeneity of subjective well-being by stage of the life course through correlation and regression analysis. Only adults have been included in the analysis conducted in this chapter. The subjective well-being of young people (15-25 year olds) is addressed through youth-specific items in the next chapter, when tertiary education is also discussed in the light of the capabilities approach. The relevance of this separate analysis is discussed at that time.

Chapter 9 Capabilities approach to subjective well-being and education

9.1 Introduction

This is the final chapter of analysis and results. Chapters 5 to 8 concluded that accounting for differences in the conceptualisation of well-being provides an effective explanation of the subjective well-being and tertiary education paradox, and for the age and subjective well-being paradox. The tertiary-educated have higher levels of objective well-being (Veenhoven, 1999; Diener et al., 1999; von demKnesebeck et al., 2007) and the thesis also found that the tertiary educated had higher subjective well-being. These findings imply that continuing education to tertiary levels is beneficial for all aspects of life.

Nevertheless, access to tertiary education is not free and socio-economic and demographic factors often become ‘selection criteria’ for higher education participation (FaHCSIA, 2009). Understanding the benefits of education is not sufficient, and it is also important to assure equal access to education, and to its multiple advantages. For these reasons the analysis in this chapter is particularly important to the policy implications of the thesis.

Access to tertiary education in Australia is explored in this chapter in the light of the capabilities approach, discussed earlier in Chapter 2, Section 2.2.5. The first half of the chapter explores school retention and university attendance plans and outcomes of young Australians. Disadvantaged young people are identified and the reasons behind them leaving school are explored. The purpose is to identify the young people for whom education is not an easily accessible capability (as discussed by Sen, 2000, and Sen and Nussbaum, 2000) and make policy recommendations to facilitate access to education. The second half of the chapter is an investigation into the subjective of the well-being of young people and the short-term impact of tertiary educational achievement on subjective well-being. Data from the Longitudinal Survey of Australian Youth (LSAY) are explored for these purposes.

9.2 Education in the light of the capabilities approach

The overall objective for equity in higher education is to ensure that Australians from all groups in society have the opportunity to participate successfully in higher education. This will be achieved by changing the balance of the student population to reflect more closely the composition of society as whole.

(DEST, 1990: 2)

The attitudes of young people towards education, and their ability to finish school and continue to further education are explored. Data from the year 1995 (Y95) and year 2006 (Y06) cohorts of the LSAY survey are analysed. The first four years of longitudinal data for each cohort are explored. Although the most recent data (Y06 cohort data) is most relevant to the analysis, the comparison with Y95 cohort is important to understanding the recent changes in access to tertiary education. This comparison is significant in the context of education policy and discussed in Chapter 10. Three aspects are discussed. The first subsection presents the current school retention and university participation rates in Australia. The second subsection explores the demographics of the young people who are more likely to finish school and attend university. The final sub-section addresses ‘the other half’ of the sample, the young people who do not finish school and who do not attend university by exploring the reasons for leaving school and not attending university. Overall this section seeks to clarify who is more likely to participate in tertiary education, who is less likely to complete school, and why.

9.2.1 *School retention and university participation rates*

The *absolute participation rate* is the percentage of respondents who actually participate in education. Long, Carpenter and Hayden (1999) identify three methods to measure and compare the participation in education of two groups (such as for example male and female students). They use a hypothetical example of a cohort who participated in Year 12: 40 per cent of the whole cohort, with 35 per cent of males and 45 per cent of females (Long, Carpenter and Hayden, 1999:38). The absolute participation rate was 40 per cent overall, 35 per cent of males and 45 per cent of females. The first method to compare the participation of the two groups is through an absolute percentage difference: 10 per cent, the percentage points gap between the two groups. Alternatively there is a participation ratio of female to

male completion ($45/35=1.29$) indicating that females participate 1.29 times more than males, or females are 29 per cent more likely than males to be amongst those who complete Year 12. This per cent difference is also referred to as the relative percentage difference, in this case, between males and females. Finally, the odds ratio gives the likelihood of an individual of participating rather than not participating. The ratio of the odds of a female completing rather than not completing year 12 is $45/55=0.82$; the ratio of the odds for a male is $35/65=0.54$. The ratio of the two odds is called the *odds ratio* $0.82/0.54=1.52$ and indicates that a female is 1.52 times more likely to complete than a male is, or 52 per cent more likely to complete year 12 than a male. Marks et al. (2000:4) suggest that it is desirable to use all measures of participation to understand change, inequality and equity in school completion and higher education participation.

The characteristics of the Y06 and Y95⁶⁹ cohort members who completed Year 12 in 2009 and 1999 respectively are summarised in Table 9.1. The absolute rates of school completion on the one hand, and tertiary education participation on the other, are calculated by demographic characteristics. Results are similar to studies in the tertiary education literature. More non-indigenous students finish Year 12 (however, the difference is of only 9 percentage points⁷⁰), more female than male students graduate from school, and school retention rates are greater in metropolitan areas than in provincial and remote areas. As expected, more students who come from families where at least one parent went to university are finishing Year 12, and more students coming from families where parents have white-collar occupation (high or low skilled) finish school. University participation ratios are also strongly influenced by demographic characteristics of the student. While 33 per cent of non-indigenous students attended university in 2009, only 12.8 per cent of indigenous students went to university. More female than male students enrolled in tertiary education, and twice the rate of students from metropolitan than from provincial areas went to university. Results summarised in Table 9.1 suggest that in the past decade school retention and higher education participation rates have increased in a similar fashion for male and female students.

⁶⁹Marks et al (2000) analysed the characteristics of Y95 cohort members who enrolled in Year 12 in 1998 and in higher education in 1999 and compared the trend in time with results from Youth in Transition Survey. While the characteristics they used are slightly different from those analysed for the purpose of this thesis, their study offers a comprehensive picture for further comparison in time. For the purpose of this chapter and thesis however, only the Y06 – Y95 cohorts' comparison is targeted.

⁷⁰ This is the absolute percentage difference between non-indigenous and indigenous students.

Table 9.1 School retention and university attendance rate by demographic characteristics, Y06 cohort in 2009 and Y95 cohort in 1999 (%)

	Y06 Cohort in 2009		Y95 Cohort in 1999	
	Finish Year 12	Go to university	Finish Year 12	Go to university
<i>Gender</i>				
Male	78.9	27.7	69.2	25.8
Female	89.6	37.5	79.8	35.4
<i>Indigenous status</i>				
Indigenous	75.4	12.8	48.9	17.5
Non-Indigenous	84.3	33.0	75.7	31.4
<i>Area</i>				
Metropolitan	86.4	38.3	79.6	35.2
Provincial	78.6	18.5	70.4	26.9
Remote	77.2	20.1	66.4	23.2
<i>Culturally and linguistically diverse</i>				
English at home	83.2	30.6	73.5	29.3
Not English at home	93.1	52.0	85.8	44.5
<i>Father's education</i>				
Father went to University	94.3	50.4	88.8	55.0
Father didn't go to university	81.2	28.0	73.8	28.5
<i>Mother's education</i>				
Mother went to university	92.8	48.9	85.9	50.7
Mother didn't go to university	82.1	28.1	74.8	29.7
<i>Father's occupational SES</i>				
Father white collar high	90.4	41.8	89.3	55.8
Father white collar low	86.1	32.1	83.3	39.7
Father blue collar high	78.9	25.7	71.7	26.3
Father blue collars low	75.0	22.9	70.6	24.2
<i>Mother's occupational SES</i>				
Mother white collar high	89.5	39.7	89.4	55.8
Mother white collar low	82.1	30.3	83.7	40.1
Mother blue collar high	78.3	29.4	71.8	26.4
Mother blue collar low	73.1	16.1	70.3	24.0
TOTAL	75.7	32.5	74.6	30.7

Y06 cohort: N=7,299; Y95 cohort: N=8,783; attrition and sample weights used; Results are significant at $p < .005$ (Pearson's Chi-square).

Source: Author's calculations using Y95 and Y06 LSAY data.

Interestingly, while in 2009 about 75 per cent of indigenous background students finished Year 12, in 1999 this was the case for only 49 per cent, indicating a significant improvement in school retention and completion on the part of ATSI students. However, the percentage of ATSI students attending university has decreased in the past decade, underlining the necessity for further support and encouragement into higher education of this disadvantaged demographic of the Australian population. The non-ATSI university participation rate has increased by only 1.6 percentage points in the past decade, a slow growth when compared internationally (Bradley Review, 2008).

With respect to some demographics, such as geographic location, parental education and parental occupational and socio-economic background, school completion rates have increased similarly in the past decade. University participation rates, however, do vary by

demographic characteristics: more students from metropolitan areas and less from provincial or remote areas participate in higher education, and the increase in higher education participation is driven significantly by students who do not speak English at home. The latter finding is not surprising given the now longstanding policies to internationalise tertiary education (Marginson, Nyland, Dairand Forbes-Mewett, 2010).

To further investigate differences in school retention and higher education participation in 1999 and 2009, Table 9.2 and Table 9.3 summarise the percentage difference, the participation ratio (or relative percentage ratio) and the odds ratio by various demographic characteristics for Y95 cohort in 1999 and Y06 cohort in 2009 respectively.

Table 9.2 Participation measures, school retention and university participation, Y06 cohort, 2009

Demographic group	Finish Year 12			Go to university		
	Per cent difference	Participation ratio	Odds ratio	Per cent difference	Participation ratio	Odds ratio
Indigenous/ Non-Indigenous	-8.9	0.9	0.6	-20.2	0.4	0.2
Male/ Female	-10.7	0.9	0.4	-9.8	0.7	0.6
Metropolitan/ Provincial	7.8	1.0	1.7	19.8	2.1	3.0
Provincial/ Remote	1.4	1.0	1.1	-1.6	0.9	0.7
English / Not English at home	-9.9	0.9	0.4	-21.4	0.6	0.4
Father went/didn't go to University	13.1	1.2	3.8	22.4	1.8	2.5
Mother went/didn't go to university	10.7	1.1	2.8	20.8	1.7	2.5
Mother white collar/blue collar	6.7	1.1	1.5	12.3	1.5	1.7
Father white collar/blue collar	10.3	1.1	1.7	12.7	1.5	2.0

Source: Author's calculations using Y06 LSAY data.

Table 9.3 Participation measures, school retention and university participation, Y95 cohort, 1999

Demographic group	Finish Year 12			Go to university		
	Per cent difference	Participation ratio	Odds ratio	Per cent difference	Participation ratio	Odds ratio
Indigenous/ Non-Indigenous	-26.8	0.6	0.3	-13.9	0.6	0.5
Male/ Female	-10.6	0.9	0.6	-9.6	0.7	0.6
Metropolitan/ Provincial	9.2	1.1	1.6	8.3	1.3	1.5
Provincial/ Remote	-7.1	1.1	1.2	-6.1	1.2	1.2
English at home/ Not English at home	-12.3	0.9	0.5	-15.2	0.7	0.5
Father went/didn't go to University	15	1.2	2.8	26.5	1.9	3.1
Mother went/didn't go to university	11.1	1.1	2.1	21	1.7	2.4
Mother white collar/blue collar	14.6	1.2	2.4	20.5	1.8	2.5
Father white collar/blue collar	14.3	1.2	2.4	20.2	1.8	2.5

Source: Author's calculations using Y95 LSAY data.

The school completion rates and higher education enrolment by demographic characteristics have changed considerably in the ten years between the two cohorts. For example, between 1999 and 2009 the odds ratios of aboriginal students doubled. However, the

odds ratio of attending university has declined, indicating that although more indigenous students finish Year 12, fewer attend university. This finding identifies the necessity of better education policies to increase the tertiary education participation of this demographic.

In line with the trend identified by Marks et al (2000), who compared Y95 school retention and university enrolment to 1980-1990 data, the gap between students of different socio-economic backgrounds is narrowing in terms of university attendance. Parental education is a stronger impact variable on the likelihood of students finishing Year 12 both in 1999 and 2009. However, students in 2009 were 3.8 times more likely to finish Year 12 if their father went to university and 2.8 more likely if their mother went to university, while in 1999 these ratios were only 2.8 and 2.1 respectively. Students from metropolitan areas were three times as likely as students from remote areas to attend university in 2009, while in 1999 they were only 1.5 times as likely. Not much has changed for students in rural, remote and metropolitan areas with respect to Year 12 completion in the past decade. If their parents completed tertiary studies, or are working in a white-collar occupation, students are more than twice as likely to attend university. This finding indicates relatively high inequality in tertiary education participation; however, this is not the case only in Australia, as researchers from the Institute of Social and Economic Research have recently identified similar issues in the UK.⁷¹

Overall it can be concluded that the choices and opportunities of young people in 1999 and 2009 with respect to school completion and tertiary education participation have changed. The impact of demographic characteristics on school retention and university participation is further explored through regression analysis in the next section.

9.2.2 Likelihood of school retention and higher education enrolment

The Y06 cohort is analysed in a logistic regression to identify the young people who are more likely not to finish school at any point between 2006 and 2009 (model 9.1). Analysing panel data makes it possible to identify an unbiased effect, even in the presence of self-selection, controlling for endogeneity (that independent variables may be correlated with the error term). Pooled ordinary least square (OLS) regressions offer better estimates than cross-sectional analysis, but the beta estimates may still be heavily biased because of heterogeneity (the error terms being correlated with independent variables over time). It is necessary then to

⁷¹ Research reported in the news, <http://www.bbc.co.uk/news/mobile/education-17203551>.

apply models that would control for unobservable factors that may affect the dependent variable and correlate with independent ones. While a fixed-effects model is not appropriate due to time-constant variables used in the equation, such as cultural background or parental education, year dummies are introduced in a random effects model, which also provides the fixed-effects estimator with correct test statistics. The estimator obtained is the least-squares-dummy-variable estimator (LSDV), controlling for unobservable characteristics within each individual across the four years of analysis.

$$\begin{aligned}
 Prob(Leave) = & \beta_0 + \beta_1 Gender + \beta_2 ATSI + \beta_3 CALD + \beta_4 Area + \beta_5 SES_f^w + \\
 & \beta_6 SES_m^w + \beta_7 SES_f^{Ed} + \beta_8 SES_m^{Ed} + \varepsilon
 \end{aligned}
 \tag{9.1}$$

where: *Leave* is a binary variable identifying young people who left school before finishing Year 12 (1=did not finish Year 12, 0=finished Year 12), *Gender* flags whether the respondent is male (=0) or female (=1), *ATSI* and *CALD* flag students of Aboriginal and Torres Strait Islander and Culturally and Linguistically Diverse backgrounds respectively, *Area* is a variable ranging from 0 to 2 with zero identifying students living in metropolitan areas, 1 those living in rural and 2 regional areas. *SES_f^w* identifies father’s socio-economic status derived from occupation (work), *SES_m^w* similarly identifies the socio-economic status of the mother, and the *SES_f^{Ed}* and *SES_m^{Ed}* identify the socio-economic status of the father and mother respectively by means of their highest education level achieved.⁷² Table 9.4 reports the results of this analysis.

Table 9.4 Effects of demographic characteristics on Year 12 Participation, by cohort

Cohort	Y06	Y95
Year of participation measured	2009	1999
Female	.656***	.715***
Indigenous	-.072	-1.211***
CALD	.224	.852***
Father Higher Education	.492***	.581***
Mother Higher Education	.142	.125
Father white collar	.098***	.255***
Mother white collar	.186***	.177***
Intercept	1.877	.503

Source: Author’s calculations using Y95 and Y06 LSAY data.

***significant at p<.001; **significant at p<.01; *significant at p<.05

⁷² For simplicity of interpretation the two binary variables have been used to flag the socio-economic status. One variable flags whether the parents (mother and father separately) have completed tertiary qualifications and the second variable whether the parents (mother and father separately) work white collar jobs. The ISCO-88 code of occupations was used.

Male students are more likely to leave school without completing Year 12 than female students, students who speak a language other than English at home are four times more likely to finish Year 12 than other students, and the likelihood of leaving school before finishing Year 12 is greatest in provincial and remote areas. Parents' socio-economic status (SES) is also a good predictor of students' likelihood to stay at school, but the impact of the father's SES is greater than that of the mother, both when measured through parental occupation (ranking from white collar high, white collar low, to blue collar high and blue collar low occupations) and whether the parents had achieved tertiary qualifications. The impact of parental education on children's school retention is higher than the impact of parents' occupation.

A similar but cross-sectional analysis of the Y06 cohort in 2009 and Y95 cohort in 1999 investigates the characteristics of students who are more likely to go to university (model 9.2). The same independent variables as in model 9.1, less the year dummies are used in this model, and the dependent (predicted) variable is the probability of university attendance. Results are summarised in Table 9.5.

$$\begin{aligned}
 \text{Prob}(\text{Higher Education}) = & \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{ATSI} + \beta_3 \text{CALD} + \beta_4 \text{Area} + \\
 & \beta_5 \text{SES}_f^w + \beta_6 \text{SES}_m^w + \beta_7 \text{SES}_f^{Ed} + \beta_8 \text{SES}_m^{Ed} + \varepsilon
 \end{aligned}
 \tag{9.2}$$

In 2009, female students are about 50 per cent more likely to attend university, and although whether the student is indigenous or not does not have a significant impact in determining the chances to complete Year 12 (as discussed above and summarised in Table 9.4), in 2009 indigenous students are about 90 per cent less likely than non-indigenous students to attend university ($p < .05$). Culturally and linguistically diverse students are also almost 50 per cent more likely to attend higher education than students who speak English at home, and parental occupational SES has a statistically significant impact on students' choice to attend university. Students with parents in lower skilled occupations are less likely to attend university, and the impact of the occupation of the father is about one third greater than that of the mother.

Table 9.5 Effects of demographic characteristics on University attendance, by cohort

Cohort	Y06	Y95
Year of participation measured	2009	1999
Female	.511***	.471
Indigenous	-.898***	-.807**
CALD	1.064***	.908***
Father Higher Education	.521***	.628***
Mother Higher Education	.411***	.277***
Father white collar	.171***	.267***
Mother white collar	.223***	.242***
Intercept	-.527	-1.079

***significant at $p < .001$; **significant at $p < .01$; *significant at $p < .05$

The comparison between the coefficients obtained from the regression analysis using Y06 data and those obtained from the regression using Y95 cohort data, reveals some important changes in university attendance. While the gender gap has increased between 1999 and 2009 in terms of university enrolment, the effect of parental occupational SES, although still significant, has reduced in size (although now, students whose mothers have completed tertiary qualification are more likely to attend university).

This section concludes that there are clear demographic differences between young people who participate in higher education and those who enter the labour market after having finished school. The intensity of these factors has changed in the past decade: female students are about 50 per cent more likely to enter university than male students and whether the mother has a tertiary qualification has become a stronger predictor of children's likelihood of attending university. It is a sign of increased participation of young women in tertiary education, and perhaps a greater influence, intended or unintended, by mothers in their children's decision making. Factors like father's education and occupation, and mother's occupation have only slightly reduced in intensity as predictors of children's university participation. The impact of these factors on student's probability of Year 12 completion is, however, much lower. In 2009 there are no differences in school completion rates by aboriginal status. However, students of aboriginal background are even less likely to attend tertiary education than they were a decade ago, raising questions of integration of this section of the population. On the other hand culturally and linguistically diverse students are more likely to participate in higher education.

The next section investigates the reasons behind leaving school before completion and why some students, although they do complete Year 12, do not attend university.

9.2.3 *Reasons for leaving school and not attending tertiary education*

The National Centre for Vocational Education Research (NCVER) reports on the LSAY data identify unequal opportunities for young Australians with respect to further education participation. They identify higher percentages of young people of ATSI background, young people in remote areas, or those with low-SES backgrounds as likely to either not finish school or not complete tertiary studies. However, few studies have been concerned to understand *why* young people leave school before completion and whether their departure from school is deliberate or unintended. This section aims to untangle some of these issues by exploring whether leaving school is planned or spontaneous, and the reasons behind not completing.

2006-2009 longitudinal data on the Y06 cohort is analysed to investigate school retention plans and outcomes. Table 9.6 reports on the percentage of young people who are no longer at school in each year, whether the departure from school was planned and also whether at the time of the interview the young people had planned to go to university.⁷³

Amongst the students who left school in 2007 (n=952 valid answers in 2006, Table 9.6), 36.5 per cent planned to complete Year 12 and some of them had university plans too: 10.1 per cent wanted to go to university when interviewed in 2006. The students who didn't finish Year 12 and left in 2007 were most likely to leave because they had a job, apprenticeship or traineeship offered, wanted to acquire a job, apprenticeship or traineeship, or they just did not like school (Table 8.7).

⁷³LSAY is a youth-specific survey and is structured to capture youth-relevant information during the study-to-work transition. Information on the reasons for leaving school is also provided, and the frequency of these reasons in the Y06 responses is reported in **Table 9.7**. Young people are first asked to select all applicable reasons for having left school (Table 9.7 A), and then the main reason for their decision (Table 9.7 B)

Table 9.6 School retention and plans for school retention and university participation Y06 cohort

Year participation measured	No longer at school (Per cent)	No longer at school (N)	Planned to complete Y12 in previous year interview	Planned to go to university in previous year interview (per cent of young people that left school)
2007 ¹	11.5	1076	36.5	10.1
2008 ²	23.1	1936	63.0	44.0
2009 ³	1.4	101	-	-
Total ⁴	21.3	3012	-	-

Source: Author's calculations using LSAY 2006 – 2009, Y06 data.

1. This per cent is out of total respondents in 2007 and refers to students that were no longer at school and did not complete Year 12 (i.e. Left school without completing).
2. The young people who left school in 2008 are all “new” school leavers and don't include the young people that were not at school since 2007.
3. These young people who were no longer at school in 2009 are part of those who left in 2008, no new departures were recorded in 2009
4. Per cent of total initial sample of the Y06 cohort in 2006: 14,170 respondents; the total does not include the young people who were counted as not as school in 2009 as they were already included in the 2008 count.

Other important reasons for leaving without finishing Year 12 were the desire to earn their own money, not doing well in school, or wanting to do study or training that was not available at school. Only 3 per cent of young people thought that the main reason for leaving was that having completed Year 12 would not help them obtain a better job. It seems that most students were aware of better job opportunities offered by education overall. However, when asked to rank reasons for leaving school separately (as opposed to picking one MAIN reason), 30.9 per cent thought that having completed Year 12 would not help them acquire a job. At the time of the survey (in year 2007, when the average age across the respondents was 16.7 years), 52.6 per cent of respondents were very happy with their decision to leave school before year 12, 36.4 per cent were happy, 7 per cent were unhappy and 1.6 per cent were very unhappy.

Similar patterns of school retention and reasons for leaving school are identifiable in 2008. 23 per cent of young people from Y06 cohort interviewed in 2008 were no longer at school and did not finish Year 12. Of these (n=1936) 63 per cent did not plan to leave school the year before and more so, a much greater percentage than in 2007 (44 per cent) wanted to attend university at some point. The most commonly stated reason for leaving school was the desire to obtain a job and earn their own money. Surprisingly, when asked to select from various reasons that contributed to their decision to leave school, about a third stated they didn't believe Year 12 would help them get better jobs (both in 2007 and 2008), however,

when asked to mark only one main factor why they would leave, only 3 per cent believed that finishing Year 12 would not help their careers.

Table 9.7A, B Reasons to leave school, Y06 cohort, 2007-2009¹

Year	2007	2008
A. Reason why left school (non-mutually exclusive)		
You had a job, apprenticeship or traineeship to go to	58.9	61.1
You wanted to get a job, apprenticeship or traineeship	78.2	75.1
You were not doing very well at school	38.3	34.9
You wanted to do study or training that wasn't available	51.6	47.7
You didn't like school	58.4	57.2
Financially, it was hard to stay at school	14.0	18.4
Your teachers thought you should leave	20.5	16.1
You wanted to earn your own money	85.0	83.1
Your parents wanted you to leave	17.3	13.0
School didn't offer the subjects or courses you wanted	36.0	34.7
Having Year 12 wouldn't help you get a job	30.9	29.9
You didn't need Year 12 to go on to further study or training	47.9	53.6
B. Main reason left school (mutually exclusive, sums to 100%)		
You had a job, apprenticeship or traineeship to go to	30.5	31.4
You wanted to get a job, apprenticeship or traineeship	21.6	19.0
You were not doing very well at school	6.6	5.2
You wanted to do study or training that wasn't available	5.5	5.4
You didn't like school	15.1	15.2
Financially, it was hard to stay at school	0.4	1.3
Your teachers thought you should leave	2.1	1.5
You wanted to earn your own money	7.4	9.8
Your parents wanted you to leave	0.7	0
School didn't offer the subjects or courses you wanted	2.5	2.4
Having Year 12 wouldn't help you get a job	1.8	0.6
You didn't need Year 12 to go on to further study or training	3.0	3.7
Other	2.8	4.4
Total respondents (students that left school)	540	662
Per cent respondents (per cent left school from total respondents)	3.8	4.7

Source: Author's calculations using LSAY Y06 data, 2006-2009.

1. Information on reasons for leaving school in 2009 is not included because the young people that left school in 2009 are already included in the sample that left in 2008

These findings are valuable in the context of education policy at both secondary and tertiary education levels. An overall conclusion is made at this point: young people from disadvantaged backgrounds are under-represented in tertiary education and this connects with the need for further policies to assure equal access to higher education. This issue is discussed

in the next chapter, where the policy implications of the findings from the thesis are presented.

9.3 SWB during emerging adulthood and in the context of higher education

This section of the chapter explores the SWB of young people age 16 to 25 years. Data from the ‘happiness module’ in the Longitudinal Survey of Australian Youth 1998 cohort (LSAY Y98) is used. This dataset provides the most recent, longitudinal information on the well-being and educational achievements of young people before, during and after tertiary education. Young people are asked to rank their happiness with life overall and with eleven aspects of life: the work they do, at study, at home or in a job; what they did in their spare time; how they get on with people in general, the money they get each week; their social life; their independence; their career prospects; their future; their life at home; their standard of living and where they lived⁷⁴. The LSAY survey uses a 5-step scale, with 1 standing for ‘very happy’, 2 for ‘happy’, 3 for ‘unhappy’, 4 for ‘very unhappy’, and 5 for ‘don’t know’. Most young people perceive themselves as being either happy or very happy with life overall and with most aspects of life. For this reason, a two-step scale is computed by collapsing ‘very happy’ and ‘happy’ in one category and ‘unhappy’ and ‘very unhappy’ in a second category. Those who did not know how to rank their happiness levels are not counted. Given the higher percentage of young people who rank themselves as either happy or very happy rather than unhappy or very unhappy, the new binary variable takes the value 1 to flag the young people that are unhappy or very unhappy and takes the value zero otherwise.

The 14,117 students included in the Y98 cohort were school Year 9 in 1998 and by 2003 almost all survey participants had finished school (only 3 respondents were still at school). The module on happiness was included in the survey from the third wave (from year 2000). Assuming a three to four year tertiary degree, data on young people’s levels of happiness from 2005 to 2009 reflect the years immediately after having graduated from tertiary education. The analysis of panel data has the advantage of a longitudinal analysis of change, and also allows to control for unobserved heterogeneity. Furthermore, panel data is informative and estimates are more efficient, allowing for the study of individual dynamic (like the effect of education), and gives information on the time ordering of events (Wooldridge, 2007).

⁷⁴ Happiness with the state of the economy and how the country is run are also ranked, however they are not of interest to this analysis.

The first model tested in this section explores the impact of education on happiness overall and happiness with aspects of life after graduation using LSAY Y98 data from 2006 to 2009. A multivariate random effects model with year dummies is used (9.3). Socio-economic and demographic factors are also included in the analysis: gender, age, aboriginal status, ethnicity, parents' education and parents' occupational socio-economic status.⁷⁵

$$\begin{aligned}
 \text{Prob (Unhappy)} = & \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{ATSI} + \beta_3 \text{CALD} + \\
 & \beta_4 \text{SES}_f^w + \beta_5 \text{SES}_m^w + \beta_6 \text{SES}_f^{Ed} + \beta_7 \text{SES}_m^{Ed} + \beta_8 \text{Uni} + Y_{07} + Y_{08} + Y_{09} + \varepsilon
 \end{aligned}
 \tag{9.3}$$

Table 9.8 reports the results of the regression analysis. The factors that impact on overall happiness are reported in the first column, and the impact of these socio-economic and demographic variables on happiness with aspects of life is reported in the following columns.

Having attended university predicts happiness with many aspects of life: happiness with the money received each week, happiness with their independence, happiness with one's career prospects, happiness with one's futures, and happiness with the state of the economy.

In all cases the likelihood of being unhappy with these aspects of life decreased if the interviewee had completed higher education. A first conclusion may be drawn: young people who complete tertiary education are not intrinsically less happy than other young people. They are in fact happier with some aspects of life.

⁷⁵The collinearity between the independent variables included in model 8.3 has been tested using the VIF command in Stata. A mean VIF of 1.36 indicates a low level of collinearity, hence a good specification of the model.

Table 9.8 Socio-economic and demographic variables impact on happiness overall and happiness with aspects of life, LSAY (Y98), 2006 – 2009 (Probability to be unhappy)

Likelihood to be unhappy with...	Life as whole	Work at school, job, home	Spare time	Getting along with people	Money received each week	Social life	Independence
Female	-.29	.04	-.14	-.72*	.21*	-.03	.21
Indigenous	.19	.33	.35	.48	.39	.52	.05
CALD	.10	.00	.12	.12	-.01	.06	.08
Father: Higher Education	-.18	-.12	-.28	-.44	-.03	-.09	-.24
Mother: Higher Education	-.14	-.18	-.33	-.11	-.06	-.36	-.25
Father SES: Higher (white collar)	.09	.06*	.02	.16	-.01	.01	-.01
Mother SES: Higher (white collar)	-.01	-.01	.07	-.14	-.02	.04	.01
Married	.46	.21*	.14	-.01	.05	.19	.05
Children	-.56	.05	.35	-.68	.18	.64***	.25
Tertiary-educated	-.54	.07	-.20	-.20	-.22**	-.22	-.40*
Year 2006	-.03	-.39***	.38*	-.39	.13	.23	.24
Year 2007	.12	-.29*	-.14	-.29	.01	-.07	.28
Year 2008	-.22	-.32*	.10	-.75	.23*	-.23	.37
Year 2009	-.18	-.26	-.20	-.23	.28**	-.34	.58
Intercept	-7.28***	-3.85***	-5.05***	-6.02***	-2.81***	-5.96***	-5.68***
N	12496	12444	12480	12506	12437	12489	12500

Table 9.8 Continued

Likelihood to be unhappy with...	Career prospects	Own future	Life at home	Standard of living	The way the country is run	State of the economy	Where you live
Female	.18	-.44	.31	.20	.18*	.54***	.03
Indigenous	-.11	-.11	.64	.48	.03	.23	.58**
CALD	-.03	.16	.08	.06	-.01	.02	-.15
Father: Higher Education	-.04	-.51	-.02	-.30	-.13	.08	-.08
Mother: Higher Education	.14	-.12	-.03	.39	-.12	-.01	.16
Father: Higher (white collar)	.07*	.16***	.04	.02	.05*	.01	-.01
Mother Higher (white collar)	.02	.01	-.03	-.01	-.05	-.03	.01
Married	.23*	.63***	.45***	.10	.13*	.06	.09
Children	.12	-.40	-.11	.34	.39***	.40***	.31*
Tertiary-educated	-.49***	-.71	-.13	-.23	-.07	-.32***	-.17
Year 2006	-.10	.33	.52*	.42	.08	.94***	.12
Year 2007	-.31*	.39	.19	.13	.54***	-1.5***	.15
Year 2008	-.06	.51	.75***	.21	.83***	-1.14***	.28
Year2009	.13	.59*	.80***	-.05	1.07***	-1.01***	.17
Intercept	-5.62***	-7.19***	-7.63***	-6.94***	-2.66***	-2.25***	-4.85***
N	12427	12430	12506	12502	12154	11887	12496

Source: Author's calculations using LSAY Y98 data.

Note: Results come from xtlogit regressions of 2000-2009 longitudinal data provided by the Y98 cohort.

The second model tested in this chapter is a difference-in-difference (DID) model (9.4).⁷⁶ Ten waves of data are analysed to explore whether young people who obtain a tertiary degree have lower levels of happiness than young people who do not have higher studies before and/or after the degree is obtained.

$$Prob(Unhappy) = \beta_0 + \beta_1 Flag_Uni + \beta_2 Flag_intervention + \beta_3 flag_after_uni + \varepsilon \quad (9.4)$$

Young people who have completed higher education by 2009 are the treatment group and young people who have not completed higher studies are the control group. Having completed tertiary education is considered the 'intervention' and its impact on happiness with

⁷⁶The DID-estimator predicts the impact on the dependent variable almost equally as well as the fixed-effects estimator. Furthermore, the DID-estimator controls for endogeneity, combining the matching estimator and the within estimator – the two most powerful methods to estimate causal effects from non-experimental data (Bruderl, J., 2005).

life as a whole and happiness with aspects of life is tested. Results are summarised in Table 9.9.

No significant differences are found between young people who attended university and those who did not attend in terms of happiness levels after graduation, and it can be argued that in the short term there is no impact of higher education on happiness. However, the two groups are intrinsically different: throughout the ten years of data analysed, young people who completed higher education at some point, are more likely to be less happy with the work or study they do, what they do in their spare time and their independence. Nevertheless, they are significantly more likely to be happier with all other areas of life: how they get on with people in general, the money they get each week, their social life, their career prospects, their future, their life at home, their standard of living, where they live and their life as a whole. These findings indicate that initially, young people who go to university are generally happier with aspects of their lives, but the gap between them and those that do not attend university narrows in time.

Table 9.9 Likelihood to be UNHAPPY with various domains of life and life overall, isolated effect of having attended higher education (Difference-in-Difference model, Y98 cohort, 2000-2009)

Likelihood to be Unhappy with:	Difference between TE and NTE before university	Difference between TE and NTE after university
The work you do, at study, at home or in a job	.008*	.195
What you do in your spare time	.018*	.248
How you get on with people in general	-.038***	-.014
The money you get each week	-.027**	-.298
Your social life	-.008	.277
Your independence – being able to do what you want	.019*	-.065
Your career prospects	-.129***	-.388
Your future	-.133***	.010
Your life at home	-.048***	-.024
Your standard of living	-.087***	-.227
The way the country is run	-.080***	.342
The state of the economy	-.105***	-.213
Where you live	-.085***	.036
Your life as a whole	-.056***	-.056

Source: Author's calculations using LSAY Y98 cohort, 2000 – 2009. Difference-in-difference model

While before and during university years the young people attending higher education are happier with life overall and with some aspects of their lives, this balance changes once they graduate. There are complex interpretations of these findings. The variations in SWB

between those who opt into tertiary education and those who do not do so, may be attributed to socio-economic variables, as well as to the different external factors affecting the two sub-populations: those attending university are in a learning environment and those who do not attend university enter the labour market. The stressors in the two situations are different and psychologists argue that SWB is dependent on such stressors. The fact that the differences in happiness overall and happiness with aspects of life disappear once the tertiary-educated enter the labour market further support this argument.

Young people are a distinct cohort in that the items that add to their well-being are different to those which those of the adult population, and furthermore, they are particularly different as they find themselves in the school to work transition, a time of life-changing events. The decisions to finish school, to enrol in tertiary education or to enter the labour market are such life-changing events. As tertiary education is found to bring individual and societal growth, it is important to explore whether all Australians have access to such opportunities. The findings from this chapter conclude that although tertiary education has become more accessible to young Australians in the past decade, there are still socio-economic barriers to tertiary education and indirectly, to better life outcomes.

9.4 Conclusion

This chapter explored the subjective well-being during emerging adulthood (as discussed in life-course theory, Santrock, 2007) using data from the LSAY survey. The levels of happiness with areas of life and life overall have been explored in both cross-sectional analysis of the Y06 cohort and longitudinal analysis of the Y98 cohort. Young people who attend tertiary studies have been identified as less likely to be unhappy with the work they do, at study, at home or in a job, with what they do in their spare time, with their social life, their career prospects, their future and their life as a whole.

The longitudinal analysis explored education through two methods: as one possible factor impacting happiness in a logit random effects model and by isolating the effect of education in a pooled-OLS difference-in-difference model. This analysis also supports the cross-sectional findings. Although there is no direct effect of having attended university, the young people who attend tertiary education are not intrinsically less happy than other young people. Hence lower levels of happiness at later points in life in the literature are intrinsic

characteristics of these individuals, but the unhappiness is ‘achieved’ along the life course. An alternative explanation of the negative relation identified by these studies is that the measurement errors were embedded in the single-item indicator of SWB, generally used by studies that explore the impact of education on SWB in multivariate models. This thesis supports the latter explanation and its empirical evidence has been provided in Chapters 5, 6, 7 and 8.

Despite the objective and subjective outcomes streaming from the achievement of tertiary qualifications, the case of well-being and tertiary education is not simple. In Australia, attending tertiary education is not a choice equally available to all. Socio-economic and demographic characteristics are factors impacting on tertiary education participation. Students from disadvantaged backgrounds also face difficulties in completing school. It is then recommended that education policies first be aimed at younger students to ensure school completion, and, as a second step ease these young people’s paths towards and through tertiary education.

Chapter 10 Discussion and conclusion

10.1 Thesis overview and key findings

In the well-being literature an association is commonly drawn between higher education levels and higher economic development, better health, better employment opportunities, and even happier marriages. Despite such objective outcomes, most studies of well-being have identified a zero relationship between subjective well-being and higher educational achievement, or even a negative one (Dockery, 2003; Headey and Wooden, 2004). Although the number of studies addressing SWB has increased considerably in the past two decades, few have attempted to explore the grounds for the non-positive relationship between tertiary education and SWB.

In Australia too, most studies have found that having completed tertiary qualifications does not increase individual subjective well-being (e.g. Hickson and Dockery, 2008). But scholars using an exploratory approach to the relationship between education and SWB underline the necessity for further empirical and theoretical examination of this paradox of higher education and subjective well-being (the need for research in Australia is best expressed by Dockery, 2010).

This thesis addressed this need for research through a quantitative exploration of the SWB of tertiary-educated and non-tertiary-educated Australians using secondary data sources. Three hypotheses were developed. The first hypothesis contradicted the paradox of SWB and tertiary education. Drawing on human capital theory and the life-domain approach to SWB, it said that the tertiary-educated are more satisfied with domains of life and with life overall than the non-tertiary-educated. This hypothesis was both confirmed and refuted in separate analyses in Chapter 5. When a single-item measure of SWB (overall satisfaction with life) was explored, the tertiary-educated are found to be less satisfied with their lives than the non-tertiary-educated. This refuted the hypothesis and confirmed the negative relationship between SWB and tertiary educational achievement, or the paradox of SWB and tertiary education. However, when the levels of satisfaction with particular domains of life were compared, the tertiary-educated were found to be equally satisfied, or even more so, than the non-tertiary-educated. Furthermore, when a multiple-item measure (or scale) was used to calculate average satisfaction across all domains of life, the tertiary-educated were identified as more satisfied with their lives. This finding suggests a positive relationship between SWB and tertiary educational achievement. Because of the contradictory results

from the two methods –the single-item and the multiple-item measures of SWB – Chapter 5 concluded that an exploratory approach to the paradox was necessary.

The heterogeneity of SWB by tertiary-educational achievement is adopted as a method of exploration. The second hypothesis of the thesis, that SWB is heterogeneous by higher-educational achievement, was tested in Chapter 6. The thesis adopted the life-domain approach and investigated whether all aspects of life were equally important to the tertiary-educated and the non-tertiary-educated, using correlation and regression analyses. The findings suggest that the tertiary-educated and non-tertiary-educated give different weights to the various aspects of their lives, such as employment opportunities, finances and free time, when assessing their overall well-being. Chapter 6 concluded that the tertiary-educated and the non-tertiary-educated are heterogeneous groups in their conceptualisation of what counts as their well-being, thus supporting the second hypothesis of the thesis.

The third hypothesis was that socio-economic and demographic factors do not have the same impact on the satisfaction with domains of life and life-satisfaction of the tertiary-educated and the non-tertiary-educated. This hypothesis was tested and supported through regression analysis in Chapter 7.

The findings in Chapters 6 and 7 indicated that, when SWB is assessed through a single-item measure such as ‘overall satisfaction, all things considered’, the tertiary-educated and the non-tertiary-educated give different importance to aspects of their lives, and socio-economic and demographic factors impact the conceptualisation of ‘what makes the good life’ differently for the two sub-populations. These findings led to the conclusion that the single-item measure of SWB carries conceptual biases, and that the multiple-item measure is more reliable. This conclusion, triangulated with the findings in Chapter 5, allowed the thesis to conclude that the tertiary-educated are more satisfied than the non-tertiary-educated, and that there is no paradox of subjective well-being and tertiary education in Australia.

Drawing on findings from the literature reviewed, reflected in the analysis in Chapter 7, the thesis was also concerned with changes in perceptions of well-being due to age. The third hypothesis said that SWB is heterogeneous by age, and that factors that impact on SWB vary throughout stages of the life-course. This hypothesis was tested in Chapter 8 and only partial confirmation was found. The chapter concluded that age matters to the conceptualisation of well-being only in comparison between early and middle adulthood (25-65 years) on the one hand, and late and very late adulthood (65 years and over) on the other.

This finding has the potential to explain the U-shaped relationship between SWB and age found in the well-being literature. The analysis of the heterogeneity of SWB by stage of the life-course indicated that, towards late and very late adulthood, conceptualisation of well-being changes. This finding aligns the thesis with studies like Plagnol (2010) who pointed to the crucial importance of perceptions when exploring SWB at later stages of life. Theories of adaptation and of the shift in goals and stressors explain the variation in ‘what makes the good life’ towards later stages of the life-course.

Finally, Chapter 9 explored the subjective well-being of young people, and how tertiary education impacted on their well-being. The purpose of the chapter was twofold. Firstly, it aimed to explore whether the tertiary-educated are inherently unhappy as some studies have found. Secondly, it aimed to explore whether, under current educational policies, access to tertiary education is equitable and all young people who wish to can afford to attend tertiary education. The chapter found that young people who go to university are happier before and during university years, but they become less happy than their counterparts who opt out of education after school completion. The phenomenon was explained through multiple discrepancies theory. The analysis of the most recent LSAY cohort data on tertiary-education participation (2006-2009) revealed that, for some young people, factors like financial disadvantage or remoteness are roadblocks to tertiary-education participation or completion. Triangulated with the findings from previous chapters, these factors can also be considered roadblocks to higher satisfaction with life, or higher well-being. The policy implications of these findings are discussed in the next section.

The answer to the research question is that there is no paradox of subjective well-being and tertiary education in Australia. The thesis concludes that, as well as the objective advantages found in the well-being literature, tertiary-educational achievement is also associated with higher subjective well-being.

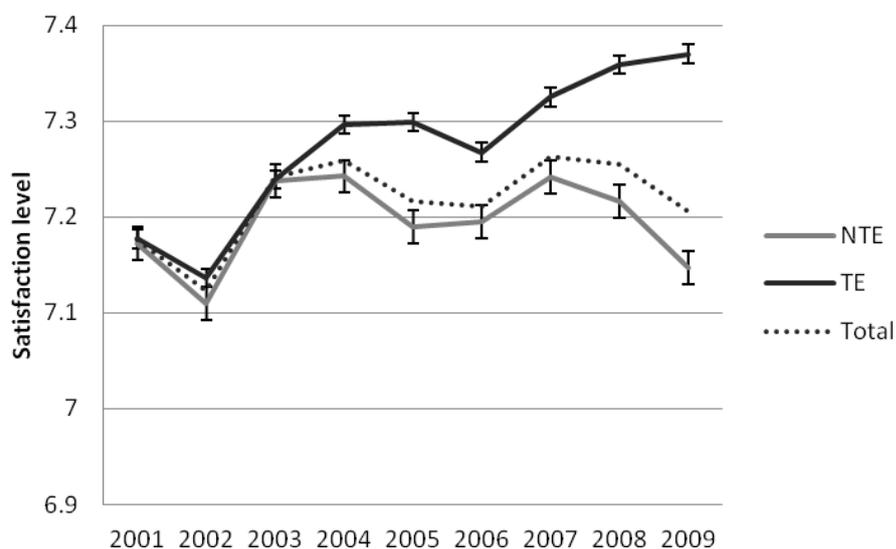
10.2 Contribution to knowledge and methodological, theoretical and policy prescriptions

The results challenge the well-being literature at both methodological and theoretical levels. The methodological contributions are first discussed. The findings are then placed in the context of the theoretical frameworks discussed in Chapter 2. The thesis also makes policy recommendations.

10.2.1 Methodological connotations of the findings

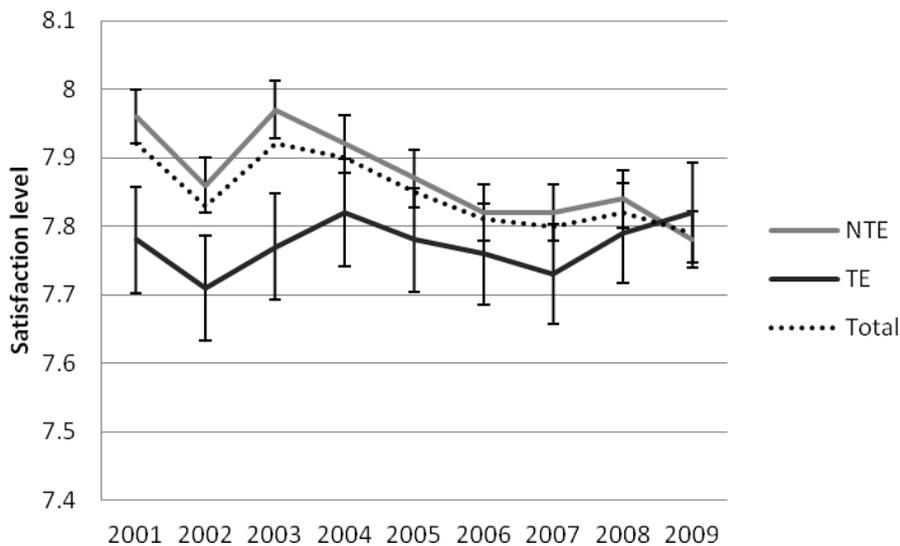
The principal finding of the thesis and its contribution to knowledge is that there is no paradox or puzzle of subjective well-being and tertiary education – the negative relationship identified in the literature is driven by conceptual gaps in the traditional SWB measures. The conceptual differences in the single-item measure of subjective well-being by higher educational achievement have been demonstrated in Chapters 5, 6 and 7, allowing for the conclusion that the findings summarised in Fig.10.1 are biased(not representing the reality), while those in Fig.10.2 are a better representation of SWB. These figures are reproduced below from Chapter 5.

Fig.10.1 Average satisfaction with life 2001-2009 by education level



Source: Author's calculations using HILDA 2001 – 2009.

Fig. 10.2 Overall satisfaction with life 2001-2009 by education level



Source: Author's calculations using HILDA 2001 – 2009.

Note: SWB was calculated as the arithmetic average of satisfaction with eight domains of life. Error bars are computed using the 2009 sample size.

The thesis also argued against some of the traditional methods to assess determinants of well-being, such as multivariate analysis. This is because socio-economic and demographic variables affect the SWB of the tertiary-educated and the non-tertiary-educated to different degrees depending on the stage of the life course. Some of these findings are worthy of note.

Conventionally, it is argued that women have higher levels of satisfaction, or happiness, than men (e.g. Blanchflower and Oswald, 2008). Other studies have found that the gender differences in subjective well-being depend on age (Inglehart et al., 2002). This thesis also found that women during early adulthood (25-44 years) are more satisfied with their lives than men. However, when the heterogeneity of SBW by higher-educational achievement was accounted for, the effect of gender disappeared. That is, tertiary-educated women are not more satisfied than tertiary-educated men, and non-tertiary-educated women are not more satisfied than non-tertiary-educated men. This finding indicates that the conclusion that women are more satisfied than men is driven by gender differences in populations with different levels of education. During middle adulthood (45-64 years), non-tertiary-educated women are more satisfied than non-tertiary-educated men. But the relationship does not apply to tertiary-educated men and women, who are equally satisfied with their lives during middle adulthood. During late adulthood there are no gender differences. During very late adulthood,

women are more satisfied than men overall, but the relationship is not statistically significant when education is controlled for. The summative message is that gender differences in terms of SWB diminish as individuals become highly educated.

This thesis also contributes to the debate on the impact of income on SWB. This present research found that the impact of income depends on the type of income the researcher includes in the multivariate model to explore determinants of well-being. The impact of per person household equivalised income on the one hand, and the impact of own, personal income on the other, were tested in Chapter 7, Section 7.2.8. Income quartiles were calculated in each case. When testing the impact on well-being of equivalised income quartile, the non-tertiary-educated in the first and second income quartile were less satisfied with their lives than the non-tertiary-educated in the third income quartile. This finding supports those studies which found that income had a limited impact on happiness or satisfaction with life (for example Diener et al., 1999). The analysis in this thesis too, concluded that household equivalised income increases satisfaction with life only to a certain extent, up to the third income quartile. However, this is only the case for the non-tertiary-educated. In the case of the tertiary-educated, only being in the bottom first quartile equates to lower levels of SWB. As is the case with the impact of age and gender on SWB, the impact of income on SWB loses significance for the tertiary-educated.

The results from above however only hold when the control for income is computed as household equivalised income⁷⁷. When personal income was used instead, the analysis concluded that there is no significant impact of income on SWB for the non-tertiary-educated. For the non-tertiary-educated, money does ‘bring happiness’, but only as long as it is the household money (household equivalised income, which includes personal income and the income of other household members), not own (personal) income. However, the impact of personal income on the life satisfaction of the tertiary-educated is nearly identical to the impact of household income: as long as the income is at the levels of the second income quartile or above, income does not affect satisfaction with life. It can be argued that for the tertiary-educated, the impact of income (either household equivalised or personal income)

⁷⁷ As earlier explained in Chapter 4, both household equivalised income and own income have been used in regression analyses. Household equivalised income was computed as the sum of own income of all household members divided by the square root of the number of persons in the household.

amounts to what Adam Smith's described in *The Wealth of Nations* as 'being able to go out in public without shame'.

Finally, at the level of econometric modelling, this thesis explored the 'participation bias' identified by studies like Bell (1953) and Baird et al. (2010). This concept refers to the phenomenon that one's behaviour and perceptions of well-being are influenced by participating in surveys of well-being for consecutive years. This bias was confirmed using the HILDA data, and the calculations are presented in Appendix C. To avoid this bias, Baird et al. (2010) recommend the use in SWB analyses of a panel design with refreshment samples, instead of longitudinal, repeated data. For this reason, the models tested in the thesis did not draw on the repeated cross-sectional data available in HILDA.

10.2.2 Theoretical implications

The theoretical framework of the thesis draws on concepts from multiple discrepancies theory, life-course theory and stress research, life-span development, human capital theory and the capabilities approach. The relevance of these theories for the exploration of the relationship between SWB and tertiary education was discussed in Chapter 2. How the findings of the thesis coincide with some of these theories is discussed in this section. The capabilities approach and human capital theory are discussed in the policy recommendations and included in Subsection 10.2.3.

Multiple discrepancies theory

The principles of multiple discrepancies theory, explained in Chapter 2, Section 2.2.1, are well reflected in the findings of the thesis. The findings in Chapter 5 illustrate this (see also Figs. 10.1 and 10.2). Although there is a general tendency to overestimate overall satisfaction (about half a point above average, see the figures above), the measures should not differ from each other as they change over time, given that they reflect the same concept, SWB. Furthermore, according to the life-domain approach, high satisfaction with domains of life results in high overall satisfaction. However, this is not what happened (as shown in Chapter 5. Between 2001 and 2009 the average satisfaction of the non-tertiary-educated hardly changed (variations of only 0.1), but the measure of their overall satisfaction followed a decreasing trend. Similarly, while the average satisfaction of the tertiary-educated increased throughout the nine years, the measure of their overall satisfaction did not change.

MDT principles can explain this unforeseen relationship between two measures of the same concept. Levels of satisfaction with particular areas of life are closer representations of reality than the overall measure. This is because, instead of being asked to assess how satisfied they are ‘all things considered’, respondents are asked to focus on their satisfaction with specific domains of life. Hence, differences in levels of satisfaction with areas of life of the non-tertiary-educated and those of the tertiary-educated can be considered the ‘objectively measurable discrepancies’ (second principle of the MDT, see Chapter 2, Section 2.2.1 for complete discussion of this aspect of the theory). As shown in Fig. 10.1, since 2003 these discrepancies between the tertiary-educated and the non-tertiary-educated have increased in favour of the tertiary-educated.

Furthermore, the first MDT principle states that net satisfaction (that is, overall satisfaction) is a function of perceived discrepancies between, amongst others, what one wants or has, and what others have (also discussed in Chapter 2, Section 2.2.1). The lower levels of overall satisfaction of the non-tertiary-educated can then be attributed to these discrepancies between their perceived well-being and the perceived well-being of the tertiary-educated. Under the same thinking, the overall satisfaction of the tertiary-educated should increase between 2001 and 2009, given the increase in their average satisfaction with domains of life. However this is not the case, as the overall satisfaction of the tertiary-educated did not change despite the increase in their average satisfaction with life. This finding indicates first of all that these two MDT principles do not apply to tertiary-educated individuals, reiterating the differences (or heterogeneity) of the two sub-populations.

Life-course theory

The application of the life-course theory to the exploration of the relationship between SWB and tertiary educational achievement is limited, but not without significance. Chapter 8 concluded that the heterogeneity of SWB by stage of the life-course is limited. The levels of overall satisfaction are similar for individuals aged 25-64 (early and middle adulthood) and individuals older than 65 (late and very late adulthood). Nevertheless, when SWB was explored over the life-course and by tertiary educational achievement, further differences emerged: the heterogeneity of SWB by stage of the life-course reduces for the tertiary-educated. It can be concluded that being tertiary-educated maintains older individuals closer to the levels of well-being of younger individuals, including those in very late adulthood – at least from the point of view of their perceptions of well-being.

Life-course theory however helps to explain the higher levels of overall life satisfaction generally perceived by the older population, traditionally referred to as the ‘paradox of age and SWB’. Individuals older than 65 do not give the same weight to satisfaction with domains of life as do individuals under 64 years. Other things ‘count’ towards the well-being of the former group. This indicates that a single measure of well-being for individuals of all ages is not accurate.

10.2.3 Policy recommendations

The findings of the analysis connect mainly with two aspects of policy: well-being and education.

SWB has become an item on the agenda of governments and multinational organisations, equal in importance to aspects of quality of life such as health, work and life balance, education, and social connections (OECD, 2011). However, SWB is a complex concept and individuals give different weights to key aspects of life when assessing their overall satisfaction. The thesis recommends that, in order to achieve higher levels of well-being for all, policy makers should investigate those aspects of life important for the SWB of target groups of individuals (e.g. low, medium and high income earners, or men and women). Identifying ‘what counts’ for each group will allow for more efficient and cost-effective policies to *increase subjective and overall well-being by addressing the specific needs of target groups*.

Current governmental recommendations for education policy advise that by 2020, 40 per cent of Australians aged 25 to 39 years should have achieved tertiary qualifications (Bradley Review, 2008). Triangulated with the findings of the thesis, that tertiary educational achievement is associated with higher subjective well-being, this recommendation translates to ‘by 2020 there should be higher subjective well-being and satisfaction with domains of life for 40 per cent of Australians aged 25 to 39 years’. Reaching the goal set by the Bradley Review would not only increase the international competitiveness of Australia from a labour-market perspective, but also its national level of SWB.

However, there is a danger inequality may increase. Although Australia ranks relatively high in terms of individuals’ SWB, compared with other OECD countries, some economic inequalities are prominent (OECD, 2011). The thesis has found that a number of young people from disadvantaged backgrounds do not have the material means to continue

their studies to tertiary level, and as such, given that higher education equates with higher levels of SWB, they are being involuntarily kept in a ‘capped SWB zone’. Educational policies facilitate the participation in tertiary education of disadvantaged young people through measures such as the waiving of fees. However, this thesis has found that a large proportion of young people who plan to go to university, for reasons outside their control do not complete Year12, the minimal requirement for tertiary-education enrolment. Hence, one of the recommendations of this thesis is that education policies aiming at increasing tertiary-education participation and completion, should not only seek to ease the access to tertiary education for those who have already completed Year12, but also seek to assure that students are offered the opportunity to finish Year12. Helping out those who have already ‘made it’ to Year12, and not supporting those who struggle against roadblocks to school completion, can result in a widening of the inequality gap in Australia. The risk is a new generation where the divisions between university graduates and individuals with under-Year12 education levels are accentuated. Hence early intervention is necessary.

Although not the purpose of this thesis, other possible policy implications of the findings can be flagged. Theories of adaptation such as the hedonic treadmill theory, set-point theory or homeostatic theory argue that individuals tend to maintain constant levels of subjective well-being, regardless of the events that occur in their lives. Some empirical studies have found support for these theories. For example, Brickman and Coates (1978) found that paraplegics are not less happy than individuals who can walk. However, the analysis in Chapter 7 identified a negative effect of long-term illness on satisfaction with aspects of life, as well as on overall satisfaction and average satisfaction. While further analysis should be conducted to control for factors like the time since the onset of the illness or disability, it can be concluded that in the context of disability and SWB in Australia such adaptation theories do not apply. This finding flags a problem to policy makers, as population with disabilities are not adequately integrated into society, being less satisfied than other Australians with their employment opportunities, finances and accommodation (results of the analysis are summarised in Chapter 7, Section 7.2.7).

The comparison of levels of satisfaction with domains of life of the tertiary-educated and the non-tertiary-educated in Chapter 5 revealed that the non-tertiary-educated are constantly less satisfied with their health, a finding which was also previously identified in the literature. Furthermore, the gap between the non-tertiary-educated and the tertiary-

educated has increased in the past decade, indicating possible problems in the health system in Australia. Housing is another area where dissatisfaction was obvious from the analysis (Chapter 5, Fig.5.7). Despite the usually higher incomes associated with tertiary education, this group is less satisfied with their homes than the non-tertiary-educated. The satisfaction of the latter group also decreased over time, indicating a general, overall dissatisfaction with housing in Australia.

10.3 Limitations and further potential for research

A limitation of this study has been the lack of qualitative data collection. The reasons behind having conducted a quantitative, secondary data analysis were discussed in Chapter 4. Qualitative interviews with individuals who have completed tertiary education and those who have not, and individuals of different ages, could however provide additional and in-depth information on SWB. Governments have become interested in assessing national well-being through indices of happiness or of personal well-being. However the items to be included in such indexes are often a matter for debate. Qualitative interviews can contribute to the computation of such national indices as they can reveal items of high importance to individual well-being that would otherwise not be obvious to the researcher.

Various socio-economic and demographic variables such as gender, income or geographic location can function as differentiating criteria within the heterogeneity approach to subjective well-being⁷⁸. The purpose of this thesis has been to explore the relationship between SWB and tertiary education and for this reason the heterogeneous nature of SWB by higher educational achievement was at the centre of the analysis. Age however was also considered relevant to the analysis for several reasons. First, it is traditionally argued that SWB follows a U-shaped trajectory throughout the life-course. The youngest and oldest are argued to be happiest, or most satisfied with life (Frey and Stutzer, 2002; Blanchflower and Oswald, 2004; Heady and Warren, 2008; Cummins, 2010). Second, the thesis identified a strong impact of age on SWB in the Australian context. Third, the outcomes from education are bound to change as individuals move from school to work, to the first years of employment, to a career peak and so forth. For these reasons the paradox of SWB and tertiary education was explored, first by addressing the heterogeneity of SWB by higher educational

⁷⁸The heterogeneity of SWB by age, gender and education has been addressed by Rojas (2006), although only absolute levels of satisfaction were compared without much investigation of possible conceptual differences in SWB.

achievement, and then a second layer of heterogeneity was added by accounting for four stages of the life course (Elder, 1974).

The analysis revealed that aspects of life that count towards overall well-being lose significance after the age of 65, and that there are differences between the tertiary-educated and the non-tertiary-educated at each stage of the life course. It would be interesting to further explore the well-being of the population over 65, inquiring about age-specific items through the multiple-item measure of well-being. This would have particular applications to aging studies and policies aiming to improve well-being after retirement. Similarly, the young population (18-25 year olds) have youth-specific concerns, and their SWB should also be addressed through age-specific questionnaires, such as those in LSAY. Some studies fail to account for possible biases that the younger and the older population may draw on the overall results. These problems should not be overlooked as the population aged 18 to 25 years, together with those aged over 65, represent a third of the adult population (33.4 per cent in Australia, Chapter 4, Table 4.1, author's calculations using HILDA 2009).

Identifying methodological concerns with the assessment of SWB through single-item or multiple-item measures raises further questions of the accuracy of these measures in the context of this thesis and in SWB research in general. The author recommends that the relationship between SWB and higher education is further explored using other alternative measurements of SWB such as experiences of positive and negative affect. This approach has been explored by Kahneman and Krueger (2006), who examined well-being through the day reconstruction method, asking individuals to recollect memories of the previous day by writing a short diary. Its application is new but there is great potential for exploration in the context of – already traditional – puzzles such as the impact of income, age or education on 'happiness'.

Although collecting longitudinal data is problematic and time-consuming, a between-group comparison of experiences of positive and negative affect throughout the day is recommended. It could be useful to explore whether the experience of positive and negative affect during activities throughout the day is heterogeneous by higher educational achievement, and to what extent the age factor influences the results. Cross-national comparisons could also be useful to assess the value higher education adds to private lives in various cultural and economic contexts. While such data is available for countries like the

United States (the Princeton Affect Time Survey), the need for such a collection of data has recently been gaining prominence in Australia.

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Appendix A. Survey questionnaires

1. HILDA questions on satisfaction with aspects of life

K13 I am now going to ask you some questions about how satisfied or dissatisfied you are with some of the things happening in your life. I am going to read out a list of different aspects of life and, using the scale on SHOWCARD K13, I want you to pick a number between 0 and 10 that indicates your level of satisfaction with each. The more satisfied you are, the higher the number you should pick. The less satisfied you are, the lower the number.

- a. The home in which you live?
- b. Your employment opportunities?
- c. Your financial situation?
- d. How safe you feel?
- e. Feeling part of your local community?
- f. Your health?
- g. The neighbourhood in which you live?
- h. The amount of free time you have?

K14 All things considered, how satisfied are you with your life? Again, pick a number between 0 and 10 to indicate how satisfied you are.

2. LSAY questions on happiness

J5 And finally, I am now going to read out a list of different aspects of your life. As I read them tell me whether you are very happy, happy, unhappy or very unhappy with each one. Firstly, how happy are you with...

- a. The work you do, at study, at home or in a job
- b. What you do in your spare time
- c. How you get on with people in general
- d. The money you get each week
- e. Your social life
- f. Your independence – being able to do what you want
- g. Your career prospects
- h. Your future
- i. Your life at home
- j. Your standard of living
- k. The way the country is run
- l. The state of the economy
- m. Where you live
- n. Your life as a whole

- 1. Very happy
- 2. Happy
- 3. Unhappy
- 4. Very unhappy
- 5. Can't say/Don't know

3. AuSSA questionnaire

K36. If you were to consider your life in general these days, how happy or unhappy would you say you are, on the whole...?

Very happy Fairly happy Not very happy Not at all happy Can't choose

Appendix B Supplementary analysis to Chapters 5 and 7

This appendix presents supplementary results that were either too complex or space consuming to be reported in the main body of the thesis. The first section presents results complementary to the findings in Section 5.1. and is to be read in conjunction with Fig.5.2- Fig.5.20. They present the distribution of the population across the 0-10 scale of satisfaction with life and satisfaction with domains of life.

The second section of the appendix reports on the impact of socio-economic and demographic factors on satisfaction with domains of life in 2001 and 2009. The purpose is to explore whether socio-economic and demographic factors that affect satisfaction with domains of life have changed across the decade. The analysis of this change was reported in Section 7.3, and these results are to be read in conjunction with those in Table 7.6.

1. Satisfaction with life and satisfaction with domains of life, distribution of the population. Results complementary to Section 5.1

Table B. 1 Distribution of satisfaction levels (% , n=10,657)

Satisfaction level	Home		Employment opp		Financial situation	
	TE	NTE	TE	NTE	TE	NTE
Totally dissatisfied	0.1	0.4	1.1	3.7	0.5	1.6
1	0.2	0.5	0.7	1.8	0.9	2
2	0.9	0.9	1.5	3	2.1	3.6
3	1.1	1.5	1.9	3.3	3	4.5
4	1.3	2.1	1.8	3	3.6	5.3
Neither satisfied nor dissatisfied	4.4	5.4	6	11.1	8.2	14.1
6	8	5.9	7.8	8.6	13.1	13.8
7	17	15.2	18.3	15.7	23.4	20.5
8	29.9	26	29.2	22.9	27.1	20.2
9	22.7	20.9	18.1	13	12.6	8.1
Totally satisfied	14.4	21.3	13.6	13.9	5.6	6.4
Total	100	100	100	100	100	100

	H'hood		Safety		Feeling part of local community	
	TE	NTE	TE	NTE	TE	NTE
Totally dissatisfied	0.1	0.4	0.1	0.2	0.6	1.3
1	0	0.3	0.1	0.3	0.6	0.9
2	0.5	0.8	0.1	0.6	2.1	2.9
3	0.5	1.4	0.5	0.9	3.7	3.8
4	1.6	1.6	0.5	1.4	3.1	4.5
Neither satisfied nor dissatisfied	3.7	5.3	2	4.5	12.2	14.1
6	6.8	6.5	3.8	4.9	14.2	11.4
7	17.8	16.6	13.2	13.6	22.3	18.4
8	31.7	30.8	29.9	30.4	22.5	22.2
9	24.8	20.7	31.6	24.5	12.9	11.6
Totally satisfied	12.5	15.7	18.1	18.7	5.9	8.8
Total	100	100	100	100	100	100

	Health		Free time		Satisfaction with life	
	TE	NTE	TE	NTE	TE	NTE
Totally dissatisfied	0.2	1.1	0.9	1.3	0	0.1
1	0.7	0.9	2	2.1	0.3	0.3
2	0.8	2	5.9	4.2	0.1	0.5
3	1.5	3	7.5	5.1	0.6	0.9
4	2.2	3.8	6.6	6.2	0.8	1.3
Neither satisfied nor dissatisfied	5.3	8.8	11.8	11.4	2.6	4.8
6	9.5	9.6	13.3	11.2	5.6	6.3
7	22.6	21.2	19.2	14.1	22.2	19
8	31	27.7	16.4	17.6	38.2	33.7
9	20	15.2	8.6	10.4	24	21.4
Totally satisfied	6.2	6.6	7.8	16.3	5.7	11.8
Total	100	100	100	100	100	100

Source: Author's calculations using HILDA 2009. Note: table is complementary to the analysis conducted in Section 5.2, Fig.5.2 – Fig.5.20.

2. The impact of socio-economic and demographic factor on satisfaction with domains of life in 2001 and 2009. Analysis complementary to Chapter 7.

The following nine tables present report the results from cross-sectional analysis of factors that impact satisfaction with domains of life: employment opportunities, financial situation, free time, safety, health, home in which one lives, neighbourhood, feeling part of the local community, and partner. The analysis tested the impact of gender, CALD and ATSI statuses, health, employment status, geographic location, marital status, age group and income on satisfaction with domains of life in 2001 and 2009. The analysis was separately conducted for the tertiary-educated and non-tertiary-educated. The models do not test the change in intensity but rather if the same factors impact the levels of satisfaction of the respective group each year. The third section is supplementary to Section 8.4, complementing results presented in Table 8.3.

Table B. 2 Impact of socio-economic and demographic factors on satisfaction with employment opportunities by higher educational achievement, 2001 and 2009

	All - 2001	All- 2009	TE - 2001	TE - 2009	NTE - 2001	NTE - 2009
Tertiary-educated	0.13*	0.30***				
	(0.05)	(0.05)				
Female	0.12**	0.05	0.19*	0.1	0.11*	0
	(0.04)	(0.04)	(0.09)	-0.08	(0.05)	-0.05
CALD	-0.05	-0.17	-0.10	-0.15	-0.03	-0.27
	(0.13)	(0.14)	(0.25)	-0.25	(0.15)	-0.15
ATSI	0.15	-0.01	-0.11	0.48	0.15	0.07
	(0.14)	(0.13)	(0.53)	-0.37	(0.14)	-0.13
Ill health	-0.36***	-0.50***	-0.44**	-0.30*	-0.33***	-0.32***
	(0.05)	(0.06)	(0.13)	-0.12	(0.05)	-0.06
Unemployed	-1.31***	-1.57***	-1.57***	-0.98**	-1.28***	-1.36***
	(0.11)	(0.14)	(0.34)	-0.33	(0.11)	-0.14
NILF	-2.02***	-1.09***	-1.88***	-1.81***	-2.01***	-2.16***
	(0.06)	(0.08)	(0.17)	-0.16	(0.07)	-0.08
Other Urban	0.13**	0.06	0.10	0.16	0.13**	-0.09
	(0.05)	(0.05)	(0.13)	-0.11	(0.05)	-0.05
Rural	0.19***	0.14*	0.05	0.11	0.22***	0.04
	(0.05)	(0.06)	(0.14)	-0.13	(0.06)	-0.06
Single	-0.18**	-0.26***	-0.18	-0.49***	-0.19**	-0.06
	(0.06)	(0.06)	(0.12)	-0.12	(0.07)	-0.07
Separated	0.02	-0.20	-0.49	-0.28	0.09	0
	(0.10)	(0.11)	(0.26)	-0.2	(0.11)	-0.12
Divorced	0.01	-0.16*	0.05	-0.43**	-0.01	0.1
	(0.08)	(0.07)	(0.22)	-0.15	(0.09)	-0.07
Widowed	-0.29*	-0.05	-0.05	-0.41	-0.32*	-0.06
	(0.12)	(0.18)	(0.39)	-0.31	(0.12)	-0.12
25-34years	0.18***	0.06	0.13	0.11	0.19**	0.04
	(0.05)	(0.06)	(0.11)	-0.11	(0.06)	-0.07
45-54 years	-0.18**	-0.19**	-0.12	-0.24*	-0.20**	-0.18**
	(0.06)	(0.06)	(0.13)	-0.11	(0.06)	-0.07
55-64 years	-0.53***	0.07	-0.17	-0.03	-0.58***	-0.46***
	(0.07)	(0.07)	(0.18)	-0.14	(0.08)	-0.07
65-74years	-1.44***	1.53***	-1.18***	-0.98***	-1.49***	-0.97***
	(0.10)	(0.14)	(0.28)	-0.25	(0.11)	-0.11
75years+	-1.64***	1.88***	-2.42***	-0.87**	-1.60***	-1.36***
	(0.13)	(0.21)	(0.57)	-0.33	(0.13)	-0.13
Income quartile1	-0.32***	-0.51***	-0.34	-0.32	-0.31***	-0.32***
	(0.06)	(0.08)	(0.20)	-0.18	(0.07)	-0.07
Income quartile2	-0.19***	-0.01	-0.17	0.16	-0.20***	-0.04
	(0.05)	(0.06)	(0.15)	-0.13	(0.06)	-0.06
Income quartile4	0.24***	0.21***	0.44***	0.18	0.19**	0.23***
	(0.05)	(0.06)	(0.11)	-0.1	(0.06)	-0.07
N	8512.00	6628.00	1545.00		6967.00	

Source: Author's calculations using HILDA, 2001, 2009.

Note: Results from ordered logit model. * p<0.05 ** p<0.01 *** p<0.001

Table B. 3 Impact of socio-economic and demographic factors on satisfaction with financial situation by higher educational achievement, 2001 and 2009

	All - 2001	All- 2009	TE - 2001	TE - 2009	NTE - 2001	NTE - 2009
Tertiary-educated	0.15** (0.05)	0.30*** (0.05)				
Female	0.11** (0.04)	0.13** (0.04)	-0.01 (0.09)	0.02 -0.08	0.13** (0.04)	0.16*** -0.05
CALD	0.16 (0.13)	-0.12 (0.14)	0.51 (0.26)	0.18 -0.27	0.06 (0.15)	-0.21 -0.16
ATSI	-0.14 (0.13)	-0.08 (0.12)	-0.81 (0.45)	0.56 -0.36	-0.09 (0.14)	-0.16 -0.13
Ill health	-0.43*** (0.05)	-0.49*** (0.05)	-0.25 (0.14)	-0.38** -0.12	-0.44*** (0.05)	-0.49*** -0.06
Unemployed	-1.24*** (0.12)	-1.26*** (0.14)	-1.54*** (0.38)	-1.07** -0.34	-1.23*** (0.12)	-1.29*** -0.15
NILF	-0.14* (0.06)	-0.21*** (0.06)	0.06 (0.16)	0.16 -0.15	-0.17** (0.06)	-0.29*** -0.07
Other Urban	0.22*** (0.05)	0.12* (0.05)	0.05 (0.12)	0.15 -0.11	0.24*** (0.05)	0.11* -0.05
Rural	0.16** (0.05)	0.02 (0.05)	0.38** (0.14)	-0.06 -0.13	0.13* (0.06)	0.04 -0.06
Single	-0.33*** (0.06)	-0.35*** (0.06)	-0.46*** (0.13)	-0.53*** -0.12	-0.29*** (0.07)	-0.29*** -0.07
Separated	-0.80*** (0.11)	-0.87*** (0.10)	-1.51*** (0.28)	-1.12*** -0.22	-0.69*** (0.12)	-0.79*** -0.12
Divorced	-0.84*** (0.08)	-0.66*** (0.07)	-0.61** (0.22)	-0.65*** -0.16	-0.86*** (0.09)	-0.65*** -0.07
Widowed	-0.03 (0.10)	-0.14 (0.10)	-0.99** (0.36)	-0.33 -0.32	0.02 (0.10)	-0.12 -0.11
25-34years	-0.12* (0.05)	-0.02 (0.06)	-0.07 (0.12)	-0.01 -0.11	-0.14* (0.06)	-0.02 -0.07
45-54 years	0.20*** (0.06)	0.14* (0.06)	0.29* (0.13)	-0.04 -0.12	0.19** (0.06)	0.21** -0.07
55-64 years	0.78*** (0.07)	0.62*** (0.07)	0.98*** (0.17)	0.54*** -0.14	0.77*** (0.07)	0.65*** -0.08
65-74years	1.49*** (0.09)	1.35*** (0.09)	1.20*** (0.25)	0.97*** -0.23	1.51*** (0.09)	1.42*** -0.1
75years+	2.13*** (0.11)	2.05*** (0.11)	2.09*** (0.46)	1.21*** -0.31	2.09*** (0.11)	2.10*** -0.12
Income quartile1	-0.96*** (0.06)	-0.85*** (0.07)	-1.21*** (0.21)	-1.20*** -0.19	-0.94*** (0.07)	-0.82*** -0.07
Income quartile2	-0.40*** (0.05)	-0.40*** (0.06)	-0.53*** (0.15)	-0.33* -0.13	-0.38*** (0.06)	-0.40*** -0.06
Income quartile4	0.52*** (0.05)	0.46*** (0.06)	0.66*** (0.11)	0.57*** -0.1	0.48*** (0.06)	0.42*** -0.07
N	8512.00	8154.00	1545.00		6967.00	

Source: Author's calculations using HILDA, 2001, 2009.

Note: Results from ordered logit model. * p<0.05 ** p<0.01 *** p<0.001

Table B. 4 Impact of socio-economic and demographic factors on satisfaction with free time by higher educational achievement, 2001 and 2009

	All - 2001	All- 2009	TE - 2001	TE - 2009	NTE - 2001	NTE - 2009
Tertiary-educated	-0.27*** (0.05)	-0.03 (0.05)				
Female	-0.09* (0.04)	-0.17*** (0.04)	-0.08 (0.09)	-0.13 -0.08	-0.09* (0.04)	-0.18*** -0.05
CALD	0.14 (0.13)	-0.12 (0.14)	0.26 (0.27)	0.07 -0.27	0.11 (0.15)	-0.18 -0.16
ATSI	0.17 (0.14)	0.21 (0.13)	0.28 (0.51)	0.48 -0.4	0.15 (0.15)	0.18 -0.14
Ill health	-0.03 (0.05)	-0.02 (0.05)	-0.16 (0.13)	-0.13 -0.12	-0.01 (0.05)	-0.01 -0.06
Unemployed	0.62*** (0.12)	1.14*** (0.14)	0.67 (0.36)	1.45*** -0.31	0.61*** (0.13)	1.03*** -0.16
NILF	0.88*** (0.06)	0.75*** (0.06)	1.10*** (0.16)	0.73*** -0.15	0.84*** (0.06)	0.72*** -0.07
Other Urban	0.06 (0.05)	0.17*** (0.05)	0.07 (0.13)	0.23* -0.11	0.06 (0.05)	0.16** -0.05
Rural	0.13* (0.05)	0.08 (0.05)	-0.04 (0.14)	0.18 -0.13	0.15** (0.06)	0.07 -0.06
Single	0.47*** (0.06)	0.31*** (0.06)	0.46*** (0.13)	0.48*** -0.12	0.47*** (0.07)	0.25*** -0.07
Separated	0.03 (0.11)	-0.06 (0.10)	-0.45 (0.28)	-0.18 -0.21	0.11 (0.12)	-0.03 -0.12
Divorced	0.02 (0.08)	-0.08 (0.07)	-0.30 (0.22)	-0.02 -0.15	0.06 (0.09)	-0.1 -0.07
Widowed	0.26** (0.10)	0.32** (0.10)	-0.03 (0.34)	0.34 -0.29	0.30** (0.10)	0.31** -0.11
25-34years	-0.07 (0.05)	-0.02 (0.06)	0.31** (0.12)	0.09 -0.11	-0.17** (0.06)	-0.08 -0.07
45-54 years	0.42*** (0.06)	0.30*** (0.06)	0.59*** (0.13)	0.13 -0.12	0.39*** (0.06)	0.35*** -0.07
55-64 years	0.99*** (0.07)	0.98*** (0.07)	1.34*** (0.18)	1.23*** -0.15	0.92*** (0.07)	0.92*** -0.08
65-74years	1.42*** (0.09)	1.45*** (0.09)	2.15*** (0.25)	1.88*** -0.23	1.31*** (0.09)	1.36*** -0.1
75years+	1.57*** (0.11)	1.52*** (0.11)	2.48*** (0.44)	1.90*** -0.31	1.46*** (0.11)	1.44*** -0.12
Income quartile1	-0.06 (0.06)	-0.10 (0.07)	-0.17 (0.21)	-0.06 -0.19	-0.04 (0.07)	-0.11 -0.07
Income quartile2	-0.06 (0.05)	-0.15** (0.06)	-0.13 (0.15)	-0.17 -0.13	-0.04 (0.06)	-0.16** -0.06
Income quartile4	0.07 (0.05)	0.13* (0.05)	-0.02 (0.11)	0.19* -0.1	0.09 (0.06)	0.08 -0.07
N	8512.00	8150.00	1545.00		6967.00	

Source: Author's calculations using HILDA, 2001, 2009.

Note: Results from ordered logit model. * p<0.05 ** p<0.01 *** p<0.001

Table B. 5 Impact of socio-economic and demographic factors on satisfaction with safety by higher educational achievement, 2001 and 2009

	All - 2001	All- 2009	TE - 2001	TE - 2009	NTE - 2001	NTE - 2009
Tertiary-educated	0.04 (0.05)	0.30*** (0.05)				
Female	-0.17*** (0.04)	-0.06 (0.04)	-0.30** (0.09)	-0.18* (0.09)	-0.14** (0.04)	-0.02 (0.05)
CALD	-0.18 (0.13)	-0.07 (0.14)	-0.17 (0.27)	-0.14 (0.28)	-0.19 (0.15)	-0.04 (0.16)
ATSI	-0.15 (0.14)	0.48*** (0.13)	0.09 (0.49)	0.24 (0.38)	-0.19 (0.14)	0.49*** (0.14)
Ill health	-0.32*** (0.05)	-0.31*** (0.05)	-0.38** (0.14)	-0.47*** (0.12)	-0.31*** (0.05)	-0.28*** (0.06)
Unemployed	-0.06 (0.12)	-0.05 (0.14)	-0.26 (0.38)	0.07 (0.33)	-0.04 (0.13)	-0.07 (0.16)
NILF	0.06 (0.06)	-0.01 (0.06)	-0.03 (0.16)	0.09 (0.14)	0.06 (0.06)	-0.02 (0.07)
Other Urban	0.44*** (0.05)	0.19*** (0.05)	0.43*** (0.13)	0.36** (0.11)	0.44*** (0.05)	0.15** (0.05)
Rural	0.67*** (0.05)	0.51*** (0.06)	0.71*** (0.14)	0.54*** (0.13)	0.66*** (0.06)	0.49*** (0.06)
Single	-0.19** (0.06)	-0.29*** (0.06)	-0.16 (0.13)	-0.33** (0.13)	-0.19** (0.07)	-0.28*** (0.07)
Separated	-0.45*** (0.11)	-0.34** (0.11)	-0.51 (0.28)	-0.29 (0.22)	-0.45*** (0.12)	-0.35** (0.12)
Divorced	-0.35*** (0.08)	-0.20** (0.07)	-0.34 (0.22)	-0.26 (0.16)	-0.35*** (0.09)	-0.18* (0.07)
Widowed	-0.04 (0.10)	-0.08 (0.10)	0.19 (0.36)	-0.26 (0.3)	-0.06 (0.10)	-0.05 (0.1)
25-34years	0.04 (0.05)	0.19** (0.06)	-0.14 (0.12)	0.34** (0.12)	0.08 (0.06)	0.15* (0.07)
45-54 years	0.21*** (0.06)	0.08 (0.06)	0.28* (0.13)	0.22 (0.12)	0.19** (0.07)	0.04 (0.07)
55-64 years	0.27*** (0.07)	0.38*** (0.07)	0.46** (0.17)	0.63*** (0.15)	0.25*** (0.07)	0.30*** (0.08)
65-74years	0.37*** (0.08)	0.45*** (0.09)	0.27 (0.24)	0.48* (0.22)	0.38*** (0.09)	0.40*** (0.1)
75years+	0.49*** (0.11)	0.77*** (0.11)	0.85 (0.43)	1.38*** (0.31)	0.47*** (0.11)	0.67*** (0.12)
Income quartile1	-0.10 (0.06)	-0.05 (0.07)	-0.31 (0.21)	0.12 (0.19)	-0.08 (0.07)	-0.08 (0.07)
Income quartile2	-0.09 (0.06)	-0.13* (0.06)	-0.29 (0.15)	-0.08 (0.13)	-0.07 (0.06)	-0.14* (0.06)
Income quartile4	0.09 (0.05)	0.17** (0.06)	0.13 (0.11)	0.21* (0.1)	0.07 (0.06)	0.16* (0.07)
N	8512.00	8144.00	1545.00		6967.00	

Source: Author's calculations using HILDA, 2001, 2009.

Note: Results from ordered logit model. * p<0.05 ** p<0.01 *** p<0.001

Table B. 6Impact of socio-economic and demographic factors on satisfaction with health by higher educational achievement, 2001 and 2009

	All - 2001	All- 2009	TE - 2001	TE - 2009	NTE - 2001	NTE - 2009
Tertiary-educated	-0.06 (0.05)	0.12* (0.05)				
Female	0.12** (0.04)	0.11** (0.04)	-0.05 (0.09)	0.03 -0.09	0.16*** (0.04)	0.14** -0.05
CALD	0.30* (0.13)	-0.08 (0.14)	0.34 (0.26)	0.03 -0.27	0.28 (0.16)	-0.11 -0.16
ATSI	0.02 (0.14)	-0.09 (0.13)	0.77 (0.53)	-0.64 -0.37	-0.05 (0.15)	0 -0.14
Ill health	-2.01*** (0.05)	-1.66*** (0.05)	-1.97*** (0.14)	-1.70*** -0.13	-1.99*** (0.06)	-1.65*** -0.06
Unemployed	-0.17 (0.12)	-0.26 (0.14)	-0.32 (0.41)	-0.11 -0.33	-0.17 (0.13)	-0.33* -0.15
NILF	-0.38*** (0.06)	-0.37*** (0.06)	-0.24 (0.16)	-0.24 -0.15	-0.40*** (0.06)	-0.39*** -0.07
Other Urban	0.22*** (0.05)	0.03 (0.05)	0.16 (0.13)	0.12 -0.11	0.23*** (0.05)	0.02 -0.05
Rural	0.30*** (0.05)	0.11 (0.06)	0.16 (0.14)	0.14 -0.13	0.33*** (0.06)	0.11 -0.06
Single	-0.16** (0.06)	-0.19** (0.06)	-0.12 (0.13)	-0.39** -0.12	-0.17* (0.07)	-0.11 -0.07
Separated	-0.22* (0.10)	-0.25* (0.11)	-0.96*** (0.27)	-0.37 -0.23	-0.12 (0.11)	-0.2 -0.12
Divorced	-0.24** (0.08)	-0.20** (0.07)	-0.33 (0.22)	-0.43** -0.16	-0.23* (0.09)	-0.15* -0.07
Widowed	0.01 (0.10)	0.06 (0.10)	-0.46 (0.35)	0.11 -0.3	0.05 (0.10)	0.07 -0.1
25-34years	0.15** (0.06)	0.10 (0.06)	0.18 (0.12)	0.2 -0.11	0.14* (0.06)	0.07 -0.07
45-54 years	0.10 (0.06)	-0.09 (0.06)	0.25 (0.13)	-0.2 -0.12	0.06 (0.07)	-0.04 -0.07
55-64 years	0.31*** (0.07)	0.32*** (0.07)	0.79*** (0.17)	0.39** -0.14	0.23** (0.07)	0.30*** -0.08
65-74years	0.67*** (0.08)	0.81*** (0.09)	0.71** (0.24)	0.66** -0.22	0.65*** (0.09)	0.84*** -0.1
75years+	0.55*** (0.11)	1.01*** (0.10)	1.41*** (0.43)	0.98** -0.3	0.49*** (0.11)	1.03*** -0.11
Income quartile1	-0.18** (0.06)	-0.21** (0.07)	-0.04 (0.20)	0.07 -0.19	-0.18** (0.07)	-0.24** -0.07
Income quartile2	-0.06 (0.05)	-0.05 (0.06)	-0.16 (0.15)	-0.05 -0.13	-0.05 (0.06)	-0.06 -0.06
Income quartile4	0.01 (0.05)	0.10 (0.06)	0.03 (0.11)	0.05 -0.1	0.02 (0.06)	0.13 -0.07
N	8512.00	8160.00	1545.00		6967.00	

Source: Author's calculations using HILDA, 2001, 2009.

Note: Results from ordered logit model. * p<0.05 ** p<0.01 *** p<0.001

Table B. 7 Impact of socio-economic and demographic factors on satisfaction with own home by higher educational achievement, 2001 and 2009

	All - 2001	All- 2009	TE - 2001	TE - 2009	NTE - 2001	NTE - 2009
Tertiary-educated	-0.26*** (0.05)	-0.03 (0.05)				
Female	0.01 (0.04)	0.06 (0.04)	-0.07 (0.09)	0.15 -0.08	0.02 (0.05)	0.03 -0.05
CALD	0.19 (0.13)	0.13 (0.14)	0.01 (0.26)	-0.36 -0.27	0.25 (0.16)	0.32 -0.16
ATSI	-0.44** (0.14)	0.10 (0.14)	-0.82 (0.50)	0.18 -0.38	-0.41** (0.14)	0.09 -0.14
Ill health	-0.08 (0.05)	-0.12* (0.05)	-0.00 (0.13)	-0.39** -0.12	-0.09 (0.05)	-0.07 -0.06
Unemployed	-0.10 (0.12)	-0.37* (0.15)	-0.02 (0.38)	0.6 -0.33	-0.09 (0.13)	-0.54*** -0.16
NILF	0.29*** (0.06)	0.09 (0.06)	0.34* (0.15)	0.12 -0.15	0.27*** (0.06)	0.08 -0.07
Other Urban	0.22*** (0.05)	0.16*** (0.05)	0.24 (0.12)	0.1 -0.11	0.22*** (0.05)	0.18*** -0.05
Rural	0.34*** (0.05)	0.32*** (0.06)	0.47** (0.15)	0.40** -0.13	0.31*** (0.06)	0.31*** -0.06
Single	-0.03 (0.06)	-0.12 (0.06)	0.04 (0.13)	-0.1 -0.13	-0.04 (0.07)	-0.11 -0.07
Separated	-0.49*** (0.11)	-0.49*** (0.11)	-0.25 (0.29)	-0.69** -0.22	-0.53*** (0.12)	-0.41*** -0.12
Divorced	-0.45*** (0.08)	-0.21** (0.07)	0.01 (0.22)	-0.36* -0.16	-0.51*** (0.09)	-0.19* -0.07
Widowed	0.12 (0.10)	0.22* (0.10)	-0.02 (0.36)	0.23 -0.32	0.12 (0.11)	0.22* -0.11
25-34years	-0.17** (0.06)	-0.14* (0.06)	-0.16 (0.12)	-0.04 -0.11	-0.18** (0.06)	-0.20** -0.07
45-54 years	0.43*** (0.06)	0.15* (0.06)	0.45*** (0.13)	0.15 -0.12	0.43*** (0.07)	0.14* -0.07
55-64 years	0.80*** (0.07)	0.64*** (0.07)	0.83*** (0.17)	0.54*** -0.14	0.79*** (0.08)	0.66*** -0.08
65-74years	1.24*** (0.09)	1.10*** (0.09)	1.03*** (0.25)	1.19*** -0.22	1.25*** (0.09)	1.06*** -0.1
75years+	1.40*** (0.11)	1.34*** (0.11)	1.83*** (0.43)	1.40*** -0.31	1.36*** (0.12)	1.30*** -0.12
Income quartile1	-0.22*** (0.06)	-0.22*** (0.07)	-0.37 (0.20)	-0.09 -0.19	-0.21** (0.07)	-0.27*** -0.07
Income quartile2	-0.05 (0.06)	-0.25*** (0.06)	-0.33* (0.15)	-0.21 -0.13	-0.02 (0.06)	-0.27*** -0.06
Income quartile4	0.14** (0.05)	0.15** (0.06)	0.24* (0.11)	0.32** -0.1	0.10 (0.06)	0.07 -0.07
N	8512.00	8148.00	1545.00		6967.00	

Source: Author's calculations using HILDA, 2001, 2009.

Note: Results from ordered logit model. * p<0.05 ** p<0.01 *** p<0.001

Table B. 8 Impact of socio-economic and demographic factors on satisfaction with neighbourhood in which one lives by higher educational achievement, 2001 and 2009

	All - 2001	All- 2009	TE - 2001	TE - 2009	NTE - 2001	NTE - 2009
Tertiary-educated	-0.14** (0.05)	0.15** (0.05)				
Female	0.20*** (0.04)	0.21*** (0.04)	0.21* (0.09)	0.34*** -0.08	0.19*** (0.05)	0.18*** -0.05
CALD	0.22 (0.13)	0.04 (0.14)	-0.06 (0.27)	0.06 -0.27	0.30 (0.15)	0.06 -0.16
ATSI	-0.15 (0.14)	0.10 (0.13)	-0.15 (0.50)	-0.16 -0.39	-0.16 (0.14)	0.13 -0.14
Ill health	-0.29*** (0.05)	-0.36*** (0.05)	-0.42** (0.14)	-0.46*** -0.12	-0.27*** (0.05)	-0.35*** -0.06
Unemployed	-0.44*** (0.12)	-0.16 (0.15)	-0.63 (0.38)	0.11 -0.35	-0.41** (0.13)	-0.19 -0.16
NILF	0.15** (0.06)	-0.05 (0.06)	0.18 (0.15)	0.07 -0.15	0.13* (0.06)	-0.06 -0.07
Other Urban	0.34*** (0.05)	0.12* (0.05)	0.25* (0.13)	0.17 -0.11	0.36*** (0.05)	0.11* -0.05
Rural	0.71*** (0.05)	0.64*** (0.06)	0.68*** (0.14)	0.58*** -0.13	0.72*** (0.06)	0.64*** -0.06
Single	-0.12 (0.06)	-0.20** (0.06)	0.04 (0.13)	-0.25 -0.13	-0.15* (0.07)	-0.17* -0.07
Separated	-0.44*** (0.11)	-0.22* (0.11)	-0.88** (0.28)	-0.25 -0.22	-0.38*** (0.11)	-0.2 -0.12
Divorced	-0.23** (0.08)	-0.29*** (0.07)	-0.14 (0.23)	-0.44** -0.16	-0.24** (0.09)	-0.25*** -0.07
Widowed	0.02 (0.10)	0.03 (0.10)	0.20 (0.34)	0.02 -0.3	0.01 (0.10)	0.03 -0.11
25-34years	-0.07 (0.06)	-0.11 (0.06)	-0.07 (0.12)	-0.04 -0.11	-0.08 (0.06)	-0.16* -0.07
45-54 years	0.27*** (0.06)	0.13* (0.06)	0.23 (0.13)	0.19 -0.12	0.29*** (0.07)	0.11 -0.07
55-64 years	0.54*** (0.07)	0.39*** (0.07)	0.83*** (0.18)	0.35* -0.14	0.50*** (0.07)	0.38*** -0.08
65-74years	0.88*** (0.09)	0.80*** (0.09)	0.71** (0.24)	0.80*** -0.22	0.88*** (0.09)	0.77*** -0.1
75years+	0.90*** (0.11)	1.10*** (0.11)	1.15** (0.41)	0.85** -0.29	0.88*** (0.11)	1.09*** -0.11
Income quartile1	-0.23*** (0.06)	-0.16* (0.07)	-0.55** (0.21)	-0.08 -0.18	-0.20** (0.07)	-0.18* -0.07
Income quartile2	-0.07 (0.06)	-0.16** (0.06)	-0.37* (0.15)	-0.15 -0.13	-0.04 (0.06)	-0.16** -0.06
Income quartile4	0.07 (0.05)	0.05 (0.06)	0.03 (0.11)	0.1 -0.1	0.05 (0.06)	0.03 -0.07
N	8512.00	8146.00	1545.00		6967.00	

Source: Author's calculations using HILDA, 2001, 2009.

Note: Results from ordered logit model. * p<0.05 ** p<0.01 *** p<0.001

Table B. 9 Impact of socio-economic and demographic factors on satisfaction with local community by higher educational achievement, 2001 and 2009

	All - 2001	All- 2009	TE - 2001	TE - 2009	NTE - 2001	NTE - 2009
Tertiary-educated	0.09 (0.05)	0.20*** (0.05)				
Female	0.18*** (0.04)	0.18*** (0.04)	0.20* (0.09)	0.42*** -0.08	0.18*** (0.04)	0.12* -0.05
CALD	0.24 (0.13)	0.05 (0.13)	0.23 (0.27)	-0.05 -0.26	0.26 (0.15)	0.13 -0.16
ATSI	0.13 (0.14)	0.33* (0.13)	-0.09 (0.47)	0.32 -0.35	0.14 (0.15)	0.33* -0.14
Ill health	-0.30*** (0.05)	-0.29*** (0.05)	-0.21 (0.13)	-0.28* -0.12	-0.30*** (0.05)	-0.29*** -0.06
Unemployed	-0.55*** (0.12)	-0.27* (0.14)	-0.73* (0.37)	-0.37 -0.31	-0.52*** (0.13)	-0.25 -0.15
NILF	-0.05 (0.06)	-0.09 (0.06)	0.03 (0.15)	0.23 -0.14	-0.06 (0.06)	-0.14* -0.07
Other Urban	0.49*** (0.05)	0.27*** (0.05)	0.60*** (0.13)	0.34** -0.11	0.48*** (0.05)	0.25*** -0.05
Rural	0.78*** (0.05)	0.51*** (0.06)	0.68*** (0.14)	0.49*** -0.13	0.78*** (0.06)	0.50*** -0.06
Single	-0.21*** (0.06)	-0.41*** (0.06)	-0.20 (0.13)	-0.69*** -0.12	-0.21** (0.07)	-0.34*** -0.07
Separated	-0.60*** (0.11)	-0.28** (0.11)	-0.76** (0.28)	-0.2 -0.22	-0.58*** (0.12)	-0.29* -0.12
Divorced	-0.28*** (0.08)	-0.39*** (0.07)	-0.07 (0.22)	-0.44** -0.15	-0.30*** (0.09)	-0.38*** -0.07
Widowed	0.06 (0.10)	-0.21* (0.10)	-0.29 (0.37)	-0.27 -0.31	0.08 (0.10)	-0.17 -0.1
25-34years	-0.28*** (0.05)	-0.17** (0.06)	-0.41*** (0.12)	-0.14 -0.11	-0.26*** (0.06)	-0.19** -0.07
45-54 years	0.16** (0.06)	0.16** (0.06)	0.12 (0.13)	0.1 -0.12	0.17** (0.06)	0.19** -0.07
55-64 years	0.48*** (0.07)	0.40*** (0.07)	0.58** (0.18)	0.35* -0.14	0.47*** (0.07)	0.43*** -0.08
65-74years	0.78*** (0.08)	0.86*** (0.09)	0.39 (0.25)	0.61** -0.22	0.81*** (0.09)	0.89*** -0.1
75years+	0.85*** (0.11)	1.01*** (0.11)	1.04* (0.44)	0.5 -0.31	0.84*** (0.11)	1.04*** -0.11
Income quartile1	-0.08 (0.06)	-0.03 (0.07)	0.02 (0.21)	-0.14 -0.18	-0.10 (0.07)	-0.03 -0.07
Income quartile2	-0.10 (0.05)	-0.05 (0.06)	-0.16 (0.15)	0.08 -0.13	-0.09 (0.06)	-0.07 -0.06
Income quartile4	-0.10 (0.05)	-0.10 (0.05)	-0.07 (0.11)	-0.07 -0.1	-0.12 (0.06)	-0.13 -0.07
N	8512.00	8135.00	1545.00		6967.00	

Source: Author's calculations using HILDA, 2001, 2009.

Note: Results from ordered logit model. * p<0.05 ** p<0.01 *** p<0.001

Table B. 10 Impact of socio-economic and demographic factors on satisfaction with the partner by higher educational achievement, 2001 and 2009

Partner	All - 2001	All- 2009	TE - 2001	TE - 2009	NTE - 2001	NTE - 2009
Tertiary-educated	-0.16** (0.05)					
Female	-0.15*** (0.04)		-0.01 (0.09)	-0.08 (-0.08)	-0.20*** (0.05)	-0.09* (-0.05)
CALD	0.02 (0.14)		0.28 (0.28)	-0.2 (-0.26)	-0.09 (0.16)	-0.54*** (-0.16)
ATSI	0.11 (0.14)		1.13* (0.53)	-0.04 (-0.4)	0.06 (0.15)	-0.29* (-0.13)
Ill health	-0.04 (0.05)		0.04 (0.14)	-0.18 (-0.12)	-0.05 (0.05)	-0.17** (-0.05)
Unemployed	-0.14 (0.12)		-0.07 (0.41)	-0.43 (-0.33)	-0.11 (0.13)	-0.2 (-0.15)
NILF	0.22*** (0.06)		0.31* (0.16)	0.07 (-0.14)	0.22*** (0.06)	0.06 (-0.06)
Other Urban	0.15** (0.05)		0.04 (0.13)	0.15 (-0.11)	0.17** (0.05)	0.09 (-0.05)
Rural	0.11 (0.05)		-0.05 (0.14)	0.03 (-0.13)	0.13* (0.06)	0.04 (-0.06)
Single	-3.55*** (0.08)		-3.32*** (0.16)	-2.72*** (-0.14)	-3.66*** (0.09)	-2.46*** (-0.08)
Separated	-3.34*** (0.11)		-3.28*** (0.29)	-2.39*** (-0.22)	-3.35*** (0.12)	-2.22*** (-0.12)
Divorced	-3.56*** (0.10)		-3.66*** (0.25)	-1.85*** (-0.16)	-3.54*** (0.10)	-1.70*** (-0.08)
Widowed	-4.41*** (0.11)		-4.08*** (0.36)	-2.70*** (-0.28)	-4.39*** (0.12)	-2.84*** (-0.1)
25-34years	0.29*** (0.06)		0.31* (0.12)	0.41*** (-0.11)	0.29*** (0.06)	0.09 (-0.07)
45-54 years	0.24*** (0.06)		-0.09 (0.13)	0.16 (-0.12)	0.32*** (0.07)	0.05 (-0.07)
55-64 years	0.43*** (0.07)		0.44* (0.17)	0.39** (-0.14)	0.43*** (0.08)	0.36*** (-0.07)
65-74years	0.59*** (0.09)		0.12 (0.24)	0.36 (-0.2)	0.63*** (0.09)	0.64*** (-0.09)
75years+	0.39*** (0.11)		0.64 (0.42)	0.09 (-0.29)	0.38** (0.12)	0.43*** (-0.11)
Income quartile1	-0.18** (0.07)		-0.35 (0.20)	-0.05 (-0.18)	-0.18* (0.07)	-0.24*** (-0.07)
Income quartile2	-0.12* (0.06)		-0.14 (0.15)	0.21 (-0.12)	-0.12* (0.06)	-0.09 (-0.06)
Income quartile4	-0.06 (0.06)		0.06 (0.11)	0.32*** (-0.1)	-0.10 (0.07)	0.06 (-0.07)
N	8512.00		1545.00		6967.00	

Source: Author's calculations using HILDA, 2001, 2009.

Note: Results from ordered logit model. * p<0.05 ** p<0.01 *** p<0.001

3. The impact of socio-economic and demographic variables on overall satisfaction with life throughout the life-course

Chapter 8 discussed subjective well-being in the light of the life-course approach. How the perceptions of well-being are different for individuals in early adulthood, middle adulthood, late adulthood and very late adulthood was empirically tested. The results were reported in Section 8.4 (Table 8.3). Complementary to that analysis, the impact of socio-economic and demographic factors on the subjective well-being of the tertiary-educated and the non-tertiary-educated across stages of the life course was tested and results are presented below.

Table B 10 Ordered logit regression coefficients: impact of socio-economic and demographic variables by stage of life-course and higher educational achievement

	EA			MA			LA			VLA		
	All	TE	NTE	All	TE	NTE	All	TE	NTE	All	TE	NTE
female	0.13*	0.12	0.12	0.16*	0.26	0.16*	-0.18	-0.28	-0.21	0.32*	0.66	0.31
	(0.06)	(0.12)	(0.07)	(0.07)	(0.14)	(0.08)	(0.14)	(0.38)	(0.15)	(0.16)	(0.64)	(0.17)
atsi	0.29	-0.48	0.38*	0.61**	0.54	0.59*	-0.50	-0.79	-0.41	1.35		1.41
	(0.19)	(0.58)	(0.19)	(0.23)	(0.69)	(0.25)	(0.49)	(1.64)	(0.54)	(1.31)		(1.29)
cald	-0.06	-0.21	-0.05	-0.53*	-0.20	-0.68*	1.22*	1.07	1.32*	-0.22	2.56	-0.84
	(0.18)	(0.37)	(0.21)	(0.25)	(0.47)	(0.31)	(0.60)	(2.40)	(0.64)	(0.84)	(1.76)	(0.96)
ill_health	-0.72***	-0.94***	-0.65***	-0.64***	-0.53**	-0.67***	-0.37**	-0.44	-0.38**	-0.94***	-1.16*	-0.94***
	(0.09)	(0.20)	(0.11)	(0.08)	(0.19)	(0.09)	(0.13)	(0.37)	(0.14)	(0.15)	(0.57)	(0.16)
unempl	-0.61***	-0.42	-0.62**	0.10	0.67	0.00	-2.33*	-3.62*	0.34			
	(0.18)	(0.42)	(0.20)	(0.27)	(0.67)	(0.29)	(1.07)	(1.41)	(1.54)			
nilf	0.02	0.13	0.01	0.31***	0.31	0.29**	-0.13	-0.19	-0.09	-0.19	0.26	-0.40
	(0.10)	(0.23)	(0.11)	(0.09)	(0.23)	(0.10)	(0.19)	(0.52)	(0.21)	(0.34)	(0.78)	(0.39)
single	-0.79***	-1.16***	-0.68***	-0.68***	-1.31***	-0.47***	-0.52	-0.79	-0.42	-0.84*	-1.83	-0.73
	(0.08)	(0.16)	(0.09)	(0.12)	(0.25)	(0.14)	(0.32)	(0.85)	(0.35)	(0.34)	(0.99)	(0.38)
separated	-0.78***	-1.77***	-0.56**	-1.04***	-0.93**	-1.09***	-1.43***	-2.73	-1.36***	-0.32		-0.40
	(0.17)	(0.41)	(0.19)	(0.15)	(0.29)	(0.18)	(0.36)	(1.86)	(0.37)	(0.68)		(0.68)
divorced	-0.51***	-0.46	-0.50***	-0.37***	-0.39	-0.35***	-0.45*	0.83	-0.68**	-0.59	0.08	-0.75*
	(0.13)	(0.30)	(0.14)	(0.09)	(0.21)	(0.10)	(0.22)	(0.57)	(0.25)	(0.34)	(1.02)	(0.36)
widowed	-1.53*		-1.41*	-0.04	0.10	-0.08	-0.20	0.53	-0.29	-0.34*	-0.49	-0.34*
	(0.62)		(0.62)	(0.22)	(0.49)	(0.24)	(0.19)	(0.59)	(0.21)	(0.16)	(0.66)	(0.17)
otherUrban	0.05	0.03	0.07	0.09	0.05	0.09	0.53***	1.04*	0.48**	0.15	-0.34	0.16
	(0.07)	(0.16)	(0.08)	(0.08)	(0.18)	(0.09)	(0.15)	(0.44)	(0.17)	(0.16)	(0.74)	(0.16)
rural	0.19*	0.25	0.19	0.27**	0.49*	0.23*	0.24	0.25	0.25	-0.12	1.87	-0.18
	(0.09)	(0.20)	(0.10)	(0.08)	(0.19)	(0.09)	(0.17)	(0.51)	(0.18)	(0.22)	(1.46)	(0.23)
inq1	-0.27*	0.13	-0.29*	-0.27*	-0.41	-0.23	-0.05	-0.74	-0.04	-0.37	-1.35	-0.32
	(0.11)	(0.33)	(0.12)	(0.11)	(0.31)	(0.12)	(0.20)	(0.65)	(0.22)	(0.25)	(0.82)	(0.28)
inq2	-0.21**	0.10	-0.25**	-0.06	-0.41	0.00	-0.15	-0.91	-0.06	-0.38	-0.69	-0.36
	(0.08)	(0.18)	(0.09)	(0.09)	(0.23)	(0.10)	(0.21)	(0.53)	(0.23)	(0.29)	(0.73)	(0.32)
inq4	0.06	-0.04	0.13	0.09	0.05	0.10	0.09	0.41	-0.15	-0.55	0.52	-0.85*
	(0.08)	(0.13)	(0.10)	(0.08)	(0.16)	(0.10)	(0.25)	(0.54)	(0.30)	(0.38)	(0.88)	(0.43)
N	3619.00	1027.00	2592.00	3063.00	708.00	2355.00	803.00	120.00	683.00	675.00	58.00	617.00

* p<0.05 ** p<0.01 *** p<0.001"

Source: Author's calculations using HILDA, 2009. Supplementary analysis to Section 8.4.

Appendix C. Technical appendix

This technical appendix addresses two of the biases identified in quality of life research, and previously discussed in Section 4.5. Six methodological biases have been identified at that time: the age group bias, cohort bias, centrality of life-domains over the life-course (or focussing effect, Plagnol 2010), instrumentation biases, differences between subjective and objective levels of well-being, potential differences between SWB assessed as satisfaction and SWB assessed as happiness. Section 4.5 discussed how the analysis attends to these biases, and directed the reader towards the section of the thesis in which each bias was addressed. This appendix discusses the instrumentation bias and the difference in levels of SWB when measured as satisfaction or happiness.

1. Instrumentation or participation bias

Following work by Baltes (1968), Bell (1953), Schaie (1965) and Windle (1954), Baird et al. (2010) investigated whether “the simple act of answering the same question on multiple occasions might lead people to change their responses over time” (p. 186, also discussed by Choquette and Hesselbrock, 1987 and Sharpe and Gilbert, 1998). They suggest the use of refreshment samples to isolate the effect sought in the investigation from noise like historical events or participation biases.

HILDA provides data for a repeated cohort of individuals (n=7,721) for longitudinal analysis, as well as for refreshed samples of individuals (19,914 respondents in 2001, 13,301 in 2009 etc.). Individuals that were not in all waves of interviews are considered to make the ‘refreshed’ sample and their levels of satisfaction are compared to the satisfaction levels of the 7,721 repeated respondents in 2009. If the two groups have similar levels of satisfaction then it can be concluded that there are no differences between the two groups and there is no participation bias reflected in the self-assessment of well-being. However, remaining in the survey may be indicative of some intrinsic characteristics (such as commitment) and the differences may in fact be present since the beginning of the survey.

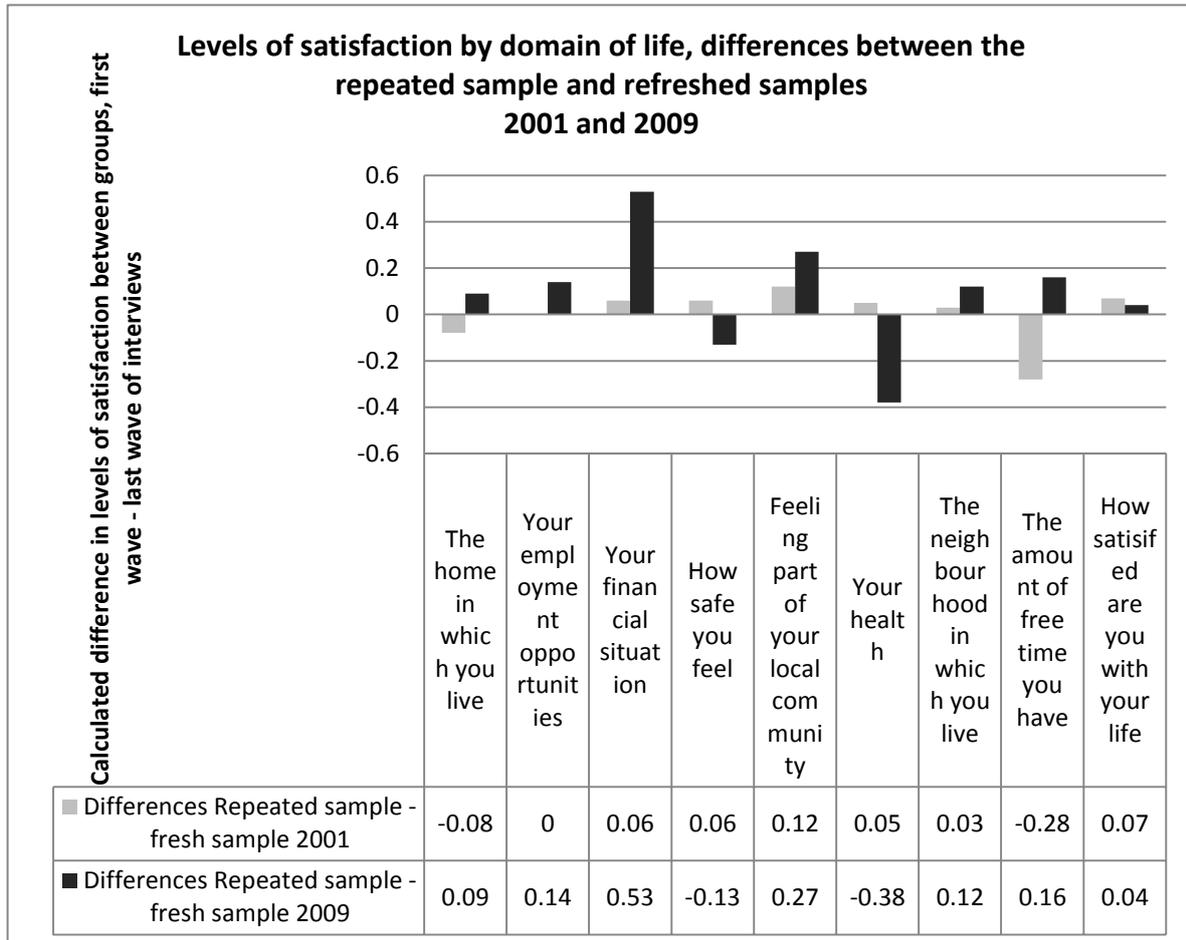
The same exercise is conducted for 2001 data. Furthermore, given the purpose of this study – to map differences between tertiary education graduates and the rest of the population, the 2001 and 2009 differences between the repeated and refreshed samples of TE and NTE are as well graphed (Fig.C.1 and Fig.C.2 respectively). While there is an observed trend of slightly higher levels of satisfaction in 2009 for the cohort that participated in all waves of HILDA (marked through the darker columns in Fig.10), satisfaction with the feeling of safety and satisfaction with health are lower for this repeated sample.

The highest and most obvious differences occur in terms of satisfaction with the financial situation, feeling part of the local community and satisfaction with health (a difference between repeated and fresh respondents in 2009 of about 0.3 points or more). Given the low or no oscillations in self-assessed wellbeing (Cummins, 2010), such differences may be considered well high.

It can then be concluded that, although for most domains (satisfaction with their home, satisfaction with employment opportunities, with safety, neighbourhood, or satisfaction with life as a whole), there are no major differences between the repeated sample

of respondents (n=7,721) and the fresh sample (n=5,580), satisfaction with some domains of life come across as rather different. For example repeated respondents had about half point higher satisfaction with their financial situation, almost 0.3 points higher satisfaction with feeling part of their local community and are nearly 0.4 less satisfied with their health.

Fig.C. 1 Participation bias in wave1 and wave9 (Repeated vs. Refreshed samples)



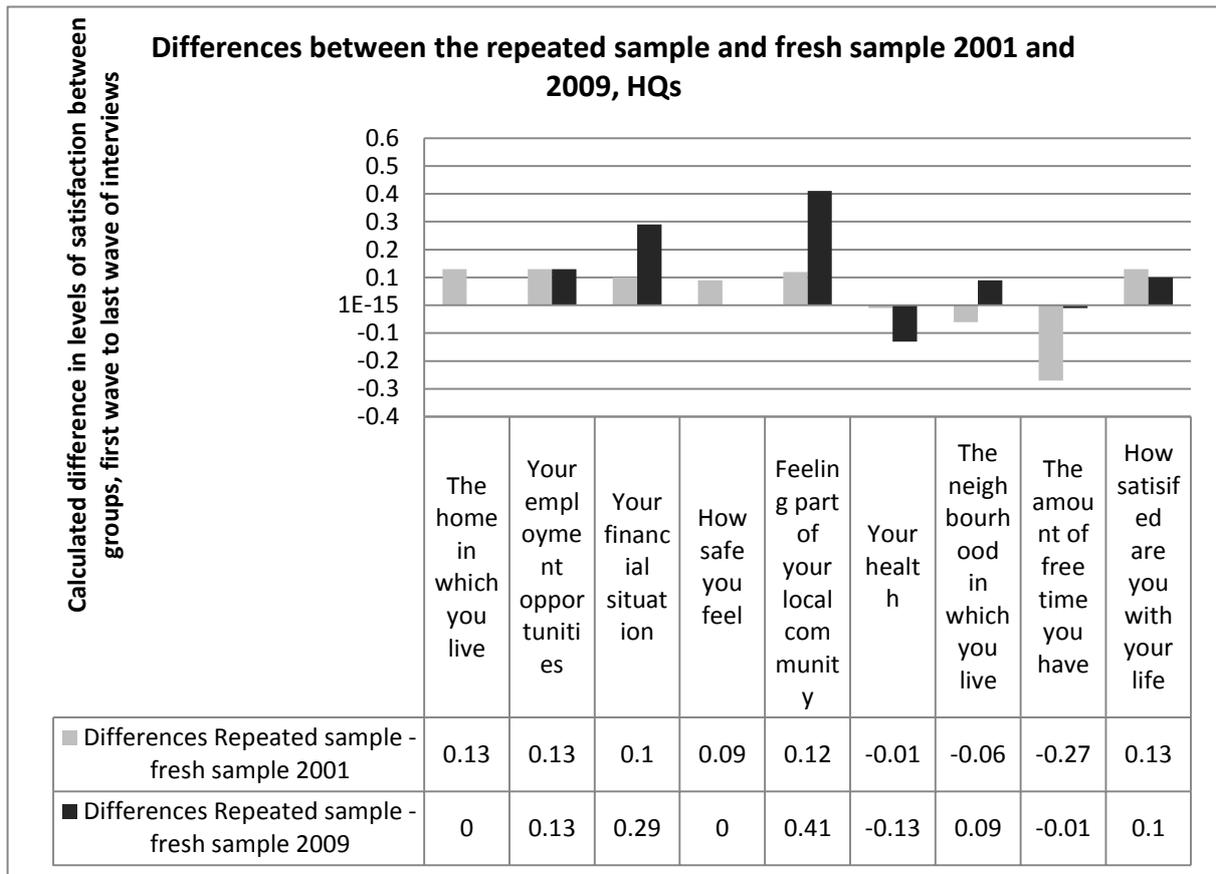
Source: Author's calculations using HILDA 2001 and HILDA 2009 data.

From this we may conclude that differences may be ignored and the repeated sample can generate same results as the refreshed sample of 13,301 (in 2009, comprising of the repeated 7721 respondents and the new 5580 one). However, when comparing these differences with the sample of individuals interviewed in 2001 (total of 19,914 of which 7721 repeated the survey each consecutive year and 12,189 opted out), it can be noticed that the balance between the groups has changed for some domains of life. The repeated group is more satisfied with their safety in 2001 than the non-repeated group, while in 2009 they are much less satisfied, indicating that the participation in the survey can be a cause of their self-

appreciation of safety to decline. Similarly, they are less satisfied with their health in 2009, while in 2001 they are more satisfied than the rest of the population. The differences depicted in Fig.C.2 indicate that a participation bias may be present in HILDA in terms of self-assessed satisfaction with various domains of life (although not much overall satisfaction with life). For this reason the refreshed samples are preferred for the analysis.

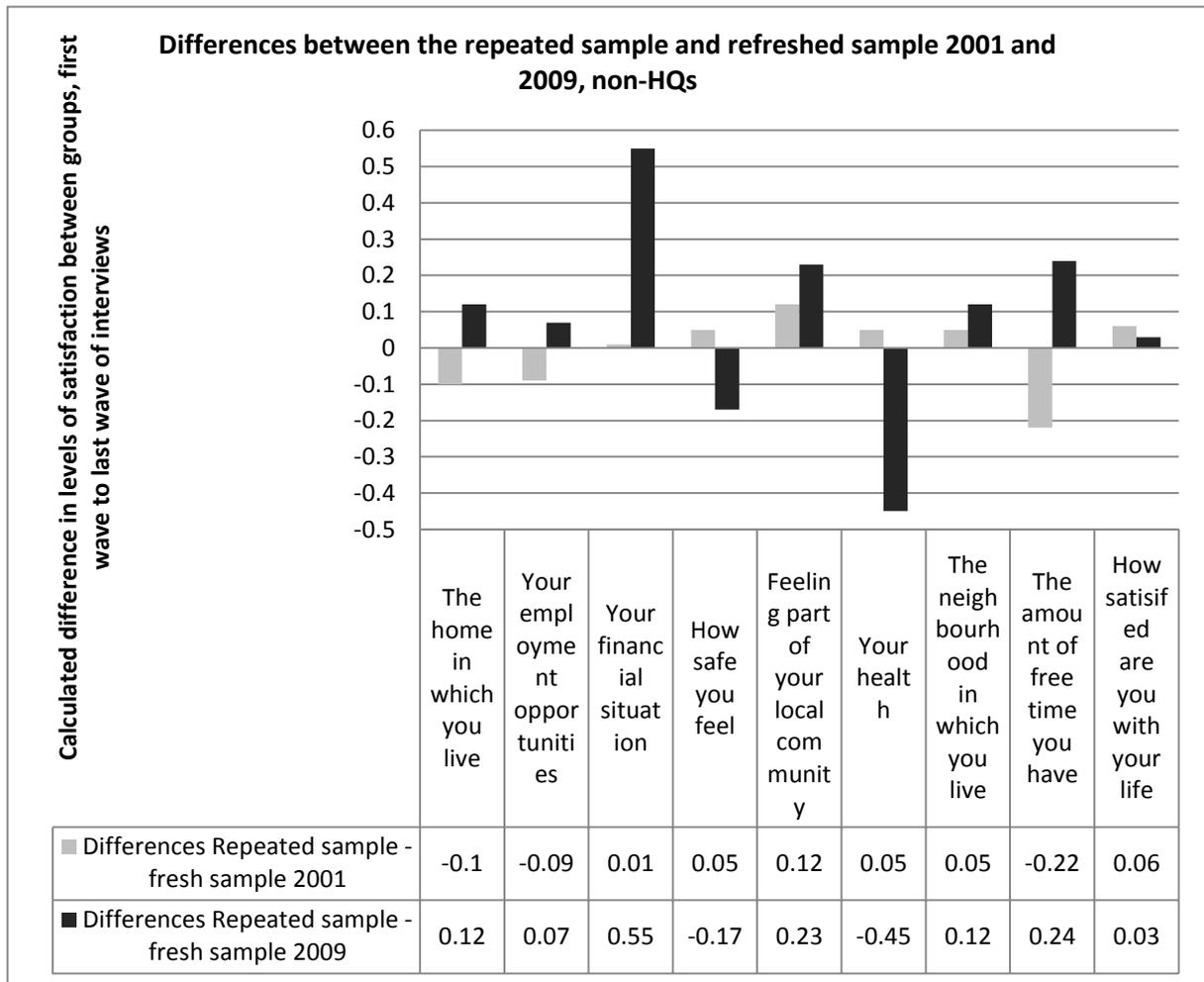
A similar comparison between the differences of satisfaction of repeated and fresh participants in 2009 and 2001 respectively is separately conducted for individuals with higher qualifications (TE) and the rest of the population (NTE). While the direction of the bias is similar to that of the general population for the two groups, the intensity is greater for NTE. For example, if they participate in all waves of the survey, NTE have greater levels of satisfaction with their financial situation, feeling part of their local community and their free time, but are also much less satisfied with their health than they were at the beginning of the survey (2001) and the TE in 2009 (Fig.C.2 and Fig.C.3). These findings are again indicative that, in particular for this thesis that investigates differences in SWB by highest education level achieved, it is important to account for the participation bias (Baird et al., 2010) and use refreshed samples even in multiple-year analysis.

Fig.C. 2Participation bias in wave1 and wave9 (Repeated vs. Refreshed samples), TE



Source: Author’s calculations using HILDA 2001 and HILDA 2009 data.

Fig.C. 3 Participation bias in wave1 and wave9 (Repeated vs. Refreshed samples), NTE



Source: Author's calculations using HILDA 2001 and HILDA 2009 data.

2. Satisfaction with life and happiness or cognitive and affective measures of wellbeing

Table C. 1 Happiness with life overall, AuSSA 2009 (%)

	Tertiary-educated	Not Tertiary-educated	Total
Very happy	35.8	31.7	32.5
Fairly happy	58.2	56.7	57.0
Not very happy	4.8	8.8	8.1
Not at all happy	0.7	1.8	1.6
Can't choose	0.4	0.9	0.8
Total	100	100	100
N	2305	861	3166

Note: Pearson Chi-Square <.005. Source: Author's calculation using AuSSA 2009. Sampling weight was used for cross tabulation; total N is reported from un-weighted sample.

Table C. 2 Satisfaction with life overall, HILDA 2009 (%)

	Tertiary-educated	Not tertiary-educated	Total
Totally satisfied	5.7	11.5	10.1
9	23.1	20.7	21.3
8	36.7	33.5	34.3
7	23.8	18.8	20.0
6	6.5	7.0	6.8
Neither satisfied nor dissatisfied	2.5	5.3	4.6
4	0.8	1.2	1.1
3	0.5	0.9	0.8
2	0.1	0.7	0.5
1	0.3	0.5	0.4
Totally dissatisfied	0.0	0.1	0.1
Total	100	100	100
N	2645	8030	10675

Note: Pearson's Chi-Square <.005. Source: Author's calculations using HILDA, 2009. Sampling weight was used for cross tabulation; total N is reported from un-weighted sample.

Table C. 3 Mean levels of SWB by higher educational achievement using four distinct measures

SWB measured as	Tertiary-educated	Non-tertiary-educated
Overall satisfaction	7.82	7.78
Average satisfaction	7.37	7.15
Happiness ¹		
Personal Well-Being Index ²	7.49	

1. Happiness as measured in AuSSA 2009.

2. Disaggregated mean value of the PWI by tertiary educational achievement was not available; the reported value is the overall population mean.

3. SWB by degree level or highest school level

Table C. 4 Overall satisfaction and average satisfaction by higher educational level achieved

Derived satisfaction from eight domains (average satisfaction)				
History: Highest education level achieved	N	Median	Mean	Std. Deviation
Postgrad - masters or doctorate	477	7.375	7.2851	1.07984
Grad diploma, grad certificate	652	7.5	7.3867	1.13204
Bachelor or honours	1516	7.375	7.2251	1.13395
Adv diploma, diploma	1048	7.125	7.044	1.28342
Cert III or IV	2365	7.125	6.9569	1.28845
Cert I or II	167	6.75	6.6774	1.45576
Cert not defined	61	6.75	6.6598	1.43435
Year 12	1227	7	6.9439	1.35978
Year 11 and below	3155	6.875	6.8003	1.38732
Undetermined	7	6.875	6.8393	1.36495
Total	10675	7.125	6.9905	1.30518

How satisfied are you with your life? (overall satisfaction)				
History: Highest education level achieved	N	Median	Mean	Std. Deviation
Postgrad - masters or doctorate	477	8	7.78	1.287
Grad diploma, grad certificate	652	8	7.92	1.244
Bachelor or honours	1515	8	7.85	1.246
Adv diploma, diploma	1046	8	7.83	1.349
Cert III or IV	2361	8	7.78	1.456
Cert I or II	167	8	7.77	1.725
Cert not defined	61	8	7.67	1.661
Year 12	1225	8	7.79	1.446
Year 11 and below	3146	8	7.91	1.648
Undetermined	7	8	6.71	2.69
Total	10657	8	7.84	1.466

Source: Author's calculations using HILDA, 2009.