Life Course Centre Working Paper Series

Determinants of Adolescent Happiness in Australia

Tony Beatton
Institute for Social Science Research, The University of Queensland

Paul Frijters
School of Economics, The University of Queensland

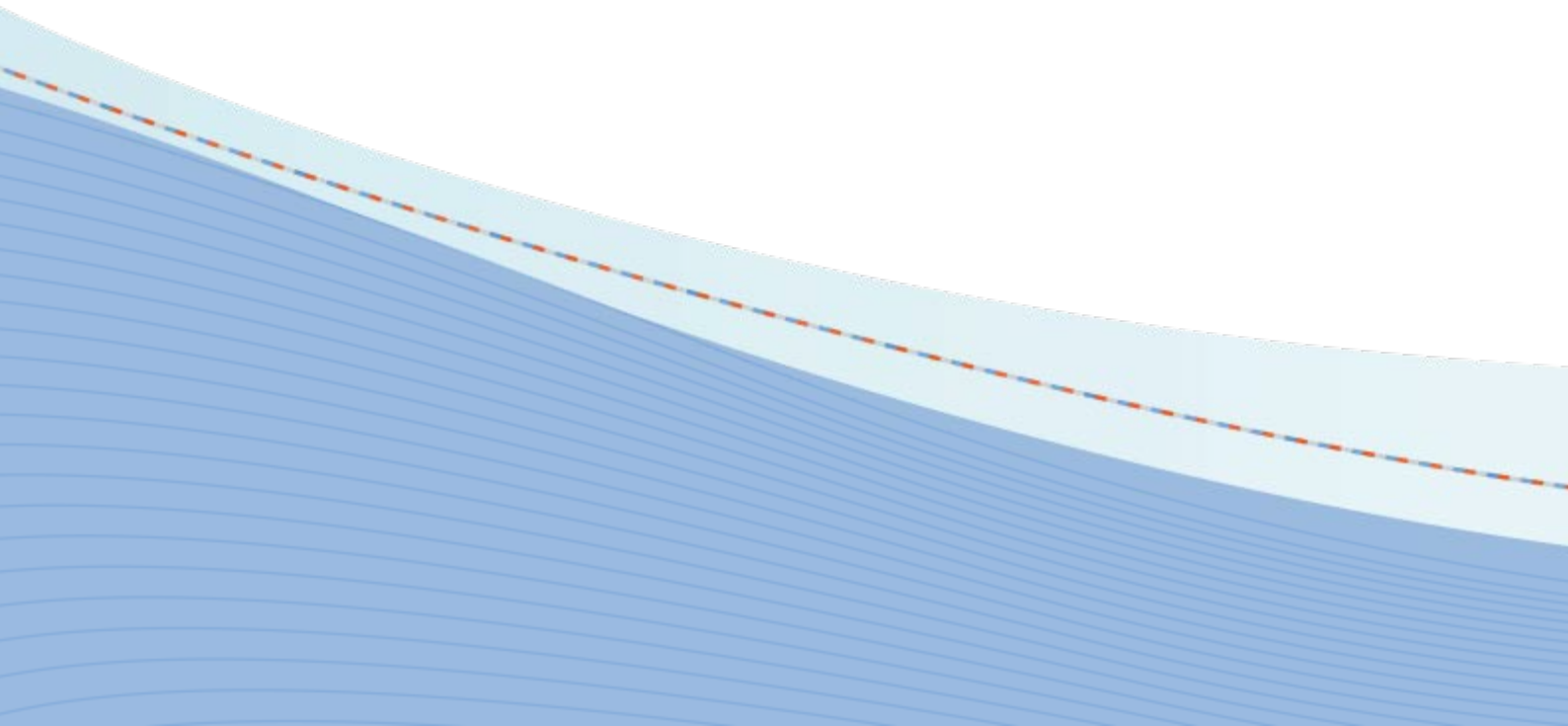
No. 2017-18
October 2017

NON-TECHNICAL SUMMARY

This study questions the change in happiness levels amongst young adolescents. Because it is generally considered that many adult survey questions are not suitable for children, we developed child-specific scales to measure the effect of personality, wealth, and, the 'natural environment', 'school' & 'satisfaction with friends' domains on the happiness of the children. Using an internet-based survey, supported by the Department of Tourism, Regional Development and Industry Queensland State Government, we collected unique data from 389 Australian children aged between 9 and 14.

Collecting data from children is fraught with ethical, logistical and truthful self-reporting roadblocks. To avoid the issue of untruthful reporting when confronted with outside survey collectors, our collecting procedures follow the literature by folding it into the children's normal teaching program, wherein school teachers took their classes to local railway stations to visit a 'Smart Train' that went from urban Brisbane throughout regional Queensland, with carriages containing university research displays; one of which explained happiness.

Adding to previous findings that Australian happiness levels decline between the age of 15 and 23 by almost 0.7 on a ten-point scale, we found an even steeper happiness decline before the age of 14. The children's 'school' and 'interaction with friends' happiness domains explained over 40% of the decline in childhood happiness. The decline in childhood happiness is steepest when the children transition from the first to second year in high school. Unlike adults, perceived relative wealth does not make a significant difference to childhood happiness. As expected: extraverted (friendly, outgoing) children are happier, but unexpectedly; so are conscientious (orderly, systematic, efficient, neat, organised, and efficient) children, perchance because the rewards for such behaviour are higher for school children than for adults.



ABOUT THE AUTHORS

Tony Beatton is an Honorary Research Fellow at The Institute for Social Science Research, The University of Queensland. After a 30-year career in the Information Technology industry, Tony completed a degree in Finance and Management, Masters by Research in Management (Trust development in newly forming teams) and a PhD (Economics of Happiness). Tony's research areas focus on life satisfaction, education, labour, welfare, wellbeing and happiness. Recent publications include Larrikin youth: can education cut crime? (Centrepiece Spring 2017). Email: d.beatton@uq.edu.au

Paul Frijters is Professorial Research Fellow at the Wellbeing Programme and Project Director of the World Wellbeing Panel. He specializes in applied micro-econometrics, including labor, happiness, and health economics. Before joining the LSE, he was the Research Director of the Rumici Project, an international project into the migration from the countryside to the cities in China and Indonesia. In 2009 he was voted Australia's best young economist under 40 by the Australian Economic Society. Email: p.frijters@uq.edu.au

ACKNOWLEDGEMENTS: We thank Dr Markus Schaffner of the Queensland Behavioural Economics Group (QuBE); Leesa Watkin (QUT Smart Train Project Manager), and; Annie Harris (Department of Tourism, Regional Development and Industry, Queensland State Government) for their considerable organisational, financial and technical assistance.

(ARC Centre of Excellence for Children and Families over the Life Course)
Institute for Social Science Research, The University of Queensland (administration node)
UQ Long Pocket Precinct, Indooroopilly, Qld 4068, Telephone: +61 7 334 67477
Email: lcc@uq.edu.au, Web: www.lifecoursecentre.org.au

Abstract

The question looked at in this paper is the change in happiness levels amongst young adolescents. We develop child-specific scales to measure the effect of personality and life satisfaction domains on childhood happiness. With an internet-based survey, we collect unique data from 389 Australian children aged between 9 and 14. Adding to previous findings that Australian happiness levels decline between the age of 15 and 23 by almost 0.7 on a ten-point scale, we find an even steeper happiness decline before the age of 14. Using a decomposition method, we find that the children's 'school' and 'interaction with friends' domains explain over 40% of the decline in childhood happiness. The decline in childhood happiness is steepest when the children transition from the first to second year in high school. Unlike adults, perceived relative wealth has no relation to childhood happiness. As expected, extraverted children are happier, but unexpectedly, so are conscientious children.

Keywords: happiness methodology; life satisfaction; children; change; lifetime; school; friends; environment; Australia

1. Introduction

The study of life satisfaction in adults has become a major area of research in the social sciences (Diener, 1984; Stutzer & Frey, 2012). Yet, as Heubner & Diener (2012, p. 383) conclude in their survey of the literature, "Research in children's school and life satisfaction is in its infancy". We add to the small literature on life satisfaction amongst children by looking at the changes in 9-14 year olds in a sample of 389 Australian school children.

From the few studies available, Heubner & Diener (2012 , p. 379) state that "Global life satisfaction reports of children, above the age of 8, do not appear to differ significantly as a function of age". This is somewhat surprising since there are quite a few studies that report that children who are in early junior high school or in early adolescence experience an increase in mental health problems and a decrease in their satisfaction with school itself (Hirsch & Rapkin, 1987; Huebner, Drane, & Valois, 2000). This raises the possibility that sample sizes or other methodological issues have so far prevented a clear age-happiness profile to be found amongst children. We revisit this issue. Relevant to economists is also the question whether the very strong relation between life satisfaction and perceived relative wealth amongst adults (Headey & Wooden, 2004; Clark, Frijters, & Shields, 2008) also shows up for children: does relative wealth buy childhood happiness?

Currently, the main information on life satisfaction in Australia comes from the Household and Income Dynamics Australia (HILDA, 2013). In Figure 1 we show the age-profile amongst the respondents, showing a drop in happiness of around 0.7 between the age of 15 and 23 on a ten-point scale, leading to the question of what happens before then.

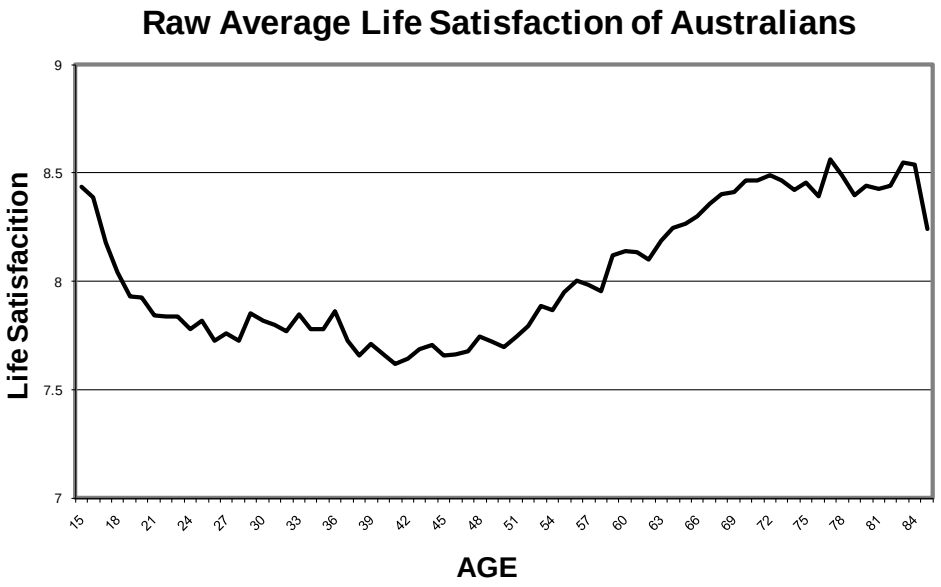


Figure 1: Average Life satisfaction for 15 to 85 year old Australians in waves 2 to 13 of the Household Income and Labour Dynamics in Australia Survey

To answer these questions, we gathered data on school children throughout Queensland, the north-eastern state in Australia, with the help of teachers and the Queensland Government. We measure various domains of life for these children, including school circumstances, social circumstances, the personality of the children, and their perceived relative wealth. After looking at the raw profile of happiness we apply techniques previously used in the economics literature (Frijters, Haisken-DeNew, & Shields, 2004) to decompose the found changes in happiness as a function of changes in other variables.

Since our data is not necessarily representative and there is no exogenous variation in the measured determinants, the paper should very much be seen as exploratory. As such, the main contribution is that this is the first paper documenting the levels and changes in the happiness of Australian children arising from school related variables and perceived relative wealth.

The paper proceeds as follows. Section 2 provides a short review of childhood happiness studies. Section 3 includes details on how the data was collected and specific questions were developed. Sections 4 analyses the data, whilst Section 5 concludes.

2. A Review of Childhood Happiness

Childhood studies on global life satisfaction are infrequent in the economics literature but more prevalent in the psychological and other literatures, although still far fewer than the number of studies on the concept of subjective well-being (Diener & Suh, 1998; Easterlin, 2001; Seligman, 2011).

In economics, children have usually been considered in the context of the negative (Stutzer & Frey, 2006; White, 2006) or positive (Tsang, 2003) effect they have on adult happiness, not their own happiness. A typical example is Bruhin & Winkelmann (2009) who looked at the relationship between parents and their adult children's subjective well-being in a German panel, where the happiness of children was not measured. In a related vein, some economic studies have looked at the childhood predictors of adult life satisfaction (Flouri, 2004 ; Frijters, Johnston, & Shields, 2011).

The few economic studies looking at the life satisfaction of children themselves have mainly looked at adolescents above 14 and their family. Bedin & Sarriera (2015) did a comparative analysis of the subjective well-being of parents and their 12 to 16 year-old adolescent children regarding gender, age and social class. Carlsson, Lampi, Li, & Martinsson (2014) looked at the intergenerational transmission of happiness in China between preadolescents and their parents. Ebner's (2008) longitudinal study used the European Community Household Panel data (ECHP, 2015) to reveal that adolescents are happier when they make the decision to leave the family home. A study by Dockery (2005) used data from the (1997-2004) Longitudinal Surveys of Australian Youth (LSAY, 2012) and wave 1 of the HILDA and found evidence of declining levels of happiness in adolescents during periods of unemployment. He also documents the importance of the quality and type of work to the happiness of adolescents. Ulker (2008), using the Australian HILDA data, found that adolescents become less happy when their parents' divorce. Other studies looked at school performance or aggregate changes amongst children over the age of 14 (Cheng & Furnham, 2004).

A few studies in economics look at life satisfaction in the 9-14 age range. Powdthavee & Vernoit (2013) examined the longitudinal relationship between parental unemployment and 11 to 15 year-old British children's self-reported happiness with life scores over time. Fogle, Scott Huebner, & Laughlin's (2002) cross-sectional study revealed a positive relationship between extraversion, social competence and life satisfaction among

children aged 10 to 15 years from public schools in mid-sized cities in the South-East of the United States. A positive attitude, confidence in own abilities and the skills to interact with your peer group were found to be important to childhood happiness. Also focussing on school children, Huebner, Valois, Paxton, & Drane's (2005) cross-sectional study of public middle school students from South Carolina (U.S.A) proposed that family, friends, school and the environment in which children live and learn are important to childhood happiness. Lee & Oguzoglu (2007) longitudinal study of Australian youths ventured outside the school environment and found that income support payments contributed to childhood happiness. The main conclusion we draw from these is that personality, friends, and the school environment are prime candidates to explain change in the happiness of children over time and thus need to be included in the survey.

The literature in psychology and other social sciences on life satisfaction amongst adolescents older than 14 is much larger than in economics and has looked at a huge range of issues. The many topics looked at include the importance of academic success (Suldo, Riley, & Shaffer, 2006), bullying (Moore, Huebner, & Hills, 2012), family structure (Levin, Dallago, & Currie, 2012), ethnicity (Campbell & Eggerling-Boeck, 2006), obesity (Forste & Moore, 2012), mental health (Ulker, 2008; Dear, Henderson, & Korten, 2011; Antaramian, Huebner, Hills, & Valois, 2010), and low income (Levin et al., 2011).

If we look at the literature on global life satisfaction of children aged 9-14, there are far fewer studies, where the main finding relevant to the object of this paper is the lack of any clear change in life satisfaction level over age (Gilman & Huebner, 2003). An early study is Huebner et al. (2005), who looked at 2278 public middle school students in the US and found that the influence of demographic variables in the level of happiness was limited, although middle school children were particularly dissatisfied with their school experiences. A later study by Antaramian, Huebner, & Valois (2008) focused on the importance of family structure, finding that children in single parent or step-parent families were less satisfied with their lives. Huebner and Diener (2012) review roughly 20 papers that look at child satisfaction, which mainly deal with the development of proper measurement instruments and particular groups at risk of experiencing problems. These studies will be important in the next section dealing with data gathering.

3. Data and survey method

3.1 The HILDA data

We use two data sets[1]. The first data set is the 15 to 93 year-olds from waves 2 to 13 of the 'Household, Income and Labour Dynamics in Australia' Survey (HILDA, 2013)[2] and underlies Figure 1. The second is our own data from younger children.

3.2 Collecting data from children

Collecting data from children is fraught with ethical, logistical and truthful self-reporting roadblocks (Gilman & Huebner, 1997; Gilman & Huebner, 2000; Haranin, Huebner, & Suldo, 2007). To avoid the issue of untruthful reporting when confronted with outside survey collectors, our collecting procedures follow the literature by folding it into the children's normal teaching program, wherein school teachers took their classes to local railway stations to visit a 'Smart Train'[3] that went from urban Brisbane throughout regional Queensland, with carriages containing university research displays; one of which explained happiness. Upon returning to school, the children were requested to complete an internet-based 'Happiness' survey. To encourage response, teachers were provided with 'Happy Posters' to hang on classroom walls and 'Happy Teaching Guides' with instructions on how the children could use their school computers to respond to our *Childhood Happiness Survey*[4].

[1] The HILDA data was extracted using the Add-On package PanelWhiz v3.0 (Nov 2010) for Stata. PanelWhiz was written by Dr. John P. Haisken-DeNew (john@panelwhiz.eu). The PanelWhiz generated DO file to retrieve the HILDA data used here and any Panelwhiz Plugins are available upon request. Any data or computational errors in this paper are my own. Haisken-DeNew and Hahn (2006) describes PanelWhiz in detail.

[2] This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA, 2013)The HILDA Project was initiated and funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and is managed by the Melbourne Institute of Applied Economic and Social Research (MIAESR). The findings and views reported in this paper are those of the authors and should not be attributed to either FaHCSIA or the MIAESR. We thank FaHCSIA & the Melbourne Institute director, Professor Deborah Cobb-Clark, and her staff for making the data available.

[3] More information on the 'Smart Train' is at: http://www.abc.net.au/local/photos/2008/05/09/2240428.htm

[4] After the three-week survey response period, the Queensland Government, Department of Tourism, Regional Development and Industry randomly selected a student who received an individual prize of an Apple iPod and their school received $1000 to spend on science resources.

3.3 Survey questions.

The meta-analysis of life satisfaction research with children and adolescents by Gilman & Huebner (2003) provides a summary of childhood happiness-affecting variables. Their list includes many factors, of which we choose the factors most easy to gather from the children themselves, including socio-economic variables that economists usually incorporate into their models of individual happiness (age, gender), as well as personality factors, life satisfaction domains, environment factors, and school variables. This means we did not gather variables that would require information of others, such as parental circumstances, medically assessed health and self-reflecting behaviour which one would want to ask of teachers (such as asking whether the child causes problems for others).

3.3.1 The Happiness question

The dominant happiness surveys are generally targeted at individuals 15 years and older. Since we wish to compare the findings for young children with these age ranges, we also use the *Global Life Satisfaction* question (Cummins, 1996; Fordyce, 1988); Wessman & Ricks, 1966) wherein we ask children on a 1 (very unhappy) to 5 (very happy) scale:

All things considered in your life, how happy would you say you are usually?

The high response rate (100%) as well as the fact that these children had just seen exhibits on happiness research gives some confidence that children had an intuitive understanding of what was being asked. Because the question is framed in terms of an evaluation of life as a whole, rather than merely asking someone if they are ‘happy’, it is called the Global Life Satisfaction question and is taken to be comparable to other ‘evaluations with life as a whole’.

3.3.2 Demographic questions

In order to be able to ascribe changes in happiness to changes in circumstances, we wanted to have an array of demographic questions, which raised the issue of whether children as young as 9 would have a reasonable concept of such high-level circumstances such as their family’s income. Researchers have long been concerned with inaccuracies in how adults report their income (Moore, Stinson, & Welniak, 2000), which makes it likely that the problem of misreporting is even higher amongst children. As a result we more directly ask about relative wealth, since children do understand the concept of money as they swap it with

others to get what they want (Leiser & Beth Halachmi, 2006), and since relative comparisons are easier to understand than absolute levels. We thus asked: *"Would you say that your family is; wealthier; the same; poorer than others in the neighbourhood"*.

A drawback of asking children to complete the questionnaire at school was that we could not ask information about the parents, such as their employment, years of education, relationship status, and recent shocks.

3.3.3 Personality

Amongst adult happiness studies (Lischetzke & Eid, 2006; Wilson, 1967), the personality traits most related to happiness are extraversion and emotional stability. It is an open question whether that is also true of children and hence whether there is a role for agreeableness, conscientiousness, or openness to experience. However, the survey instruments measuring these Big-5 personality constructs (Goldberg, 1990) are only suitable for adults and adolescents as young as 12 years (Muris, Meesters, & Diederen, 2005); not the 9 to 11 year olds that formed part of our target population.

We thus adopt the Big Five Questionnaire for Children (BFQ-C) of Barbaranelli, Caprara, Rabasca, & Pastorelli (2003). Their analysis of the internal validity of this scale revealed a high positive correlation between the BFQ-C scale completed by the children and their parent's assessment of their child's personality using the adult Big-5 questionnaire. In support of its use, del Barrio, Carrasco, & Holgado (2006) successfully used the BFQ-C scale to assess the personality of eight to twelve year old school children. More recently, the study of 13 to 14 year olds by Barbaranelli, Fida, Di Giunta, & Caprara (2008) used multi-trait methods and confirmatory factor analysis to assess the validity of the BFQ-C and found convergent validity was supported for all five personality factors.

We had to adapt the BFQ-C scale for our purposes because it had sixty five questions; twelve or more questions per personality trait is lot of questions for an internet survey[5]. Using BFQ-C psychometric property/correlation results from Muris et al. (2005), we constructed a short-form Big Five Questionnaire for Children (SBFQ-C) by choosing six questions per personality trait[6]. Subsequent to data collection, factor and Cronbach's alpha

[5] In middle childhood, children get bored and fail to complete surveys with too many questions, they also require literally worded questions that they can understand ((de Leeuw, Borgers, & Smits, 2004).

[6] The HILDA socio-economic panel surveys adults with 5 to 8 questions per personality trait.

analysis confirmed our chosen six questions per personality trait exhibited acceptable levels of convergence and scale reliability (Table 1).

3.3.4 The life satisfaction domain measures

Huebner (1991; 1994, 1995), Natvig, Albrektsen, & Qvarnstram (2003), Seligson, Huebner, & Valois (2005) and Suldo et al. (2006) provide theoretical directions that identify domains considered to correlate with childhood happiness; *school environment, interaction with friends,* and, the *natural environment* life satisfaction domains. The wording of the survey questions we developed for each domain was based on this. For example, because sharing, friendly, communicative children who like to interact with their peers are happier we posed the questions; *l make friends easily, I like to talk to others, I like to help my classmates, I like to share with others,* and, *I am forgiving.* These were included for the *interaction with friends* life satisfaction domain. The rationale for including forgiveness is that it has been found to be positively associated with childhood life satisfaction (Gilman & Huebner, 2003).

When it comes to the school environment life satisfaction domain, Huebner, Gilman, & Laughlin (1999) found it important to know whether children understand what the teacher says, can concentrate, work hard, get bored, whether they participate in structured extracurricular activities, and aspects of their academic life (including achievement and learning with classmates).

In addition to the life satisfaction domain questions, the children were asked questions about their *natural environment*. We asked the children if they were engaged in discussions on their natural environment; if they were aware of environmental problems; what they were doing about them; whether it was an acceptable behaviour to pollute their river or a river in a neighbouring state; and the importance of animals and plants in their live. These questions were coded as dummy variables and summed to form the *natural environment* life satisfaction domain factor, where 1 is the lowest level of concern for the natural environment and 13 the highest level of concern for the natural environment.

Table 2 lists the questions posed on these three domains. Results from principal factor analysis and a Cronbach's alpha test revealed that all three life satisfaction domain factors offered an acceptable to high level of internal consistency and reliability.

Finally, we included a number of *fun* questions (on magic & handedness) to encourage the children to respond to our internet-based childhood happiness survey; see the *natural environment* and *fun* questions in Table 6.

4. Analyses

4.1 Summary statistics

Of the three hundred and eighty nine children who responded to the internet-based 'Happiness' survey, 327 visited the 'Smart Train' at one of twenty-five regional railway stations and 62 at the urban railway station (the state capital of Brisbane). There were 217 female and 172 male children (44%) respondents with an average age of 11.76 years.

Table 3 shows the summary statistics. Average life satisfaction for our 9 to 14 year old sample is a very high 9.0 if we translate the scale to 0-10; 14% higher than the 7.91 we see in 15 to 23 year-olds in the HILDA and 12% higher than the average of 8.07 for the complete HILDA sample. Average happiness for female children in our sample (9.31) was 8% higher than for male children (8.60), a very significant difference ($t = 3.59$, $p = 0.0004$) that is commensurate with what is found later in life but which has not been in the previous child studies (Heubner & Diener, 2012). What drives this average difference in our data is the relatively low happiness of regional males versus regional females, which suggests that one of the reasons for the divergence with previous studies is that our data includes both urban and regional children.

Twelve per cent of the children self-reported as left-handed, a few percent more than the expected 10% (Johnston, Nicholls, Shah, & Shields, 2009) and 47% reported a ring finger longer than their index finger; an indicator of the higher testosterone levels typical of males.

Turning to Table 6, which shows a summary of the environmental factors: children have a high awareness of environmental issues such as climate change (68%), and; water restrictions (59%), but; a much lower awareness of native animals dying out (42%); declining fish stocks (21%), and; land salinity (16%). Climate change (47%) and water restrictions (15%) were seen as the worst problems, with urban children showing more concern about climate change than regional children (61% versus 44%). We expected that regional children would show a higher awareness and concern for climate change and water restrictions, because the 2001-2010 drought had such a severe negative economic effect on Australia's rural and agricultural

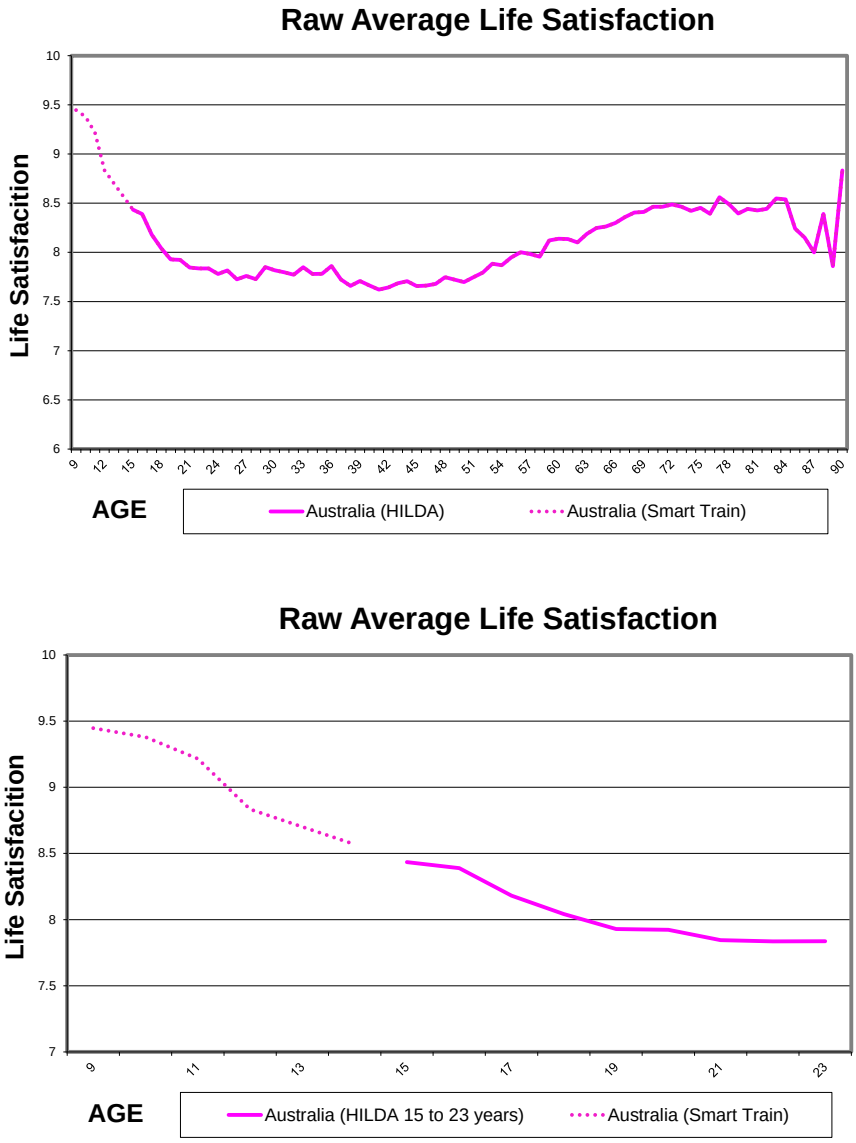
communities (SoE, 2011). This was not the case though with regional children showing less awareness and concern for the environment[7]. Perhaps the reason for this arises from the attitudes of their parents. In Australia, more than twice as many urban dwellers (58%) are of the opinion that humans are causing climate change; versus just 27% for primary producers in regional areas (Donnelly, Mercer, Dickson, & Wu, 2009, p.5).

Overall, the children are not just showing more concern for the natural environment, they are acting on that concern. Fifty-nine per cent of the children are engaging in recycling and sixty-five per cent have tried to reduce their water consumption, and, the numbers are even higher for urban children (Table 4); more urban children (81%) than regional children (62%) had tried to reduce their water consumption, and a similar urban-rural difference held for engaging in recycling (73% versus 57%). The children are also showing concern about the poor environmental behaviour of others; 98% of the children said it was wrong to pollute a river, even if that river was in another state (99%). Based on these results, Australia's next generation does appear to show more concern for climate change and the natural environment than their parents; 68% versus 53% (ABS, 2010).

[7] Overall, regional children showed less concern for the environment; the average of the Natural Environment Life Satisfaction Domain factor for urban children was 14% higher than for regional children (Table 6).

4.2 Extending our view of happiness over a lifetime

We can now append the average happiness of the 9 to 14 year-olds from our 'Smart Train' sample to the graph of average happiness for the 15 to 93 year-old Australians from the HILDA (Figures 2a & 2b).



Figures 2(a) & (b): Average Life Satisfaction for 9 to 14 year old Australian children in the 'Smart Train' data and 15 to 93 year-old Australians in the 2002-2013 HILDA panel data[8]

[8] Note the structural break between in the view of average happiness shown in Figure2b.

One thing one can notice is how well the lines match up from the data on the Smart Train with the HILDA data, which at least suggests that the sample is representative of the happiness of Australian children. The second thing we notice in Figure (2a) is that the steep happiness fall we previously saw in 15 to 23 year-olds extends back to 9 year-old children. Whilst 15 to 23 year-old Australians in the HILDA witness a 7.2% (-0.73 unit) decline in happiness, this is preceded by a further 9.3% decline (9.44 to 8.56, -0.88 units) between 9 to 14 years (dotted line in Figure 2a & b). The total fall in happiness from age 9 to age 23 is then 16.5% (- 1.61 units). This very strong decline raises the question as to the factors responsible; we look at that next.

4.3 The determinants of life satisfaction

In equation (1) we model life satisfaction of child (*i*) in age-group (*t*) as a linear function of the available variables:

$$LS_{it} = C + \beta_1 X_{it} + \beta_2 S_{it} + \beta_3 F_{it} + \beta_4 N_{it} + Z_i + \varepsilon_{it} \quad (1)$$

where

LS_{it}	Individual life satisfaction (happiness)
C	Constant
X_{it}	individual demographics (wealth, religion)
S_{it}	*School environment* life satisfaction domain factor
F_{it}	*Interaction with friends* life satisfaction domain factor
N_{it}	*Natural Environment* life satisfaction domain factor
Z_i	Personality and gender
ε_{it}	error term

Here, childhood happiness (LS_{it}) is a function of a constant (C), time-variant socio-economic variables specific to the individual (X_{it}) and individual traits (Z_i). A child's happiness is further affected by the *school environment* (S_{it}), *interaction with friends* (F_{it}) and

natural environment (N_{it}) life satisfaction domains, with unobservables manifest in an error term (ε_{it}).

Regression results for different specifications are shown in Tables 5a, 5b & 6, which progressively include more factors. Looking at Table 5a, specification 1a, we see that girls are happier (+0.63) than boys and attending religious services more often is related to higher happiness (+0.09), much the same as what we see in adults. The children are unhappier the longer they are in the school system (we will look at this in more detail later).

Unlike adults, relative wealth has a non-significant and small effect on childhood happiness. A possible reason for this is that the wealth question is poorly understood by children. Alternatively, there really is little relation at this age. One possibility to explore with richer data would be that parents manage to shield children from their own feelings about their relative wealth; keeping the rat-race away from their children when they are young.

Adding personality to the specification in Table 5a (specification 1b.), we see that extraverted children are happier whilst children with low emotional stability are less happy. We get an unexpected result for conscientiousness. For adults in the Australian socio-economic panel data (HILDA), conscientiousness has a significant negative effect on overall happiness (*-0.33, t-value = 2.22*)[9]. For the 9 to 14 year olds in the 'Smart Train' data we get an opposite effect (*0.066, t-value 2.85*). Unlike adults, Australian children who exhibit conscientious behaviours (orderly, systematic, efficient, neat, organised, and efficient) are happier, perchance because the rewards for such behaviour are higher for school children than for adults.

If we now also add domain factors to the demographics (Table 5b, specification 2e), we can see that the effect from the *natural environment* domain factor[10] is non-significant, whilst, as expected, the *interaction with friends* and *school environment* domains both have a significant effect on childhood happiness.

[9] The personality traits are scaled 1-7 in the HILDA & 1-30 in this paper; the HILDA coefficient has been rescaled; 1-30. Regression tables relevant to this are available on request.

[10] If we look at the effect from the individual 'natural environment' questions in Table 6, we see that only one environment question (q17) had a significant effect on happiness. Children who perceived their family as wealthier than their friend's families are more likely to discuss environmental issues within their family (q17 was strongly positively correlated with wealth).

4.4 Decomposing changes in life satisfaction

Many of the factors that affect life satisfaction, such as gender and personality, are constant or change little over time. The main areas that change over time for these school children are the three main life satisfaction domains, meaning we focus on Specification 2c of Table 5b.

There is a large decline in the magnitude of these domain factors as the children move from one grade to the next. Between grade 5 and grade 10 the average for the *interaction with friends* domain declines from 4.21 in grade 5 to 3.92 in grade 8 then rises to 4.08 by the end of grade 10. The average of the *school environment* domain drops from 3.97 in grade 4 to 5 and continues to drop all the way to 3.24 in grade 10.

To see how much these changes in domain satisfactions can help explain the differences in life satisfaction between children of different school grades; we employ a standard decomposition of the difference in aggregate life satisfaction (*LS*) levels:

$$(\overline{LS^{\text{grade9}}} - \overline{LS^{grade4}}) = \sum_{\substack{k=1,\\ l=5}}^{\substack{k,\\ l=9}} ((\overline{X}_{k,l+1} - \overline{X}_{k,l}) * \beta_k)$$

where the childhood life satisfaction domain factors are:

$$k \begin{cases} \text{School environment} \\ \text{Interaction with friends} \\ \text{Natural environment} \end{cases}$$

and the school grade transition is from a lower (l)
to the next higher school grade ($l+1$):

$$l, l+1 \begin{cases} l \text{ to } l+1 \\ 4 \text{ to } 5 \\ 5 \text{ to } 6 \\ 6 \text{ to } 7 \\ 7 \text{ to } 8 \\ 8 \text{ to } 9 \end{cases}$$

This decomposition shows the predicted life satisfaction difference across grades due to changes in domain factors. The formula shows the predicted difference between grade 4 and 9, but an analogue formula holds for the difference between any pair of grades.

Figure 3 shows the predicted changes in childhood happiness as children move through the state school system (grades 4 to 7) and then transfer to high school (grades 8 to 9).

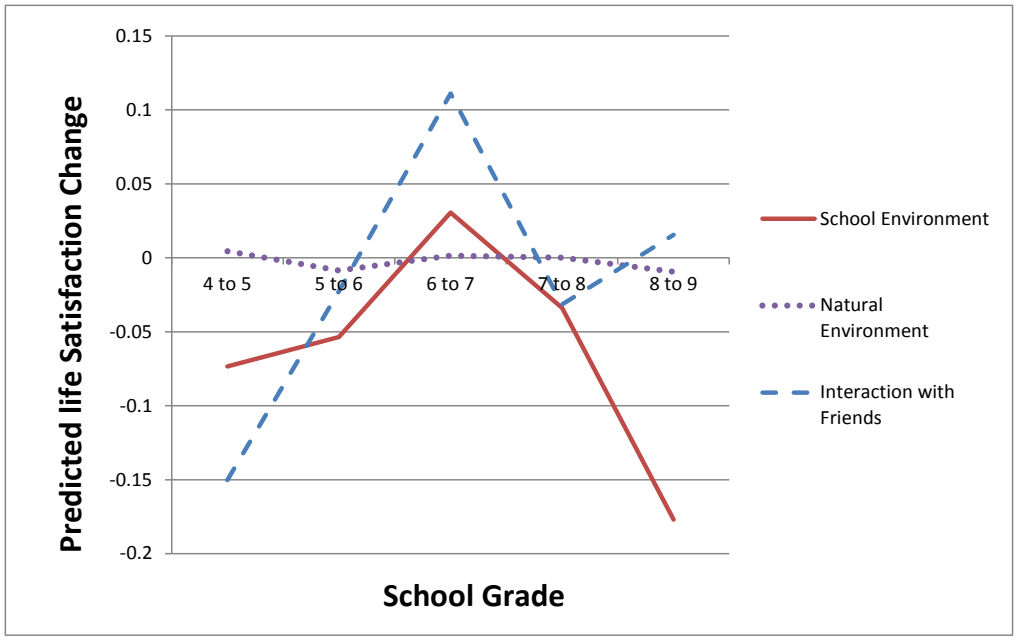


Figure 3: The predicted grade-by-grade changes in childhood happiness from each domain factor as the children move up in school grade

This figure shows the predicted change from year to year due to changes in particular domain factors, which means one should add them up to arrive at a cumulative predicted change. Looking at Figure 3 we see the negligible childhood happiness change arising from the non-significant *natural environment* domain factor (dotted line), less than a 0.012 happiness unit decline (-0.1%) if we add them up across these years. However, the predicted happiness change from the other two factors is both significant and large: when accumulated, the *school environment* and *interaction with friends* domains account for 44% (-0.39) of the -0.88 unit fall in childhood happiness for 9 to 14 year-old Australians we saw in the raw data depicted in Figures 2.

Examining how each factor affects childhood happiness as the children progress through the school system, we see that the predicted change in childhood happiness arising from the *interaction with friends* domain (Figure 3 dashed line) is -0.15 units as the children transition from grades 4 to 5; the predicted happiness change is almost zero (-0.02) as the children move from grades 5 to 6, and; there is an even smaller predicted positive change (+0.011) as the children transition through the last grades (6 to 7) in the lower grade school, potentially reflecting that this is their best year in terms of friendships.

Australian children are often not sent to their local high school but enrolled in public or private high schools that may be many kilometres from the lower grade school that a child attended. This may be a factor in the small (-.03) decrease in life satisfaction as children move to high school (from grade 7 to 8). The big drop in happiness (-0.15) comes in the second year of high school though, driven entirely by a marked drop in the school environment but not the interaction with friends.

Cumulatively, the largest predicted negative change in childhood happiness (-0.31) comes from the school environment, mainly occurring in the transition from grade 4 to 5 and from grade 8 to 9.

5. Conclusions and discussion

This paper contributed to our understanding of lifetime happiness by extending our view of happiness back to childhood. We developed an Internet-based happiness survey for 9 to 14-year-old Australian children. Analysis of the collected data with a model of childhood happiness revealed a large decline in happiness (-0.88 on a 0-10 scale) between the ages of 9 and 14. This solves a puzzle in the existing literature wherein it was previously found that early adolescence was marked with low school environment and higher rates of depression (Hirsch & Rapkin, 1987; Scott Huebner et al., 2000), but where there was not yet a clear finding that global life satisfaction levels decreased accordingly (Heubner & Diener, 2012).

Another finding is that conscientious children are markedly happier, whilst we found for data amongst adults that the conscientious are less happy. Importantly, there was no found effect of relative wealth, whereas that factor is amongst the most important ones for adults. Given the difficulties of asking children about the relative wealth of their family, this might reflect a poor understanding of the question, but it might also indicate that parents are

successful in not transferring their own feelings about their relative wealth on to their children, effectively shielding them from the status race. With other factors though, the determinants of child happiness were the same as those of adult happiness: girls were happier; the more religious were happier; and the more extraverted were happier.

When we decomposed the changes in life satisfaction amongst children we found that some (44%) of that change was attributable to worsening domain factors. Worsening of the school factors alone could explain 30% in the drop. These school factors include the interaction with the teacher (whether they understand what the teacher says; whether they get bored), items of school success (whether they learn easily, whether they start what they finish), and items of personal effort (whether they work hard, whether they help others and whether they concentrate). These aspects deteriorated markedly in our data from 9 to 10 years of age and 13 to 14 years of age.

What turned out to be unimportant for changes in life satisfaction was their social interaction (number of friends), as this did not decrease over time, nor whether the children were aware of environmental problems.

Thinking of eventual policy lessons, the question arises what the deeper factors are behind the worsening in the school domain. There may be many underlying reasons why students find it harder to concentrate, get bored, stop working hard and have greater difficulties. Future research should look at whether these deteriorations are avoidable or inextricably linked to the hormonal changes of adolescents or other rather inevitable ‘coming of age’ factors.

Appendix A: Survey Questions

Table 1: The six questions per personality trait included in the Childhood Happiness Survey (selected from the 65 BFQ-C scale (Muris et al., 2005, p.1762, Table 1)

Personality Trait	Questions	Scale Reliability*
Extroversion	I make friends easily I do many things so I don't get bored I like to talk to others I say what I think I like to joke I like to meet with other people	.65
Agreeableness	I trust others I share my things with other people I understand when others need my help I am kind to those who I dislike If a classmate has some difficulty I help her/him If someone hurts me I forgive them	.73
Conscientiousness	I keep my school things neat and tidy During class I concentrate on the things I do I play only after I finish my homework I work hard at the things I do When I start to do something, I have to finish it at all costs When I finish my homework, I check it many times to see if I did it correctly	.78
Emotional Stability	I am often sad I get nervous over silly things I worry about things I get offended easily I cry often I am impatient	.78
Openness to Experience	When the teacher explains something, I understand immediately I am able to solve mathematical problems I understand most things immediately I like scientific TV shows I easily learn what I study at school I know many things	.78

* Cronbach's Alpha values of 0.6 to 0.8 are considered acceptable; greater than 0.8 are good.

Table 2: Survey questions for the 'school environment', 'interaction with friends' & 'natural environment' life satisfaction domain factors

Life Satisfaction Domain	Survey Question
School environment[1] (schoolenv)	When the teacher explains something, I understand immediately I do many things so I don't get bored During class I concentrate on the things I do I play only after I finish my homework I understand most things immediately I work hard at the things I do If a classmate has some difficulty I help her/him When I start to do something, I have to finish it at all costs I easily learn what I study at school
Interaction with friends[2] (friends)	I make friends easily I trust others I share my things with other people I like to talk to others I understand when others need my help I am kind to those who I dislike I like to meet with other people If someone hurts me I forgive them
Natural environment[3] (natenv)	Which of the following environmental problems have you noticed? Climate change Water restrictions Native animals dying out Declining fish stocks Land salinity Does your family talk about the environment much? Have you ever started a conversation about the environment? Have decided for environmental reasons to reuse or recycle something rather than throw it away? Have you tried to reduce water consumption for environmental reasons? Attended a meeting or signed a letter or petition aimed at protecting nature or the environment? Let's say that in your neighbourhood everyone throws their garbage in the river; would that be all right? Let's say that in New South Wales (the state next to the children's home state), a whole neighbourhood throws its garbage in the river; Do you think it is all right for them to throw their garbage in the river? Do you think that throwing garbage in the river is harmful to the birds that live around the river?

Cronbach's alpha scale reliability coefficients: 0.86 [1]; 0.76 [2]; 0.65[3]

Appendix B: Descriptive Statistics

Table 3: Descriptive Statistics for the Smart Train data; *N=389*

	Mean	s.d.
gender (female=1)	0.56	0.44
age (years)	11.76	1.04
School grade (4 to 9)	6.76	1.04
urban resident (urban=1)	0.16	0.37
relative wealth (1 poorer ; same; 3, wealthier)	2.00	0.45
religious service attendance; (1 never to 8 more than once a week)	4.39	2.72
Personality Factors (scaled 1-30)		
extraversion	24.70	3.63
agreeableness	23.71	4.07
conscientiousness	21.85	5.23
emotional stability	16.68	4.06
openness to experience	21.80	5.05
Life Satisfaction Domain Factors		
School environment (scaled 1-5)	3.71	0.74
Interaction with friends (scaled 1-5)	4.05	0.62
Natural environment (scaled 1-13)	7.44	2.23

Table 4: Descriptive Statistics for the children's responses to the natural environment questions

	Urban	Regional	All
Which of the following environmental problems have you noticed?			
Climate change	74%	64%	65%
Water restrictions	90%	53%	59%
Native animals dying out	56%	39%	42%
Declining fish stocks	27%	20%	21%
Land salinity	24%	14%	16%
Which of these problems do you think is the worst?			
Climate change	61%	44%	47%
Water restrictions	21%	14%	15%
Native animals dying out	10%	29%	26%
Declining fish stocks	0%	6%	5%
Land salinity	8%	5%	5%
Loss of native fauna	0%	0%	2%
None of the above	0%	2%	0%
Relevance of plants and animals to the children			
Are animals an important part of your life?	90%	94%	93%
Are plants an important part of your life?	85%	81%	82%
The children's engagement in the environmental debate (yes = 1)			
Have you ever started a conversation about the environment?	73%	68%	68%
Does your family talk about the environment?	52%	50%	50%
Things that the children had done over the past 12 months to help the environment (yes = 1)			
Tried to reduce water consumption	81%	62%	65%
Have decided for environmental reasons to reuse or recycle something rather than throw it away	73%	57%	59%
Attended a meeting or signed a letter or petition aimed at protecting nature or the environment?	6%	9%	8%
None of the above	10%	14%	14%
Children's attitudes to pollution (yes = 1)			
Let's say that in your neighbourhood everyone throws their garbage in the river; would that be all right?	0%	2%	2%
Let's say that in New South Wales (the state next to the children's home state), a whole neighbourhood throws its garbage in the river. Do you think it is all right for them to throw their garbage in the river?	0%	1%	1%
Do you think that throwing garbage in the river is harmful to the birds that live around the river?	92%	93%	93%
Natural Environment Life Satisfaction Domain factor (0: lowest awareness of the environment to highest: 13)	8.48	7.45	7.44
N	*62*	*327*	*389*

Appendix C: Regression results

Table 5a: The determinants of Life Satisfaction for children aged 9 to 14 years in the Smart Train dataset; OLS regression, *N = 389*

	1a. Demographics		1b. Demographics Personality		2a. School environment		2b. School environment Interaction with Friends	
Variable:	coefficient	t-value	coefficient	t-value	coefficient	t-value	coefficient	t-value
q1: Where did you visit the Smart Train?	-0.022	1.72	-0.013	1.05				
q2: female =1	0.632	3.44	0.645	3.51				
q4: school grade (age proxy)	-0.160	1.84	-0.125	1.52				
q5: relative wealth	0.052	0.26	-0.066	0.34				
q9: religious service attendance	0.092	2.72	0.050	1.50				
Personality Factors								
extraversion,			0.129	4.54				
agreeableness			-0.049	1.50				
conscientiousness			0.066	2.85				
emotional stability			-0.089	4.17				
openness to experience			0.003	0.14				
Life Satisfaction Domain Factors								
School environment factor (schoolenv)					0.665	5.56	0.390	2.66
Interaction with friends factor (friends)							0.561	3.17
Natural environment factor (natenv)								
constant	8.097	10.54	6.981	6.39	5.715	12.63	4.457	7.45
R^2	0.063		0.1969		0.0739		0.0974	
Adjusted R^2			0.1757				0.0927	

Table 5b: The determinants of Life Satisfaction for children aged 9 to 14 years in the Smart Train dataset; OLS regression, *N = 389*

	2c. School environment Interaction with Friends Natural environment		**2d. Natural environment**		**2e. Demographics School environment Interaction with Friends Natural environment**	
Variable:	coefficient	t-value	coefficient	t-value	coefficient	t-value
q1: Where did you visit the Smart Train?					0.010	0.79
q2: female =1					0.484	2.66
q4: school grade					-0.135	1.59
q5: relative wealth					0.021	0.11
q9: religious service attendance					0.052	1.50
Life Satisfaction Domain Factors						
School environment factor (schoolenv)	0.382	2.54			0..378	2.46
Interaction with friends factor (friends)	0.557	3.11			0.421	2.22
Natural environment factor (natenv)	0.010	0.23	0.101	2.45	-0.003	0.07
constant	4.434	7.30	7.429	23.24	5.333	5.71
R^2	0.0975		0.0153		0.1251	
Adjusted R^2	0.0905		0.0127		0.1067	

Table 6: Other determinants of Life Satisfaction for the children aged 9 to 14 years in the cross-sectional Smart Train dataset; OLS regression, *N = 389*

Variable:	coefficient	t-value
q1: Where did you visit the Smart Train?	-0.018	1.31
q2: female =1	0.733	3.40
q4: school year (age proxy)	-0.166	1.63
q5: relative wealth	0.111	0.48
q9: religious service attendance	0.091	2.30
Fun Questions:		
q6: good luck charms do bring good luck (1 definitely not true to 5 definitely true)	-0.107	0.83
q7: Do you have a lucky charm such as a mascot or a talisman? (yes = 1)	0.129	0.52
q8: Do you believe that a lucky charm can protect or help you? (1 definitely not true to 5 definitely true)	-0.032	0.25
q10: Some fortune tellers really can foresee the future (1 definitely not true to 5 definitely true)	0.053	0.53
q11: Is there someone who cannot be seen by others watching over you? (yes = 1)	0.032	0.12
Natural Environment:		
q15: Are animals an important part of your life? (yes = 1)	0.534	1.23
q16: Are plants an important part of your life? (yes = 1)	-0.089	0.30
q17: Does your family talk about the environment much? (yes = 1)	0.396	1.78
q18: Have you ever started a conversation about nature or the environment? (yes = 1)	0.034	0.14
q22: Let's say that in your neighbourhood everyone throws their garbage in the river; would that be all right? (no = 1)	-0.579	0.68
q23: Let's say that in New South Wales, a whole neighbourhood throws its garbage in the river. Do you think it is all right or not all right for them to throw their garbage in the river? (no = 1)	1.029	0.92
q24: Do you think that throwing garbage in the river is harmful to the birds that live around the river? (yes = 1)	-0.467	1.13
Handedness:		
q63: What hand do you write with? (left = 1)	-0.177	0.56
q64: Which finger is longer? (1 my ring finger is longer; 2 my ring and index fingers are the same length; 3 my index finger is longer)	-0.032	0.27
constant	6.723	2.75
R^2	0.089	
Adjusted R^2	0.042	

References

ABS. (2010). 4102.0 - Australian Social Trends, Jun 2010 (Previous ISSUE Released at 11:30 AM (CANBERRA TIME) ed.): Australian Bureau of Statistics.

Antaramian, S. P., Huebner, E. S., Hills, K. J., & Valois, R. F. (2010). A dual-factor model of mental health: Toward a more comprehensive understanding of youth functioning. *American Journal of Orthopsychiatry, 80*(4), 462-472. doi: 10.1111/j.1939-0025.2010.01049.x

Antaramian, S. P., Huebner, E. S., & Valois, R. F. (2008). Adolescent life satisfaction. *Applied Psychology: An International Review, 57*(1), 112-126.

Barbaranelli, C., Caprara, G. V., Rabasca, A., & Pastorelli, C. (2003). A questionnaire for measuring the Big Five in late childhood. *Personality and Individual Differences, 34*(4), 645-664. doi: 10.1016/s0191-8869(02)00051-x

Barbaranelli, C., Fida, R., Di Giunta, L., & Caprara, G. V. (2008). Assessing personality in early adolescence through self-report and other-ratings a multitrait-multimethod analysis of the BFQ-C. *Personality and Individual Differences, 44*, 876-886.

Bedin, L. M., & Sarriera, J. C. (2015). A Comparative Study of the Subjective Well-Being of Parents and Adolescents Considering Gender, Age and Social Class. *Social Indicators Research, 120*(1), 79-95. doi: http://dx.doi.org/10.1007/s11205-014-0589-7

Bruhin, A., & Winkelmann, R. (2009). Happiness Functions with Preference Interdependence and Heterogeneity: The Case of Altruism within the Family. *Journal of Population Economics, 22*(4), 1063-1080.

Campbell, M. E., & Eggerling-Boeck, J. (2006). WHAT ABOUT THE CHILDREN? The Psychological and Social Well-Being of Multiracial Adolescents *Sociological Quarterly* (Vol. 47, pp. 147-173).

Carlsson, F., Lampi, E., Li, W., & Martinsson, P. (2014). Subjective Well-Being among Preadolescents and Their Parents--Evidence of Intergenerational Transmission of Well-Being from Urban China. *Journal of Socio-Economics, 48*, 11-18. doi: http://dx.doi.org/10.1016/j.socec.2013.10.003

Cheng, H., & Furnham, A. (2004). Perceived Parental Rearing Style, Self-Esteem and Self-Criticism as Predictors of Happiness. *Journal of Happiness Studies, 5*(1), 1-21.

Clark, A. E., Frijters, P., & Shields, M. A. (2008). Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles. *Journal of Economic Literature, 46*(1), 95-144.

Cummins, R. A. (1996). The domains of life satisfaction: An attempt to order chaos. *Social Indicators Research, 38*(3), 303.

Dear, K., Henderson, S., & Korten, A. (2011). Well-being in Australia. *Social Psychiatry and Psychiatric Epidemiology, 37*(11), 503-509.

del Barrio, V., Carrasco, M. Á., & Holgado, F. P. (2006). Factor structure invariance in the Children's Big Five Questionnaire. *European Journal of Psychological Assessment, 22*(3), 158-167. doi: 10.1027/1015-5759.22.3.158

de Leeuw, E., Borgers, N., & Smits, A. (2004). Pretesting questionnaires for children and adolescents. In S. Presser (Ed.), *Methods for testing and evaluating survey questionnaires* (pp. 409-452). Hoboken, NJ: John Wiley & Sons Inc.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*(3), 542-575.

Diener, E., & Suh, M. E. (1998). Subjective well-being and age: An international analysis. In K. W. Schaie & M. P. Lawton (Eds.), *Annual review of gerontology and geriatrics, Vol. 17: Focus on emotion and adult development.* (pp. 304-324). New York, NY, US: Springer Publishing Co.

Dockery, A. M. (2005). The Happiness of Young Australians: Empirical Evidence on the Role of Labour Market Experience. *Economic Record, 81*(255), 322-335.

Donnelly, D., Mercer, R., Dickson, J., & Wu, E. (2009). Australia's Farming Future Final Market Research Report. Understanding behaviours, attitudes and preferences relating to climate change. In F. a. F. Australian Government Department of Agriculture (Ed.). Sydney, Australia.

Easterlin, R. A. (2001). Subjective well-being and economic analysis: a brief introduction. *Journal of Economic Behavior & Organization, 45*(3), 225.
Ebner, A. (2008). 'Nest-leaving' in Osterreich: Was beeinflusst die Wohnentscheidung junger Erwachsener? (Nest-Leaving in Austria: What Determines Young Adults' Housing Decisions? With English summary.). *Wirtschaftspolitische Blatter, 55*(2), 407-423.
ECHP. (2015). *European Community Household Panel*. Retrieved from: http://ec.europa.eu/eurostat/web/microdata/european-community-household-panel
Flouri, E. (2004). Subjective Well-Being in Midlife: The Role of Involvement of and Closeness to Parents in Childhood. *Journal of Happiness Studies, 5*(4), 335-358.
Fogle, L. M., Scott Huebner, E., & Laughlin, J. E. (2002). The Relationship between Temperament and Life Satisfaction in Early Adolescence: Cognitive and Behavioral Mediation Models. *Journal of Happiness Studies, 3*(4), 373-392.
Fordyce, M. W. (1988). A review of research on the happiness measures: A sixty second index of happiness and mental health. *Social Indicators Research, 20*(4), 355-381.
Forste, R., & Moore, E. (2012). Adolescent Obesity and Life Satisfaction: Perceptions of Self, Peers, Family, and School. *Economics and Human Biology, 10*(4), 385-394.
Frijters, P., Haisken-DeNew, J. P., & Shields, M. (2004). Money Does Matter! Evidence from Increasing Real Income and Life Satisfaction in East Germany Following Reunification. *American Economic Review, 94*(3), 730-740.
Frijters, P., Johnston, D. W., & Shields, M. A. (2011). *Destined for (Un)Happiness: Does Childhood Predict Adult Life Satisfaction?* IZA Discussion Paper Series. Institute for the Study of Labor. Bonn, Germany.
Gilman, R., & Huebner, E. S. (1997). Children's reports of their life satisfaction: Convergence across raters, time and response formats. *School Psychology International, 18*(3), 229-243.
Gilman, R., & Huebner, E. S. (2000). Review of life satisfaction measures for adolescents. *Behaviour Change, 17*(3), 178-195.
Gilman, R., & Huebner, S. (2003). A review of life satisfaction research with children and adolescents. *School Psychology Quarterly, 18*(2), 192-205.
Goldberg, L. R. (1990). An alternative "description of personality", The Big-Five factor structure. *Journal of Personality and Social Psychology, 59*, 1215-1229.
Haisken-DeNew, J. P., & Hahn, M. (2006). PanelWhiz: A Flexible Modularized Stata Interface for Accessing Large Scale Panel Data Sets [mimeo]. Retrieved from http://www.panelwhiz.eu
Haranin, E. C., Huebner, E. S., & Suldo, S. M. (2007). Predictive and incremental validity of global and domain-based adolescent life satisfaction reports. *Journal of Psychoeducational Assessment, 25*(2), 127-138.
Headey, B., & Wooden, M. (2004). The Effects of Wealth and Income on Subjective Well-Being and Ill-Being. *Economic Record, 80*, S24-S33.
Heubner, E. S., & Diener, C. (2012). Research on Life Satisfaction of Children and Youth: implications for the delivery of school-related services. In M. Eid (Ed.), The Science of Subjective Wellbeing (pp. 376-392). New York: Guildford Press.
HILDA. (2008). The Household, Income and Labour Dynamics in Australia (HILDA) Survey , Release 6. Retrieved October 6, 2008, from http://www.melbourneinstitute.com/hilda/
HILDA. (2013). The Household, Income and Labour Dynamics in Australia (HILDA) Survey , Release 11. Retrieved August 21, 2013, from http://www.melbourneinstitute.com/hilda/
Hirsch, B. J., & Rapkin, B. D. (1987). The Transition to Junior High School: A Longitudinal Study of Self-Esteem, Psychological Symptomatology, School Life, and Social Support. . *Child Development, Vol. 58*(No. 5, Special Issue on Schools and Development (Oct.,1987)), 1235-1243.
Huebner, E. S. (1991). Correlates of life satisfaction in children. *School Psychology Quarterly, 6*(2), 103-111.

Huebner, E. S. (1994). Preliminary development and validation of a multidimensional life satisfaction scale for children. *Psychological Assessment, 6*(2), 149-158.

Huebner, E. S. (1995). The Students' Life Satisfaction Scale: An assessment of psychometric properties with black and white elementary school students. *Social Indicators Research, 34*(3), 315.

Huebner, E. S., Drane, W., & Valois, R. F. (2000). Levels and demographic correlates of adolescent life satisfaction reports. *School Psychology International, 21*(3), 281-292.

Huebner, E. S., Gilman, R., & Laughlin, J. E. (1999). A Multimethod Investigation of the Multidimensionality of Children's Well-Being Reports: Discriminant Validity of Life Satisfaction and Self-Esteem. *Social Indicators Research, 46*, 1-22.

Huebner, E. S., Valois, R. F., Paxton, R. J., & Drane, J. W. (2005). Middle School Students' Perceptions of Quality of Life. *Journal of Happiness Studies, 6*(1), 15-24.

Johnston, D. W., Nicholls, M. E. R., Shah, M., & Shields, M. A. (2009). Nature's Experiment? Handedness and Early Childhood Development. *Demography, 46*(2), 281-301.

Lee, W.-S., & Oguzoglu, U. (2007). Income Support and Stigma Effects for Young Australians. *Australian Economic Review, 40*(4), 369-384.

Leiser, D., & Beth Halachmi, R. (2006). Children's Understanding of Market Forces. *Journal of Economic Psychology, 27*(1), 6-19.

Levin, K., Torsheim, T., Vollebergh, W., Richter, M., Davies, C., Schnohr, C., . . . Currie, C. (2011). National Income and Income Inequality, Family Affluence and Life Satisfaction Among 13 year Old Boys and Girls: A Multilevel Study in 35 Countries. *Social Indicators Research, 104*(2), 179-194. doi: 10.1007/s11205-010-9747-8

Levin, K. A., Dallago, L., & Currie, C. (2012). The Association between Adolescent Life Satisfaction, Family Structure, Family Affluence and Gender Differences in Parent-Child Communication. *Social Indicators Research, 106*(2), 287-305. doi: http://dx.doi.org/10.1007/s11205-011-9804-y

LSAY. (2012). The Longitudinal Surveys of Australian Youth. Retrieved April 2, 2012, from National Centre for Vocational Education Research (NCVER) http://www.ag.gov.au/cca

Lischetzke, T., & Eid, M. (2006). Why Extraverts Are Happier Than Introverts: The Role of Mood Regulation. *Journal of Personality, 74*(4), 1127-1162.

Moore, J. C., Stinson, L. L., & Welniak, E. J. (2000). Income measurement error in surveys: A review. *Journal of Official Statistics, 16*(4).

Moore, P. M., Huebner, E. S., & Hills, K. J. (2012). Electronic Bullying and Victimization and Life Satisfaction in Middle School Students. *Social Indicators Research, 107*(3), 429-447. doi: http://dx.doi.org/10.1007/s11205-011-9856-z

Muris, P., Meesters, C., & Diederen, R. (2005). Psychometric properties of the Big Five Questionnaire for Children (BFQ-C) in a Dutch sample of young adolescents. *Personality and Individual Differences, 38*(8), 1757-1769. doi: 10.1016/j.paid.2004.11.018

Natvig, G. K., Albrektsen, G., & Qvarnstram, U. (2003). Associations between psychosocial factors and happiness among school adolescents. *International Journal of Nursing Practice, 9*(3), 166-175.

Powdthavee, N., & Vernoit, J. (2013). Parental Unemployment and Children's Happiness: A Longitudinal Study of Young People's Well-Being in Unemployed Households. *Labour Economics, 24*, 253-263. doi: http://dx.doi.org/10.1016/j.labeco.2013.09.008

Seligman, M. (2011). *Flourish A Visionary New Understanding of Happiness and Well-being* New York: Free Press

Seligson, J., Huebner, E., & Valois, R. (2005). An Investigation Of A Brief Life Satisfaction Scale With Elementary School Children. *Social Indicators Research, 73*(3), 355-374.

SoE. (2011). State of the Environment 2011. In A. S. o. t. E. Committee (Ed.). Canberra, Australia: Department of Sustainability, Environment, Water, Population and Communities.
Stutzer, A., & Frey, B. S. (2006). Does Marriage Make People Happy, or Do Happy People Get Married? *Journal of Socio-Economics, 35*(2), 326-347.
Stutzer, A., & Frey, B. S. (2012). *Recent Developments in the Economics of Happiness: A Selective Overview*. IZA Discussion Series. Institute for the Study of Labour. Bonn, Germany. Retrieved from http://ftp.iza.org/dp7078.pdf
Suldo, S. M., Riley, K. N., & Shaffer, E. J. (2006). Academic Correlates of Children and Adolescents' Life Satisfaction. *School Psychology International, 27*(5), 567-582.
Tsang, L. L. W. (2003). The Effects of Children, Dual Earner Status, Sex Role Traditionalism, and Marital Structure on Marital Happiness over Time. *Journal of Family and Economic Issues, 24*(1), 5-26.
Ulker, A. (2008). Mental Health and Life Satisfaction of Young Australians: The Role of Family Background. *Australian Economic Papers, 47*(2), 199-218.
Wessman, A. E., & Ricks, D. F. (1966). *Mood and personality*. Oxford England: Holt, Rinehart, & Winston.
White, N. P. (2006). *A brief history of happiness*. Malden, MA ; Oxford: Blackwell Pub.
Wilson, W. R. (1967). Correlates of avowed happiness. *Psychological Bulletin, 67*(4), 294-306.