Too Educated to be Happy? An investigation into the relationship between education and subjective well-being

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Contents

Abstract

While education has played a strong role in the ancient debate on the necessary preconditions for the good life, the contemporary literature on subjective well-being has not paid much attention to the possibility of education having an independent effect on happiness. Typically, education is mentioned only as having indirect effects, e.g. through its effect on income and wealth, employment status, health and mortality, marriage success, or as a proxy for socioeconomic status. Also, the view that education – like income – mainly raises aspirations and therefore leads to lower levels of happiness is widespread in the literature, mostly without empirical evidence. Using data from the last five waves of the World Values Survey, the goal of this paper is to comprehensively study the empirical evidence by using logistic regression techniques to shed more light on the neglected role of education in happiness differentials. The results suggest that the relationship between education and happiness is distinct from the relationship between income and happiness. While there is evidence that higher income does not go hand in hand with higher happiness after a certain point, there is no evidence of a similar levelling-off in the relationship between education and happiness.

Too Educated to be Happy? An investigation into the relationship between education and subjective well-being

Erich Striessnig, Wolfgang Lutz

Introduction

Happiness is a psychological construct, "the meaning of which everybody knows but the definition of which nobody can give." (H. M. Jones cited in Lyubomirsky 2001, p.239) This observation alludes to the fuzziness of a concept that is frequently used in everyday discourse and thus hard to grasp scientifically. Not surprisingly, it is common practice in the literature to speak interchangeably of happiness, life satisfaction or quality of life. Being one of the most significant dimensions of our emotional life, happiness is always perceived from the perspective of the first person, which makes us the only true judges of whether we are happy or not. Consequently, intersubjective agreement over the meaning of happiness is hard to achieve and researchers have to content themselves with studying subjective well-being (SWB). Whenever they ask somebody about how they feel, the answer will invariably depend on the respondent's personal standard regarding the conditions that have to be met for a life to be called "fulfilling", "flourishing" or – as in the case of the present study – "happy". What matters in this field of research is the comparison with that subjectively defined standard; how far off do people feel they are from where they would want to be?

This is nowhere near being an objection against studying happiness or SWB more generally. As Diener (1984) points out, "it is a hallmark of the subjective well-being area that it centers on the person's own judgment, not upon some criterion which is judged to be important by the researcher." Along these same lines, the latest World Happiness Report adds that the subjectivity of happiness has to be seen as a strength, rather than a weakness as it is arguably the most democratic of well-being measures (Helliwell and Wang in Helliwell et al. 2015). That the uncertainty around its definition is by no means a claim against studying happiness is also documented by the vast and

growing literature on the topic. Numerous studies confirm that people know pretty well how they are feeling and there seems to be a shared sense of what the term refers to, as subjective assessments of well-being tend to be highly consistent with evaluations by informants, professional psychologists, as well as outcomes from objective physiological and medical checks (Clark & Oswald 1996; Kahneman & Krueger 2006; Oswald & Wu 2010; Layard 2010). In addition to that, these measures have high test-retest reliability and do not just reflect transitory changes in mood (Diener 1984; Krueger & Schkade 2008).

Against the relativistic claim that measures of SWB always draw on "cognitive frames of reference" which are constructed within national or cultural contexts and therefore not comparable across countries, there is also a large body of literature certifying their international comparability (e.g. Easterlin 1974; Easterlin 2001; Shin & Inoguchi 2008; Welzel & Inglehart 2010). The probably most comprehensive summary of counter arguments stems from Veenhoven (1996), who dismisses the incomparability thesis on numerous grounds, the most important of which are linguistic and anthropological: The concept of happiness is translatable to pretty much any human language and the shares of respondents not knowing or denying to give an answer to questions regarding SWB is consistent across national surveys. In addition to that, human actions are guided by similar motives, lives are shaped in very similar ways, and satisfaction results from the gratification of the same universal human needs despite seemingly strong cultural and social differences, such that across the globe and over time, people rank accomplishing a state of happiness as one of the main goals of their lives (Diener & Oishi 2000).

Being such an essential component of the *conditio humana*, philosophers have been thinking about happiness and its constituents for thousands of years. Already very early on in their debate, distinctions were made to distinguish happiness from momentary pleasures or just a transitory feeling of ecstasy. Instead, the general goal was to find a formula that would make happiness independent of any accidental fortune and less vulnerable to the daily ups and downs. Education, as a major source of human empowerment has always played a paramount role in their reasoning. Somewhat surprisingly, though, it has not received similar attention by contemporary scholars studying SWB. In their writings, education is typically mentioned only as having

indirect effects on well-being, e.g. through its effect on income and wealth (Easterlin 2001; Cuñado & Gracia 2011), health and life expectancy (Gerdtham & Johannesson 2001; KC & Lentzner 2010), employment status (Clark 2003; Vila 2005), marriage success (Lucas & Clark 2006; Soons et al. 2009), or as a proxy for socioeconomic status (Graham & Pettinato 2001; Peiró 2006). Also, the view that education – like income – mainly raises aspirations and therefore leads to lower levels of well-being is widespread in the literature (Clark & Oswald 1996; Albert & Davia 2005; Caporale et al. 2007). The possibility that education could have an independent effect on happiness by giving people the means to determine their own commitments and to live flourishing lives, as Brighouse (2006, p.42) formulates it, is often ignored.

The goal of this paper is to shed more light on the neglected relationship between education and happiness. Are higher levels of education associated with higher levels of self-reported happiness or does education rather harm our well-being by raising aspirations? Does it affect happiness merely by yielding higher income and better health, or is there – as much of the historical literature has argued – an intrinsic value to education that deserves to be emphasized more strongly? In addition to that, it remains to be seen if there is a satiation point – as in the case of income per capita (Easterlin 1974; Easterlin et al. 2010) – where higher levels of education are no longer associated with higher levels of happiness. The results from the multivariate regression analysis of cross-country survey data presented in this article suggest that this satiation point does not exist.

In the following section, I will first give a brief overview of what the literature on happiness – both ancient and contemporary – has been focusing on. This will be followed by a more specific look at empirical results on the effect of education on SWB before introducing the data from the European and World Values Surveys, as well as the empirical strategy applied on them to study the question of how much education is conducive to a happy life. Hereafter, the results will be presented and discussed in their main implications.

Literature Review

Education and 'The Good Life'

In an environment of secularization and a shrinking belief in the omnipotence and impenetrability of divine intervention, ancient Greek philosophers initiated an emancipatory process to arrive at a definition of what they called "the good life". The widespread conviction inherent to this idea, most prominently brought forward by Aristotle in his *Nichomachean Ethics* (~350 BC) but shared and modified by many others, was that happiness could be made more persistent and robust to external influences by living in accordance with our virtues, in fact, happiness was defined as activity in accord with virtue (Michalos 2007): "[…] the Good of man is the active exercise of his soul's faculties in conformity with excellence or virtue, or if there be several human excellences or virtues, in conformity with the best and most perfect among them." The "best and most perfect", in fact the essential capacity that distinguishes humans from all other species, however, is reason and the key to refining one's reason, the primary means to "help people develop their best selves" (Noddings 2003, p.23) is education. This led Aristotle to the conviction that "the good life" can be identified with the *bios theoretikos* or *vita contemplativa* by its Latin translation.

The Aristotelian view has of course always been disputed. In the writings of Epicurus and the Stoics, education was seen as rather detrimental to the lasting pleasure of *ataraxia*, the robust tranquility of the soul, because it includes better knowledge of negative facts that can induce pain, which is to be avoided if happiness is to be achieved. But even Epicurus sees the necessity of education to teach us the difference between the fleeting *kinetic* pleasures, that appear to be pleasures but bring pain in their wake, and the enduring *katastemic* pleasures (compare Morse 1998). Likewise, stoicism propagates the need to gain wisdom through education as a form of self-control and independence from disquieting external influences. The eventual goal is a correct view of both our physical surrounding, as well as of the Gods to facilitate a genuine piety without superstition (compare Reydams-Schils 2010). In the context of Christian scholasticism, to know more about the world is often seen as disturbing and "in trying to submit God's mysteries to reason, one *could be tempted* to forget their transcendency and yield to *a kind of naturalism*" (Wiebe 1991, p.204, italics in original) which would

be in contradiction to the goal of pure faith. Thus, if ignorance is bliss, then education ought to be avoided. Nevertheless, many medieval friars spent their days studying in the libraries of their convents.

Contemporary Research on Subjective Well-being

Lacking both the data and the computing power available today, the "researchers" of the ancient times were not able to turn the question of how education and happiness are related into an empirical matter. But the interest in "the good life" is no less present in our days, as can be seen from the enormous amount of research on the topic of happiness across a range of different disciplines. Yet, across disciplines education has not played as strong a role in the realm of contemporary empirical happiness research as one could expect from looking at the historical evolution of the concept. Psychologists, for example, are far less interested in socio-demographic characteristics and rather look at personality traits when studying the determinants of SWB. The so called 'Big Five', neuroticism, extraversion, openness, agreeableness, and conscientiousness are all highly significant predictors of people's happiness (Costa & McCrae 1985). In addition to that, cognitive and motivational processes, such as self-reflection, self-evaluation, dissonance reduction and social comparison can help explain why some people are happier than others (Lyubomirsky 2001), just like the intensity with which people experience emotions (DeNeve 1999). But there is a growing recognition in the more recent past that this psychological research will more and more be merged with research from the medical, epidemiological, and biological sciences (Blanchflower & Oswald 2011), as a large fraction of the variation in happiness scores appears to be due to genetic factors (Weiss et al. 2008; Archontaki et al. 2013). Relying on twin research techniques, De Neve et al. (2012) estimate the heritability of SWB at 33 per cent, but other studies suggest it could be much higher (Lykken & Tellegen 1996). This gives support to the older 'Set Point' theory of happiness (Brickman et al. 1978) which states that we inherit a certain "baseline happiness" around which our day to day happiness level fluctuates only slightly. For the vast part, we are caught up in a hedonic treadmill, leaving little to change for either Greek philosophy or interventionist policies aiming at improving the human lot.

However, this fatalistic view has also been challenged and Set Point theory found to be flawed on numerous grounds (e.g. Diener et al. 2006; Easterlin 2006; Headey 2010). Psychological causes of SWB, often said to be far more influential than the circumstances provided by one's environment, are still closely related to cultural, economic and socio-demographic factors. People with certain characteristics tend to select themselves into specific life situations which are more or less conducive to happiness (Diener et al. 1999). Also, genes are not destiny and just like obesity-promoting genes require an obesity-promoting lifestyle to take effect, gene-environment interactions exist in the case of happiness (Caspi & Moffitt 2006; Krueger et al. 2008). As of yet, a single "Happiness Gene" has not been found, nor have the neurobiological mechanisms underlying different cognitive "types", e.g. with regard to selective processing of positive and negative information, been understood sufficiently (Fox et al. 2009). So there seems to be still some variation left to explain for social scientists (although probably not quite as much as those who made a negative inheritance in the lottery of life would wish for).

Studying what can be done to promote the pursuit of happiness, economists haven't been any more open to the Aristotelian project either. Due to a tradition of identifying well-being primarily with high income, economists are interested in education mainly for its potential to raise productivity or to serve as an explanatory variable in wage equations. The non-monetary returns to education, especially those that improve SWB, have been studied to a far lesser extent or were simply ignored.[1] The main socioeconomic covariates in the economics of happiness literature are labor market status and unemployment (Clark & Oswald 1994; Frey & Stutzer 1999; Clark 2003), health and age (Lelkes 2008; Deaton 2008; Frijters & Beatton 2012), inequality (Alesina et al. 2004; Oishi et al. 2011), and of course income, which has received by far the greatest attention. In his seminal paper from 1974, Richard Easterlin asks the question: *Does Economic Growth Improve the Human Lot?* (Easterlin 1974) and comes to the paradoxical conclusion that although within nations people with higher income

[1] Studying the *Macroeconomics of Happiness*, Tella et al. (2003) find a strong education effect but they do not discuss it. Alesina et al. (2004) look at the effect of inequality on happiness and also find a statistically significant, positive effect of education – both for the US and for the European part of their sample – but again, the effect is not mentioned in the discussion of their results.

tend to report higher SWB, similar differentials by GDP per capita cannot be observed at the national level or when comparing countries at different points in time. This rather surprising and – for its implications with regard to income redistribution – also controversial finding has since been rejected (Veenhoven 1991; Hagerty & Veenhoven 2003; Stevenson & Wolfers 2008; Stevenson & Wolfers 2013) and reinvigorated (Easterlin 2005; Oswald 2006; Macunovich & Easterlin 2008; Di Tella & MacCulloch 2008; Easterlin et al. 2010) several times. Alternative explanations have emphasized the importance of relative income comparisons (Clark & Oswald 1996; Ferrer-i-Carbonell 2005; Caporale et al. 2007; Clark et al. 2008), as well as the strong role of aspirations which are rising with income as people try to "keep up with the Joneses", such that on the whole the income effect is neutralized by rising aspirations once basic needs are fulfilled (Easterlin 1976; Stutzer 2004; Proto & Rustichini 2013).

The Links between Education and Subjective Well-being

Due to its correlation with income similar reasoning has also been brought forward with respect to the effect of education. Veenhoven (1996) suggests that the most educated people within societies will only be happier as long as their education yields them a clear status advantage. As these differentials erode in the most developed societies, higher education will actually be related negatively with happiness. Empirical support for this hypothesis comes from Hartog and Oosterbeek (1998) who find a non-monotonic relationship between education and happiness in the Netherlands. Schooling is the overriding factor in their analysis considering significance and magnitude, but its effect on happiness levels off and the most fortunate group is the group with a non-vocational intermediate level education. For lack of a satisfying explanation the authors do concede though that they may have been studying a rather particular cohort. A similar result is derived by Stuzter (2004) looking at Swiss data collected between 1992 and 1994. People with average education report higher satisfaction scores than those with a low, as well as those with a high education level. The reason stated for the lower levels of happiness among those with higher education is the effect of education on incomes and thus aspirations. But it could also be explained through greater income dispersion among the more highly educated (Castriota 2006) or job-qualification mismatch (Albert & Davia 2005). If higher education levels are related to higher

expectations and these do not coincide with outcomes in the labor market, the individual will eventually feel dissatisfied and a negative relation between education and satisfaction will be observed. This outcome is particularly likely for people with higher levels of education who tend to work under more competitive conditions.

Thus, if the relationship between education and happiness is characterized by a similar satiation point as found by Easterlin in the case of income, then public spending should be limited to, e.g. below-tertiary education. This view is held by Cuñado and Gracia (2011) looking at the relationship between education and happiness in Spain in 2008 where people with tertiary education did not report higher SWB than those with secondary education. While such a view disregards the host of co-benefits that make it socially desirable for the state to invest in higher education, the results may be specific to the studied cohort and historical period (e.g., the onset of financial crisis around the time the study was conducted), and thus may not be generalizable. In fact 2008 was the year when unemployment in Spain rose by almost 40 per cent (Anon 2008) and it should not come as a surprise that the happiness of those people with higher levels of education was affected by that more severely: Evidence for the United Kingdom from the early 1990s found by Clark and Oswald (1996), as well as Clark (2003) suggest that during economic downturns, SWB of the higher-educated is more heavily affected since they experience bigger disutility from unemployment. Having made a bigger investment in their human capital, these individuals also hold bigger expectations towards the job market.

On the positive side, however, people with higher education are also more likely to quickly find another job which reflects in higher SWB on the longer run and what's more, the effect reverts for those people who do have a job. As Fabra and Camisón (2009) point out, job satisfaction, which is closely connected to SWB, is significantly higher in Spain among those who hold a higher education controlling for hourly wages. Having a well-paying job is of course important, as it reduces distress induced by economic hardships, but people also derive meaning out of their professional employment which tends to be easier for those with higher education. Ross and Willigen (1997) find the main effect from education on SWB to work through access to "nonalienated work", by which they mean jobs that include a high level of perceived control over the labor process, with less routine activities, that offer possibilities to learn

and for personal development. In addition to that, they are higher up in the organizational hierarchy, related to greater independence and responsibility, but also more secure work contracts (Vila 2005; Vila & García-Mora 2005).

The literature also holds examples of clearly positive direct effects of education which do not show signs of the Easterlin-type levelling-off. Disentangling quality of life differentials in rural Virginia (US), Bukenya et al. (2003) report both a direct effect of education and an indirect effect through better health. The difference in quality of life between the lowest and highest education group is as big as the difference between someone being married compared to being single. Comparing the US and the UK, Blanchflower and Oswald (2004) find that education clearly has a strong effect on SWB that is independent from income in both countries. This is confirmed by Oreopoulos and Salvanes (2011) using US data from the General Social Survey. The education effect on happiness is unconditional on household income. Similar conclusions can be drawn from the Hungarian experience during the 1990s: Those with higher education have the highest level of satisfaction, even after controlling for labor market status and household income and are clearly among the winners of the transition to market economy (Lelkes 2006). This is not only a Western phenomenon, as the effect can also be found in the "Confucian context" of six East Asian societies where "a majority of people lacking a high school education fails to live a happy live" (Shin & Inoguchi 2008). Similarly, Chen (2011) finds a strong association between education and happiness analyzing survey data from four East Asian countries. The main reason provided lies in the extent of the interpersonal network and the degree of cosmopolitanism, both of which are greater for better educated individuals, whereas the less educated incur greater risk of social exclusion (compare Nieminen et al. 2007). The only study so far that has looked at the determinants of well-being at the metropolitan level, rather than national or individual differences, finds "that human capital plays the central role in the happiness of cities, outperforming income and every other variable." (Florida et al. 2013) Most recently, Giambona et al. (2014) find that educational attainment has the strongest effect among all socioeconomic determinants of well-being in their Italian sample.

While these results are of course encouraging, they are all based on the analysis of specific national or regional contexts. The present investigation goes beyond these previous studies by putting an exclusive focus on the relative effect of education

compared to income in a cross national context controlling for other key socioeconomic factors.

Other factors associated with subjective well-being

The literature considers a number of individual and environmental factors contributing to individual level happiness. One of them is age, where intuitively one would assume that getting closer to the end of one's life could only be negatively related to indicators of SWB. Yet, much of the literature does not find this clearly negative, but rather a significant U-shaped relationship, commonly referred to as the "well-being paradox", indicating that happiness is highest at young and old ages, despite deteriorating health and lower income, and lowest in midlife (Blanchflower & Oswald 2004; Deaton 2008; Swift et al. 2014). Looking at the US and Britain, Blanchflower and Oswald find the overall minimum in SWB in the late 30s, with a slight advantage of a few years for women. It has been argued that as people get older, they become better at handling their aspirations and having seen many of their friends die, they start valuing their own lives more (Blanchflower & Oswald 2008). But there is evidence also that the relationship between age and indicators of SWB is more complicated than U-shaped. Retirement, for example, especially when involuntary, seems to have a rather negative effect on SWB (Bonsang & Klein 2011) and although the retirement shock tends to be rather short lived and people soon start enjoying the increased amount of leisure and lower stress levels, the U-shaped pattern does not hold for the higher ages when health-related troubles intensify, suggesting that age per se is not a cause of decline in SWB but health constraints are (Kunzmann et al. 2000; Frijters & Beatton 2012).

Another important demographic control variable conventionally included in happiness regressions is gender where women have generally been found to be happier than men (Blanchflower & Oswald 2004). However, as Stevenson and Wolfers (2009) point out, despite increased opportunities for women, improved labor market access, and a narrowing gender wage gap, female happiness seems to be on the decline in the US and many other developed countries, both in absolute terms and relative to men. Men may have been the beneficiaries of the women's movement as women end up taking over more of the market work while still being burdened with the bigger part of the work in the private domain. In addition to that, women have been found to

experience more negative emotionality, as well as emotions of powerlessness, such as guilt, shame, and embarrassment but that men experience more pride (Fischer et al. 2004; Else-Quest et al. 2012). But gender also interacts in interesting ways with other socio-demographic characteristics like marital status and unemployment when it comes to explaining differences in SWB. Women's well-being tends to be less negatively affected by singlehood or divorce, both from a previous partner or workplace. According to Clark and Georgellis (2013) this is because women are equipped with better coping mechanisms and assistance networks. In addition to that, women have been found to be more satisfied with their job because of lower expectations (Clark 1997).

Against claims that people might voluntarily chose to be unemployed and prefer to enjoy social insurance benefits, Clark and Oswald (1994) show that unemployment in general does not make people happy but rather very unhappy and mentally distressed. Frey and Stutzer (2002) quantify the effect of unemployment on SWB for a group of 12 European countries and find it to be bigger than the effect of moving from the highest to the lowest income quartile. The relationship is however not straightforward either, as the negative effects of unemployment on SWB seem to be inversely related to the unemployment rate. As Clark (2003) points out, the loss in happiness due to unemployment depends on the social norms represented by one's peers. If more of them are unemployed, then one's personal loss in happiness will be smaller and there will be less pressure to find another job. Therefore, labor market interventions have to be fast to prevent the creation of new social norms that are less disapproving of unemployment.

Several studies have also found a notable relationship between religion and SWB, in particular for people who lost other forms of social support or who have gone through major life crises. Disregarding the role of religion in many of the world's largest conflicts that are again responsible for many such major life crises, religion also serves as a stabilizing factor for many people, helping to create a sense of identity and belonging. Together with education Noddings (2003, p.13 ff.) refers to religion as "the other option to make ourselves independent of the contingencies or earthly misery". This view is supported empirically by Lelkes (2006) who finds that religious people were affected to a far lesser extent in their happiness by the negative income shocks during the economic transition of the 1990s in Hungary. However, besides the social

benefits there is also strong evidence on the more personal effects of religious practices and strength of belief, controlling for demographic characteristics. An overview of different sources of happiness based in spiritual practice can be found in Diener (1999). More recent advancements in experimental neuroscience suggest that intense prayer and "talking to God" (as opposed to making wishes to Santa Claus) leads to activation in the dopaminergic reward system among a group of Danish protestants (Schjødt et al. 2008; Schjødt et al. 2009). Whether these results are universal to religious practice has not been clarified yet, though.

Furthermore, the surrounding environment where people live influences their level of happiness. Several studies emphasize the importance of related living conditions, e.g. pollution, congestion, or generally higher stress levels in big cities, and find a negative urbanization effect (e.g. Gerdtham & Johannesson 2001; Berry & Okulicz-Kozaryn 2011). This result might however not hold for the developing world where city life is still seen to be very attractive, primarily due to better employment options (Veenhoven 1994). At the same time, Bukenya et al. (2003) explain their finding of lower happiness in small US communities with small-scale, low-density settlement patterns which make the provision of critical infrastructures and services more difficult and costly. In addition to that, small communities tend to be less diversified in economic terms and therefore more vulnerable to exogenous shocks that hit the local industries.

Finally, it is important to control for time- and country-fixed effects. The effect of economic cycles on well-being, as well as between country differences have always been among the main topics in the SWB literature and a major driving force behind international data collection efforts such as the European and World Values Surveys (EWVS), reflecting at the same time a growing recognition that simple GDP targets are insufficient for assessing national well-being (Diener 2006; Jones & Klenow 2010; Stiglitz et al. 2010). While happiness levels generally seem to be on the rise in most countries for the last 40 years (Veenhoven & Hagerty 2006; Helliwell et al. 2013), there are also notable exceptions, such as many countries in Eastern Europe or the United States. Di Tella et al. (2003) show that the happiness of nations responds quite heavily to macroeconomic shifts. But despite indicators of development explaining up to 75 per cent of the observed differences in cross-national well-being (Veenhoven 2012),

happiness and income are not the same. Most of Latin America seems to be characterized by a culture of happiness and Costa Rica ranks even higher than Denmark, which has long been said to be the happiest nation, while SWB tends to be lower in industrialized Asian countries compared to other nations at similar levels of development. Other factors, such as inequality, social capital, democracy, trust, a welfare state or low levels of pollution have also been shown to be important correlates of human well-being at the national level.

Data and Methods

To study the relationship between education and happiness, not just in one country but in a global cross section of countries, I rely on the data from the European and World Values Surveys (EWVS) which represent the largest source of information on values, norms, and quality of life to date with a total of roughly 500,000, not repeated individual observations. The EWVS has been carried out in six waves since 1981 – the latest of which (2010-2014) has only recently been released and so far not been used for statistical research very widely. Starting out with a heavier focus on European countries, over the years the EWVS has become ever more global in scope. In total, representative national surveys with between 1,000 and 3,000 individuals from the entire resident population above the age of 18 have been conducted in almost 100 countries accounting for close to 90 per cent of the world population. Country-level weights are provided reducing sampling bias and ensuring that the data for each country-wave combination are representative. Complete data for all variables used in the multivariate regression analysis is available for about 172,000 observations from 85 countries spanning the last five of the six waves conducted so far. Detailed information on the sampling strategy, questionnaire wording, as well as data access and publications making use of this data can be obtained at www.worldvaluessurvey.org.

Respondents in all survey waves of the EWVS so far were asked to give an assessment of their "Feeling of Happiness": "Taking all things together, how happy would you say you are?" The four response possibilities, "not at all happy", "not very happy", "rather happy", and "very happy", were coded in descending happiness order from 4 to 1 (see Table A 1 in the appendix). The precise wording of the question has not been altered across survey waves in any of its translations. Concerns have been raised

about the possibility of differential item functioning, i.e. subjective assessments regarding one's level of happiness might not be comparable across different nationalities, cultures, or even members of different sub-populations within nations as the response category cut points for the different evaluations of SWB might differ (e.g. Uchida et al. 2004). One remedy proposed in the more recent literature against the resulting reporting bias are anchoring vignettes[2] (King et al. 2004; Kristensen & Johansson 2008; van Soest et al. 2011), however, these have not yet been included in the generation of the EWVS data.

A simpler approach to remedy this potential problem consists in dichotomizing the answer categories. As shown by Van Herk et al. (2004) comparing evidence from six European countries, response styles vary particularly with regard to the likelihood of extreme responses – while in some cultural contexts people tend to be very frank about their state of happiness and thus choose the extreme answer possibility straight out, in others they tend to be more modest preferring answers that are closer to the midpoint of the rating scale. Similiarly, Veenhoven (2012) points out that although respondents sometimes change answers when asked repeatedly about their SWB, they rarely cross the midpoint and even less often change from one extreme to the other, i.e. from "very happy" to "not at all happy." Thus exploiting the very clear distinction between positive and negative outcomes in the case of the happiness survey item[3], following Deeming and Hayes (2012) the response categories are dichotomized to jointly distinguish the "very happy" and "quite happy" (called "happy" in the analysis) from the group of the "not very happy" and "not at all happy" (referred to as "unhappy"). Redrawing the cut point at this more significant divide on the one hand reduces the influence of possible differential item functioning and increases the results' robustness with respect to

[2] The basic idea behind this approach is to ask people not only about their personal assessment of how happy they are, but to also ask them to rank certain other possible life situations on the same scale. By comparing their assessments of their own situation with the hypothetical situations tested by the vignettes, researchers can then correct a certain sub-population's bias in its answering behavior.

[3] In their World Happiness Report (2012), the United Nations recommend a second measure of SWB, namely "life satisfaction" which was offered to the respondents of the EWVS – also without vignettes – on a numeric 10-point scale ranging from "Dissatisfied" (=1) to "Satisfied" (=10). While the two measures are quite correlated, the midpoint in the case of life satisfaction is far more open to individual interpretation and will thus vary to a far greater extent.

random distortions in people's answering behavior. On the other hand, it is also indicated by the rather small number of people claiming to be "not at all happy".[4]

Based on the response variable just discussed, I then model the probability of a positive outcome, i.e. reporting to be "happy", given a set of regressors using a weighted multivariate logistic regression model that is fitted by maximum likelihood. Logistic regression is the weapon of choice when it comes to modelling dichotomous response variables (Hosmer et al. 2013). On the left hand side of equation (1), we have the logistic transformation of the probability to be happy for individual i in country j at time t, $\pi_{i,j,t} = \Pr(Y_{i,j,t} = 1)$, on the right hand side a set of explanatory variables X with corresponding unknown regression coefficients β. The survey weights provided by the EWVS are used to guarantee for national representativeness of the individual countries' observations.

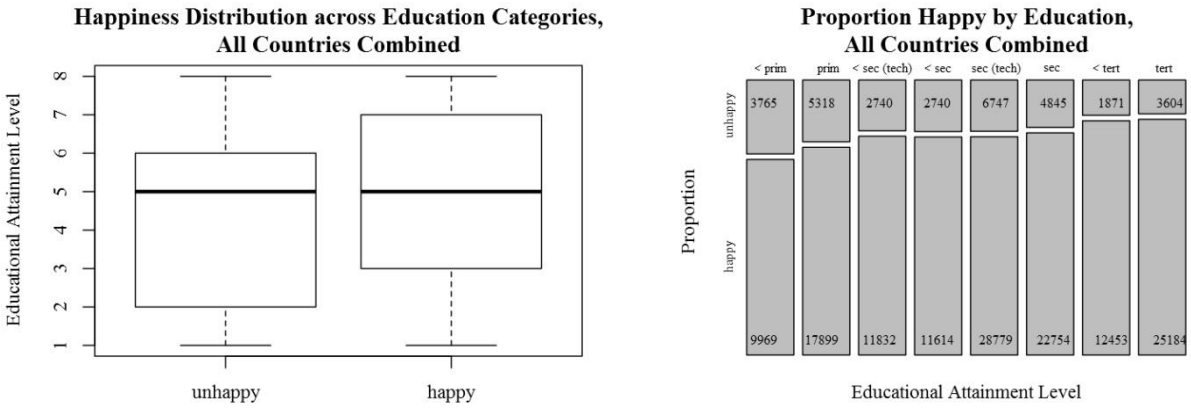
$$logit(\pi_{i,j,t}) = \beta^0 + \beta^1 X^1_{i,j,t} + \beta^2 X^2_{i,j,t} + \cdots + \beta^p X^p_{i,j,t}, i = 1, \dots, n, j = 1, \dots, K, t = 1, \dots, T \quad (1)$$

This type of equation is often referred to as a utility function or a well-being production function. The main input variable for the production of well-being that this study is focusing on is educational attainment which is reported by the EWVS on an ordinal, eight level scale, ranging from no education to upper-level tertiary. Unfortunately, the question on educational attainment was not yet included in the first survey wave (1981-1984) and can therefore not be included in this analysis. Just like in the case of schooling being used as an explanatory variable in wage equations, concerns have been raised in the happiness literature about the variable being biased due to the unaccounted effect of innate abilities. While for ethical reasons it is obviously not possible to randomize access to schooling, the EWVS was not designed to test e.g. the respondent's intelligence either and therefore gives no possibility to remedy this situation. However, Hartog and Oosterbeek (1998) show that the inclusion of IQ scores does not alter their results when regressing happiness on schooling and other covariates.

[4] Just to double check, prior to dichotomizing I also ran multinomial logit models using the full scale of answer possibilities. Higher educational attainment reduces the log odds of being among the "not very happy" as compared to "quite happy" but they do not significantly affect somebody's chances to be "very happy" as compared to "quite happy". This lack of distinctive power in the two upper happiness categories is probably due to a certain cultural variability in the interpretation of the response scale and can be taken as further evidence that dichotomization is preferable to using the full scale.

Frey and Stutzer (2010, p.59) deny the effect of intelligence on happiness altogether. Another concerns lies in the two-way interaction between happiness and education. Not only may educated people be happier, happy people may also be more likely to stay in the education system. While it is difficult to rule out this potential endogeneity, evidence from natural experiments shows that happiness levels increased in response to increases in the minimum school leaving age conditional on income (Oreopoulos & Salvanes 2011). The bivariate relationship between educational attainment and the happiness measure described earlier is depicted in Figure 1. Note that the picture looks very similar when looking at individual waves separately.

Figure 1. Bivariate relationship between happiness and educational attainment.



Notes: The numbers on the y-axis in the box-whisker plot on the left corresponds to the eight education categories spelled out on the horizontal axis of the figure on the right (1=’less than primary’, 2=’primary completed’, 3=’incomplete secondary (technical)’, 4=’incomplete secondary’, 5=’ secondary completed (technical)’, 6=’secondary completed’, 7=’incomplete tertiary’, 8=’tertiary completed’. Numbers on the grey-shaded areas correspond to underlying number of observations.

Answers to all other items used in the analysis are available from all of the six survey waves since the beginning of the EWVS. However, for some of them, the number of missing observations is quite high, as for example in the case of self-reported household income, where for the sake of international comparability each respondent was asked to place her- or himself in one of ten possible steps on the respective national income scale. Since observations from different countries can be missing for different reasons, results are presented excluding these observations. However, to control for the possibility of selection bias in answering behavior, separate estimations were run

including the missing values as a separate income category. This didn't change the results significantly.

The other major control variable that has caused far less controversy than income as a predictor of SWB is the respondent's health status. Since health is not assessed objectively in the EWVS either, one could even argue that the question is just another way of asking for a person's well-being. Yet, the correlation of 0.32 with happiness suggests that respondents are actually able to interpret those items separately and that there are people who are happy with their life despite difficult health conditions and vice versa. The observed correlation between health and income is around 0.2, for health status and educational attainment it is 0.17.

Further socio-demographic covariates controlled for include age, sex, marital status, unemployment, whether somebody considers themselves "a religious person", "not a religious person", or "a convinced atheist", as well as the type of settlement where the respondent is living measured by town size. A table with descriptive statistics and the answer categories for each of these variables is available in the appendix. To control for differences in happiness due to time period and country differences, dummies for both (a) the individual years between 1990 and 2012 (using 1989 as the base category) when all items are available from the EWVS, and (b) for each of the 85 countries in the sample were included in all models.

Results

Table 1 presents the results from the multivariate statistical analysis. Model 0 represents the baseline model which includes only the general controls at the individual level, i.e. the respondent's health status, age, sex, marital status, employment, religion, and the size of the town where the respondent is living. Models 1 and 2 add the main variables of interest, income and education, separately, before Model 3 controls for income and education jointly. All four models control for country- and time-fixed effects. For lack of space, the country-specific effects will be presented separately.

Table 1. Happiness Regression: Main Covariates

	Model 0	Model 1	Model 2	Model 3
Constant	0.713***	1.052***	0.723***	1.023***
	(0.139)	(0.141)	(0.142)	(0.143)
Health Status (Ref. "Very Poor")				
Poor	0.271**	0.274**	0.262**	0.271**
	(0.084)	(0.086)	(0.085)	(0.086)
Fair	1.187***	1.128***	1.153***	1.115***
	(0.083)	(0.084)	(0.083)	(0.084)
Good	2.248***	2.133***	2.188***	2.110***
	(0.083)	(0.085)	(0.084)	(0.085)
Very Good	2.975***	2.836***	2.906***	2.810***
	(0.086)	(0.087)	(0.086)	(0.088)
Age	-0.041***	-0.041***	-0.044***	-0.043***
	(0.003)	(0.003)	(0.003)	(0.003)
Age^2	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.100***	0.113***	0.111***	0.117***
	(0.015)	(0.016)	(0.015)	(0.016)
Marital Status (Ref. "Married")				
Living together as married	-0.315***	-0.279***	-0.292***	-0.270***
	(0.034)	(0.035)	(0.034)	(0.035)
Divorced	-0.889***	-0.802***	-0.903***	-0.815***
	(0.037)	(0.037)	(0.037)	(0.037)
Separated	-0.947***	-0.862***	-0.944***	-0.866***
	(0.048)	(0.049)	(0.048)	(0.049)
Widowed	-0.845***	-0.759***	-0.825***	-0.754***
	(0.031)	(0.031)	(0.031)	(0.031)
Single/Never married	-0.516***	-0.505***	-0.550***	-0.524***
	(0.024)	(0.024)	(0.024)	(0.024)
Unemployed	-0.506***	-0.395***	-0.469***	-0.383***
	(0.024)	(0.024)	(0.024)	(0.024)
Religion (Ref. "A religious person")				
Not a Religious Person	-0.175***	-0.190***	-0.185***	-0.194***
	(0.019)	(0.019)	(0.019)	(0.019)
A Convinced Atheist	-0.187***	-0.225***	-0.230***	-0.245***
	(0.040)	(0.040)	(0.040)	(0.040)
Town Size (Ref. "2,000 and less")				
2,000-5,000	0.016	-0.021	0.002	-0.025
	(0.030)	(0.030)	(0.030)	(0.030)
5,000-10,000	0.084*	0.031	0.051	0.017
	(0.034)	(0.034)	(0.034)	(0.034)
10,000-20,000	0.118***	0.069*	0.075*	0.050
	(0.034)	(0.034)	(0.034)	(0.035)
20,000-50,000	0.116***	0.041	0.066*	0.019
	(0.031)	(0.031)	(0.031)	(0.031)
50,000-100,000	0.208***	0.112***	0.146***	0.085*

	Model 0	Model 1	Model 2	Model 3
	(0.033)	(0.034)	(0.034)	(0.034)
100,000-500,000	0.233***	0.118***	0.151***	0.081**
	(0.028)	(0.028)	(0.028)	(0.028)
500,000 and more	0.165***	0.032	0.071*	-0.009
	(0.028)	(0.028)	(0.029)	(0.029)
Income Scale (Ref. "Fifth Step")				
First		-0.694***		-0.651***
		(0.030)		(0.030)
Second		-0.602***		-0.567***
		(0.029)		(0.029)
Third		-0.437***		-0.416***
		(0.027)		(0.027)
Fourth		-0.261***		-0.251***
		(0.027)		(0.027)
Sixth		0.145***		0.134***
		(0.030)		(0.030)
Seventh		0.255***		0.233***
		(0.033)		(0.033)
Eighth		0.247***		0.218***
		(0.038)		(0.039)
Ninth		0.290***		0.256***
		(0.053)		(0.053)
Tenth		0.285***		0.240***
		(0.059)		(0.060)
Education (Ref. "Incomplete Secondary")				
Incomplete Primary			-0.194***	-0.080*
			(0.037)	(0.037)
Primary			-0.068*	-0.002
			(0.034)	(0.034)
Incomplete Secondary (technical)			-0.052	-0.035
			(0.037)	(0.037)
Complete secondary (technical)			0.118***	0.085**
			(0.032)	(0.032)
Complete secondary			0.166***	0.109***
			(0.032)	(0.033)
Incomplete tertiary			0.264***	0.157***
			(0.038)	(0.039)
Complete tertiary			0.411***	0.258***
			(0.034)	(0.034)
Observations	172114	172114	172114	172114
AIC	131545	129657	131064	129523
BIC	132823	131024	132411	130961

Notes: Multivariate weighted logistic regression estimates presented as log odds. Robust standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Individual level controls

The highly significant relationship between health status and the probability of reporting to be happy suggests that people may be able to adapt to misery and hardship to some extent, as suggested by Set Point theory, but when due to their poor health they are deprived of essential human capabilities and constrained in their possibilities to participate in social life, the negative effect on happiness cannot be denied. Model 3 suggests that suffering from "very poor" health reduces the odds of being "happy" to 6 per cent of the odds faced by a person with "very good" health.

At the same time, health is itself strongly determined by education, such that Ross and Mirowsky (2010, 33) refer to education as "the key to socioeconomic differentials in health". To the extent that people want to live a healthier life, education helps them develop the means to achieve it through greater discipline and agency. Higher levels of education lead to healthier lifestyles regarding smoking behavior, exercising, weight control, and demand for medical services. The more educated use health inputs more efficiently while lack of education may lead to misuse and ignorance on the effectiveness of some therapies (Deaton 2008). Education has also been shown to be related to more stable social relationships, including marriage, which again has a positive impact on psychological well-being, as people have a stronger sense of having social support, i.e. somebody to talk to (Ross & Willigen 1997). In a more recent study, Rainer and Smith (2012) find that partners in intimate relationships benefit from education through the effect of improved communication on sexual satisfaction which again is strongly correlated with life satisfaction. Taken together, these effects are reflected in huge advantages in life expectancy for the better educated (Olshansky et al. 2012). Against the claim of endogeneity, Lutz et al. (2014, Ch. 2) have recently argued that the strong association between education and health is indeed driven by a mechanism of "functional causality" leading from better education to improved health.

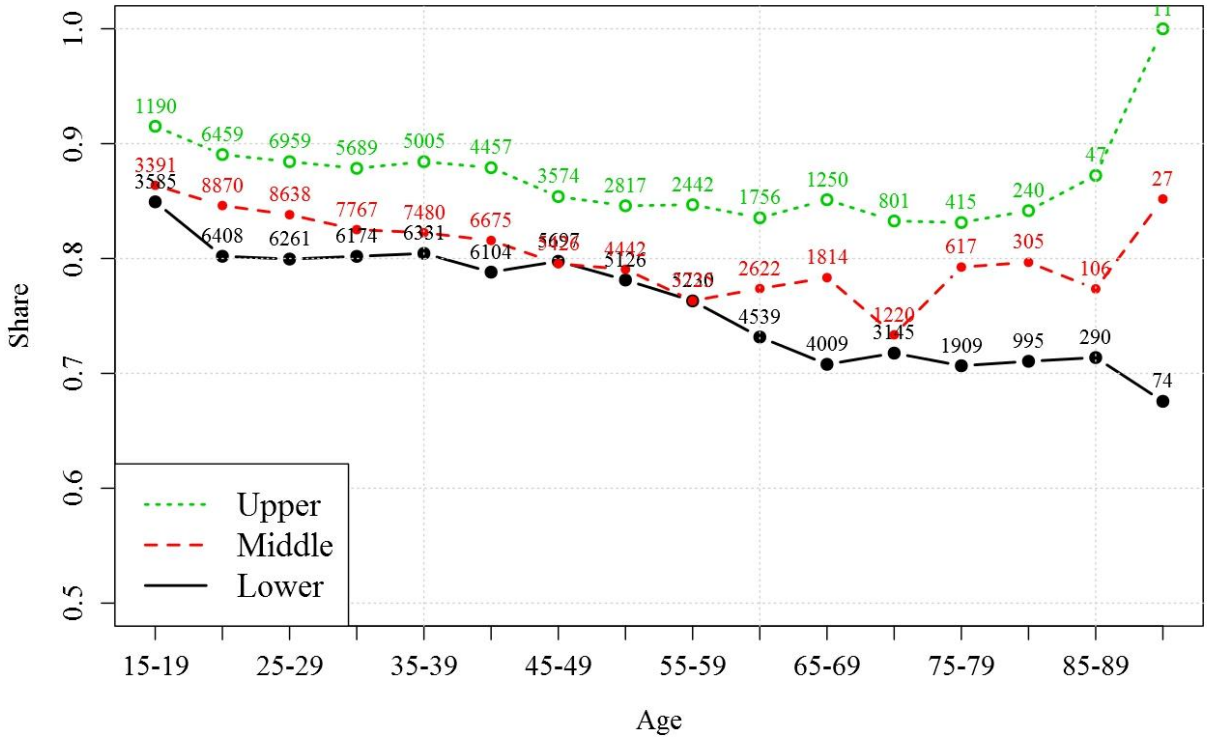
As expected from previous evidence, happiness is U-shaped in age, at least when age enters numerically. According to the results presented in Model 3, the recovery in happiness starts roughly at the age of 46, which gives a slightly more pessimistic outlook than what has been reported by the literature (Blanchflower & Oswald 2004). Instead of letting age enter as a continuous variable and imposing a functional form, though, one can also use individual age dummies and capture the relationship in greater

detail. This doesn't yield much in terms of model fit and also doesn't affect the results for the other covariates (these results are presented in the appendix), but it gives some insights into the effect of passing other critical road marks along the life cycle. A pronounced dent in the upward trend in happiness at age 66 suggests that retirement does in fact have a negative effect on SWB, however, the recovery seems to continue immediately after. As the number of observations gets smaller at older ages, the individual age dummies are no longer significant. But aggregating the data by 5-yearly age groups and looking at the bivariate relationship between age and happiness separately for three broader education groups, suggests that the recovery in happiness after retirement is driven primarily by people with at least a middle-level of education, whereas the U-shaped pattern often described in the literature does not hold for the majority of the survey population at lower levels of education. This finding, shown in In accordance with the literature, women in the EWVS have slightly better chances to be happy than men and as the interaction of marital status and gender (not shown here) suggests, they tend to report higher levels of happiness than men when living as singles, in divorce or separated. Similarly, the negative relationship between unemployment and SWB is stronger among men than among women, but with an odds ratio of 0.68 unemployment remains one of the main predictors of unhappiness. While the results from the EWVS do not allow for quite as extreme conclusions as presented by Frey and Stutzer (2002), unemployment payments still would have to be very high for people to choose unemployment voluntarily and there is evidence for high non-pecuniary costs also in the EWVS.

Figure 2 below, is supported by Lelkes (2008), who finds that their lower educational attainment is the main reason for why older adults show lower SWB in Hungary. If they were as educated as the subsequent cohorts, there would be little difference in their well-being. Similarly, Clark and Fawaz (2009) find that the well-being of the less educated falls more on retirement. Better educated individuals – despite the fact that they were more satisfied while they still had a job – are also more satisfied in retirement.

In accordance with the literature, women in the EWVS have slightly better chances to be happy than men and as the interaction of marital status and gender (not shown here) suggests, they tend to report higher levels of happiness than men when living as singles, in divorce or separated. Similarly, the negative relationship between unemployment and SWB is stronger among men than among women, but with an odds ratio of 0.68 unemployment remains one of the main predictors of unhappiness. While the results from the EWVS do not allow for quite as extreme conclusions as presented by Frey and Stutzer (2002), unemployment payments still would have to be very high for people to choose unemployment voluntarily and there is evidence for high non-pecuniary costs also in the EWVS.

Figure 2. Share of people "Happy" by age and educational attainment (recoded) over all 85 countries and waves from 1989 to present.



Notes: "Lower" refers to people with less than completed secondary education, "Middle" refers to completed secondary education and "Upper" refers to attainment levels higher than secondary. Numbers above data points indicate underlying number of observations. Source: EWVS.

Due to the high number of missing values and the strong fragmentation between different religious groups, the question on whether a particular denomination makes people happier than others is not studied in this article. However, using the EWVS item that seems most likely to be universal despite differences in doctrine across denominations, I control for whether somebody is "a religious person", "not a religious person", or "a convinced atheist".[5] The results presented in Model 3 suggest that convinced atheists are only 78 per cent as likely as religious people to be happy, with

[5] Not surprisingly, Buddhists are the biggest exception in the EWVS. Roughly half of them consider themselves to be "a religious person", the other half "not a religious person". All other big denominations seem to be less uncertain about this question.

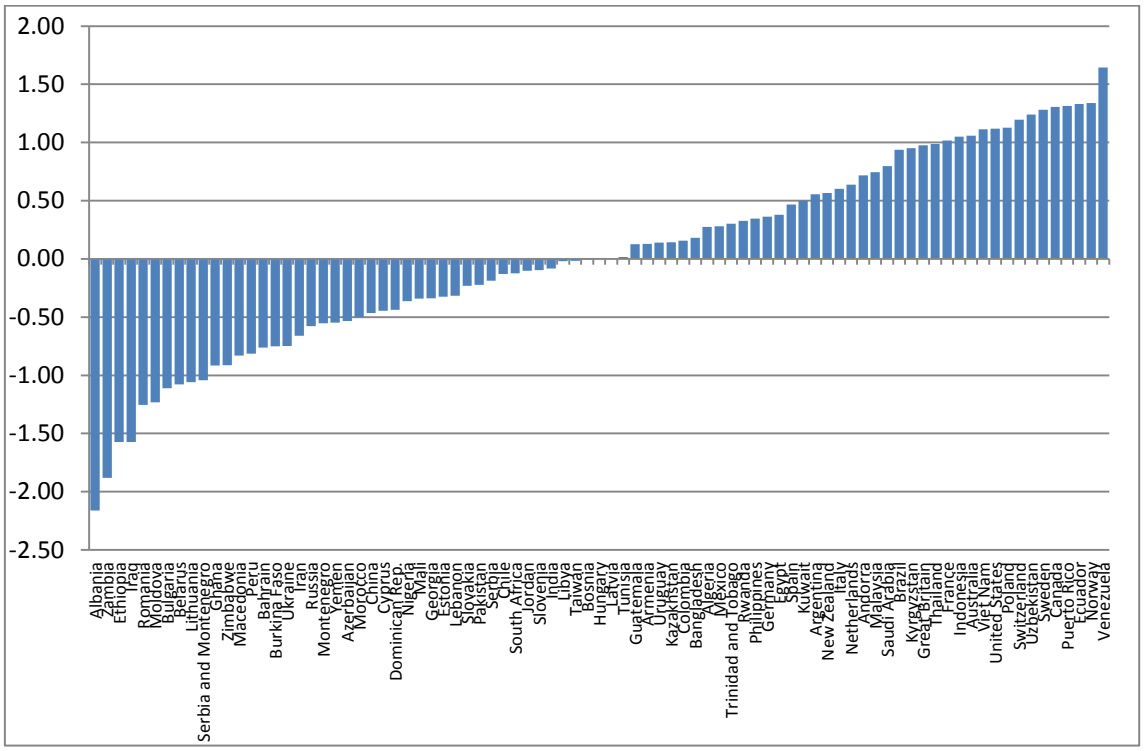
non-religious people taking an intermediate position. Interestingly, controlling for religion also slightly increases the effect of education as atheists and non-religious people also tend to be better educated.

To control for the possibility of a non-linear relationship between town size and happiness suggested by the literature, I also include seven separate dummy variables accounting for the 8 different types of settlement included in the EWVS. As expected from the review of the literature, in all models people living in medium sized towns prove to be happier than both people living in small communities and large scale settlements.

Country Fixed Effect Estimates

The estimated country fixed effects from Model 3 are displayed in Figure 3. Note that these are estimates of the countries' unobserved characteristics that do not change over time, rather than a happiness ranking of nations. As described by earlier studies, once individual-level factors are controlled for, respondents from Latin American countries (e.g. Venezuela, Ecuador), together with those from the advanced economies, report to be comparatively happy. Respondents from countries with a strong welfare state, like Norway, Canada, or Sweden, also stand out which is in line with multilevel evidence reported by Deeming and Hayes (2012). The greatest outlier in this group is Germany, which might have to do with the still ongoing integration of the former GDR or because much of the once widely appraised concept of the social market economy (Soziale Marktwirtschaft) has meanwhile been dismantled in the course of the Hartz reforms. As was well known from the previous literature, respondents from most of the countries in Eastern Europe that formerly belonged to the Soviet influence sphere still respond very low levels of happiness, even in comparison to some economically worse off countries in Africa. Although the fixed effects already account for a sizable share of the variation in self-reported happiness that is attributable to the country level, further multilevel analysis nesting the individual level information within countries would be needed to study the important cultural and institutional forces that make for these strong differences. For now the focus is on the individual-level differences and it suffices to say that none of the above mentioned controls alter the strongly positive relationship between education and happiness.

Figure 3. Country fixed effects estimates from Model 3 in Table 1.



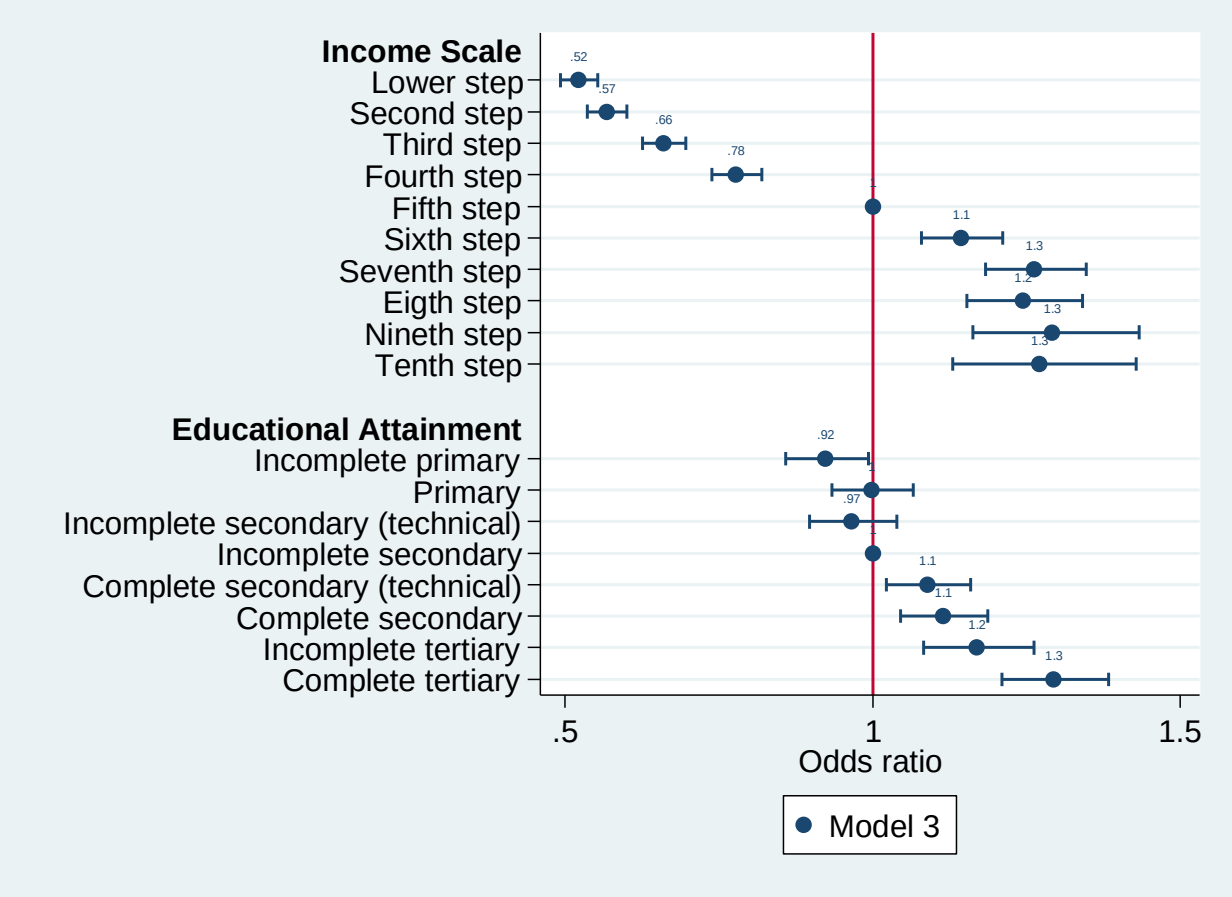
Notes: Results reported as log odds. Reference country is Hungary.

Education and income

A direct comparison of the size of the coefficient estimates for the income and education variable is difficult. First of all, the number of response categories differs – income is measured on a 10-point scale, educational attainment only has 8 different levels. More importantly, though, income levels were assessed using an evenly-spaced, country-specific scale, whereas educational attainment was measured in absolute terms, containing no information on the underlying national distribution. While the income measure is able to capture the effect of relative deprivation on happiness, the happiness advantage of somebody who has a high level of education in a country where the majority of the population is less educated remains unaccounted for. Yet, it still instructive to look at the different shapes of the coefficient plots as depicted in

Figure 4.

Figure 4. Coefficient estimates for income and educational attainment as derived from Model 3 in Table 1.



Notes: Results reported as odds ratios with 95% confidence intervals.

Models 1 and 2 in Table 1 above control for income and education separately and both variables are highly significant in explaining happiness differentials. In Model 3, which is once again represented graphically in

Figure 4, the two variables enter simultaneously and therefore with smaller effects. Interestingly, the probability of being happy is higher at higher levels of income, but only to a certain point. People above the sixth income category all have about the same probability of being happy relative to people in the fifth income category (reference). This finding is in line with the aforementioned evidence reported by Easterlin and others, questioning the idea that having more income is always preferable in terms of SWB: looking at the international evidence from the EWVS, this doesn't seem to be the case.

Higher education, on the other hand, is linearly associated with higher probabilities of being happy. While there is hardly any difference between lower attainment levels and it takes at least a completed secondary education to really stand out in happiness terms, higher levels of education are related to consistently higher probability of being happy. Compared to somebody who hasn't completed primary education, the odds of being happy are 40 per cent higher for somebody with completed tertiary education, which is roughly the size of the effect of having a job compared to unemployment, one of the strongest predictors of unhappiness. The monotonic increase in the odds of being happy with increasing education is all the more noteworthy as the specification of the model using categorical variables did not impose this ordering. Whether there are still further differences in the probability of being happy between the different tertiary attainment levels unfortunately cannot be assessed using the EWVS. But related evidence on the effect of education on longevity suggests that the health advantage goes even "beyond" tertiary education. For centuries members of national academies of sciences in Austria, Russia, and the United Kingdom have been subject to even lower rates of mortality than people with "only" a tertiary degree (Feichtinger et al. 2007; Winkler-Dworak 2008; Andreev et al. 2011).

Conclusion

In contrary to much of the previous literature, this article has argued that the relationship between education and SWB is distinct from the relationship between SWB and income. While there is evidence that higher income does not go hand in hand with higher happiness after a certain point, there is no evidence of a similar parabolic relationship between education and happiness. According to the information provided

by the European and World Values Survey, that is far more comprehensive than any comparable data source, starting from any level of educational attainment, higher levels of education are related to – on average – higher probability of being happy. Thus, the educational system not only "channels people into two different life cycle tracks characterized by higher and lower income trajectories", as claimed by Richard Easterlin (2001, p.481). Education also seems to open up possibilities for leading happy lives that go beyond extending the consumption-possibility frontier.

This is not to say that happiness is completely independent from income, but it seems to become increasingly less so once subsistence levels have been reached. If the primary goal of a *polis* is to make its citizens happy (a view which Duncan (2013) discusses at great length under the label of "new utilitarianism" and that is strongly supported e.g. by Veenhoven (2010) as well as by the most recent World Happiness Report (Helliwell et al. 2015, Chapter 4)) and if income does not make people happier after a certain level is reached, while investments in education pay off regardless of the level achieved previously, then there is a clear case for rechanneling funds into the educational system. Having something taken away from you – particularly if you were to see it as an unjust action, could very well negatively affect somebody's happiness, but according to the cross-sectional evidence presented above, taking from the very rich should not have a strong effect, neither on their personal, nor on national happiness. In fact, as Clark and Oswald (1996) suggested, there might even be "negative externalities from high earners", as they make the poor even less happy because of relative income comparisons.

Transferred to the macro-level, this view was expressed by Oswald (2006) saying that "once a country has filled its larders there is no point in that nation becoming richer". GDP long term growth may be a desirable component of a development strategy among poorer countries where certain basic needs are not yet covered. Once minimum material standards for securing a certain quality of life are achieved, though, societies' efforts should focus on other goals apart from increasing output growth (compare Daly 1987). Investing into their human resource base, societies could raise both their happiness potential and their productive potential in parallel. This seems all the more germane in times of reduced prosperity and a strong need for social and technological innovation.

While better educated future generations can be expected to live healthier lives and to confront the big challenges of the 21st century more effectively without suffering in their well-being, there is also a risk that the increasing permeation of technology in our societies and the growing complexity will increase the divide between a well-educated global elite and a vulnerable underclass characterized by low levels of education. This would bring us closer again to "the good life" envisioned by the ancient Greeks which was reserved mainly for the elites who were free to dedicate themselves to their education as others were doing the physical labor for them. While even in our days not everybody has *apriori* equal chances of living a happy life, chances have never been greater to make this project universal. Access to the educational system remains one of the most important factors to prevent avoidable unhappiness and to promote happiness.

References

Albert, C. and M.A. Davia. 2005. Education, wages and job satisfaction. in *Epunet Conference*. Citeseer.

Alesina, A., R. Di Tella, and R. MacCulloch. 2004. Inequality and happiness: are Europeans and Americans different? *Journal of Public Economics* 88(9–10): 2009–2042.

Andreev, E.M. et al. 2011. Long-term trends in the longevity of scientific elites: Evidence from the British and the Russian academies of science. *Population Studies* 65(3): 319–334.

Anon. 2008. Builders' nightmare. *The Economist*.

Archontaki, D., G.J. Lewis, and T.C. Bates. 2013. Genetic Influences on Psychological Well-Being: A Nationally Representative Twin Study: Multiple Genetic Influences on Psychological Well-Being. *Journal of Personality* 81(2): 221–230.

Berry, B.J.L. and A. Okulicz-Kozaryn. 2011. An Urban-Rural Happiness Gradient. *Urban Geography* 32(6): 871–883.

Blanchflower, D.G. and A.J. Oswald. 2011. *International Happiness*. National Bureau of Economic Research, Inc.

Blanchflower, D.G. and A.J. Oswald. 2008. Is well-being U-shaped over the life cycle? *Social Science & Medicine* 66(8): 1733–1749.

Blanchflower, D.G. and A.J. Oswald. 2004. Well-being over time in Britain and the USA. *Journal of Public Economics* 88(7-8): 1359–1386.

Bonsang, E. and T.J. Klein. 2011. *Retirement and Subjective Well-Being*. Rochester, NY: Social Science Research Network.

Brickman, P., D. Coates, and R. Janoff-Bulman. 1978. Lottery winners and accident victims: Is happiness relative? *Journal of Personality and Social Psychology* 36(8): 917–927.

Brighouse, H. 2006. *On Education*. Psychology Press.

Bukenya, J.O., T.G. Gebremedhin, and P.V. Schaeffer. 2003. Analysis of Rural Quality of Life and Health: A Spatial Approach. *Economic Development Quarterly* 17(3): 280–293.

Caporale, G.M. et al. 2007. *Income and Happiness across Europe: Do Reference Values Matter?*. CESifo Group Munich.

Caspi, A. and T.E. Moffitt. 2006. Gene–environment interactions in psychiatry: joining forces with neuroscience. *Nature Reviews Neuroscience* 7(7): 583–590.

Castriota, S. 2006. Education and happiness: a further explanation to the Easterlin paradox. *Unpublished paper*.

Chen, W. 2011. How Education Enhances Happiness: Comparison of Mediating Factors in Four East Asian Countries. *Social Indicators Research* 106(1): 117–131.

Clark, A.E. 1997. Job satisfaction and gender: Why are women so happy at work? *Labour Economics* 4(4): 341–372.

Clark, A.E. 2003. Unemployment as a Social Norm: Psychological Evidence from Panel Data. *Journal of Labor Economics* 21(2): 323.

Clark, A.E. and Y. Fawaz. 2009. Valuing jobs via retirement: European evidence. *National Institute Economic Review* 209(1): 88–103.

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

Clark, A.E. and Y. Georgellis. 2013. Back to Baseline in Britain: Adaptation in the British Household Panel Survey. *Economica* 80(319): 496–512.

Clark, A.E. and A.J. Oswald. 1996. Satisfaction and comparison income. *Journal of Public Economics* 61(3): 359–381.

Clark, A.E. and A.J. Oswald. 1994. Unhappiness and Unemployment. *The Economic Journal* 104(424): 648–659.

Costa, P.T. and R.R. McCrae. 1985. *The NEO Personality Inventory*. PAR Psychological Assessment Resources.

Cuñado, J. and F.P. de Gracia. 2011. Does Education Affect Happiness? Evidence for Spain. *Social Indicators Research* 108(1): 185–196.

Daly, H.E. 1987. The economic growth debate: What some economists have learned but many have not. *Journal of Environmental Economics and Management* 14(4): 323–336.

Deaton, A. 2008. Income, Health, and Well-Being around the World: Evidence from the Gallup World Poll. *Journal of Economic Perspectives* 22(2): 53–72.

Deeming, C. and D. Hayes. 2012. Worlds of welfare capitalism and wellbeing: a multilevel analysis. *Journal of Social Policy* 41(04): 811–829.

DeNeve, K.M. 1999. Happy as an Extraverted Clam? The Role of Personality for Subjective Well-Being. *Current Directions in Psychological Science* 8(5): 141–144.

Diener, E. 2006. Guidelines for national indicators of subjective well-being and ill-being. *Applied Research in Quality of Life* 1(2): 151–157.

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

Diener, E. et al. 1999. Subjective well-being: Three decades of progress. *Psychological Bulletin* 125(2): 276–302.

Diener, E., R.E. Lucas, and C.N. Scollon. 2006. Beyond the hedonic treadmill: Revising the adaptation theory of well-being. *American Psychologist* 61(4): 305–314.

Diener, E. and S. Oishi. 2000. Money and happiness: Income and subjective well-being across nations. *Culture and subjective well-being*: 185–218.

Duncan, G. 2013. Should Happiness-Maximization be the Goal of Government? Pages 303–320 in A. D. Fave, ed., *The Exploration of Happiness*. Happiness Studies Book Series. Springer Netherlands.

Easterlin, R.A. 1974. Does economic growth improve the human lot? Some empirical evidence. *Nations and households in economic growth*: 89–125.

Easterlin, R.A. 2005. Feeding the Illusion of Growth and Happiness: A Reply to Hagerty and Veenhoven. *Social Indicators Research* 74(3): 429–443.

Easterlin, R.A. 2001. Income and Happiness: Towards a Unified Theory. *The Economic Journal* 111(473): 465–484.

Easterlin, R.A. 2006. Life cycle happiness and its sources: Intersections of psychology, economics, and demography. *Journal of Economic Psychology* 27(4): 463–482.

Easterlin, R.A. 1976. The conflict between aspirations and resources. *Population and development review*: 417–425.

Easterlin, R.A. et al. 2010. The happiness–income paradox revisited. *Proceedings of the National Academy of Sciences* 107(52): 22463–22468.

Else-Quest, N.M. et al. 2012. Gender differences in self-conscious emotional experience: a meta-analysis. *Psychological Bulletin* 138(5): 947–981.

Fabra, M.E. and C. Camisón. 2009. Direct and indirect effects of education on job satisfaction: A structural equation model for the Spanish case. *Economics of Education Review* 28(5): 600–610.

Feichtinger, G. et al. 2007. On the age dynamics of learned societies—taking the example of the Austrian Academy of Sciences. *Vienna yearbook of population research/Vienna Institute of Demography, Austrian Academy of Sciences* 2007: 107.

Ferrer-i-Carbonell, A. 2005. Income and well-being: an empirical analysis of the comparison income effect. *Journal of Public Economics* 89(5–6): 997–1019.

Fischer, A.H. et al. 2004. Gender and Culture Differences in Emotion. *Emotion* 4(1): 87–94.

Florida, R., C. Mellander, and P.J. Rentfrow. 2013. The Happiness of Cities. *Regional Studies* 47(4): 613–627.

Fox, E., A. Ridgewell, and C. Ashwin. 2009. Looking on the bright side: biased attention and the human serotonin transporter gene. *Proceedings of the Royal Society B: Biological Sciences* 276(1663): 1747–1751.

Frey, B.S. and A. Stutzer. 2010. *Happiness and Economics: How the Economy and Institutions Affect Human Well-Being*. Princeton University Press.

Frey, B.S. and A. Stutzer. 1999. Measuring Preferences by Subjective Well-Being. *Journal of Institutional and Theoretical Economics (JITE) / Zeitschrift für die gesamte Staatswissenschaft* 155(4): 755–778.

Frey, B.S. and A. Stutzer. 2002. What Can Economists Learn from Happiness Research? *Journal of Economic Literature* 40(2): 402–435.

Frijters, P. and T. Beatton. 2012. The mystery of the U-shaped relationship between happiness and age. *Journal of Economic Behavior & Organization* 82(2–3): 525–542.

Gerdtham, U.-G. and M. Johannesson. 2001. The relationship between happiness, health, and socio-economic factors: results based on Swedish microdata. *The Journal of Socio-Economics* 30(6): 553–557.

Giambona, F., M. Porcu, and I. Sulis. 2014. Does Education Affect Individual Well-Being? Some Italian Empirical Evidences. *Open Journal of Statistics* 04(05): 319–329.

Graham, C. and S. Pettinato. 2001. Happiness, Markets, and Democracy: Latin America in Comparative Perspective. *Journal of Happiness Studies* 2(3): 237–268.

Hagerty, M.R. and R. Veenhoven. 2003. Wealth and Happiness Revisited – Growing National Income Does Go with Greater Happiness. *Social Indicators Research* 64(1): 1–27.

Hartog, J. and H. Oosterbeek. 1998. Health, Wealth and Happiness: Why Pursue a Higher Education. *Economics of Education Review*: 245–256.

Headey, B. 2010. The Set Point Theory of Well-Being Has Serious Flaws: On the Eve of a Scientific Revolution? *Social Indicators Research* 97(1): 7–21.

Helliwell, J.F., R. Layard, and J. Sachs eds. 2012. *World Happiness Report*. The Earth Institute - Columbia.

Helliwell, J.F., R. Layard, and J. Sachs eds. 2013. *World Happiness Report 2013*. Sustainable Development Solutions Network.

Helliwell, J.F., R. Layard, and J. Sachs eds. 2015. *World Happiness Report 2015*. Sustainable Development Solutions Network.

Herk, H. van, Y.H. Poortinga, and T.M.M. Verhallen. 2004. Response Styles in Rating Scales Evidence of Method Bias in Data From Six EU Countries. *Journal of Cross-Cultural Psychology* 35(3): 346–360.

Hosmer, D.W., S. Lemeshow, and R.X. Sturdivant. 2013. *Applied Logistic Regression*. Third edition. Hoboken, New Jersey: Wiley.

Jones, C.I. and P.J. Klenow. 2010. *Beyond GDP? Welfare across Countries and Time*. National Bureau of Economic Research.

Kahneman, D. and A.B. Krueger. 2006. Developments in the measurement of subjective well-being. *The journal of economic perspectives* 20(1): 3–24.

KC, S. and H. Lentzner. 2010. The effect of education on adult mortality and disability: A global perspective. *Vienna Yearbook of Population Research* 8: 201–235.

King, G. et al. 2004. Enhancing the Validity and Cross-Cultural Comparability of Measurement in Survey Research. *American Political Science Review* null(01): 191–207.

Kristensen, N. and E. Johansson. 2008. New evidence on cross-country differences in job satisfaction using anchoring vignettes. *Labour Economics* 15(1): 96–117.

Krueger, A.B. and D.A. Schkade. 2008. The reliability of subjective well-being measures. *Journal of Public Economics* 92(8–9): 1833–1845.

Krueger, R.F. et al. 2008. The Heritability of Personality Is Not Always 50%: Gene-Environment Interactions and Correlations Between Personality and Parenting. *Journal of Personality* 76(6): 1485–1522.

Kunzmann, U., T.D. Little, and J. Smith. 2000. Is age-related stability of subjective well-being a paradox? Cross-sectional and longitudinal evidence from the Berlin Aging Study. *Psychology and Aging* 15(3): 511–526.

Layard, R. 2010. Measuring Subjective Well-Being. *Science* 327(5965): 534–535.

Lelkes, O. 2008. *Happiness over the Life Cycle: Exploring Age-Specific Preferences*. University Library of Munich, Germany.

Lelkes, O. 2006. Tasting freedom: Happiness, religion and economic transition. *Journal of Economic Behavior & Organization* 59(2): 173–194.

Lucas, R.E. and A.E. Clark. 2006. Do people really adapt to marriage? *Journal of Happiness Studies* 7(4): 405–426.

Lutz, W., W.P. Butz, and S. KC eds. 2014. *World Population and Human Capital in the 21st Century*. Oxford University Press.

Lykken, D.T. and A. Tellegen. 1996. Happiness is a Stochastic Phenomenon. *Psychological Science*.

Lyubomirsky, S. 2001. Why are some people happier than others? The role of cognitive and motivational processes in well-being. *American Psychologist* 56(3): 239–249.

Macunovich, D.J. and R.A. Easterlin. 2008. Easterlin hypothesis. Pages 594–598 in S. N. Durlauf and L. E. Blume, eds., *The New Palgrave Dictionary of Economics*. Basingstoke: Nature Publishing Group.

Michalos, A.C. 2007. Education, Happiness and Wellbeing. *Social Indicators Research* 87(3): 347–366.

Morse, J.F. 1998. Edna, Epicurus, and Education. *The Journal of Educational Thought (JET) / Revue de la Pensée Éducative* 32(3): 241–255.

Neve, D. et al. 2012. *Genes, Economics, and Happiness*. Rochester, NY: Social Science Research Network.

Nieminen, T. et al. 2007. Measurement and socio-demographic variation of social capital in a large population-based survey. *Social Indicators Research* 85(3): 405–423.

Noddings, N. 2003. *Happiness and Education*. Cambridge University Press.

Oishi, S., S. Kesebir, and E. Diener. 2011. Income Inequality and Happiness. *Psychological Science* 22(9): 1095–1100.

Olshansky, S.J. et al. 2012. Differences In Life Expectancy Due To Race And Educational Differences Are Widening, And Many May Not Catch Up. *Health Affairs* 31: 1803–1813.

Oreopoulos, P. and K.G. Salvanes. 2011. Priceless: The Nonpecuniary Benefits of Schooling. *Journal of Economic Perspectives* 25(1): 159–84.

Oswald, A. 2006. The hippies were right all along about happiness. *Financial Times*.

Oswald, A.J. and S. Wu. 2010. Objective Confirmation of Subjective Measures of Human Well-Being: Evidence from the U.S.A. *Science* 327(5965): 576–579.

Peiró, A. 2006. Happiness, satisfaction and socio-economic conditions: Some international evidence. *The Journal of Socio-Economics* 35(2): 348–365.

Proto, E. and A. Rustichini. 2013. A Reassessment of the Relationship between GDP and Life Satisfaction. *PLoS ONE* 8(11): e79358.

Rainer, H. and I. Smith. 2012. Education, Communication and Wellbeing: An Application to Sexual Satisfaction. *Kyklos* 65(4): 581–598.

Reydams-Schils, G. 2010. Philosophy and education in Stoicism of the Roman Imperial era. *Oxford Review of Education* 36(5): 561–574.

Ross, C.E. and J. Mirowsky. 2010. Why education is the key to socioeconomic differentials in health. Pages 33–51 in C. E. Bird et al., eds., *The Handbook of Medical Sociology*. Nashville: Vanderbilt Univ. Press.

Ross, C.E. and M.V. Willigen. 1997. Education and the Subjective Quality of Life. *Journal of Health and Social Behavior* 38(3): 275–297.

Schjødt, U. et al. 2009. Highly religious participants recruit areas of social cognition in personal prayer. *Social Cognitive and Affective Neuroscience* 4(2): 199–207.

Schjødt, U. et al. 2008. Rewarding prayers. *Neuroscience Letters* 443(3): 165–168.

Shin, D.C. and T. Inoguchi. 2008. Avowed Happiness in Confucian Asia: Ascertaining its Distribution, Patterns, and Sources. *Social Indicators Research* 92(2): 405–427.

Van Soest, A. et al. 2011. Validating the use of anchoring vignettes for the correction of response scale differences in subjective questions. *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 174(3): 575–595.

Soons, J.P.M., A.C. Liefbroer, and M. Kalmijn. 2009. The long-term consequences of relationship formation for subjective well-being. *Journal of Marriage and Family* 71(5): 1254–1270.

Stevenson, B. and J. Wolfers. 2008. Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox. *Brookings Papers on Economic Activity* 2008: 1–87.

Stevenson, B. and J. Wolfers. 2013. Subjective Well-Being and Income: Is There Any Evidence of Satiation? *American Economic Review* 103(3): 598–604.

Stevenson, B. and J. Wolfers. 2009. *The Paradox of Declining Female Happiness*. Cambridge, MA: National Bureau of Economic Research.

Stiglitz, J.E. et al. 2010. Report by the commission on the measurement of economic performance and social progress. *Paris: Commission on the Measurement of Economic Performance and Social Progress*.

Stutzer, A. 2004. The role of income aspirations in individual happiness. *Journal of Economic Behavior & Organization* 54(1): 89–109.

Swift, H.J. et al. 2014. Revisiting the Paradox of Well-being: The Importance of National Context. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 69(6): 920–929.

Di Tella, R. and R. MacCulloch. 2008. Gross national happiness as an answer to the Easterlin Paradox? *Journal of Development Economics* 86(1): 22–42.

Di Tella, R., R.J. MacCulloch, and A.J. Oswald. 2003. The Macroeconomics of Happiness. *Review of Economics and Statistics* 85(4): 809–827.

Uchida, Y., V. Norasakkunkit, and S. Kitayama. 2004. Cultural constructions of happiness: theory and emprical evidence. *Journal of Happiness Studies* 5(3): 223–239.

Veenhoven, R. 2012. Cross-national differences in happiness: Cultural measurement bias or effect of culture? *International Journal of Wellbeing*: 333–353.

Veenhoven, R. 1996. Developments in satisfaction-research. *Social Indicators Research* 37(1): 1–46.

Veenhoven, R. 2010. Greater Happiness for a Greater Number. *Journal of Happiness Studies* 11(5): 605–629.

Veenhoven, R. 1994. How satisfying is rural life? Fact and value. in Society for Agricultural Policy Research and Rural Sociology (FAA).

Veenhoven, R. 1991. Is happiness relative? *Social Indicators Research* 24(1): 1–34.

Veenhoven, R. and M. Hagerty. 2006. Rising Happiness in Nations 1946–2004: A Reply to Easterlin. *Social Indicators Research* 79(3): 421–436.

Vila, L.E. 2005. The Outcomes of Investment in Education and People's Well-being. *European Journal of Education* 40(1): 3–11.

Vila, L.E. and B. García-Mora. 2005. Education and the Determinants of Job Satisfaction. *Education Economics* 13(4): 409–425.

Weiss, A., T.C. Bates, and M. Luciano. 2008. Happiness Is a Personal(ity) Thing The Genetics of Personality and Well-Being in a Representative Sample. *Psychological Science* 19(3): 205–210.

Welzel, C. and R. Inglehart. 2010. Agency, Values, and Well-Being: A Human Development Model. *Social Indicators Research* 97(1): 43–63.

Wiebe, D. 1991. *Irony of Theology and the Nature of Religious Thought*. McGill-Queen's Press - MQUP.

Winkler-Dworak, M. 2008. The low mortality of a learned society. *European Journal of Population - Revue Européenne de Démographie* 24: 405–424.

Appendix

Table A 1. Variables that are used in the models presented in Table 1 together with weights making the samples more representative for each country.

Variable Description	**Coding**		**N. Obs.**	**Mean**	**Std. Dev.**
Response Variable					
Feeling of Happiness	1 = Very happy	1 = Happy	140484	0.82	0.39
	2 = Quite happy				
	3 = Not very happy	0 = Unhappy	31630		
	4 = Not at all happy				
Main Control Variables					
Educational Attainment	1 = Incomplete Primary		13734	4.73	2.23
	2 = Primary		23217		
	3 = Incomplete Secondary (technical)		14572		
	4 = Incomplete Secondary		14354		
	5 = Complete secondary (technical)		35526		
	6 = Complete secondary		27599		
	7 = Incomplete tertiary		14324		
	8 = Complete tertiary		28788		
Health Status	1 = Very Good		42502	2.15	0.88
	2 = Good		73928		

Variable Description	Coding	N. Obs.	Mean	Std. Dev.
	3 = Fair	43816		
	4 = Poor	11022		
	5 = Very Poor	846		
Income Scale (Country-specific)	1 = Lower Step	14984	4.77	2.30
	2 = Second Step	17273		
	3 = Third Step	21524		
	4 = Fourth Step	25029		
	5 = Fifth Step	30499		
	6 = Sixth Step	22550		
	7 = Seventh Step	17842		
	8 = Eighth Step	11802		
	9 = Ninth Step	5686		
	10 = Tenth Step	4925		
Further Control Variables				
Age			40.85	16.08
Sex	1 = Male	84443	1.51	0.50
	2 = Female	87671		
Unemployed	0 = Employed	155760	0.10	0.29
	1 = Unemployed	16354		
Religion	1 = A Religious Person	122809	1.33	0.56
	2 = Not a Religious Person	41527		
	3 = A Convinced Atheist	7778		
Town Size	1 = 2,000 and less	24984	4.89	2.50
	2 = 2,000-5,000	18596		
	3 = 5,000-10,000	13610		
	4 = 10,000-20,000	14050		
	5 = 20,000-50,000	20429		
	6 = 50,000-100,000	16076		
	7 = 100,000-500,000	31007		
	8 = 500,000 and more	33362		
Marital Status	1 = Married	97350	2.68	2.17
	2 = Living together as married	12047		
	3 = Divorced	6313		
	4 = Separated	3378		
	5 = Widowed	10389		
	6 = Single/Never married	42637		

Figure A 1. Estimated coefficient values for individual age dummies. The remaining variables in the model are the same as in Model 3 of Table 1.