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ABSTRACT

I draw systematic comparisons across 109 data files and 132 countries of the relationship between well-being, variously defined, and age. I produce 444 significant country estimates with controls, so these are ceteris paribus effects, and find evidence of a well-being U-shape in age in one hundred and thirty-two countries, including ninety-five developing countries, controlling for education, marital and labor force status. I also frequently find it without any controls at all. There is additional evidence from an array of attitudinal questions that were worded slightly differently than standard happiness or life satisfaction questions such as satisfaction with an individual's financial situation. Averaging across the 257 individual country estimates from developing countries gives an age minimum of 48.2 for well-being and doing the same across the 187 country estimates for advanced countries gives a similar minimum of 47.2. The happiness curve is everywhere.

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In this paper I identify U-shapes in age in well-being data, variously defined, in one **hundred and twenty-eight** advanced and developing countries. I find the happiness curve (Rauch, 2019) for **ninety-five** developing countries[1] and **thirty-seven** advanced including controls for gender, education, marital and labor force status, and year when pooled year surveys are used .[2] I report 444 separate country level estimates across countries from a number of data files from around the world, 187 from advanced countries and 257 from developing countries. The age minima appear to center in midlife around age fifty for both.

1. Previous Evidence on the Happiness Curve

The background literature is large and, there is some disagreement over whether U-shapes exist at all, see, for example, Baird et al. (2010), Blanchflower (2009a), Blanchflower and Oswald (2008a, 2009, 2011), Carstensen et al. (2011), Charles et al. (2001), Easterlin (2003, 2006), Frey and Stutzer (2002), Frijters and Beaton (2012), Glenn (2009), Graham and Pozuelo (2017), Hellevik (2017), Hudson et al. (2016), Lachman (2015), Leland (2018), Mroczek and Kolanz (1998), Mroczek and Spiro (2005), Rauch (2018) Shields and Wheatley Price (2005), Stone et al. 2010, Steptoe et al. (2015), Wunder et al. (2013), Schwandt (2016).

Easterlin (2006) is a particularly important paper. Controlling for year of birth, it finds evidence of a hill-shape in well-being over the life cycle. His paper used pooled General Social Survey data from the United States. A recent review by Ulloa et al. (2013) goes as far as to draw the conclusion that "*extant studies … show either a U-shaped, inverted U-shaped or linear relation between ageing and subjective well-being.*" Other studies, such as Lachman (2015), come close to arguing that there may be a midlife dip but that it is too small to be significant. I disagree.

An early psychology literature suggested there was no age-happiness relationship (Cantril, 1965, and Palmore and Luikart, 1972). Myers (2000, p. 58) argued that "*Although many people believe there are unhappy times of life– times of adolescent stress, midlife crisis, or old age decline – repeated surveys across the industrialized world reveal that no time in life is notably happiest and most satisfying*". In contrast, Michael Argyle, concluded that studies of life satisfaction found that it increased with age (Argyle, 1999, 2001). A survey by Diener et al (1999, p. 291) concluded that *"recent studies converge to show that life satisfaction often increases, or at least does not drop, with age"*.

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[1] Albania; Algeria; Argentina; Armenia; Azerbaijan; Bangladesh; Belarus; Benin; Bolivia; Bosnia; Botswana; Brazil; Burkina Faso; Burundi; Cameroon; Cape Verde; Chile; China; Columbia; Costa Rica; Cote d'Ivoire; Dominican Republic; Ecuador; Egypt; El Salvador; eSwatini; Gabon; Georgia; Ghana; Honduras; India; Indonesia; Iran; Iraq; Israel; Jordan; Kenya; Kosovo; Kuwait; Kyrgyzstan; Laos; Lebanon; Lesotho; Liberia; Libya; Macedonia; Madagascar; Malawi; Malaysia; Maldives; Mali; Mauritius; Mexico; Moldova; Mongolia; Montenegro; Morocco; Mozambique; Myanmar; Namibia; Niger; Nigeria; Panama; Paraguay; Peru; Philippines; Puerto Rico; Russia; São Tomé; Senegal; Serbia; Singapore; South Africa; South Korea; Sri Lanka; Surinam; Swaziland; Taiwan; Tajikistan; Tanzania; Thailand; Togo; Trinidad; Tunisia; Turkey; Turkish Cyprus; Uganda; Ukraine; Uruguay; Uzbekistan; Venezuela; Vietnam; Yemen; Zambia and Zimbabwe.

[2] Australia; Austria; Belgium; Bulgaria; Canada; Croatia; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Italy; Japan; Latvia; Lithuania; Luxembourg; Malta; Netherlands; New Zealand; Norway; Poland; Portugal; Romania; Slovakia; Slovenia; Spain; Sweden; Switzerland; United Kingdom and the United States.

More recently Whitbourne (2018) has gone so far as to argue that the U-shape curve is a 'myth' despite based on no serious analysis. Whitbourne complains, without any evidence, about possible sample selection bias in relation to who is able to answer the survey questions in the later adult decades. Clearly, not the people who are either no longer alive, or are in a life situation where they cannot answer questions. It's the survivors whom researchers can test. They may have been happy and non-depressed for their entire lives. If the data analyses were based only on survivors, the picture that emerges might be completely different. Instead of a dip, you would see a straight line or even an increase." The U-shape I identify is taken from large random samples of the population. Dead people don't answer the surveys that is true. I illustrate that the U-shape exists between ages sixteen and seventy in the vast majority of countries that I have data for, developed or developing.

Whitbourne also suggests that you can redraw the U-shapes we identify with a smaller scale which makes them look as if they are a straight line rather than a U-shape. She specifically criticizes the results in Blanchflower and Oswald (2019). "*The 'dip' involves a difference between 7.2 and 7.8. No statistical analyses are provided in the paper, because, as the authors claim, the large sample size would ensure this finding would achieve statistical significance. However, if you redraw the graph, which I was able to do from the format in which I received it, the curve turns into a wobbly line in which a dip is just barely discernible*." It turns out the dip is neither small quantitatively nor is it statistically insignificant.

I update and extend results in an earlier paper, (Blanchflower and Oswald, 2008a), where it was shown that a U-shape in age existed in well-being data across a number of countries. Using data on 500,000 randomly sampled Americans and West Europeans, the paper found that holding other factors constant, a typical individual's happiness reaches its minimum on both sides of the Atlantic for both males and females in middle age.[3] The minimum in age was broadly similar between advanced, East European and developing nations. The function minimized on average in mid-life. For example, in Europe for both men and women it minimized at around 47 with controls including education, marital and labor force status. For developing countries from the WVS, sweeps 1-4, minima were 43 for men and 44 for women. A maximum in age in unhappiness data for Europe was found at around age 47. Some apparent exceptions, particularly in twenty developing nations along with a few western countries, mostly where there are small numbers of observations, to the U-shape were noted.[4]

[3] Evidence for a U-shape was found in twenty-two advanced countries (Australia; Belgium; Canada; Denmark; Finland; France; Germany; Greece; Iceland; Ireland; Italy; Japan; Luxembourg; Malta; Netherlands; Norway; Portugal; Spain; Sweden; Switzerland; UK and USA). Second, evidence was provided for the existence of a similar U-shape through the life-course in East European, Latin American and Asian nations. Evidence was found in fourteen ex-Soviet Republics (Albania; Bosnia; Bulgaria; Croatia; Czech Republic; Estonia; Hungary; Latvia; Lithuania; Macedonia; Poland; Romania; Serbia; Slovakia) and thirty-eight developing countries (Argentina; Azerbaijan; Belarus; Brazil; Brunei; Brazil; Brunei; Cambodia; Chile; China; Colombia; Costa Rica; Dominican Republic; Ecuador; El Salvador; Iraq; Israel; Honduras; Kyrgyzstan; Laos; Mexico; Myanmar; Nicaragua; Nigeria; Paraguay; Peru; Puerto Rico; Philippines; Russia; Singapore; South Africa; South Korea Tanzania; Turkey; Ukraine; Uruguay; Uzbekistan; and Zimbabwe. I find evidence of a U-shape in all of these countries also.

[4] That included Algeria, Armenia; Austria; Bangladesh; Chile; Colombia; Egypt; Greece; India; Indonesia; Iran; Jordan; Luxembourg; Moldova; Morocco; New Zealand; Pakistan; Saudi Arabia; Singapore; Slovenia; Taiwan; Uganda; Venezuela and Vietnam. In this paper I report U-shapes for all but three of them - Bangladesh; Pakistan and Saudi Arabia.

Subsequently, Glenn (2009) argued that it was inappropriate to include controls and what mattered was the raw data; Blanchflower and Oswald (2009) disagreed. Glenn claimed that: "*the appearance of this U-shaped curve of well-being is the result of the use of inappropriate and questionable control variables*" and especially marital status. It is worth rehearsing the arguments we used there again. In many countries around the world, and especially in Europe, as I illustrate in detail below, the U-shape can be found without any control variables, and a major problem with Glenn's analysis was that he focused too heavily on the United States.

Second, we disagreed with Glenn's methodological position, which seems to be that social scientists should not hold constant other factors when they study the relationship between well-being and age. Ultimately in social science, the control variables that are included in multiple regression equations we noted, have to be chosen with an eye on the intellectual or policy question being answered. The summary of our argument went as follows. If the aim is to describe the data, it is reasonable to leave out most or all control variables. 'Smokers die at rate Z' is an acceptable statement to make. But that is not the same as 'smoking changes your risk by Z', which requires other confounding variables to be controlled for such as diet, education, income and exercise. We argued "*it would likely be an error to use an equation without controls to tell the public what impact ageing has on happiness without separating out the effects of other variables such as, say, education, marriage or unemployment. If the aim is to understand relationships", we argued, "**it will rarely be desirable to stop at bivariate patterns***." That seems right and I don't stop at bivariate patterns in this paper, but I present results with and without controls which even then give U-shapes.

Blanchflower and Oswald (2019) examined the issue of differences between the well-being and age relationship with and without controls using seven pooled cross-country data sets, covering 51 countries and 1.3 million randomly sampled people, the paper examines the cross-sectional pattern of psychological well-being from approximately age 20 to age 90.[5] The paper described the two conceptual approaches. One studies raw numbers on well-being and age which we termed the *descriptive approach*. The second studies the patterns in regression equations for well-being (that is, adjusting for other influences). This we termed the *ceteris-paribus analytical approach*. The paper applied each and compared the patterns of life-satisfaction and happiness. Using the first method, evidence of a midlife low was found in five of the seven data sets; the two that didn't were both for the United States. Using the second method, all seven data sets produced evidence consistent with a midlife low.

As a validation of the happiness data Blanchflower and Oswald (2016) examined the use of antidepressants in randomized samples from 27 European countries and show that the probability of taking antidepressants follows an inverted U-shaped curve that peaks in people's late 40s. Additionally, and remarkably, Weiss et al. (2012) find a similar U shape exists among chimpanzees and orangutans. Raters familiar with the individual apes assessed cheerfulness among 508 great apes. The U-shaped pattern or midlife crisis emerges with or without use of parametric methods.

[5] The data sets were a) LFS survey for the UK, 2011-2015; b) BRFSS for the USA, 2010 c) Eurobarometer, 2016; d) European Social Survey 2002-2014; e) ISSP 2012; f) GSS for the USA, 1972-2014 g) Latinobarometer 2013 and 2015.

The results imply that human wellbeing's curved shape is not uniquely human and that, although it may be partly explained by aspects of human life and society, its origins may lie partly in the biology we share with great apes.

Graham and Pozuelo (2017) analyzed the happiness curve within 46 individual countries, including controls for gender, education, marital and employment status and household income and found U-shapes. They also looked at how the happiness curve varied depending on where in the well-being distribution individuals. They also extended the analysis to *stress* with the same controls and showed an inverted U. The U-shaped relationship between age and happiness was measured using data from the Gallup World Poll from 2005-2014 with the dependent variable, the so-called Cantril ladder, based on an individual's reports on the where they would put themselves on an eleven-point ladder in which their lives compare to the best possible life they can imagine, held in 44 of the 46 countries, and a reverse U held for stress in almost as many.[6] Fortin et al (2015) using the same Gallup World Poll data also find evidence of an inverse U-shape in age for *stress* and also find the same for *worry* and *anger* in the raw data, without controls.

All of the patterns identified there are statistically significant as will be confirmed below, given the large sample sizes. As Blanchflower and Oswald (2019) note the claim that the size of the dip is tiny does not appear to be correct. In the seven data sets, they studied the size of the drop, in well-being to the low point in the late 40s *is equivalent in magnitude to the influence of a major life event* like unemployment or marital separation.

Deaton (2018) uses data from the Gallup World Poll and plots Cantril's ladder without controls and finds an the (unconditional) U-shape in the English speaking countries (U.K., U.S., Canada, Ireland, New Zealand and Australia), to a lesser extent in East and in South Asia and perhaps in Latin America and Caribbean—though only in the last age group, and in Europe—more for men than women—but not elsewhere. The World as a whole shows the U–shape. In the two poorest regions, Africa and South Asia, life evaluation is low throughout life and, in Africa, it falls with age. In the ex-Communist countries of Asia and in the two poorest regions, Africa and South Asia, life evaluation is low throughout life and, in Africa, it falls with age. In the ex-Communist countries of Asia and Eastern Europe, life-evaluation is markedly lower among the elderly. Steptoe et al. (2015), who use an earlier version of the Gallup data, do not find any consistent pattern.

Deaton (2018) reported only unadjusted estimates in part he argued because of the difficult to apply consistent controls to the Gallup data, not because the questions do not exist, but because their meaning varies so much across the globe, with different patterns of education, work,

[6] Graham and Pozuelo (2017) found U-shapes for eighteen ex-Soviet countries (Albania; Bosnia Herzegovina; Bulgaria; Czech Republic; Croatia; Estonia; Hungary; Kosovo; Latvia; Lithuania; Macedonia; Montenegro; Poland; Portugal; Romania; Serbia, Slovakia; Slovenia), seventeen advanced countries (Australia; Austria; Belgium; Cyprus; Canada; Denmark; Finland; France; Germany; Greece; Ireland; Italy; Netherlands; Spain; Sweden; UK and USA) and nine developing countries (Argentina; Brazil; Chile; China; Colombia; India; Peru; Russia and Venezuela). The authors did not find a U-shape in age for Mexico or South Africa. They also examined data from the World Values Surveys (WVS) used in Blanchflower and Oswald (2008a) and here and found U-shapes for all but five of their sample of forty-six countries - Brazil, Chile; Columbia; India and Montenegro were the exceptions but they did find them in the WVS for Mexico and Argentina.

retirement, and health systems. Deaton also suggested that a weightier argument is that many possible and potentially important controls are age dependent, including income and the presence of children but especially health, disability and marital status.

Deaton notes that "*different authors use different countries and different data sets with different SWB questions, so it is possible that the age patterns in the Gallup data are different from those that come from other questions and different survey protocols; it would be an important (if daunting) task to make systematic comparisons*." This is what I try to do here.[7]

Helliwell, Norton et al (2019) found U-shapes in data for the US using the Gallup World Healthways data for happiness *yesterday* as well as Cantril's ladder plus for Canada (Canadian General Social Survey and Canadian Community Health Survey) and the UK (Annual Population Survey), for happiness with and without controls. They found that the U- shape in age is significantly flatter, and well-being in the middle of the age range higher, for those living as couples, and for those who have lived for longer in their communities. A strong sense of community belonging, the authors found, is associated with greater life satisfaction at all ages, but especially so at ages 60 and above, in some samples deepening the U-shape in age by increasing the size of the life satisfaction gains following the mid-life low.

Some have further argued that no U-shape exists in longitudinal data (Frijters and Beatton, 2012; Kassenboehmer and Haisken-DeNew, 2012). In contrast Cheng et al (2017) drawing on four data sets, and only within-person changes in well-being, build on the work of Van Landeghem (2012) and document powerful support for a U shape in longitudinal data. Three of the data sets are nationally representative household surveys, namely the British Household Panel Survey (BHPS, 1991– 2008), the Household Income and Labour Dynamics in Australia (HILDA, 2001– 10) and the German Socio-Economic Panel (SOEP, 1984– 2008). The fourth data set comprises a relatively more homogenous sample of medical doctors from the Medicine in Australia Balancing Employment and Life (MABEL) longitudinal study. They measure the change in well-being of randomly selected individuals each year and then plot that against individuals' ages. On average, they find people's well-being gradually drops until individuals reach midlife. From then on, it picks up smoothly as people go on, in each of three countries and four data sets, to approach the age of 70.

Wunder et al. (2013) and Ranjbar and Sperlich (2019) both use semi-parametric methods on German SOEP panel data to examine the relation between age and well-being. They both get the same results; Ranjbar and Sperlich conclude "*we find a clear, deep valley between the ages of 45 and 50, typically interpreted as a midlife crisis*." Piper (2015) uses GMM dynamic panel estimation with 16 waves of the British Household Panel Study on youngsters age 16-30 and found that happiness declined over that age range, a result found by comparing the coefficients of the age dummies: a result in line with the overall U-shape. Furthermore, tests of the individual age group coefficients demonstrate that they are, in many cases, significantly different from each other. Additionally, because the preferred model controls for the individual waves in the sample, this decline of life satisfaction with age is a lifecycle effect. The life satisfaction of young people

[7] In private communications Angus Deaton suggested that he didn't have quite this in mind. He suggested, more just a look at the questions they ask, their response rates, and whether they are even grossly consistent.

between 16 and 30 falls, and this seems to be something that everyone, on average, experiences. Overall, his findings, Piper argues, "*are in line with the common U-shape finding*." Clark (2019) also finds, using the same data source and panel data methods controlling for fixed effects that the data "*continues to produce a U-shaped relationship between well-being and age*".

Morgan and O'Connor (2017) examined Eurobarometer data for 17 countries[8] for the years 1973-2016 and argued that there is in fact an M-shape in age rather than a U-shape after controlling for cohort and education effects. They argue there is a local maximum in life satisfaction around age 30, declining life satisfaction until around age 50 followed by rising life satisfaction, and declining life satisfaction after age 75.[9] It turns out that their results are driven by the inclusion of four education variables they created that seem unusual. This M-shape is not there though in their raw data. It is also not there when their education variable is dropped and only survey, country, gender, cohort and age controls are included, and is also not there when the standard education variable included in the data file is used. More on this below.

Other commentators have expressed skepticism that the curve's trajectory holds true mainly in countries where the median wage is high and people tend to live longer or, alternatively, where the poor feel resentment more keenly during middle age and don't mind saying so. John Briley in a recent op-ed argued that 'the curve is not universal – data from economically struggling countries, for example, don't show the happiness rebound".[10] Arthur Krystal[11], for example, has suggested that there may be a simpler explanation: "*perhaps the people who participate in such surveys are those whose lives tend to follow the curve, while people who feel miserable at seventy or eighty, whose ennui is offset only by brooding over unrealized expectations, don't even bother to open such questionnaires*". This critique of course could apply to any research based on surveys with a bias having nothing to do with age.

There is zero evidence that the U-shape has anything to do with differential response bias by age. I have the U-shape in many data sets with various happiness measures including happiness itself and life satisfaction and Cantril's ladder. It makes no difference if the dependent variable is scored, from 1-4 say or from 1-10, the results are essentially the same. The smaller numbers of observations for older age groups is an issue but that simply reflects the overall demographics in the country – there are fewer people age eighty than age thirty and especially so in countries with shorter life expectancy.[12] Helliwell (2019) recently argued that "*to use a single life satisfaction*

[8] The countries included in their study are France, Belgium, the Netherlands, West Germany, Italy, Luxembourg, Denmark, Ireland, Great Britain, Northern Ireland, Greece, Spain, Portugal, East Germany, Finland, Sweden, and Austria.

[9] Thanks to the authors who kindly provided me with their data.

[10] John Briley, 'Does happiness in your 50s signal the end of ambition?", The Washington Post, December 18th, 2019.

[11] Arthur Krystal, 'Why we can't tell the truth about aging? A long life is a gift. But will we really be grateful for it?', The New Yorker, October 28, 2019.

[12] According to the Census Bureau's International Population database in 2018 there were 4,675, 612 age thirty versus 1,483,523 age eighty. In LDCs the ratio is smaller – in Venezuela for example the numbers are 65,319 and 519,040 respectively.

question in large population-based samples might represent the best use of survey resources." Following Helliwell's advice, where feasible I use life satisfaction as my well-being measure.

I examine *the happiness curve* using a total of one hundred and nine distinct micro data sets – 33 sweeps of the General Social Survey (GSS) from 1972-2018; the 2010 Behavioral Re (BRFSS), both for the United States; 3 sweeps of the Annual Population Survey for the UK, 2016-2018; the 2012 and 2017 sweeps of the International Social Survey Program (ISSP); sweeps 1-9 of the European Social Surveys (ESS); forty-two sweeps of the Eurobarometer from 2009-2018 (EB); four sweeps of the European Quality of Life Survey: sweeps 2-6 of the World Values Survey (WVS); the Latino Barometers of 2016 and 2017 (LB); the Afro Barometer Surveys of 2016 and 2019 (AB) and the Asia Barometers of 2003-2007 (AS).[13] The ISSP and WVS both contain data from four large non-European English speaking advanced nations – Australia; Canada; New Zealand and the United States. They all give U-shapes in happiness with and without controls.

2. U-shapes in Happiness and Life Satisfaction in Advanced and Developing Countries

It is worth pursuing the possibility that a) the U-shape doesn't apply to poorer countries, where residents have shorter life expectancies, noting that Blanchflower and Oswald (2008a) did find it for 39 developing countries in WVS sweeps 1-4[14] averaging out at around age 43 with a set of control variables and b) if it does, the minimum would be different and likely lower given the shorter life expectancy. In this paper I explore that issue and find evidence that there are U-shapes in age in developing countries with similar minima to those in advanced countries however well-being is measured. I do this for groups of developing and advanced countries as well as for countries individually. The minima without controls are much higher and often there is a steady decline by age in developing countries and no minima in the raw data by age. I do find it though in many country level equations for developing countries.

I use three methods to identify the U-shape. First, I run an OLS regression with the dependent variable a measure of well-being, on a pooled sample of countries across all ages, with age and age squared, without any controls although I do include country dummies and if there are multiple survey years, then I also include sweep dummies. I then repeat and include, as far as is feasible a consistent set of personal control variables across all studies of gender, marital status, education and labor force status to estimate ceteris paribus effects.

Second, I then re-estimate for individual countries including the gender, education, marital and labor force status control variables with the age of respondents limited to those under the age of

https://www.census.gov/data-tools/demo/idb/region.php?T=10&RT=0&A=both&Y=2019&C=US&R=

[13] We pooled forty-two recent sweeps of the Eurobarometer surveys on thirty-five European countries including the EU28 plus Turkey, Turkish Cyprus; Macedonia; Montenegro; Serbia; Albania and Iceland for the years 2009-2019 – 2009 (71.1 and 71.3); 2010 (73.4 and 74.2); 2011 (75.3; 75.4 and 76.3); 2012 (77.4 and 78.1); 2013 (79.3; 79.4; 80.1 and 80.2); 2014 (81.1; 81.4; 81.5; 82.3 and 82.4); 2015 (83.1; 83.2; 83.3; 83.4; 84.2; 84.3 and 84.4); 2016 (85.2; 86.1; 86.2; 86.3); 2017 (87.1; 87.3; 88.3 and 88.4 and 2018 (89.1; 89.2; 89.3; 90.1; 90.2; 90.4) and 2019 (91.2)

[14] Countries were Albania; Algeria; Argentina; Bangladesh; Belarus; Brazil; Chile; China; Colombia; Dominican Republic; Egypt; India; Indonesia; Iran; Iraq; Jordan; Kyrgyzstan; Mexico; Moldova; Morocco; Nigeria; Peru; Philippines; Puerto Rico; Russia; Saudi Arabia; Singapore; South Africa; Taiwan; Tanzania; Turkey; Uganda; Ukraine; Uruguay; Venezuela; Vietnam and Zimbabwe.

seventy. I do this for simplicity given very different life expectancies across countries and hence much smaller sample sizes for older age groups and likely variability at older ages. Sample sizes are often quite small for these individual country regressions and on average many are only around 1000 observations. I find for several advanced countries that there are insignificant results using, for example ISSP data, but when using EB or ESS when the samples are much larger the significance of both age terms appears. I assume that there is a significant U-shape if there is a negative sign on the age coefficient and a positive sign on the square with the T-statistic of both above 1.5.

Finally, I re-estimate the well-being equation and replace the age and age squared term with a complete set of single year of age variables which I then plot in a series of charts. This is to ensure that the quadratic I fitted is not an inappropriate functional form. This way the form is freely estimated and then plotted, with the individual coefficients added to the constant.

The well-being variables are always coded from low to high, so a positive coefficient means happier. Sometimes I use happiness data and sometimes life satisfaction and the number of options available varies by survey and year. Mostly there are four options, that I call 4-step, of eleven options from 0-10 that I call 11-step, 7-step and 10-step. It doesn't seem that this makes much of a difference. Sample size does seem to matter although it is surprising how many U-shapes are identified even with sample size of under a thousand.

I am also able to identify U-shapes in age in both European and African nations using a *broader set of attitudinal questions on living standards as well as on an individual's financial conditions as well as the state of the national economy*. I focus in particular on questions about financial situations individuals find themselves in as well as on the general state of the economy. These questions are widely used in consumer confidence surveys. Respondents are asked such questions in the Eurobarometers, as well as in the monthly consumer surveys run by the European Commission in every EU country since the 1980s. I compare results of asking similar questions in Europe and Africa. It seems the U-shape in age is more general than just in happiness and life satisfaction equations and applies to other attitudinal economic variables. This suggests the happiness curve has broader applicability to other attitudinal variables about the person and the economy.

3. Empirical Analysis of Quadratics in Age

In this section I report the results of estimating a series of linear well-being regressions. In each case I report coefficients and T-statistics for the age and the age squared variables with and without controls for education, gender, marital and labor force status, country and where appropriate where there are multiple survey years used a set of year dummies. the without controls equations include year and country dummies. I calculate the minimum of the quadratic in age by differentiating with respect to age and solving which means dividing the age coefficient by the Age^2 coefficient multiplied by two. Hence on row 1 of Table 1a the age coefficient is -.01771 and Age^2 is -.00014 so the minimum is -1*.01771/(2*.00014)=63.25.

I turn first for the two countries that have micro data files with thousands of observations – the United States and the United Kingdom.

i) The United States

I need to make clear at the outset that the United States does look different in the raw data. There are two main sources of well-being data in the USA – the General Social Survey which has happiness data from 1972-2018, with an average of around 2000 observations a year and the Behavioral Risk Factor Surveillance System (BRFSS) which has life satisfaction available for the years 2005-2010, with over four million observations, but this question has not been included in subsequent years. In the GSS the question asked is ''*Taken all together, how would you say things are these days? would you say that you are very happy=3, pretty happy=2, or not too happy=1?*" In the BRFSS respondents are asked "*In general, how satisfied are you with your life? Very satisfied=4; Satisfied=3; Dissatisfied=2 and Very dissatisfied=1.*" (All my codes).

If I run OLS regressions and include and an age and an age squared term I get the following for ages 18 and over (t-statistics in parentheses). All equations include year dummies.

	Age	Age^2	Minimum	N
BRFSS (life satisfaction)				
Without controls	-.00253 (2.44)	+.000013 (13.63)	97	4,283,544
With controls	-.00531 (47.70)	+.000062 (59.30)	43	4,283,544
GSS (happiness)				
Without controls	+.00427 (5.13)	-.00003 (3.89)	71 (max)	59,860
With controls	-.008422 (8.97)	+.000106 (10.93)	40	59,707

In the case of the BRFSS, without controls the age term is negative and the square term positive but the minimum is close to 100. For the GSS the signs are reversed but are both significant suggesting an inverted U-shape. In both cases when I add controls there is a significant U-shape with a minimum of 43 and 40 respectively.

It is important to look at the raw data to determine the appropriateness of fitting a quadratic to the two sets of data. As can be seen from Chart 1a for the BRFSS, 2005-2010 which reports scatter plots of the coefficients of single year of age dummy variables in a life satisfaction equation a) without any controls except year dummies, and then b) adding controls for marital and labor force status, gender and education. In each case the individual coefficients are added to the constant. It is clear that there is an M-shape in the raw data, with an initial decline and then a rise through the early thirties and then the mod-life drop and subsequent pick-up. Adding controls takes away the M and produces a clean and highly significant U-shape.

Chart 1b does the same exercise for the happiness data from GSS. As with the BRFSS without controls the function rises through around age thirty and also doesn't have an initial dip. There is then a dip in midlife. With controls the U-shape becomes apparent.

It turns out that there are very different patterns without controls by marital status and education, but in all cases, there is a U-shape with controls. Chart 1c plots the married that are 55% of the total, there is an M-shape without controls and a U-shape with them. Chart 1d reports it for the non-married, which includes never married (11%), divorced (14%), separated (2%), widowed (15%) and living together (2%). It shows an obvious U-shape both with and without controls. IN

contrast Chart 1e and Chart 1f for both college and non-college have U-shapes with and without controls.

Graham and Pozuelo (2017) also found marked differences for the married and unmarried using the Gallup Healthways data for the US, in sharp contrast to Europe. They found that there were U-shapes for both groups in Europe and argued that there is a major difference in the levels of happiness across married and unmarried cohorts in the US, with those of the married significantly higher than those of the unmarried. In addition, they found that "*the unmarried experience a much steeper dip than do the married as beginning in the late 20s and then closing the gap with the married in the late 50s. The married, meanwhile, have a slight upward bump in the U curve in the late 20s to the mid-40s and then a drop again at that point*."[15]

The authors note rightly that it is hard to explain why there are such large differences in the happiness of the married versus unmarried in the USA and not in Europe. They go on to argue, which seems right, that "*in theory, selection bias could be an issue, as happier people are more likely to marry each other. Yet this is not the whole story and does not explain the differences between these two contexts, which are otherwise very similar in terms of per capita income, education levels, and other traits*." Differences between married and unmarried subsamples are clearly worth exploring but are not pursued here for lack of space across other countries. One issue is that marriage versus cohabiting is much more the norm in the US than it is in the UK which may impact the happiness of those who are unmarried by middle age.

ii) The United Kingdom

Charts 2a and 2b examine the data, for people under age 70, from the other major large cross-section survey of well-being from the most recent sweeps available for 2016-2018 from the Annual Population Surveys for the United Kingdom. Earlier sweeps were used in Bell and Blanchflower (2019) to examine the well-being of the underemployed and the unemployed. These surveys contain data on four well-being measures and overall there are about 270,000 observations on each. The question used is as follows.

SATIS – 'Overall, how satisfied are you with your life nowadays? where nought is 'not at all satisfied' and 10 is 'completely satisfied'.

Chart 2a plots the single year of age coefficients with the dependent variable life satisfaction (*satis*) with age and its square without any other controls except for two, year dummies. Then I add controls for education, marital status and labor force status and plot again. There is a clear U-shape in both cases, with a small up-tick at around thirty in the data without controls, which disappears with controls.

Grover and Helliwell (2019) examined happiness data for the UK using earlier sweeps of these data and found that the U-shape in the relationship between life satisfaction and age exists for both the married and unmarried but is deeper for the unmarried, and the difference between married and unmarried is greatest when people are in their late 40s and 50s. I

[15] See especially their Figure 50a, p257.

confirm that in Chart 2b, with a U-shape for both the married and unmarried with and without controls. It is clear that the married are happier than the unmarried.

The broad picture though is a, ceteris paribus, U-shape in well-being. A quadratic in age, it turns out is likely a reasonable first order approximation to these data across many countries, recognizing there may be individual nuances hidden by using the same functional form across countries.

iii) Multiple Countries

I start out using data from the Eurobarometer surveys (EB). Concern has recently been expressed over response rates to these surveys especially in relation to the questions on respondent's views on the EU, with the concern that Eurosceptics do not respond to the surveys which then suggest higher levels of support than they should. The Eurobarometer surveys differ from other surveys that use the mail or the telephone, the EU Commission only conducts interviews with members of the public face-to-face at home. This makes it even more difficult to achieve high response rates.

The EU Commission on 5th December 2019 defended the methods of its public opinion surveys in response to criticism that the low rate of responses could lead to bias towards the EU. In the most recent Eurobarometer survey for which response rates have been calculated, and obtained by the Danish newspaper, the rate was 14 percent in Finland, 15 percent in Germany, 20 percent in Luxembourg, 22 percent in Italy, 27 percent in the UK, 28 percent in Denmark, 31 percent in Greece and France, 33 percent in Ireland, 34 percent in Spain, 38 percent in Latvia and 40 percent in Portugal. Erik Gahner Larsen from the University of Kent in a blog[16] noted rightly, that the response rate is informative but not sufficient or even necessary in order to obtain representative samples. He finds no evidence that countries with lower response rates are much more positive towards the EU in Eurobarometer compared to the European Social Survey. Of note is that there seems very little evidence that responses to questions on life satisfaction in the EB have been impacted over time by a rise in non-response rates/

Table 1a uses data on 4-step life satisfaction for over 1.2 million Europeans from forty-two sweeps of the EB for the years 2009-2019.[17] The question asked is "*On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the life you lead? Not at all satisfied (=1); not very satisfied (=2); fairly satisfied (=3) and very satisfied (=4)*". It establishes the facts in European countries, by which I mean the EU28 plus seven other countries (Iceland, Norway, Turkey, Turkish Cyprus, Albania; Macedonia and Montenegro). There are seventeen western EU member countries, plus Iceland and Norway, and twelve East European countries that are currently EU members. There are six developing countries including four ex-Soviet (Albania; Macedonia, Montenegro and Serbia) that are not EU members plus Turkey and Turkish Cyprus in that group, all of which are so-called candidate countries.

[16] 'Eurobarometer and Euroscepticism' https://erikgahner.dk/2019/eurobarometer-and-euroscepticism/

[17] Information, 'New data reveals serious problems with the EU's official public opinion polls', 3rd December 2019. https://www.information.dk/udland/2019/12/new-data-reveals-serious-problems-with-the-eus-official-public-opinion-polls and Eszter Zalan, 'EU Commission defends Eurobarometer methodology,' EU Observer, December 5th 2019.

First, eight estimates are provided for pooled samples across all age groups, with and without controls overall and then separately for Western and Eastern Europe, and for developing countries, with and without controls for gender, education, marital and labor force status. In all four cases with and without controls there is a minimum in midlife in the early fifties and the minima are a little higher without controls. There is also a U-shape with controls when a set of eight cohort dummies are included for each ten-year period for birth from 1930. To add these cohort controls there needs to be a long time run of data which there is in the EB and GSS surveys.

Second, separate estimates are provided by country with controls with age restricted to be under seventy years. In all thirty-seven cases the age term is significant and negative and the squared term significantly positive. There is some variation with a low of 29 in Luxembourg and a high of 80 for Montenegro but mostly are in the forties and fifties.

There are significant U-shapes for the pooled sample overall and separately for the Western Europe, Eastern European and developing country samples with and without controls.

Table 1b reports results for all Western and Eastern European countries without controls and there are U-shapes in three of the six developing countries. In a couple of cases (Bulgaria and Romania), the minimum is nearer to 100 than to fifty. But overall the minima are slightly higher than without controls, but not in all. In the UK the minimum is age 43 in both.

Table 1c estimates life satisfaction equations using the 1973-2002 Manheim Eurobarometer Trend file used by Blanchflower and Oswald (2008a) for a smaller group of eighteen EU countries plus Norway and there are U-shapes with and without controls in the overall sample and in every one of the 19 countries with controls for those under age 70. Somewhat surprisingly the U-shape looks broadly similar in the years before and after the Great Recession which hit in 2008. Adding cohort dummies does lower the minimum sharply.

Chart 3a uses single year of age plots with and without controls using the EB files from 2009-2019, and both show U-shapes. Chart 3b adds cohort dummies to the list of controls and the U-shape remains. Chart 3c reports single year of age estimates with and without controls from the Mannheim Trend Files for 1973-2002 and there are U-shapes again with and without controls. Chart 3d adds cohort dummies again and the U-shape remains.

There is an issue raised by Morgan and O'Connor (2017), henceforth MO, over whether there is an M-shape rather than a U-shape in EB data. MO kindly sent me their data and it turns out that in contrast to the United States there is no evidence of the M-shape either in the raw data or when they add cohort dummies. Appendix B shows the raw plots across fifteen countries. There are U-shapes in a dozen countries in the raw data; the exceptions are Italy, Portugal and Finland. In Table 2b using the ESS I also did not find a U-shape in the raw data for these three countries, but there was evidence for a U-shape with them with controls in Tables 1a, 1c, 2a and 3.

Chart 3e plots the MO data when I simply included sweep and country dummies along with single year of age dummies and added the coefficients to the constant. There is no obvious M-shape in either series. It emerges when the authors include education controls they constructed by country,

although they didn't explain this in their paper that the M had nothing to do with cohort dummies. Chart 3b and Chart 3d also using EB data, showed there is no M-shape when controls for education, marital status and labor market status are added.

Table 2a, with controls and Table 2b without them, uses eight sweeps of the European Social Surveys but this time the dependent variable is 11-step *happiness*. There are over a third of a million observations. The question asked in the ESS is "*Taking all things together, how happy would you say you are?*" and the responses are coded from 0 to 10 with zero 'extremely unhappy" and 10 "extremely happy". The data file contains data on four developing countries – Israel, Russia, Turkey and Ukraine – plus twenty-eight European countries.

The pooled samples in Table 2a have U-shapes although the minima are high without controls for all three groupings, but very consistent with the results from the Eurobarometers at age 57 for advanced countries and overall and 62 for developing with controls. There is a minimum again in every country equation that again includes controls for those under seventy that are also in the forties and fifties.

Table 2b without controls has a significant U-shape for 24/32 countries. All of the flour developing countries have a U-shape and there are eight advanced countries with no U-shape (Denmark, Estonia, Finland, Iceland, Italy and Lithuania, Poland and Slovenia). All six of these countries had significant U-shapes with larger samples with the EB data.

Table 3 makes use of 10-step life satisfaction data from four sweeps (2003, 2007, 2011 and 2016) of the European Quality of Life Survey (EQLS). Results are very similar to those from the EB and the ESS. There are significant U-shapes everywhere, with and without controls. Minima with controls are in the fifties for western and Eastern Europe and for the four developing countries. Minima are a little higher without controls.

Table 4 now moves to using 7-step life satisfaction data from the 2012 ISSP which is not limited to Europe. The question asked is *"If you were to consider your life in general, how happy or unhappy would you say you are, on the whole? Completely happy =7; Very happy=6; Fairly happy=5; Neither happy nor unhappy=4; Fairly unhappy=3; Very unhappy=2; completely unhappy=1?"* Numbers are my coding to ensure a a larger coefficient means more happiness.

Again, the pooled samples give happiness curves for Advanced, Eastern European and developing countries that are higher without controls than with. The overall minimum is 55 and 51 for developing. All 31 countries have significant U-shapes, mostly in the forties and fifties again.

Table 5 does the same but with the 2017 ISSP with a slightly different 7-step life satisfaction question. *All things considered, how satisfied are you with your life as a whole nowadays? Completely satisfied=7; Very satisfied=6; Fairly satisfied=5; Neither satisfied nor dissatisfied=4; Fairly dissatisfied=3; Very dissatisfied=2; Completely dissatisfied=1?"* Numbers are my coding again. The overall minimum is a little lower than in earlier tables at 48. The age minimum for advanced countries is 54 and for developing 46. There are U-shapes everywhere with and without controls.

Table 6 looks in turn at sweeps 2-6 of the World Values Survey. In the five sweeps there is always a minimum between forty and fifty overall with controls, and only in Wave 2 is there no U-shape without controls. In every one of the 137 reported country estimates, for advanced and developing countries, remarkably, given the small sample sizes, there are significant happiness curves.

Table 7 now turns to look at 5-step happiness data in five sweeps of the Asia Barometers of 2003-2007.[18] The question asked is "*All things considered would you say that you are happy these days? - Very happy=5; pretty happy=4' neither happy nor unhappy=3; not too happy=2 and very unhappy=1?"* Once again, the numbers refer to my codes. In each case, there is a well-defined U-shape with controls and only without controls in two of the five sweeps. Significant U-shapes are found in fourteen Asian developing countries – China; India; Laos; Maldives; Mongolia; Myanmar; Philippines; Singapore; South Korea; Sri Lanka; Taiwan; Tajikistan; Thailand; Uzbekistan.

Table 8 makes use of 4-step life satisfaction data from the Latino Barometers for 2017 and 2018. The question asked was *"Generally speaking, would you say you are satisfied with your life? Would you say you are...? Very satisfied =4; Quite satisfied=3 Not very satisfied=2 and Not at all satisfied=1?*" Blanchflower and Oswald (2008a) examined data from this survey series for the years 1997, 2000, 2001 and 2003-2005 and found a U-shape at age 50 for men and age 43 for women with a full set of controls, so this updates that analysis. For both 2017 and 2018 there is a well-defined U-shape that minimizes in the sixties without controls and in the fifties with them. There are U-shapes for those under the age of seventy in twelve, for Bolivia; Brazil; Columbia; Costa Rica; Ecuador; Honduras; Mexico; Panama; Paraguay; Peru, Uruguay, and Venezuela.

Chart 4 also shows a U-shape when single year of age dummies are included with controls using the EQLS. Chart 5a does a similar exercise using the data for advanced countries from the ESS sweeps 1-8. There is a flattening around age seventy after a minimum in the late fifties and a pick-up at age eighty. Chart 5b repeats but for the sample of four developing countries – Israel, Russia, Turkey and Ukraine with controls. It has a U-shape with a later turning point in the early sixties and a later pick-up. Chart 6a does the same for the ISSP 2012 while Chart 6b has it for developing countries with controls. Charts 7a and 7b do the same for the ISSP 2017. All have U-shapes with minima around age fifty.

I now turn to plotting well-being data only for developing countries from Wave 5 (2005-2009) and Wave 6 (2010-2014) of the WVS. Chart 8a plots a U-shape in life satisfaction using Wave 5 and Chart 8b in life satisfaction using sweep five of the WVS. Charts 9a and 9b do the same using data from Wave 6 of the WVS. All have well-defined U-shapes minimizing in the mid-fifties.

Chart 10a and 10b report on 4-step life satisfaction equations from the Latino Barometers for 2017 and 2018 respectively with controls and once again show a clear well-defined U-shape.[19] Chart 10 does the same from the 2005 Asia Barometer, with controls chosen as it has a larger sample size than the other sweeps. That also has a significant U-shape in age.

[18] Blanchflower and Oswald (2008a) used data from the 2003-2005 Asia Barometers.
[19] Easterlin et al (2010) also used the (1994-2006) LatinoBarometers.

There are obvious U-shapes in age in life satisfaction and happiness across the developed and developing world from these year of age plots that do not rely on a specific functional form such as a quadratic.

To conclude, these tables and charts suggest the following
1) There are well-being U-shapes in advanced and developing countries
2) thee answers seem to be similar using happiness or life satisfaction data.
3) It doesn't seem to matter how many steps there are in the dependent variable, essentially the same answer is found with a 4-step, 7-step, 10 or an 11-step measure.
4) The answers are broadly the same whichever data file is used.
5) Adding cohort dummies does not remove the U-shape.
6) There is a minimum around age fifty with controls of the happiness curve in both advanced and developing countries, and a little higher than that without controls.

4. Alternative Measures of Well-being

I now turn to other ways of measuring satisfaction, which it turns out also show U-shapes. Easterlin (2006) found evidence of a U-shape in age in the US General Social Survey for the years 1972-1993 in answers to the question – *We are interested in how people are getting along financially these days. So far as you and your family are concerned, would you say that you are pretty well satisfied with your present financial situation, more or less satisfied, or not satisfied at all*? He finds that satisfaction with one's financial situation, "*declines very slightly through age 36, but thereafter rises considerably, with the biggest increase late in life*." This contrasts with his findings on happiness overall as well as happiness with the family that he found followed an inverted U-shape.[20]

I took the data Easterlin (2006) used and re-estimated, with and without controls, for a longer time period, from 1972-2018. T-statistics are in parentheses and I restricted the sample to those under age 70 for simplicity. Without controls year dummies are included, with controls adds controls for gender, marital status, years of education, race and labor force status. Sample size is with controls.

	Without Controls		With controls		
	Age	Age^2	Age	Age^2	N
Happiness	+.0028 (2.16)	-.00003 (8.58)	-.0132 (8.91)	.00016 (9.45)	52,433
Family situation	+.0316 (7.35)	-.00037 (7.45)	-.0252 (5.32)	.00023(4.15)	22,231
Financial situation	-.0158 (10.34)	+.00025 (14.40)	-.0246 (14.21)	.00036 (18.37)	59,836

I confirm Easterlin's findings; both happiness and family situation without controls generate inverted U-shapes in age, whereas financial situation has a U-shape in age even without controls. All three though have U-shapes once controls for education, marital status and work status are

[20] Data for satisfaction with family life are only available for the years 1972-1993 hence the sample restriction but in what follows I used data for both happiness and financial situation for the years 1972-2018. The family situation question was SATFAM: "*For each area of life I am going to name, tell me the number that shows how much satisfaction you get from that area. Your family life (my codes) - 7. A very great deal; 6. A great deal; 5. Quite a bit; 4. A fair amount; 3. Some; 2. A little; 1. None*."

included. The minima are 41 for happiness, 55 for family situation and 32 for financial situation with controls.

It is apparent that a U-shape seems more robust using the financial situation data than the other two measures of well-being. I explored the characteristics of this rather intriguing financial circumstance variable as data is available in WVS sweeps 5 and 6 for developing and developed countries.

In Table 10 I model responses in turn from waves 5 and 6 of the WVS that contains a 10-step question on how satisfied the respondent is with the financial situation of the household. Responses are from 1 – very dissatisfied to 10 very satisfied. As with the data for the US discussed above, I find statistically significant U-shapes with and without controls in developed and developing countries in both wave 5 and wave 6. The minimum is in the low to mid-forties with controls in developed and developing countries in both years. With controls in the country equations with the sample restricted to those under 70 years of age, there are U-shapes in thirty-four developing countries from around the world.[21]

A great deal of use is made in economics of survey responses from individuals on the general state of the economy, including in Consumer Confidence measures such as the Michigan and Conference Board measures in the United States and conducted by the European Commission monthly for every EU member state. For example, respondents in the EU Commission survey are asked for their views on the "*general situation of the economy over the last twelve months*." and their "financial situation over the last twelve months"[22] These variables are then collapsed into a score. In Chart 11 I plot the two series for the EU28 as a whole: separate scores are available for every EU member country monthly. Their decline in 2007 onwards gave early warnings as did other similar attitudinal variables that few spotted of the oncoming global recession in 2007 (Blanchflower, 2008 and 2009b). Responses to the financial situation variable as noted above has a U-shape in age, but the general economic situation type question appears to also have that shape as I illustrate below. A concern is that the general economic situation series turned down at the end of 2018.

Part a) of Table 11 uses similar data from a recent Eurobarometer Survey 90.3 from November 2018 also conducted in the EU28 countries by the European Commission. I estimate six separate regressions starting with the life satisfaction question used in Table 1 with the same controls – gender, marital and labor force status and education. A well-defined U-shape in life satisfaction, as expected is apparent with a minimum at age 55 compared with 52 with controls in Table 1 for the years 2009-2018. I re-estimated the same equation five more times using different attitudinal questions on the individual's situation and that of the country as follows.

[21] Algeria; Belarus; Brazil; Chile; China; Colombia; Ecuador; Egypt; Georgia; Ghana; Indonesia; Iran; Iraq; Jordan; Kyrgyzstan; Libya; Mali; Malaysia; Mexico; Morocco; Peru; Philippines; Russia; Singapore; South Africa; South Korea; Taiwan; Thailand; Trinidad; Turkey; Uruguay; Yemen; Zambia and Zimbabwe.

[22] See the EU consumer surveys available for download here for every EU country https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/business-and-consumer-surveys/download-business-and-consumer-survey-data/time-series_en

How would you judge the situation in each of the following? Very good=4; Rather good=3; Rather bad=2 and Very bad=1
Q2. The situation in our country?
Q3. The situation of the national economy?
Q4. The financial situation of your household?
Q5. The employment situation in the country?
Q6. The presence of public services in our country?

In every case the age term is significant and negative, and the square term is positive in Table 10. Each of the variables have well-defined and statistically significant U-shapes in age and the t-statistics on age and its square are everywhere above five. The age minima vary from ages 47-54.

Part b) of Table 11 uses the most recently released #9 sweep of the ESS for 2018. I estimate both happiness and life satisfaction equations (Q10 and Q11) with controls and have well-defined U-shapes again and a minimum of 60 and 56 respectively. I then estimate for four more attitudinal questions about the economy, government, the state of education and the state of health services. Again, age is significant and negative and its square significant and positive, and all have U-shapes with minima from 50-56.

Q9. On the whole how satisfied are you with the present state of the economy in [country]
Q10. Now thinking about the [country] government, how satisfied are you with the way it is doing its job?
Q11. Please say what you think overall about the state of education in [country] nowadays?
Q12. Please say what you think overall about the state of health services in [country] nowadays?

Part c of Table 11 uses data from various sweeps of the EQLS 2003-2016. It contains a question o the respondents' views of their financial situation in the next twelve months, which also has a U-shape in age. It has seven 10-step satisfaction questions relating to their education, if they were working, to their job, their family life, the local area, the way democracy works, the state of the economy and their living standards. All have U-shapes.

Very little analysis has been done on how well-being moves by age in Africa.[23] The Afro Barometers are a natural place to turn, but unfortunately, they don't contain any questions on happiness or life satisfaction. Both the 2016 and 2019 surveys do though contain a question on living standards. Participants are asked the following: *"In general, how would you describe your own present living conditions?" Possible responses include: 1 = Very bad, 2 = Fairly bad, 3 = Neither good nor bad, 4 = Fairly good, 5 = Very good*." This is broadly similar to the question I examined in Table 11 using the EQLS, which showed a U-shape with a minimum of forty-five.

This, living standard, measure of well-being, has been widely used in the development literature for measuring well-being in Africa. It was used by Sulemana, Doabil and Anarfo (2019) for a

[23] Or indeed of happiness in Africa, for an exception see Helliwell, Huang and Wang (2019) who found evidence over the years 2006-2018 that happiness in the Middle East and North Africa had dropped steadily while Sub-Saharan Africa had no overall trend. The authors identify how much happiness has changed over the last decade and how low it is in Africa. They note big declines in happiness in Rwanda, Malawi; Tanzania; Central African Republic; and Botswana (their Figure 2.8)

study of well-being in Sub-Saharan Africa. They justified its use arguing that *"the question taps into the individual's evaluations of their life we used this construct as a suitable measure of subjective wellbeing.*" The authors argued that "*many other studies have constructed well-being measures in the same way,*" which turns out to be correct. Deutsch et al (2016) used this variable from the 2008 Afro arometer as did Pokimica et al (2012) and Sulemana (2015b) in their studies of well-being in Ghana. Sulemana (2015a) in a study of the impact of crime on well-being in Africa used data from the 4th sweep of the Afro Barometer for 2008. Sulemana et al (2017) used this measure with the Afro Barometer data in their study of the relationship between corruption and well-being in Africa.

Others have been creative in their use of measures of well-being for Africa. Bookwalter et al. (2011) in a study of South Africa use a household level life satisfaction variable. Life satisfaction in both surveys was reported at the household level. The head of the household was asked, "*Taking everything into account, how satisfied is this household with the way it lives these days?"* Responses were given on a five-point scale that we have ordered: very dissatisfied (1), dissatisfied (2), neutral (3), satisfied (4), and very satisfied (5).

Table 12 reports the results from estimating an OLS equation with this as a dependent variable with and without controls. Here controls are gender, race, education, marital and labor force status. There is a U-shape minimizing at age 67 in 2016 and 59 in 2019 without controls and with them 53 and 55 respectively. Limiting age to less than seventy there are 22 countries with significant U-shapes in 2016 and seventeen in 2019. Charts 12a and 12b plot the single year of age plots for the two years with controls and there are obvious U-shapes again, with minima mostly in the mid-fifties. There are U-shapes for thirty African countries using the Afro Barometer data for those under age seventy.[24]

The U-shape appears to have broad applicability to a range of attitudinal questions on the economy and an individual's personal economic situation as well as to their happiness and life satisfaction.

5. Conclusions

No ifs, no buts, well-being is U-shaped in age. In this paper I undertook what Deaton (2018) called a "daunting task" of drawing systematic comparisons across data files and countries of the relationship between well-being, variously defined, and age. I found evidence of that in one hundred and thirty-two countries, including ninety-five developing and thirty-seven developed. I found it in Europe, Asia, North and South America, in Australasia and Africa. I identified it in every member country of the European Union, as well as a further thirteen European countries.[25]

[24] Algeria; Benin; Botswana; Burkina Faso; Burundi; Cameroon; Cape Verde; Cote d'Ivoire; eSwatini; Gabon; Ghana; Kenya; Lesotho; Liberia; Madagascar; Malawi; Mauritius; Mozambique; Namibia; Niger; Nigeria; São Tomé; Senegal; South Africa; Swaziland; Tanzania; Togo; Tunisia; Uganda and Zimbabwe.

[25] There are fifty one European countries https://www.countries-ofthe-world.com/countries-of-europe.html. The only ones I didn't find it for were small and only Kazakhstan I had data for, while the remaining five I had zero data - Andorra, Liechtenstein, Monaco, San Marino and Vatican City. The thirteen non-EU European countries are Albania; Armenia; Belarus; Georgia; Iceland, Norway, Macedonia; Montenegro, Russia; Serbia; Switzerland, Turkey and Ukraine.

I have a well-being U-shape for every one of the thirty-five member countries of the OECD.[26] There were very few countries I did not find it for, and that happened mostly where there were small samples or I had no data.

I found the well-being U-shape in English-speaking countries and non-English speaking countries. A U-shape is revealed in countries ranked highly in the CIA World Factbook for countries with both high and low life expectancy at birth.[27] I found it in twelve countries ranked in the top twenty for life expectancy of 82 or more.[28] I also found a U-shape in ten countries in the bottom twenty for life expectancy of 223 countries in the world according to the CIA.[29] The U-shape is found with or without cohort controls.

The curve's trajectory holds true in countries where the median wage is high and where it is not and where people tend to live longer and where they don't.

I found additional evidence from an array of attitudinal questions that were worded slightly differently. Evidence of a U-shape was found in a variety of questions across European countries relating to an individual's finances as well as to the state of the economy and democracy and how public services work. In Africa I used a question that development scholars had used relating to living standards and found a U-shape for Africa as well as for thirty African countries. This suggests the U-curve in age may have much broader applicability than just in well-being data.

It seems to make relatively little difference in finding a U-shape if controls are included or not although in the former case the minima have a tendency to be higher. It does seem more appropriate to include them rather than not, given I am able to do so in a consistent way across countries, time and a variety of data sets. Education, marital status and unemployment are the major influences in a well-being equation. Unemployment, for example has seen major swings since 1973 and needs to be controlled for and has impacted various groups differently. Unemployment enters negatively in happiness equations and is a major source of hurt. Low education groups have been impacted especially hard by the Great Recession. Being married conveys markedly more happiness than being single, and especially more than, say being separated. These are all standard controls in happiness equations.

Averaging across the 257 individual country estimates from developing countries gives an age minimum of 48.2 for well-being and doing the same across the 187 country estimates for advanced countries gives a similar minimum of 47.2.

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[26] Australia; Austria; Belgium; Canada; Chile; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Israel; Italy; Japan; Latvia; Lithuania; Luxembourg; Mexico; Netherlands; New Zealand; Norway; Poland; Portugal; Slovenia; South Korea; Spain; Sweden; Switzerland; Turkey; United Kingdom and the United States.

[27] https://www.cia.gov/library/publications/resources/the-world-factbook/fields/355rank.html

[28] (Japan (2), Iceland (7), Israel (10), Malta (11), Switzerland (12), South Korea (13), Australia (14), Italy (15); Luxembourg (16); Sweden (17); Canada; (18) and France (19).

[29] Lesotho (221); Mozambique (218); Uganda (217), Niger (216); Eswatini (215); Nigeria (211); Cameroon (210) Cote d'Ivoire (209); Mali (206) at 6.8 and Zimbabwe (205). Those countries ranked below 209th with life expectancies of less than sixty years at birth.

The happiness curve is found in 132 countries. No myth.

Compliance with Ethical Standards:

The author declares that I have no conflicts of interest.

References

Argyle, M. (1999). Causes and correlates of happiness. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), Wellbeing: The foundations of hedonic psychology (pp. 353–373). New York: Russell Sage.

Argyle, M. (2001). The psychology of happiness (2nd ed.). New York: Routledge.

Baird, B., R.E. Lucas and M.B. Donovan, M.B. (2010). 'Life satisfaction across the life span: findings from two nationally representative panel studies', Social Indicators Research, 99(2), pp. 183–203.

Beja, E.L. Jr. (2018), 'The U-shaped relationship between happiness and age: evidence using World Values Survey data,' Quality and Quantity, 52, pp.1817–1829.

Bell, D.N.F. and D.G. Blanchflower (2019), 'The well-being of the overemployed and the underemployed and the rise in depression in the UK', Journal of Economic Behavior and Organization, 161, May, pp. 180-196.

Blanchflower D.G. (2009a), 'International evidence on well-being' in Measuring the Subjective Well-Being of Nations: National Accounts of Time Use and Well-Being edited by Alan B. Krueger, editor (p. 155 - 226), NBER and University of Chicago Press.

Blanchflower D.G. (2009b), 'Where next for the UK economy?', Scottish Journal of Political Economy, 56(1), 2009, February, pp. 1-23.

Blanchflower D.G. (2008), 'Inflation expectations and monetary policy', Bank of England Quarterly Bulletin, 2008Q2, pp. 229-237 plus appendix https://www.bankofengland.co.uk/-/media/boe/files/speech/2008/inflation-expectations-and-monetary-policy

Blanchflower, D.G. and, A. Clark (2019), 'Children, unhappiness and family finances: evidence from one million Europeans', NBER Working Paper #25597, February.

Blanchflower, D.G. and, A.J. Oswald (2019), 'Do modern humans suffer a psychological low in midlife? Two approaches (with and without controls) in seven data sets', in The Economics of Happiness. How the Easterlin Paradox Transformed Our Understanding of Well-Being and Progress, edited by Mariano Rojas, 2019, Springer.

Blanchflower, D.G. and, A.J. Oswald (2016), 'Anti-depressants and age: a new form of evidence for U-shaped well-being through life', Journal of Economic Behavior and Organization, 127, pp. 46–58.

Blanchflower, D.G. and, A.J. Oswald (2011), 'International happiness: a new view on the measure of performance', Academy of Management Perspectives, February 2011, 25(1), pp. 6-22.

Blanchflower, D.G. and, A.J. Oswald (2009), 'The U-shape without controls: A response to Glenn', Social Science and Medicine, 69, pp. 486-488.

Blanchflower, D.G. and, A.J. Oswald (2008a), 'Is well-being U-shaped over the life cycle?' Social Science and Medicine, 66, pp. 1733-1749.

Blanchflower, D.G. and, A.J. Oswald (2008b), 'Hypertension and happiness across nations', Journal of Health Economics, 27(2), pp. 218-233.

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

Blanchflower, D.G., A.J. Oswald and S. Stewart-Brown (2012), 'Is psychological well-being linked to the consumption of fruit and vegetables?' Social Indicators Research: An International and Interdisciplinary Journal for Quality-of-Life Measurement, 114(3), pp. 785-801, December.

Bookwalter, J., B. Fitch-Fleischmann and D. Dalenberg (2011), 'Understanding life-satisfaction changes in post-apartheid South Africa,' MPRA Paper No. 34579.

Cantril, H., (1965), The Pattern of Human Concerns, Rutgers University Press, New Brunswick, NJ.

Carstensen, L.L., B. Turan, S. Scheibe, R. Ram, H. Ersnser-Hershfield, G.R. Samanez-Larkin, K.P. Brooksand J.R. Nesselroade (2011), 'Emotional experience improves with age: Evidence based on over 10 years of experience sampling,' Psychology and Aging, 26, pp. 21-33.

Charles, S.T., C.A. Reynolds and M. Gatz (2001), 'Age-related differences and change in positive and negative affect over 23 years,' Journal of Personality and Social Psychology, 80, PP. 136-151.

Cheng, T.C., N. Powdthavee and A.J. Oswald, (2017) 'Longitudinal evidence for a midlife nadir: Result from four data sets', Economic Journal, 127, February, pp.126-142.

Clark, A.E. (2019), 'Born to be mild? cohort effects don't (fully) explain why well-being is U-shaped in Age,' in The Economics of Happiness. How the Easterlin Paradox Transformed Our Understanding of Well-Being and Progress, 2019, edited by Mariano Rojas, Springer, pp 387-408.

Clark, A.E. and A.J. Oswald (1994), 'Unhappiness and unemployment,' The Economic Journal, 104 (May), pp. 648-659.

'Deaton, A. (2018) 'What do self-reports of wellbeing say about life-cycle theory and policy?', Journal of Public Economics, 162, June, pp. 18-25.

Deutsch, J., H. Musahara, H., and J. Silber, (2016), 'On the measurement of multidimensional well-being in some countries in eastern and southern Africa, in Poverty and Well-being in East Africa (pp. 191–214). Cham: Springer.

Diener, E., E.M. Suh, R.E. Lucas, R. E., and H.L. Smith (1999), 'Subjective well-being: three decades of progress,' Psychological Bulletin, 125, pp. 302–376.

Easterlin, R.A. (2003), 'Explaining happiness.', Proceedings of the National Academy of Sciences, 100(19), pp. 11176-11183.

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

Easterlin, R.A., L.A. McVey, S. Malgorzata, O. Sawangfa, and J.S. Zweig (2010), The happiness–income paradox revisited,' Proceedings National Academy of Sciences of the United States, 2010 Dec 28; 107(52), pp. 22463–22468.

Fortin, N. J.F. Helliwell and S. Wang (2015), 'How does subjective well-being vary around the world by gender and age?' in World Happiness Report, 2015, edited by John Helliwell, Richard Layard and Jeffrey Sachs

Frijters, P., and T. Beaton (2012), 'The mystery of the U-shaped relationship between happiness and age,' Journal of Economic Behavior and Organization, 82, 525-542.

Glenn, N. (2009), 'Is the apparent U-shape of well-being over the life course a result of inappropriate use of control variables? A commentary on Blanchflower and Oswald (66:8, 2008, 1733–1749),' Social Science and Medicine, 69(4), 481–485.

Graham, C. and J. R. Pozuelo (2017), 'Happiness, stress, and age: how the U curve varies across people and places', Journal of Population Economics, 30, pp.225–264.

Grover, S. and J.F. Helliwell (2019), 'How's life at home? New evidence on marriage and the set point for happiness,' Journal of Happiness Studies, February, 20(2), pp 373–390| .

Giuntella, O., S. McManus, R. Mujcic, A. J. Oswald, N. Powdthavee, A. Tohamy (2019), 'Why is there so much midlife distress in affluent nations?', Working Paper April.

Hellevik, O. (2017), 'The U-shaped age-happiness relationship: real or methodological artifact?' Quality and Quantity, 51, pp. 177-197.

Helliwell, J.F., (2019), 'Measuring and using happiness to support public policies,' NBER Working Paper #26529.

Helliwell, J.F., H. Huang and S. Wang (2019). 'Changing world happiness', in The World Happiness Report, 2019, edited by J.F. Helliwell, R. Layard and J.D. Sachs.

Helliwell, J.F., M.B. Norton, H. Huang and S. Wang (2019), 'Happiness at different ages: the social context matters,' in The Economics of Happiness. How the Easterlin Paradox Transformed Our Understanding of Well-Being and Progress, edited by Mariano Rojas, 2019, Springer.

Hudson, N.W., R.E. Lucas and M.B Donellan (2016), Getting older, feeling less? A cross-sectional and longitudinal investigation of developmental patterns in experiential well-being,' Psychology and Aging, 31, pp. 847-861.

Kassenboehmer, S.C. and J.P. Haisken-DeNew, J.P. (2012). 'Heresy or enlightenment? The well-being age U-shape effect is flat', Economic Letters, 117(1), pp. 235–8.

Laaksonen, S. (2018), 'A research note: happiness by age is more complex than U-shaped,' Journal of Happiness Studies, 19, pp. 471–482.

Lachman, M.E. (2015), 'Mind the gap in the middle: A call to study midlife,' Research in Human Development, 12, pp. 327-334.

Leland, J. (2018), Happiness Is a Choice You Make: Lessons from a Year Among the Oldest Old, Sarah Crichton Books.

Marcelli, E.A. and Richard A. Easterlin (2005), 'Beyond gender differences in U.S. life cycle happiness.' working paper.

Morgan, R, and K.J. O'Connor (2017), 'Experienced life cycle satisfaction in Europe', Review of Behavioral Economics, 4, pp. 371–396

Mroczek, D.K., and C.M. Kolanz, C.M. (1998), 'The effect of age on positive and negative affect: A developmental perspective on happiness,' Journal of Personality and Social Psychology, 75, pp. 1333-1349.

Mroczek, D.K., and A. Spiro (2005), 'Change in life satisfaction during adulthood: Findings from the Veterans Affairs Normative Aging study,' Journal of Personality and Social Psychology, 88, pp. 189-202.

Myers, D. G. (2000), 'The funds, friends, and faith of happy people,' American Psychologist, 55(1), pp. 56–67.

Palmore, E., Luikart, C., (1972), 'Health and social factors related to life satisfaction,' Journal of Health and Social Behavior 13 (1), pp. 68–78.

Pokimica, J., I. Addai, I., B.K. Takyi (2012) 'Religion and subjective well-being in Ghana,' Social Indicators Research, 106, pp. 61–79.

Price, A. (2015), 'Sliding down the U-shape? A dynamic panel investigation of the age-well-being relationship, focusing on young adults,' Social Science and Medicine,143, pp. 54-61

Ranjbar, S. and S. Sperlich (2019), 'A Note on empirical studies of life-satisfaction: unhappy with semiparametrics?', Journal of Happiness Studies, First Online16 September 2019

Rauch, J. (2018), The U-shape of Happiness. New York: St. Martin's Press.

Schwandt, H. (2016), 'Unmet aspirations as an explanation for the age U-shape in well-being. Journal of Economic Behavior and Organization,' 122, pp. 75-87.

Shields, M.A. and S. W. Price (2005), 'Exploring the economic and social determinants of psychological well-being and perceived social support in England, Journal of the Royal Statistical Society (Series A), 168, pp. 513-537.

Steptoe, A., A. Deaton and A.A. Stone (2015), 'Subjective wellbeing, health, and ageing,' The Lancet, 385, pp. 640–648.

Stone, A.A., J.E. Schwartz, J.E., Broderick and A. Deaton (2010), 'A snapshot of the age distribution of psychological well-being in the United States,' Proceedings of the National Academy of Sciences, 107, pp. 9985–999.

Sulemana, I. (2015a), 'The effect of fear of crime and crime victimization on subjective well-being in Africa,' Social Indicators Research, 121(3), pp. 849–872.

Sulemana, I. (2015b), 'An empirical investigation of the relationship between social capital and subjective well-being in Ghana,' Journal of Happiness Studies, 16(5), pp. 1299–1321.

Sulemana, I., L. Doabil and E.B. Anarfo (2019), 'International remittances and subjective wellbeing in Sub-Saharan Africa: a micro-level study', Journal of Family and Economic Issues, 40(3), pp. 524-539, September.

Sulemana, I., A.M. Iddrisu and J.E. Kyoore (2017), 'A micro-level study of the relationship between experienced corruption and subjective wellbeing in Africa,' The Journal of Development Studies, 53(1), pp. 138–155.

Ulloa, B.F.L., Moller, V. and A. Sousa-Poza (2013), 'How does subjective well-being evolve with age? A literature review,' Journal of Population Ageing, 6, pp. 227-246.

Weiss, A., J.E. King, M. Inoue-Murayama M, T. Matsuzawa and A.J. Oswald AJ (2012), 'Evidence for a midlife crisis in great apes consistent with the U-shape in human well-being', Proceedings of the National Academy of Sciences, December 4, 109 (49), pp. 19949-19952.

Whitbourne. S.K. (2018), 'That midlife happiness curve? It's more like a line,' Psychology Today, September 18th. https://www.psychologytoday.com/us/blog/fulfillment-any-age/201809/midlife-happiness-curve-its-more-line

Wunder, C., A. Wiencierz, J., Schwarze and H. Küchenhoff (2013), 'Well-being over the life span: Semi-parametric evidence from British and German longitudinal data', Review of Economics and Statistics, 95, pp. 154-167.

Table 1a. Life satisfaction equations 2009-2019 Eurobarometers. Country estimates age<70 with controls

	Age	T	Age^2	T	N	Age minimum
Without controls	-.01771	97.22	.00014	79.93	1,221,863	63
With controls	-.01940	87.74	.00018	85.88	1,219,888	54
+9 cohort dummies	-.01188	22.46	.00011	22.59	1,219,898	54
Western Europe						
Without controls	-.01380	61.55	.00012	52.78	743,565	58
With controls	-.01658	60.74	.00016	62.09	742,392	52
1. Austria	-.01362	6.92	.00014	6.04	34704	49
2. Belgium	-.03140	17.60	.00038	17.45	34717	41
3. Cyprus	-.03481	10.45	.00037	9.84	19,407	47
4. Denmark	-.02931	18.58	.00034	19.67	31,369	43
5. Finland	-.03194	17.90	.00033	16.89	31,009	48
6. France	-.03595	17.83	.00036	15.65	33864	50
7. Greece	-.03572	13.40	.00029	9.76	33219	62
8. Iceland (non-EU)	-.03378	8.12	.00035	6.80	6,293	50
9. Ireland	-.02291	12.63	.00026	12.71	35,756	48
10. Italy	-.01211	5.42	.00010	4.20	36,190	61
11. Luxembourg	-.01042	5.73	.00018	6.43	19087	29
12. Malta	-.03002	11.01	.00031	10.35	17646	48
13. Netherlands	-.04123	20.72	.00047	21.69	35,011	44
14. Norway (non-EU)	-.02444	5.14	.00027	5.03	3451	45
15. Portugal	-.01992	10.29	.00019	8.70	35,008	52
16. Spain	-.03868	8.46	.00041	17.57	34432	47
17. Sweden	-.03424	16.86	.00038	16.86	27,961	45
18. UK (GB+NI)	-.03611	20.19	.00042	20.57	32,181	43
19. West Germany	-.03062	15.66	.00035	15.60	31,394	44
EU28 Eastern Europe						
Without controls	-.02419	74.73	.00018	58.06	396,928	55
With controls	-.02233	56.99	.00020	52.96	396,289	53
20. Bulgaria	-.01587	6.78	.00011	4.02	35,829	72
21. Croatia	-.02960	12.90	.00027	9.83	33,818	55
22. Czech Republic	-.02841	14.57	.00028	12.90	37,772	51
23. East Germany	-.01637	6.57	.00019	6.60	18,477	43
24. Estonia	-.03630	18.09	.00035	15.58	31225	52
25. Hungary	-.03927	17.60	.00041	15.93	35,863	48
26. Latvia	-.04094	21.87	.00039	18.37	36,568	52
27. Lithuania	-.04869	20.79	.00047	17.79	30,346	52
28. Poland	-.02474	13.19	.00023	10.59	35,405	54
29. Romania	-.01904	8.52	.00015	5.68	37,442	63
30. Slovakia	-.02524	12.04	.00026	10.80	36,206	72
31. Slovenia	-.02231	11.05	.00019	8.47	34052	49
Developing countries						
Without controls	-.02256	22.67	.00019	17.77	81,370	59
With controls	-.02188	17.43	.00020	14.52	81,217	55
32. Albania	-.02035	3.49	.00014	2.14	7,125	73
33. Macedonia	-.03428	8.19	.00036	7.49	14,871	48
34. Montenegro	-.02081	3.80	.00013	1.88	9,434	80
35. Serbia	-.02852	6.29	.00022	4.19	12,213	65
36. Turkey	-.01241	3.63	.00011	2.60	19,150	56
37. Turkish Cyprus	-.01172	3.02	.00011	2.49	13,655	53

Table 1b. Life satisfaction equations from 2009-2018 Eurobarometers with *no controls just year dummies*. Country estimates age<70 (ALL 49 1b and 1c no control ESTIMATES AVERAGE 56.6)

	Age	T	Age^2	T	N	Age minimum
Western Europe average						55
Austria	-.00930	5.98	.00007	3.92	34,751	66
Belgium	-.01834	13.29	.00020	12.99	34,800	46
Cyprus	-.02730	9.64	.00024	9.64	19,417	57
Denmark	-.01210	9.58	.00014	10.10	31,396	68
Finland	-.01409	10.02	.00013	8.69	31,051	54
France	-.03193	20.75	.00030	17.30	33,890	53
Greece	-.04138	22.36	.00033	15.49	33,244	63
Iceland	-.01421	4.10	.00009	2.08	6,337	79
Ireland	-.01450	9.90	.00016	9.41	35,817	45
Italy	-.01088	6.95	.00008	4.39	36,244	68
Luxembourg	-.01651	9.08	.00019	8.96	19,109	43
Malta	-.01932	9.86	.00016	7.41	17,685	60
Netherlands	-.01758	13.12	.00018	12.03	35,034	49
Norway	-.01498	3.61	.00017	3.57	3,451	44
Portugal	-.02166	15.17	.00016	9.55	35,074	68
Spain	-.03215	20.86	.00033	18.36	34,452	49
Sweden	-.01351	8.63	.00016	9.12	27,794	42
UK (GB+NI)	-.02317	15.62	.00027	15.82	32,260	43
West Germany	-.01521	10.05	.00017	9.85	31,428	45
Eastern Europe average						**75**
Bulgaria	-.01575	9.04	.00005	2.51	35,925	158
Croatia	-.02561	14.38	.00020	9.58	33,898	64
Czech Republic	-.02217	16.36	.00019	12.45	37,802	58
East Germany	-.01895	8.46	.00019	7.39	18,150	50
Estonia	-.02210	14.43	.00014	7.93	31,269	79
Hungary	-.03007	18.19	.00027	14.40	35,899	75
Latvia	-.03841	26.81	.00033	19.97	36625	58
Lithuania	-.04770	28.03	.00042	21.24	30,364	57
Poland	-.01469	10.66	.00009	5.57	35,625	82
Romania	-.01675	10.12	.00009	4.79	37,533	93
Slovakia	-.02196	13.90	.00019	13.90	36,296	58
Slovenia	-.01965	13.28	.00014	8.61	34,132	70
Developing countries average						**53**
Albania	-.00682	1.76	.00005	1.14	7,125	n/a
Macedonia	-.03835	12.96	.00040	11.80	14,886	48
Montenegro	-.01419	3.55	.00006	1.29	9,494	n/a
Serbia	-.03210	10.09	.00026	7.59	12,253	62
Turkey	-.00358	1.29	.00003	0.13	17,389	n/a
Turkish Cyprus	-.03368	9.38	.00035	7.98	13662	48

Table 1c. Life satisfaction equations Mannheim Trends File, 1973-2002, Eurobarometers. Country estimates age<70 with controls

	Age	T	Age^2	T	N	Age minimum
All ages						
Without controls	-.00985	39.42	.00009	35.37	648,083	55
With controls	-.01944	44.16	.00016	85.88	603,656	61
+ 7 cohort dummies	-.01250	24.26	.00014	31.27	603,656	45
Age<70 with controls						
Average						45
38. Belgium	-.02100	11.86	.00022	10.85	45,628	48
39. Denmark	-.01660	13.04	.00019	13.04	44,411	44
40. Finland	-.03699	11.23	.00040	10.20	8,954	46
41. France	-.02484	13.58	.00029	13.36	47,005	43
42. Greece	-.02240	9.11	.00021	7.55	36,510	53
43. Ireland	-.01535	8.92	.00021	10.67	45,926	37
44. Italy	-.02381	13.21	.00023	11.23	48,159	52
45. Luxembourg	-.01157	4.65	.00014	4.97	18,297	41
46. Netherlands	-.02033	14.94	.00023	14.34	46,280	44
47. Norway	-.02487	5.49	.00028	5.40	6,395	44
48. Portugal	-.02537	10.29	.00025	10.60	28,515	51
49. Spain	-.02963	13.19	.00031	12.01	28,636	48
50. Sweden	-.03336	10.16	.00037	9.51	8,723	45
51. UK (GB+NI)	-.01670	12.99	.00023	14.82	60,011	36
52. Germany	-.01452	11.05	.00018	11.45	65,534	40

Table 2a. Happiness using European Social Surveys Sweeps 1-8, 2002-2016, country estimates age<70
Controls include gender, marital and labor force dummies, education, country and sweep dummies.
Without controls includes sweep and country dummies only.

	Age	T	Age^2	T	N	Age minimum
All ages						
Without controls	-.0300	34.41	.00019	21.49	370,542	80
With controls	-.0670	56.74	.00059	49.78	361,072	57
Developing countries						
Without controls	-.0347	11.24	.00014	4.58	40,594	124
With controls	-.0703	17.18	.00057	13.92	39,790	62
53. Israel	-.0892	9.74	.00086	8.29	12,251	52
54. Russia	-.0912	7.31	.00077	5.29	10,934	59
55. Turkey	-.1105	4.83	.00128	4.80	3,870	43
56. Ukraine	-.1065	7.37	.00090	5.44	7,896	59
Advanced Countries						
Without controls	-.0289	31.93	.00019	2.72	329,948	77
With controls	-.0658	53.47	.00058	47.52	321,130	57
57. Austria	-.0619	5.63	.00056	4.32	9,197	55
58. Belgium	-.0621	7.92	.00066	7.37	12,256	47
59. Bulgaria	-.1931	1.51	.00161	8.01	6,594	60
60. Croatia	-.1445	6.29	.00129	5.01	2,413	56
61. Cyprus	-.0580	3.18	.00061	2.93	3,702	48
62. Czech Republic	-.0772	6.94	.00070	5.68	12,766	55
63. Denmark	-.0591	7.40	.00066	7.44	9,153	45
64. Estonia	-.0813	7.40	.00061	4.92	9,612	67
65. Finland	-.0633	9.01	.00061	7.47	12,145	52
66. France	-.1013	1.65	.00093	8.39	12,512	54
67. Germany	-.1160	15.26	.00119	14.00	19,681	49
68. Great Britain	-.0950	11.06	.00109	11.14	14,204	44
69. Greece	-.1188	9.14	.00109	7.47	8,025	54
70. Hungary	-.1205	9.60	.00104	7.31	10,877	58
71. Iceland	-.0566	3.35	.00064	3.39	1,798	44
72. Ireland	-.0880	1.68	.00103	11.10	15,169	43
73. Italy	-.0752	4.39	.00071	3.63	3,874	53
74. Lithuania	-.0942	5.80	.00072	3.92	6,443	65
75. Luxembourg	-.0810	3.97	.00104	4.46	2,703	39
76. Netherlands	-.0651	9.18	.00069	8.77	12,700	47
77. Norway	-.0647	8.42	.00066	7.59	11,665	49
78. Poland	-.1034	1.01	.00091	7.61	12,220	57
79. Portugal	-.0856	8.74	.00072	6.54	11,185	59
80. Slovakia	-.0964	7.14	.00090	5.82	7,231	54
81. Slovenia	-.0962	8.43	.00075	5.72	8,876	64
82. Spain	-.0980	11.53	.00089	9.25	12,877	55
83. Sweden	-.0630	8.18	.00064	7.23	12,089	49
84. Switzerland	-.0598	7.70	.00064	7.20	11,697	47

Table 2b. Happiness using European Social Surveys Sweeps 1-8, 2002-2016, country estimates age<70
Without controls includes sweep dummies only.

	Age	T	Age^2	T	N	Age minimum
Israel	-.02761	4.15	.00018	2.23	12,609	77
Russia	-.06047	7.08	.00038	3.88	10,545	80
Turkey	-.08041	4.73	.00095	4.54	3,893	42
Ukraine	-.05717	5.49	.00024	2.04	8,054	119
Austria	-.02304	2.86	.00020	2.00	9,329	58
Belgium	-.02346	4.75	.00025	4.07	12,400	47
Bulgaria	-.11103	8.21	.00072	4.79	6,625	77
Croatia	-.05479	3.23	.00030	1.53	2,512	91
Cyprus	-.03245	2.72	.00025	1.77	3,780	65
Czech Republic	-.05518	8.11	.00040	5.18	13,198	69
Denmark	-.00740	1.30	.00014	2.05	9,340	n/a
Estonia	-.01312	1.86	-.00018	2.18	11,024	n/a
Finland	-.00403	0.88	-.00018	0.34	13,760	n/a
France	-.05389	8.08	.00043	5.68	12,548	63
Germany	-.04673	9.16	.00048	8.19	19,860	49
Great Britain	-.07341	11.13	.00089	11.81	14,310	41
Greece	-.05968	6.04	.00040	3.73	8,074	75
Hungary	-.06819	7.87	.00042	4.21	11,071	81
Iceland	-.01544	1.20	.00025	1.66	1,923	n/a
Ireland	-.04960	7.89	.00061	8.49	15,488	41
Italy	-.02180	1.87	.00001	0.70	4,035	n/a
Lithuania	-.04611	4.88	.00010	0.87	6,542	n/a
Luxembourg	-.05249	3.94	.00067	4.22	2,839	39
Netherlands	-.02791	5.31	.00028	4.70	12,811	50
Norway	-.02957	5.36	.00035	5.31	11,742	42
Poland	-.03566	5.09	.00011	1.31	12,333	n/a
Portugal	-.04785	6.84	.00025	3.16	11,643	96
Slovakia	-.05393	5.81	.00035	3.37	7,510	77
Slovenia	-.02880	3.82	-.00000	0.04	9,304	n/a
Spain	-.04653	7.84	.00040	5.43	13,073	58
Sweden	-.02261	4.15	.00028	4.47	12,156	40
Switzerland	-.01886	3.42	.00021	3.28	11,846	45

Table 3. European Quality of Life Surveys, 2003-2016, Life satisfaction

	Age	T	Age^2	T	N	Age minimum
All ages						
Without controls	-.04367	25.49	.00037	21.90	141,780	59
With controls	-.05529	26.85	.00054	26.08	139,721	51
Western Europe						
Without controls	-.02403	11.60	.00024	11.88	84640	50
With controls	-.03593	14.59	.00039	15.92	83182	46
85. Austria	-.06627	3.29	.00079	3.37	3835	42
86. Belgium	-.05045	2.86	.00059	2.92	3344	43
87. Denmark	-.08580	5.39	.00110	6.27	3193	39
88. Germany	-.07925	5.08	.00091	5.16	6236	44
89. Greece	-.07616	3.45	.00060	2.42	3270	63
90. Finland	-.09116	6.52	.00111	7.02	3218	41
91. France	-.05428	3.44	.00062	3.34	4,040	44
92. Iceland	-.09464	3.26	.00104	3.22	864	46
93. Ireland	-.07595	4.45	.00095	4.89	3,515	40
94. Italy	-.10606	6.95	.00113	6.62	5,823	47
95. Malta	-.04918	2.42	.00055	2.39	3,036	45
96. Netherlands	-.05084	3.75	.00065	4.23	3,468	39
97. Portugal	-.07764	4.14	.00078	3.68	3,205	50
98. Spain	-.06332	3.80	.00064	3.36	3,692	49
99. Sweden	-.04340	2.70	.00058	3.22	3,325	37
100. United Kingdom	-.10431	6.41	-.00120	6.43	4,738	43
Eastern Europe						
Without controls	-.07389	21.91	.00054	16.37	41,016	68
With controls	-.08249	20.21	.00070	17.27	40,571	59
101. Bulgaria	-.10310	4.45	.00089	3.35	3,208	58
102. Croatia	-.13786	5.30	.00125	4.26	2,503	55
103. Czech Republic	-.05031	2.31	.00048	1.92	3,718	52
104. Estonia	-.11716	5.31	.00113	4.52	2,742	52
105. Hungary	-.10976	4.86	.00104	4.02	3,302	53
106. Latvia	-.11664	5.41	.00104	4.14	3,093	56
107. Lithuania	-.17038	7.36	.00163	6.13	3,170	52
108. Poland	-.08943	4.97	.00067	3.20	4,922	67
109. Romania	-.11735	5.36	.00121	4.83	3,789	48
110. Slovenia	-.07331	3.13	.00069	2.60	3,030	53
111. Slovakia	-.06724	2.91	.00058	2.16	3600	58
Developing countries						
Without controls	-.05603	9.00	.00049	7.47	16,124	57
With controls	-.05817	7.54	.00054	6.65	15,968	54
112. Albania	-.17222	2.90	.00199	3.04	883	43
113. Kosovo	-.09041	2.17	.00105	2.13	1,021	43
114. Macedonia	-.12428	4.50	.00125	3.95	2,661	50
115. Montenegro	-.12197	3.87	.00121	3.21	1,840	50
116. Serbia	-.17651	5.17	.00169	4.33	1,822	52
117. Turkey	-.09548	5.77	.00115	5.89	6,582	42

Table 4. ISSP 2012 coefficients in a happiness equation. Uses gender, education, marital and labor force status as controls and single country results age<70

	Age	T	Age^2	T	N	Age minimum
All ages						
Without controls	-.0162	12.03	.00012	8.60	60,664	68
With controls	-.0355	21.88	.00032	19.81	60,664	55
Advanced						
Without controls	-.0142	7.64	.00012	6.72	26534	59
With controls	-.0375	16.36	.00033	14.68	26534	57
118. Australia	-.0240	1.51	.0002	1.50	1,297	60
119. Belgium	-.0490	3.20	.0005	3.02	1,794	49
120. Canada	-.0537	2.33	.0004	1.94	735	67
121. Finland	-.0402	2.24	.0003	1.91	1,054	67
122. France	-.0432	2.85	.0003	1.85	1,926	72
123. Germany	-.0430	3.31	.0003	2.61	1,450	72
124. Iceland	-.0298	2.04	.0003	1.78	1,040	50
125. Japan	-.0584	2.59	.0004	1.91	982	73
126. Netherlands	-.0626	3.43	.0005	2.87	1,021	63
127. Norway	-.0495	3.22	.0004	2.79	1,292	62
128. Spain	-.0839	6.58	.0008	5.66	2,161	52
129. Sweden	-.0372	1.83	.0003	1.52	873	62
130. UK	-.0369	1.69	.0003	1.56	748	62
131. USA	-.0411	2.58	.0004	2.49	1,109	51
Eastern Europe						
Without controls	-.0321	1.21	.0002	5.73	10,177	89
With controls	-.0588	14.49	.0008	11.65	10,177	35
132. Bulgaria	-.0737	3.20	.0005	2.03	794	74
133. Croatia	-.0774	3.93	.0006	2.92	915	65
134. Czech Republic	-.0635	3.5	.0005	2.69	1,596	64
135. Hungary	-.0794	3.84	.0007	3.30	890	57
136. Latvia	-.0800	4.29	.0007	3.07	953	57
137. Lithuania	-.1161	6.39	.0011	5.76	1,004	53
138. Poland	-.0733	3.95	.0007	3.54	964	52
139. Slovakia	-.0868	3.89	.0008	3.27	968	54
140. Slovenia	-.0819	3.52	.0007	2.87	832	59
Developing						
Without controls	-.0096	3.99	.00006	2.32	23,953	85
With controls	-.0238	8.53	.00023	8.23	23,953	51
141. Chile	-.0399	2.87	.0004	2.85	1,335	45
142. China	-.0760	8.64	.0008	8.59	5,287	46
143. Israel	-.0678	3.69	.0006	3.00	1,049	54
144. Mexico	-.0225	1.56	.0002	1.33	1,379	49
145. Russia	-.0485	2.93	.0005	2.43	1,249	50
146. South Africa	-.0584	3.46	.0006	3.31	2,316	44
147. South Korea	-.0659	2.92	.0005	2.51	1,135	55
148. Taiwan	-.0468	3.00	.0005	3.03	1,838	43

Table 5. ISSP 2017 coefficients in a life satisfaction equation. Uses gender, education, marital and labor force status as controls. Country equations are all for age<70

	Age	T	Age^2	T	N	Age minimum
All countries						
Without controls	-.01294	7.46	.00012	6.87	43,606	54
With controls	-.03016	14.56	.000316	6.32	43,565	48
Advanced countries						
Without controls	-.01226	5.78	.00011	5.16	25,397	56
With controls	-.03021	11.43	.00028	10.87	25,371	54
149. Australia	-.04215	2.18	.00048	2.30	965	44
150. Austria	-.05726	3.00	.00057	2.63	982	50
151. Czech Republic	-.06298	2.84	.00061	2.45	1197	52
152. Croatia	-.05966	3.00	.00053	2.26	950	56
153. Denmark	-.04000	1.85	.00045	1.85	855	44
154. France	-.05346	2.09	.00058	2.00	1,133	46
155. Germany	-.02691	1.62	.00028	1.54	1,405	48
156. Japan	-.05663	2.55	.00054	2.29	1,232	52
157. Lithuania	-.07204	3.02	.00055	2.06	883	65
158. New Zealand	-.02872	1.64	.00036	1.85	1,130	40
159. Spain	-.04027	2.37	.00032	1.59	1,440	63
160. Sweden	-.04947	2.55	.00055	2.57	897	45
161. Switzerland	-.06241	3.61	.00069	3.55	914	45
162. UK	-.04805	2.71	.00054	2.70	1,246	44
163. USA	-.04234	2.21	.00047	2.21	1,001	45
Developing countries						
Without controls	-.01486	5.01	.00015	4.83	18,209	50
With controls	-.03099	9.10	.00034	9.76	18,194	46
164. China	-.04507	4.20	.00054	4.72	3,602	42
165. Taiwan	-.03097	1.98	.00041	2.38	1,721	38
166. India	-.04818	2.41	.00047	2.00	1,395	51
167. Israel	-.04486	2.13	.00041	1.78	1,015	55
168. Russia	-.04625	2.39	.00041	1.85	1,392	56
169. South Africa	-.08626	7.48	.00103	7.59	2,853	42
170. Surinam	-.05566	2.36	.00065	2.44	1,094	43

Table 6. Life satisfaction using WVS 2-6. Controls are gender, education marital and labor force status

	Age	T	Age^2	T	N	Age minimum
a) Wave 2 Life satisfaction						
Developing						
Without controls	+.0071	1.11	-.00705	0.44	18,082	n/a
With controls	-.0371	4.75	.00046	5.31	18,062	40
Age <70						
171. Argentina	-.1152	3.20	.00148	3.54	921	39
172. Brazil	-.153	3.84	.00222	4.33	1770	34
173. Nigeria	-.2765	4.43	.00327	3.97	979	42
174. Russia	-.0678	2.04	.00089	2.27	1812	38
175. South Africa	-.0752	2.55	.00095	2.74	2602	40
176. Turkey	-.1104	2.50	.00110	2.04	1001	50
Advanced						
Without controls	-.0081	0.94	.00013	1.10	6168	n/a
With controls	-.0492	4.48	.00055	4.83	6163	45
Age <70						
177. Czech Rep.	-.1212	2.90	.00138	2.82	878	44
178. Poland	-.1412	2.92	.00158	2.87	875	45
179. Slovakia	-.1271	2.09	.00172	2.39	446	37
b) Wave 3 Life satisfaction						
Developing						
Without controls	-.0236	6.14	.00016	3.68	48,849	74
With controls	-.0570	12.06	.00058	10.94	48,813	49
Age <70						
180. Albania	-.1169	3.18	.00134	3.19	964	44
181. Azerbaijan	-.1040	3.04	.00114	2.79	1,928	46
182. Argentine	-.1039	2.70	.00113	2.54	990	46
183. Armenia	-.0922	3.03	.00085	2.28	1,920	54
184. Belarus	-.0908	3.07	.00084	2.39	1,902	54
185. Bosnia	-.1149	2.30	.00111	1.94	767	52
186. China	-.0734	1.84	.00082	1.73	1,454	45
187. Dominican R.	-.3589	3.09	.00489	2.81	405	37
188. El Salvador	-.0809	2.31	.00075	1.76	1,183	54
189.Georgia	-.0754	2.79	.00051	1.61	1,887	74
190. Macedonia	-.1041	2.28	.00092	1.67	955	57
191. Mexico	-.1511	4.86	.00187	4.81	1,442	40
192. Moldova	-.1419	3.08	.00153	2.70	904	46
193. Montenegro	-.1938	2.09	.00252	2.35	228	38
194. Nigeria	-.1075	2.66	.00143	2.87	1,943	38
195. Philippines	-.0853	2.20	.00111	2.36	1,168	38
196. Russia	-.2076	6.24	.00224	6.24	1,812	46
197. Serbia	-.0868	2.07	.00092	1.91	11,617	47
198. South Africa	-.1061	3.36	.00138	3.62	2,916	38
199. Turkey	-.1558	4.81	.00187	4.77	1,848	42

200. Ukraine	-.0932	3.47	.00087	2.77	2,438	54
Advanced countries						
Without controls	-.0539	13.00	.00050	11.69	26,041	54
With controls	-.0889	17.86	.00093	17.75	26,035	48
Age <70						
201. Australia	-.0721	3.39	.00083	3.30	1,836	43
202. Bulgaria	-.0996	2.37	.00093	1.86	930	54
203. Croatia	-.0865	2.36	.00075	1.76	1,098	58
204. Czech Rep.	-.0765	2.12	.00086	2.08	1,015	44
205. Estonia	-.1430	3.63	.00151	3.13	968	47
206. Finland	-.1402	5.31	.00168	5.36	911	42
207. Germany	-.0934	3.37	.00108	3.29	1854	43
208. Hungary	-.1548	3.04	.00133	2.25	579	58
209. Japan	-.0645	1.74	.00065	1.59	973	50
210. Latvia	-.1912	5.07	.00120	4.29	1,124	80
211. New Zealand	-.0843	2.26	.00130	3.00	1008	32
212. Norway	-.1115	3.59	.00129	3.59	1,023	43
213. Poland	-.1454	4.00	.00153	3.74	997	48
214. Romania	-.0963	2.50	.00092	2.10	1,162	52
215. Slovakia	-.1746	4.29	.00204	4.31	1,009	43
216. Slovenia	-.1208	3.14	.00122	2.68	914	50
217. Spain	-.0954	2.88	.00091	2.42	1,062	52
218. Sweden	-.1925	3.60	.00140	3.38	910	69
219. Switzerland	-.0828	2.29	.00103	2.48	1,053	40
220. USA	-.0884	3.06	.00106	3.22	1262	42
c) Wave 4 Life satisfaction						
Developing						
Without controls	-.0271	6.87	.00027	5.93	49,166	50
With controls	-.0534	10.76	.00061	11.13	48,004	44
Age <70						
221. Argentina	-.1078	3.20	.00110	2.82	1,169	49
222. Bangladesh	-.1448	3.54	.00193	3.75	1,375	38
223. China	-.1214	2.14	.00147	2.20	934	41
224. Iraq	-.0612	2.09	.00069	1.93	2,199	44
225. Israel	-.0973	2.59	.00077	1.74	1,046	63
226. Jordan	-.0770	1.85	.00102	2.06	1,173	38
227. Mexico	-.0683	2.05	.00079	1.96	1,423	43
228. Peru	-.0673	1.81	.00081	2.78	1,483	42
229. Philippines	-.0971	2.38	.00119	2.46	1,146	41
230. Puerto Rico	-.0777	1.81	.00103	2.09	620	38
231. Singapore	-.0513	1.78	.00072	2.02	1,479	36
232. South Africa	-.1691	6.36	.00206	6.41	2,837	41
233. South Korea	-.0956	1.93	.00125	2.18	1,159	38
234. Tanzania	-.1319	2.42	.00162	2.48	1,067	41

235. Turkey	-.1286	4.64	.00139	4.17	3,005	46
236. Zimbabwe	-.1581	3.31	.00182	3.15	959	43
Advanced countries						
Without controls	-.0376	5.41	.00039	5.40	10,103	48
With controls	-.0808	9.45	.00085	9.49	9,900	48
Age <70						
237. Canada	-.1388	5.64	.00158	5.39	1,682	44
238. Japan	-.1163	3.22	.00134	3.39	1,084	43
239. Macedonia	-.1519	3.17	.00177	3.18	980	43
240. Serbia	-.1388	3.05	.00129	2.52	1070	54
241. Sweden	-.0734	2.12	.00083	2.08	927	44
242. USA	-.1522	5.49	.00193	5.83	1,109	39
c) Wave 5 Life satisfaction						
Developing countries						
Without controls	-.0175	5.53	.00011	3.04	57,707	82
With controls	-.0395	1.01	.00040	9.17	55,014	50
Age <70						
243. Chile	-.1238	3.44	.00123	2.95	907	50
244. China	-.1538	4.43	.00188	4.95	1,727	41
245. Georgia	-.1501	4.46	.00145	3.66	1,297	52
246. Ghana	-.0777	1.86	.00083	1.66	1,498	47
247. Indonesia	-.0512	1.51	.00069	1.71	1,880	37
248. Iran	-.1074	3.65	.00124	3.26	2,587	43
249. Malaysia	-.0938	2.53	.00122	2.49	1,196	38
250. Mali	-.0949	2.38	.00098	2.03	1,169	48
251. Russia	-.1250	4.06	.00109	2.98	1,863	57
252. Serbia	-.1185	3.02	.00097	2.07	1,053	61
253. Vietnam	-.0624	2.28	.00072	2.31	1,377	43
254. South Africa	-.0766	3.10	.00092	3.08	2,804	42
255. Taiwan	-.0580	1.51	.00066	1.53	1,138	44
256. Trinidad	-.1118	3.05	.00126	2.86	916	44
257. Turkey	-.1040	2.95	.00111	2.60	1,310	47
258. Uruguay	-.0795	2.45	.00087	2.31	847	46
Advanced countries						
Without controls	-.0827	6.50	.00051	3.97	25,092	81
With controls	-.0651	14.26	.00062	13.40	24,602	53
259. Australia	-.0904	3.13	.00112	3.42	1,180	41
260. Bulgaria	-.1137	2.50	.00104	2.03	871	55
261. Canada	-.1037	5.01	.00122	4.92	1,812	43
262. Finland	-.0592	1.94	.00067	1.90	876	44
263. France	-.1289	3.18	.00134	2.76	854	48
264. Germany	-.1445	5.20	.00143	4.54	1,701	51
265. Hungary	-.1526	3.80	.00152	3.28	912	50
266. Italy	-.1233	3.52	.00121	3.13	914	51
267. Japan	-.1628	4.21	.00174	4.15	924	47

268. New Zealand	-.0978	2.50	.00125	2.85	744	39
269. Romania	-.1304	3.78	.00127	3.18	1,384	51
270. Slovenia	-.1184	3.12	.00106	2.41	897	56
271. Switzerland	-.1142	3.48	.00122	3.45	1,018	47
272. UK	-.0663	2.29	.00077	2.07	885	43
273. USA	-.1258	4.45	.00138	4.22	1,084	46
d) Wave 6 life satisfaction						
Developing countries						
Without controls	-.0080	8.72	.00004	4.50	69,468	100
With controls	-.0378	11.03	.00038	1.03	69,541	50
274. Algeria	-.2262	5.23	.00275	5.22	1,119	41
275. Armenia	-.1442	3.08	.00127	2.29	935	57
276. Belarus	-.1377	4.18	.00133	3.44	1,394	52
277. Brazil	-.0514	1.76	.00065	1.89	1,382	40
278. China	-.0513	2.03	.00059	2.09	2,142	43
279. Egypt	-.1150	2.68	.00145	2.85	1,452	40
280. Georgia	-.1746	4.77	.00144	3.34	1,070	61
281. Iraq	-.0791	2.12	.00098	2.18	1,176	40
282. Kuwait	-.0859	1.93	.00108	1.98	1,196	40
283. Lebanon	-.0715	1.99	.00067	1.58	1,117	53
284. Libya	-.0734	2.16	.00095	2.33	2,065	39
285. Mexico	-.0592	2.67	.00069	2.55	1,908	43
286. Philippines	-.1024	2.31	.00108	2.00	1,134	47
287. Russia	-.1170	4.41	.00137	3.62	2,152	43
288. South Africa	-.0616	2.59	.00068	2.28	3,428	45
289. Tunisia	-.1188	2.71	.00133	2.67	1,145	45
290. Ukraine	-.0919	2.33	.00080	1.75	1,267	57
291. Uzbekistan	-.1500	4.78	.00159	4.07	1,411	47
292. Zimbabwe	-.0851	2.56	.00104	2.41	1,467	43
Advanced countries						
Without controls	-.0355	7.92	.00032	7.29	19,197	55
With controls	-.0777	14.48	.00078	14.42	19,058	50
293. Australia	-.0990	3.16	.00185	3.47	1,198	27
294. Estonia	-.1566	5.18	.00148	4.31	1,272	53
295. Germany	-.0737	2.94	.00066	2.33	1,709	56
296. Japan	-.1523	5.91	.00161	5.82	2,021	47
297. Netherlands	-.0861	3.75	.00103	4.06	1,535	42
298. New Zealand	-.0929	2.23	.00115	2.46	660	40
299. Poland	-.2224	5.67	.00224	4.91	832	51
300. Romania	-.1395	3.66	.00135	3.11	1,294	52
301. Slovenia	-.0851	1.91	.00078	1.54	890	55
302. Spain	-.1252	3.83	.00128	3.40	1,002	49
303. Sweden	-.1311	4.85	.00161	5.17	997	41
304. USA	-.0740	3.36	.00076	3.06	1,965	49

Table 7. Asiabarometers, 2005-2007

	Age	T	Age^2	T	N	Age minimum
a) 2003 5-step Happiness						
Without controls	-.00385	0.57	.00000	0.01	8,068	n/a
With controls	-.02886	3.56	.00029	2.82	7,989	50
305. South Korea	-.10070	3.42	.00112	3.11	795	45
306. Uzbekistan	-.07822	2.33	.00080	2.82	792	49
b) 2004 5-step Happiness						
Without controls	-.00465	0.82	.00005	0.74	9,644	47
With controls	-.02063	3.13	.00024	2.94	9,640	43
307. Laos	-.05175	2.47	.00069	2.54	798	38
308. Myanmar	-.06889	2.72	.00089	2.72	800	39
309. Singapore	-.04518	1.77	.00049	1.57	793	46
c) 2005 5-step happiness						
Without controls	-.01325	3.06	.00010	1.99	12,097	64
With controls	-.02041	3.85	.00021	3.38	11,953	49
310. India	-.03704	2.28	.0004	2.15	1,221	46
311. Maldives	-.0277	1.63	.00038	1.89	773	36
312. Mongolia	-.03163	1.93	.00046	2.35	796	34
313. Sri Lanka	-.05025	3.00	.00051	2.69	799	49
314. Tajikistan	-.06382	2.50	.00074	2.39	794	43
d) 2006 5-step happiness						
Without controls	-.00934	1.97	.00008	1.39	8,060	58
With controls	-.03064	5.12	.0003	4.3	8,044	51
315. China	-.03414	2.67	.00037	2.55	1,998	46
316. Japan	-.07872	4.99	.0008	4.66	992	49
317. South Korea	-.07771	3.87	.00067	3.1	1,019	58
318. Taiwan	-.06723	3.10	.00078	3.31	1,003	43
e) 2007 5-step happiness						
Without controls	-.00955	2.03	.00007	1.23	7,008	n/a
With controls	-.01284	2.34	.00014	2.13	6,999	64
319. Philippines	-.02286	1.63	.00031	1.92	996	37
320. Thailand	-.03389	2.49	.00035	2.21	1,000	48

Table 8. Life satisfaction using 2017-2018 Latino Barometers

	Age	T	Age^2	T	N	Age minimum
a) 2017						
Without controls	-.01597	8.46	.00013	6.32	20,053	61
With controls	-.01809	8.53	.00017	7.33	20,010	53
Age <70						
321. Bolivia	-.02478	1.97	.00022	1.53	1,140	56
322. Brazil	-.02110	2.15	.00024	2.01	1,116	44
323. Columbia	-.01970	1.70	.00021	1.53	1,143	46
324. Costa Rica	-.02899	2.35	.00041	2.82	931	35
325. Mexico	-.03885	3.34	.00040	2.92	1,097	49
326. Panama	-.03176	2.40	.00034	2.28	924	47
327. Paraguay	-.03891	3.26	.00044	3.17	1,161	44
328. Peru	-.03623	2.61	.00034	2.12	1,102	53
329. Uruguay	-.02791	2.44	.00027	5.28	1,059	52
b) 2018						
Without controls	-.01715	9.11	.00013	6.42	20,052	65
With controls	-.01876	8.78	.000168	7.16	19,991	56
Age <70						
330. Bolivia	-.02193	1.82	.00022	1.51	1,133	50
331. Brazil	-.03451	3.47	.00031	2.59	1,097	56
332. Columbia	-.03239	2.96	.00035	2.67	1,126	46
333. Costa Rica	-.03634	2.83	.00039	2.57	923	47
334. Ecuador	-.02633	2.14	.00027	1.84	1,136	49
335. Honduras	-.03077	2.37	.00026	1.69	945	59
336. Uruguay	-.03675	3.23	.00041	3.09	1,058	45
337. Venezuela	-.02649	1.69	.00028	1.51	1,145	47

Table 9. Satisfaction with financial conditions in the household, WVS Wave 6

1) Wave 6

	Age	T	Age^2	T	N	Age minimum
a) Developed						
Without controls	-.0487	9.11	.00056	10.61	19,100	43
With controls	-.0947	14.91	.00108	16.99	18,976	44
Age <70 with controls						
338. Australia	-.1755	4.71	.00211	5.20	1,196	42
339. Cyprus	-.1524	3.20	.00172	3.13	913	44
340. Estonia	-.1319	3.92	.00132	3.43	1,276	50
341. Germany*	-.0473	2.42	.00062	3.11	1,702	38
342. Japan	-.1498	4.85	.00171	5.17	1,964	44
343. Netherlands	-.1025	3.48	.00134	4.12	1,534	38
344. New Zealand	-.1408	2.92	.00169	3.12	656	42
345. Poland	-.2514	5.40	.00261	4.92	831	48
346. Romania	-.2027	4.79	.00199	4.11	1,297	51
347. Slovenia	-.1825	3.47	.00204	3.41	892	45
348. Spain	-.0854	2.33	.00113	2.66	1,012	38
349. Sweden	-.1335	3.59	.00183	4.30	993	36
350. USA	-.1078	3.88	.00127	4.06	1,966	42
* all ages						
b) Developing						
Without controls	-.0342	11.31	.00030	9.00	69,644	57
With controls	-.0428	11.78	.00047	11.69	69,546	46
Age <70 with controls						
351. Algeria	-.1350	3.08	.00153	2.89	1,131	44
352. Belarus	-.0947	2.82	.00088	2.22	1,395	54
353. Brazil	-.1106	3.07	.00129	3.03	1,384	43
354. Colombia	-.0541	1.68	.00064	1.65	1,441	42
355. Ecuador	-.1008	3.46	.00109	3.18	1,146	46
356. Egypt	-.1269	3.10	.00165	3.39	1,452	38
357. Georgia	-.1766	5.13	.00168	4.15	1,070	53
358. Ghana	-.0864	2.40	.00096	2.16	1,533	45
359. Jordan	-.0964	2.54	.00101	2.30	1,144	48
360. Kyrgyzstan	-.0624	1.64	.00073	1.56	1,445	43
361. Libya	-.0948	2.61	.00122	2.81	2,074	39
362. Mexico	-.1026	3.39	.00118	3.18	1,908	43
363. Morocco	-.0980	2.28	.00138	2.82	1,181	36
364. Peru	-.0808	2.29	.00079	1.89	1,146	51
365. Philippines	-.1376	2.91	.00140	2.58	1,134	49
366. Russia	-.1119	3.78	.00131	3.72	2,161	43
367. Singapore	-.0551	2.21	.00077	2.69	1,809	36
368. South Africa	-.0448	1.80	.00051	1.63	3,416	44
369. South Korea	-.0896	2.22	.00094	2.13	1,129	48
370. Trinidad	-.0924	2.08	.00112	2.12	890	41
371. Uruguay	-.0779	1.97	.00077	1.64	876	51
372. Yemen	-.0859	1.68	.00114	1.79	969	38
373. Zimbabwe	-.0850	2.48	.00116	2.75	1,467	37

2) WVS Wave 5

	Age	T	Age^2	T	N	Age minimum
a) Developed						
Without controls	-.0328	7.33	.00040	8.81	25,026	41
With controls	-.0752	13.90	.00092	16.65	24,591	41
Age <70 with controls						
374. Australia	-.0583	1.53	.00097	2.28	1,170	30
375. Bulgaria	-.1360	3.14	.00131	2.70	894	52
376. Canada	-.2150	7.96	.00260	8.17	1,807	41
377. Finland	-.1729	4.50	.00228	5.14	876	38
378. Germany	-.1003	3.15	.00112	3.09	1,694	45
379. Hungary	-.1076	2.48	.00116	2.32	905	46
380. Italy	-.1186	3.08	.00133	3.13	912	45
381. Japan	-.1720	3.66	.00208	4.07	861	41
382. New Zealand	-.1084	2.28	.00164	3.07	748	33
383. Poland	-.1687	3.86	.00183	3.60	877	46
384. Romania	-.1391	4.00	.00146	3.66	1,468	48
385. Slovenia	-.1565	3.65	.00162	3.24	897	48
386. Sweden	-.20321	4.65	.00274	5.58	873	37
387. Switzerland	-.0771	1.86	.00104	2.32	1,024	37
388. UK	-.1758	4.26	.00241	4.94	879	36
389. USA	-.1186	3.21	.00135	3.24	1,077	44
b) Developing						
Without controls	-.0303	8.83	.00023	5.92	54,611	66
With controls	-.0461	10.75	.00049	10.48	51,915	47
Age <70 with controls						
390. Brazil	-.0773	2.19	.00079	1.88	1,393	49
391. Chile	-.1374	3.53	.00151	3.34	907	45
392. China	-.1378	3.66	.00172	4.18	1,732	40
393. Egypt	-.0540	1.94	.00062	1.90	2,905	44
394. Georgia	-.1264	4.01	.00110	2.99	1,307	57
395. Indonesia	-.1030	3.03	.00144	3.51	1,867	36
396. Iran	-.1584	5.36	.00175	4.61	2,555	45
397. Iraq	-.0511	1.94	.00070	2.17	2,538	36
398. Mali	-.0674	1.66	.00081	1.64	1,184	42
399. Malaysia	-.0556	1.55	.00097	2.06	1,195	29
400. Taiwan	-.0646	1.55	.00092	1.95	1,137	35
401. Thailand	-.0551	1.71	.00059	1.63	1,352	47
402. Trinidad	-.1504	3.45	.00176	3.38	916	43
403. Turkey	-.1007	3.12	.00122	3.09	1,306	41
404. Uruguay	-.0815	2.07	.00078	1.70	849	52
405. Zambia	-.0798	1.94	.00093	1.73	1,421	43

Table 11. Various Broad Satisfaction Equations

a) Eurobarometer 90.3, November 2018

	Age	t	Age^2	t	N	Age minimum
1. Life satisfaction	-.0324	13.74	.00029	11.1	27,122	55
2. Situation in the country	-.0222	8.77	.00021	7.6	26,282	52
3. Situation with the national economy	-.0191	7.51	.00020	7.1	26,063	47
4. Own financial situation	-.0322	13.44	.00033	12.4	26,187	48
5. Employment situation	-.0183	7.05	.00019	6.4	25,953	49
6. Public services	-.0172	6.41	.00011	5.3	25,644	54

Q1. On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the life you lead? Very satisfied=4; Fairly satisfied=3; Not very satisfied=2; Not at all satisfied=1
How would you judge the situation in each of the following? Very good=4; Rather good=3; Rather bad=2 and Very bad=1
Q2. The situation in our country?
Q3. The situation of the national economy?
Q4. The financial situation of your household?
Q5. The employment situation in the country?
Q6. The presence of public services in our country?

b) ESS Sweep 9 – 2018

	Age	T	Age^2	T	N	Age minimum
7. Happiness	-.0524	14.15	.000433	11.99	35,300	60
8. Life	-.0649	15.79	.000577	14.39	35,255	56
9. Present state of the economy	-.0436	9.99	.000428	1.03	34,534	51
10. National government	-.0621	12.29	.000618	12.54	34,187	50
11. Way democracy works in country	-.0463	9.42	.000458	9.52	34,144	51
12. State of education	-.0401	8.79	.000361	8.09	34,112	56
13. State of health services	-.0603	12.89	.000584	12.80	35,188	52

Q7. Taking all things together, how happy would you say you are? Extremely unhappy=1 to extremely happy=10
Q8. All things considered, how satisfied are you with your life as a whole nowadays? Please answer using this card, where 0 means extremely11 dissatisfied and 10 means extremely satisfied.
Q9. On the whole how satisfied are you with the present state of the economy in [country]
Q10. Now thinking about the [country] government, how satisfied are you with the way it is doing its job?
Q11. Now thinking about the way democracy is working in our country.
Q12. Please say what you think overall about the state of education in [country] nowadays?

Q13. Please say what you think overall about the state of health services in [country] nowadays?

c) EQLS 2003-2016

	Age	T	Age^2	T	N	Minimum
14. Financial situation next 12 mths (3-4)	-.02046	25.50	.00016	20.26	79,116	64
10-step Satisfaction with:						
15. Education (1-4)	-.00953	4.22	.00016	7.22	138,202	30
16. Job (1-4)	-.02961	6.08	.00043	7.65	65,540	34
17. Family life (1-4)	-.04679	22.50	.00044	21.03	138,493	53
18. Local area (4)	-.00919	2.22	.00015	3.57	36,542	31
19. Way democracy works (4)	-.03987	8.37	.00037	7.93	35,535	54
20. State of the economy (4)	-.04291	9.88	.00041	9.60	35,780	52
21. Living standards (1-4)	-.05273	24.64	.00058	26.96	139,551	45

Q14. Financial situation since 12 months ago – worse=1; same=2; better=3.

Q15. Satisfaction with education. 1=very dissatisfied…10=very satisfied
Q16. Satisfaction with job. 1=very dissatisfied…10=very satisfied
Q17. Satisfaction with your family life. 1=very dissatisfied…10=very satisfied
Q18. Satisfaction with your local area. 1=very dissatisfied…10=very satisfied
Q19. Satisfaction with the way democracy works. 1=very dissatisfied…10=very satisfied
Q20. Satisfaction with the state of the economy. 1=very dissatisfied…10=very satisfied
Q21. Satisfaction with your standard of living 1=very dissatisfied…10=very satisfied

Table 12. Satisfaction with living conditions, Afrobarometers controls education; labor force status and race. Without controls includes country dummies.

	Age	T	Age^2	T	N	Age minimum
a) 2019						
Without controls	-.0247	13.11	.00021	1.17	45,642	n/a
With controls	-.0207	11.26	.00019	8.53	45,579	55
406. Botswana	-.0740	5.13	.00089	5.19	1,115	42
407. Burkina Faso	.0486	2.64	-.00062	2.74	1,155	39
408. Cameroon	-.0409	3.09	.00040	2.72	1,198	51
409. Cote d'Ivoire	-.0506	2.7	.00057	2.42	1,177	44
410. eSwatini	-.0567	3.39	.00057	2.86	1,135	50
411. Kenya	-.0654	4.28	.00064	3.48	1527	51
412. Lesotho	-.0368	2.02	.00033	1.55	1,065	56
413. Liberia	-.0669	2.99	.00070	2.50	1,174	48
414. Malawi	-.0343	2.02	.00033	1.57	1,146	52
415. Mozambique	.0271	2.01	-.00030	1.73	2,285	45
416. Namibia	-.0502	2.62	.00058	2.47	1,167	43
417. Niger	-.0473	2.88	.00050	2.54	1,140	47
418. Swaziland	-.0497	3.86	.00055	3.47	1,163	45
419. South Africa	-.0538	3.14	.00059	2.90	1,766	46
420. Tanzania	-.0192	2.26	.00021	1.67	2,308	46
421. Togo	-.0594	3.36	.00056	2.55	1,162	53
422. Tunisia	-.0679	3.94	.00065	3.30	1,144	52
b) 2016						
Without controls	-.0256	13.58	.00019	1.38	53,306	n/a
With controls	-.0218	12.43	.00021	1.65	53,306	53
423. Algeria	-.0284	2.06	.00037	2.50	1,191	38
424. Benin	-.0494	3.64	.00048	3.17	1,198	51
425. Botswana	-.0155	1.51	.00021	2.06	1,197	37
426. Burundi	-.0463	3.61	.00053	3.7	1,198	44
427. Cape Verde	-.0263	3.00	.00030	3.39	1,183	44
428. Cote d'Ivoire	-.0350	2.32	.00040	2.3	1,199	44
429. Gabon	-.0582	3.83	.00049	2.83	1,198	59
430. Ghana	-.0359	4.06	.00030	3.63	2,334	60
431. Kenya	-.0263	3.15	.00024	2.52	2,393	55
432. Lesotho	-.0363	3.12	.00028	2.41	1,192	65
433. Madagascar	-.0157	1.59	.00018	1.64	1,200	44
434. Malawi	-.0498	4.92	.00051	4.43	2,373	49
435. Mauritius	-.0203	1.66	.00028	2.12	1,200	36
436. Namibia	-.0430	3.59	.00048	3.78	1,199	45
437. Nigeria	-.0309	2.85	.00037	2.79	2,370	42
438. São Tomé	-.0365	4.40	.00032	3.43	1,171	57
439. Senegal	-.0337	2.64	.00034	2.43	1,191	50
440. South Africa	-.0309	3.09	.00029	2.64	2,380	53
441. Swaziland	-.0331	2.90	.00025	2.04	1,194	66
442. Togo	-.0498	4.03	.00050	3.64	1,191	50
443. Uganda	-.0244	2.92	.00020	2.19	2,375	61
444. Zimbabwe	-.0245	3.28	.00020	2.72	2,387	61

Chart 1a. BRFSS Life Satisfaction, 2005-2011

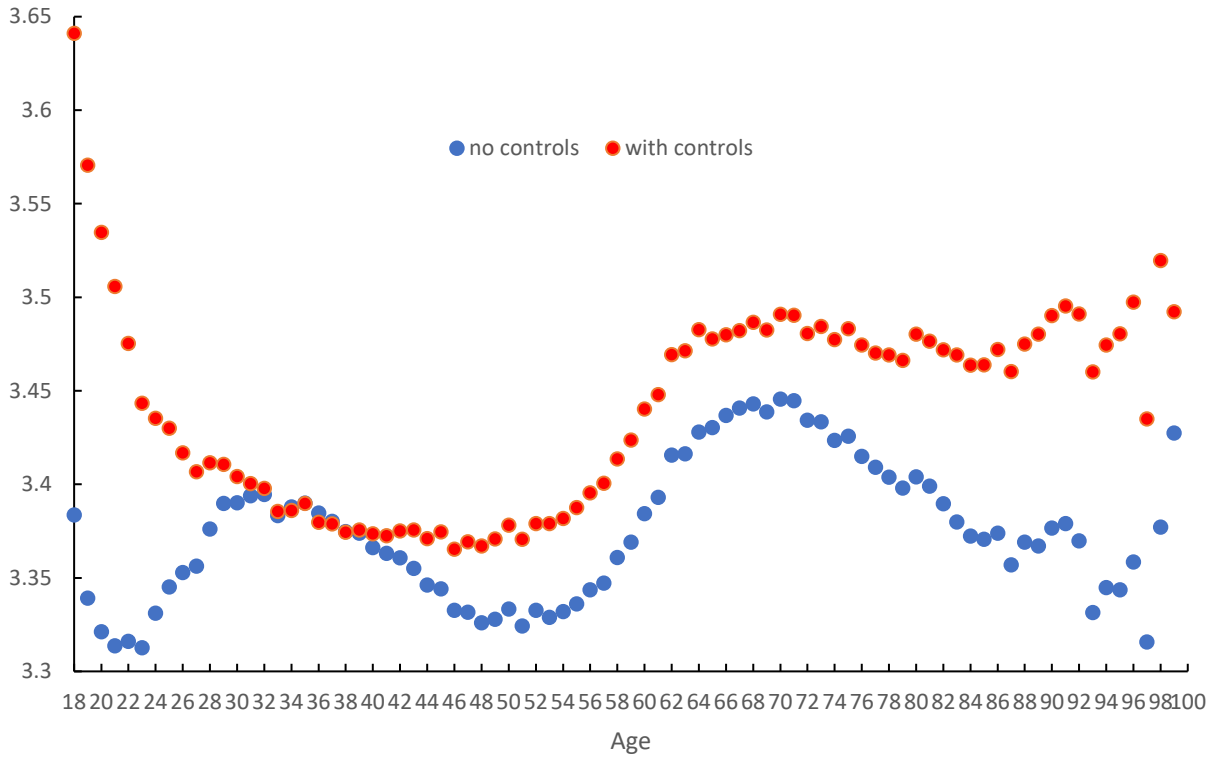
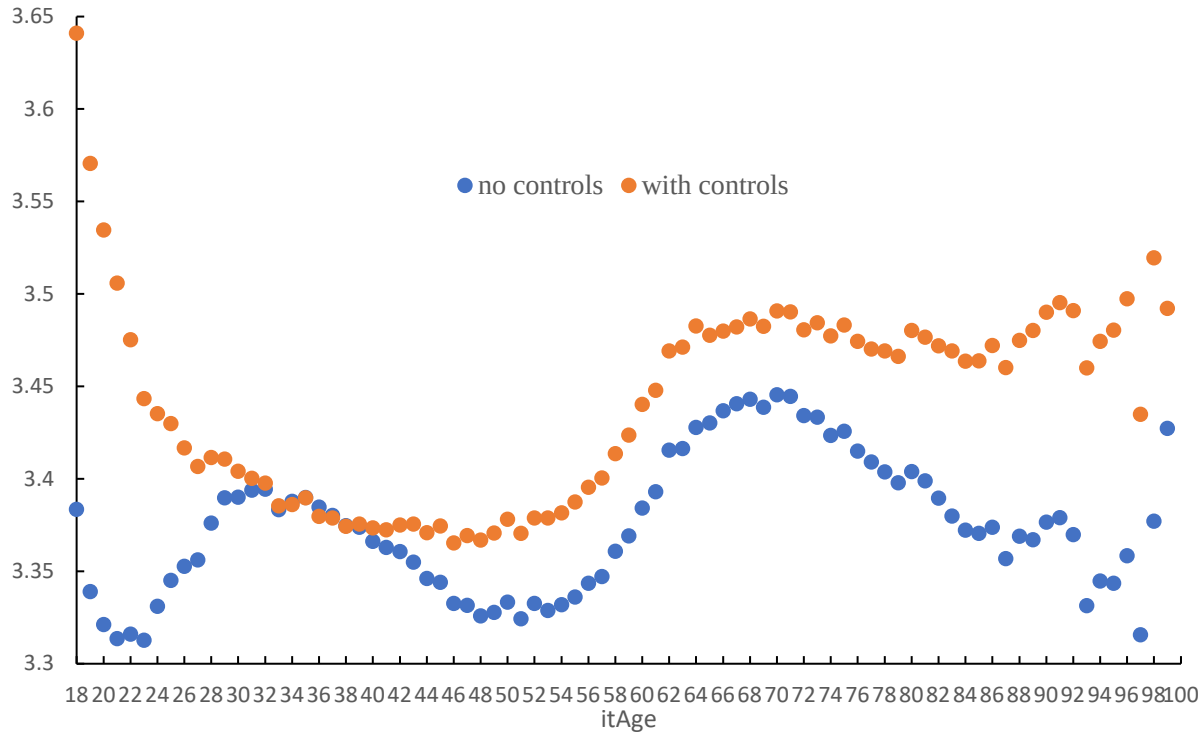


Chart 1b. GSS Happiness, 1972-2018



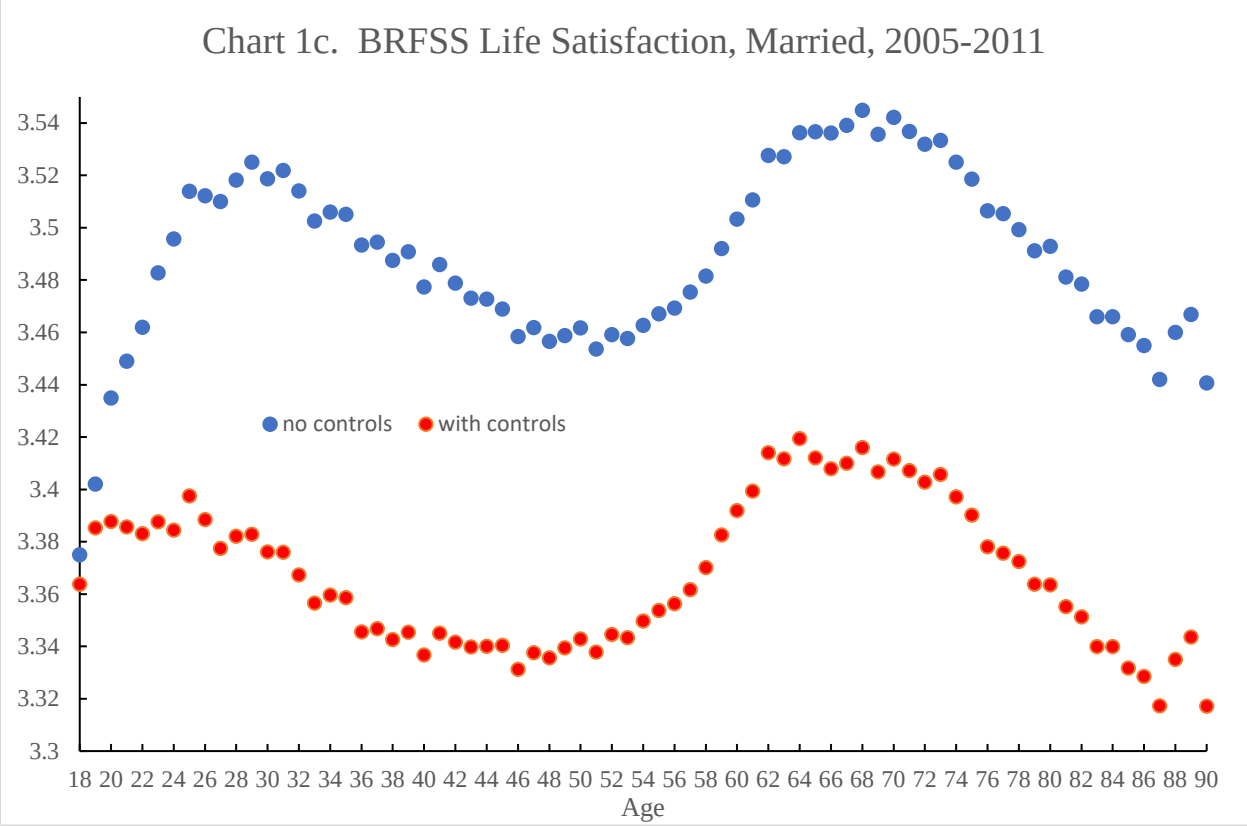


Chart 1c. BRFSS Life Satisfaction, Married, 2005-2011
3.54
3.52
3.5
3.48
3.46
3.44
3.42
3.4
3.38
3.36
3.34
3.32
3.3
no controls
with controls
18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90
Age

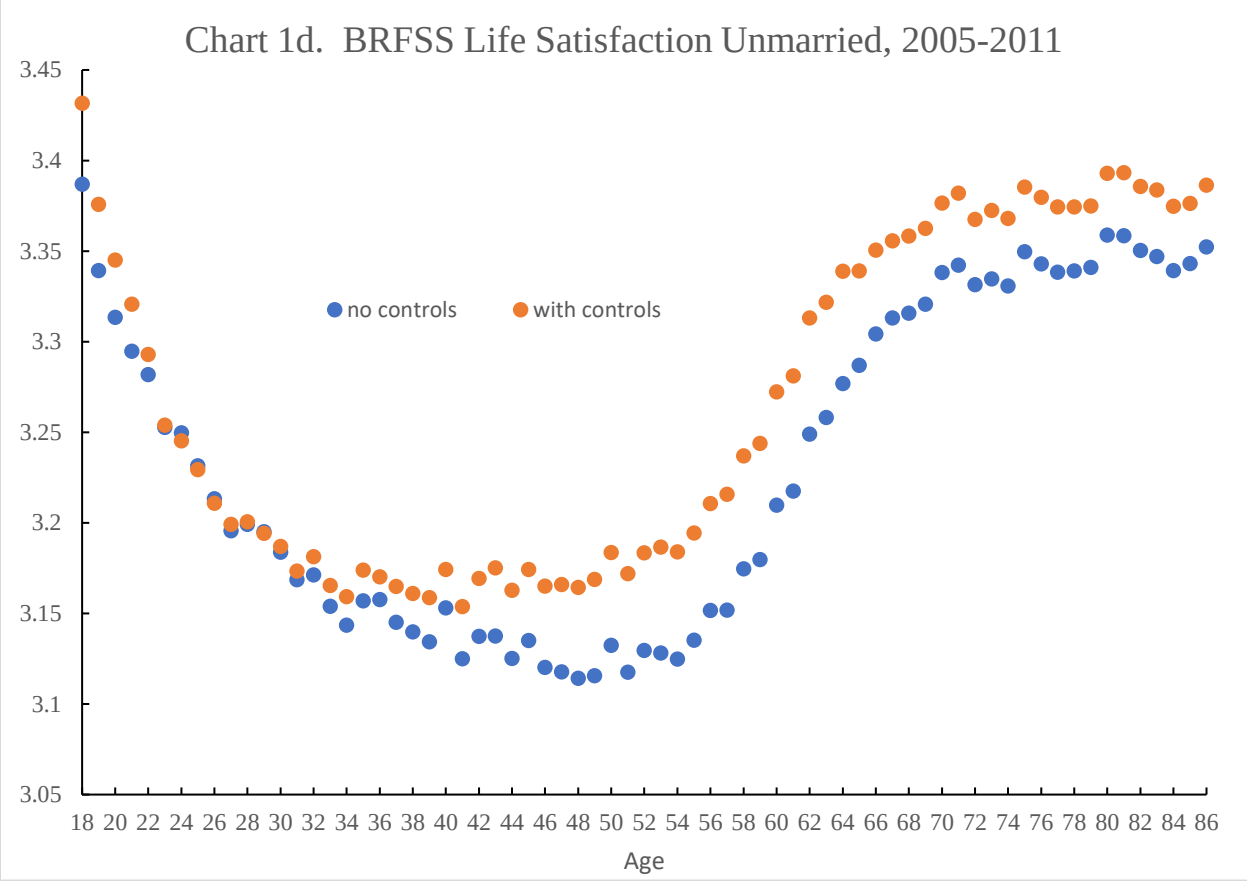


Chart 1d. BRFSS Life Satisfaction Unmarried, 2005-2011
3.45
3.4
3.35
3.3
3.25
3.2
3.15
3.1
3.05
no controls
with controls
18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86
Age

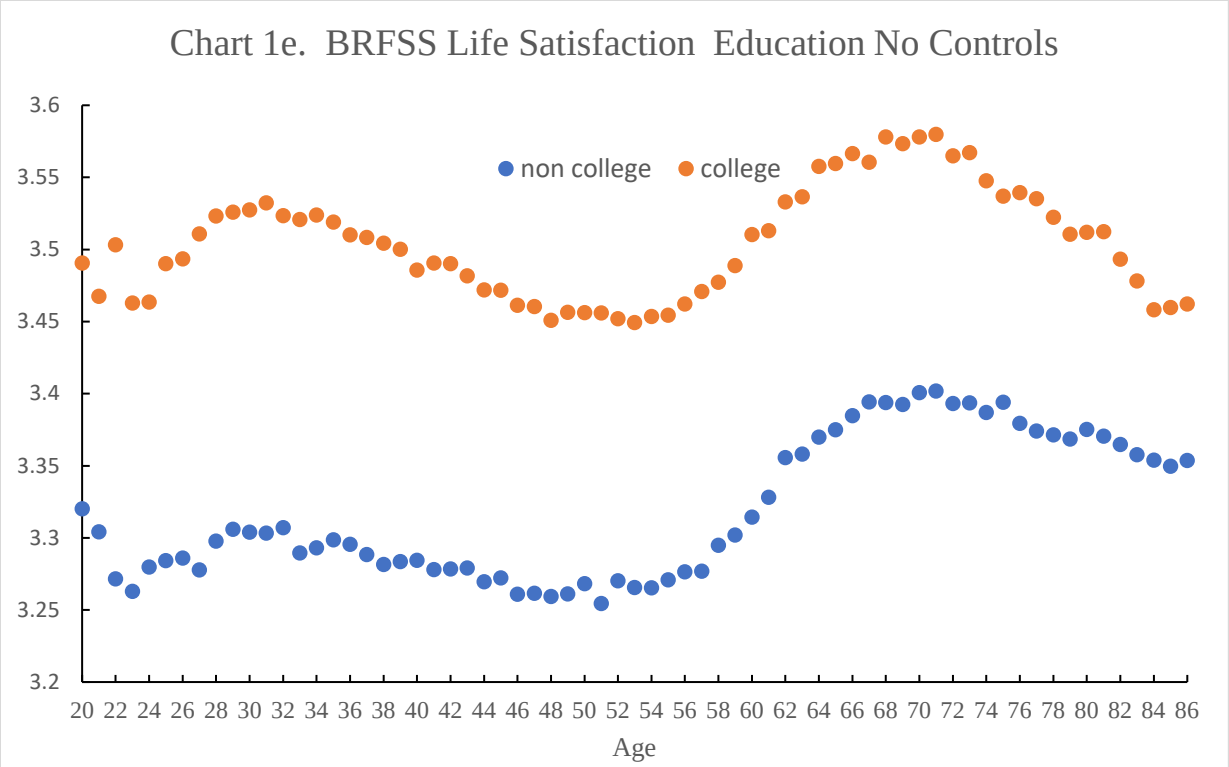


Chart 1e. BRFSS Life Satisfaction Education No Controls
3.6
3.55
3.5
3.45
3.4
3.35
3.3
3.25
3.2
non college
college
20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86
Age

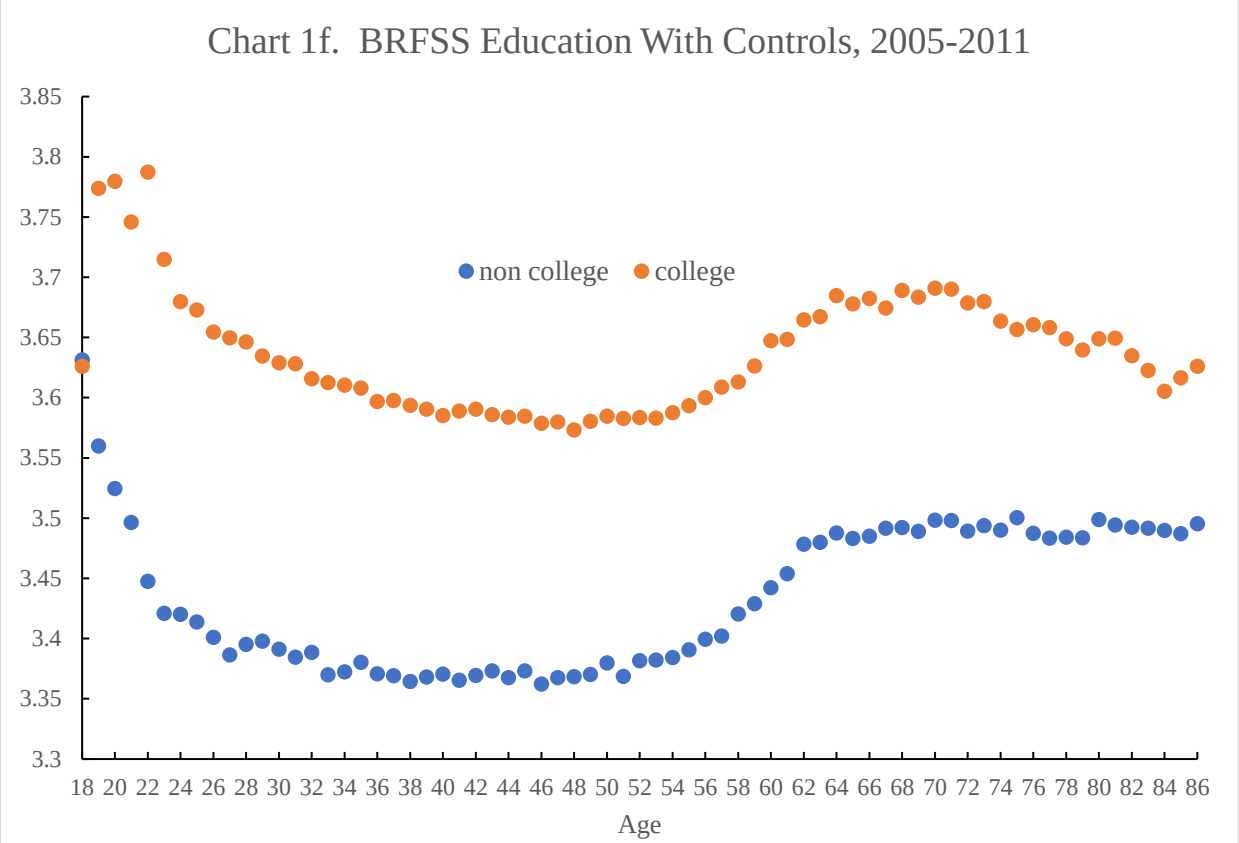


Chart 1f. BRFSS Education With Controls, 2005-2011
3.85
3.8
3.75
3.7
3.65
3.6
3.55
3.5
3.45
3.4
3.35
3.3
non college
college
18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86
Age

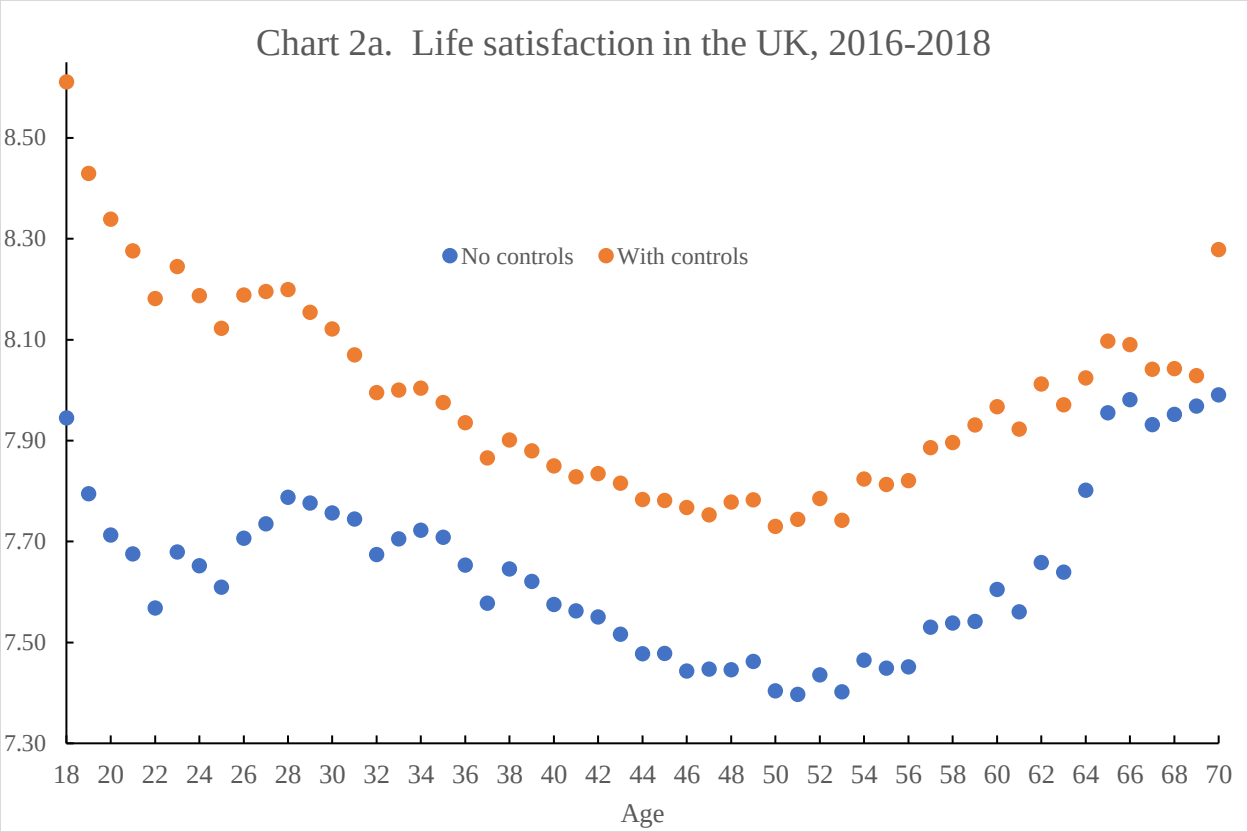


Chart 2a. Life satisfaction in the UK, 2016-2018
8.50
8.30
8.10
7.90
7.70
7.50
7.30
No controls
With controls
18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Age

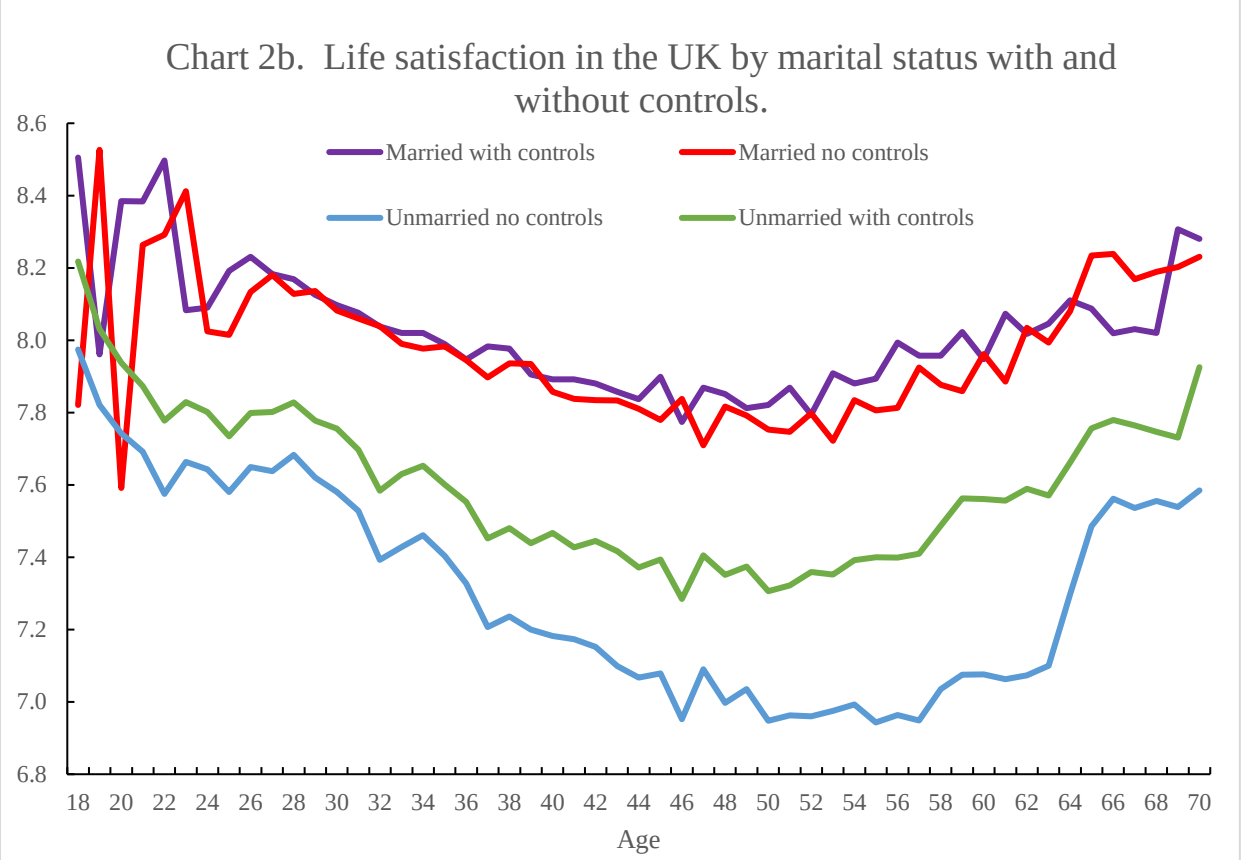


Chart 2b. Life satisfaction in the UK by marital status with and without controls.
8.6
8.4
8.2
8.0
7.8
7.6
7.4
7.2
7.0
6.8
Married with controls
Married no controls
Unmarried no controls
Unmarried with controls
18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Age

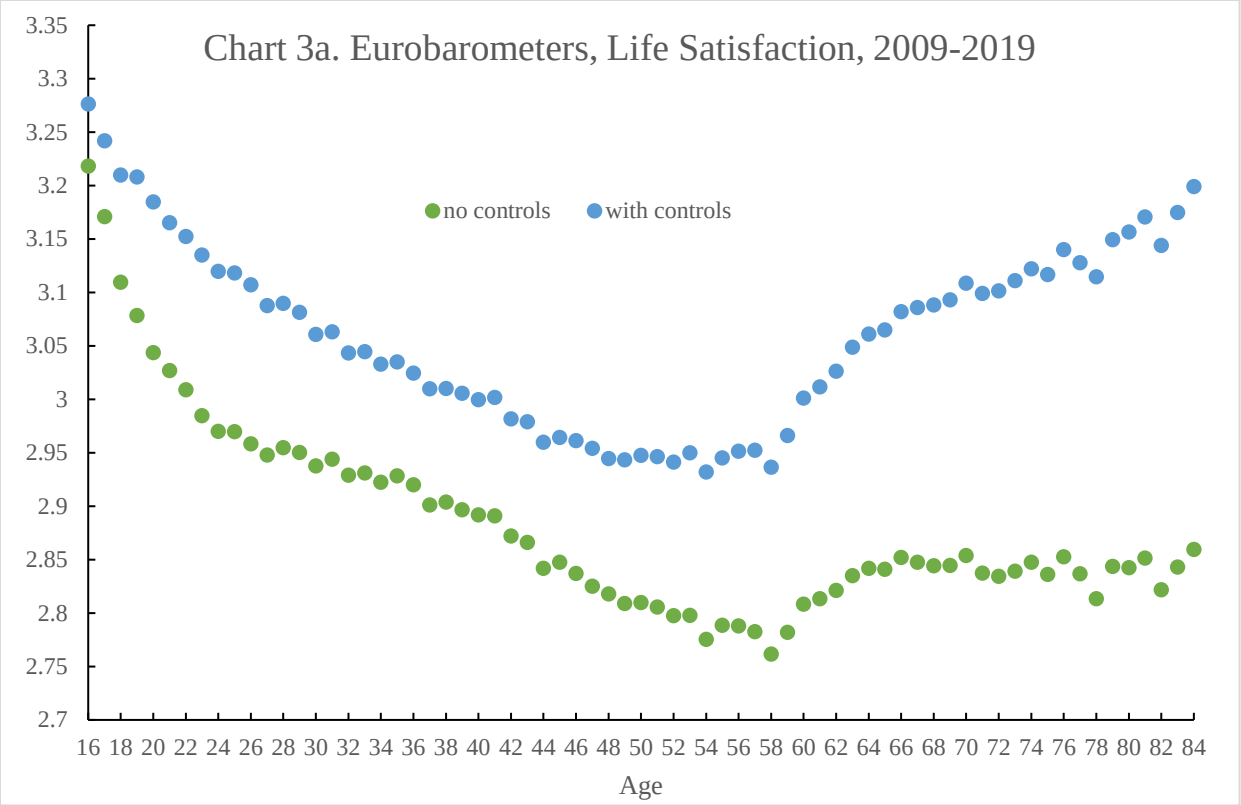


Chart 3a. Eurobarometers, Life Satisfaction, 2009-2019
no controls
with controls
3.35
3.3
3.25
3.2
3.15
3.1
3.05
3
2.95
2.9
2.85
2.8
2.75
2.7
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84
Age

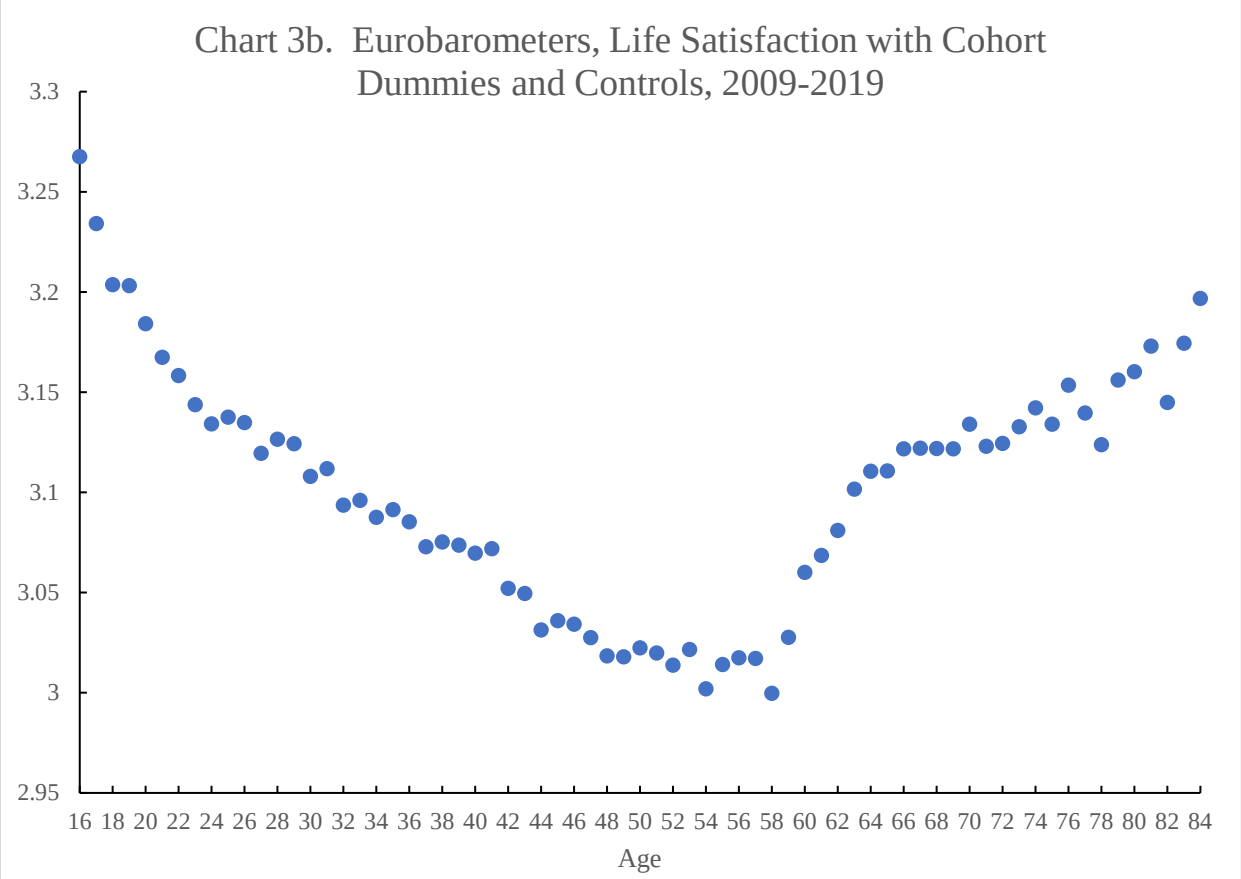


Chart 3b. Eurobarometers, Life Satisfaction with Cohort Dummies and Controls, 2009-2019
3.3
3.25
3.2
3.15
3.1
3.05
3
2.95
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84
Age

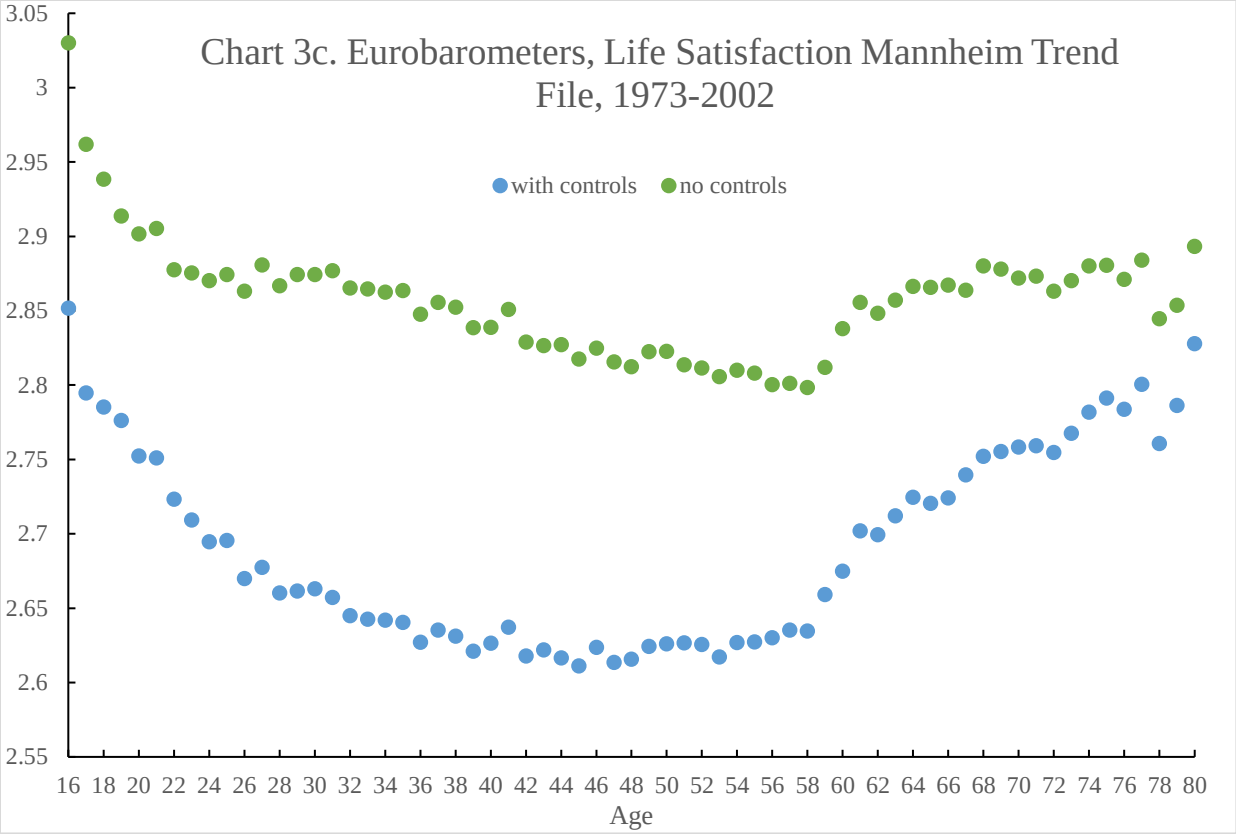


Chart 3c. Eurobarometers, Life Satisfaction Mannheim Trend File, 1973-2002
with controls
no controls
3.05
3
2.95
2.9
2.85
2.8
2.75
2.7
2.65
2.6
2.55
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80
Age

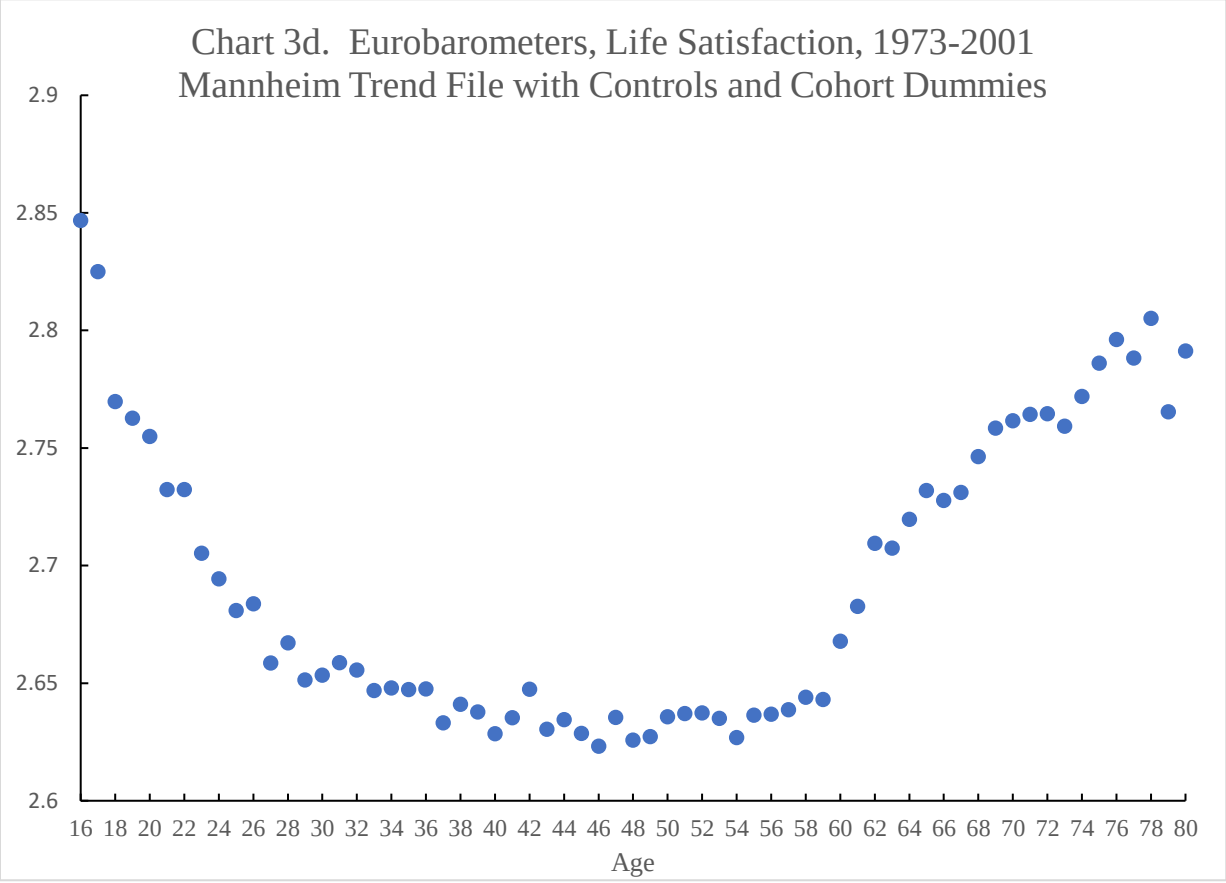


Chart 3d. Eurobarometers, Life Satisfaction, 1973-2001 Mannheim Trend File with Controls and Cohort Dummies
2.9
2.85
2.8
2.75
2.7
2.65
2.6
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80
Age

Chart 3e. Eurobarometers, Life Satisfaction, 1973-2016

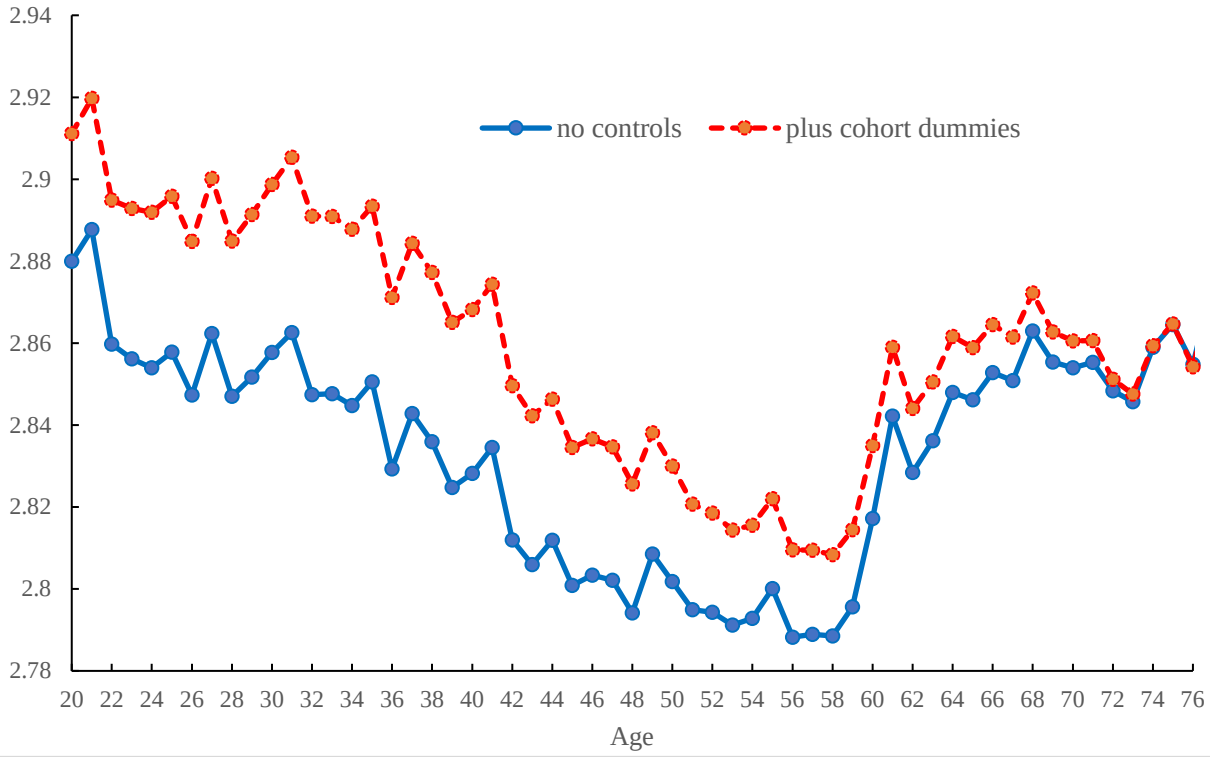
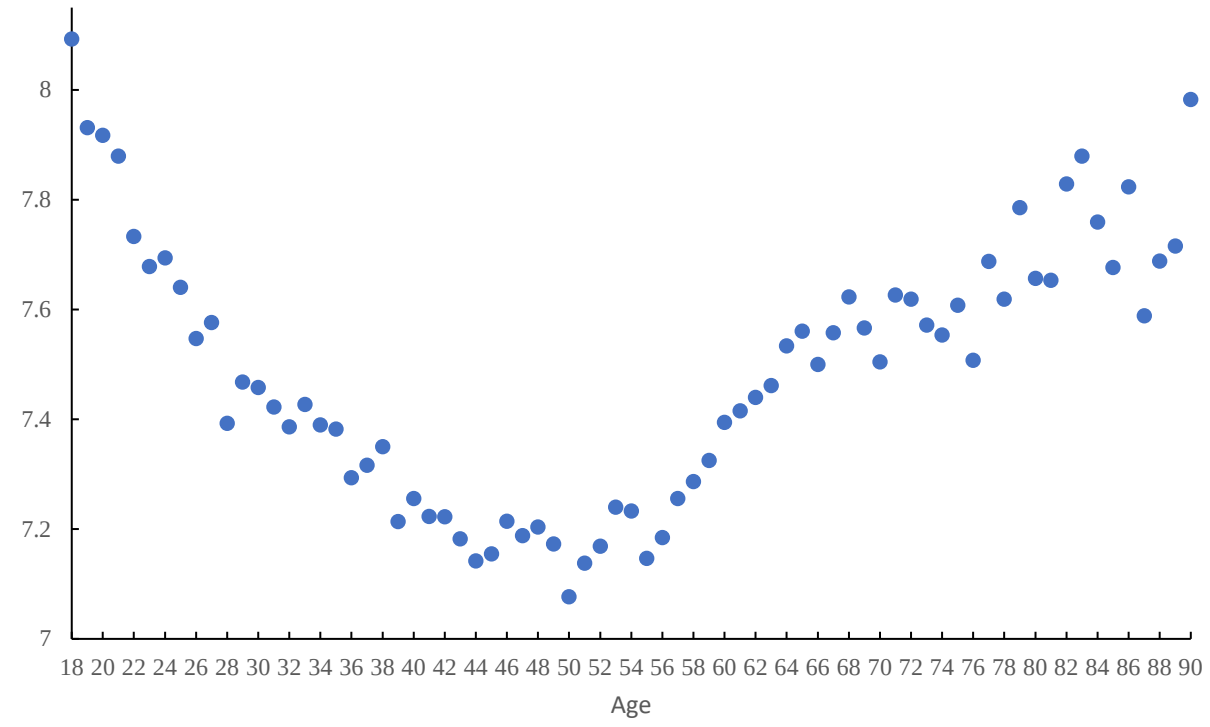


Chart 4. EQLS Life Satisfaction With Controls, 2004-2016



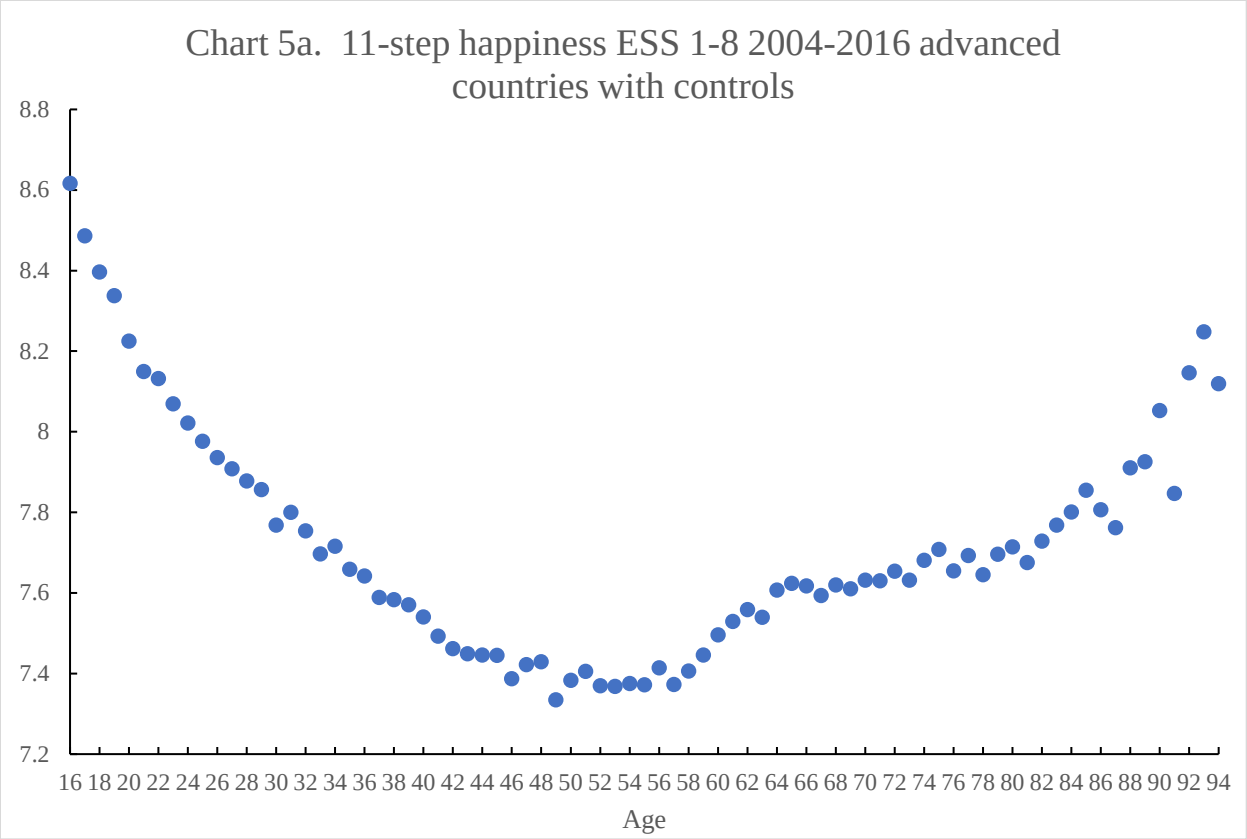


Chart 5a. 11-step happiness ESS 1-8 2004-2016 advanced countries with controls
8.8
8.6
8.4
8.2
8
7.8
7.6
7.4
7.2
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94
Age

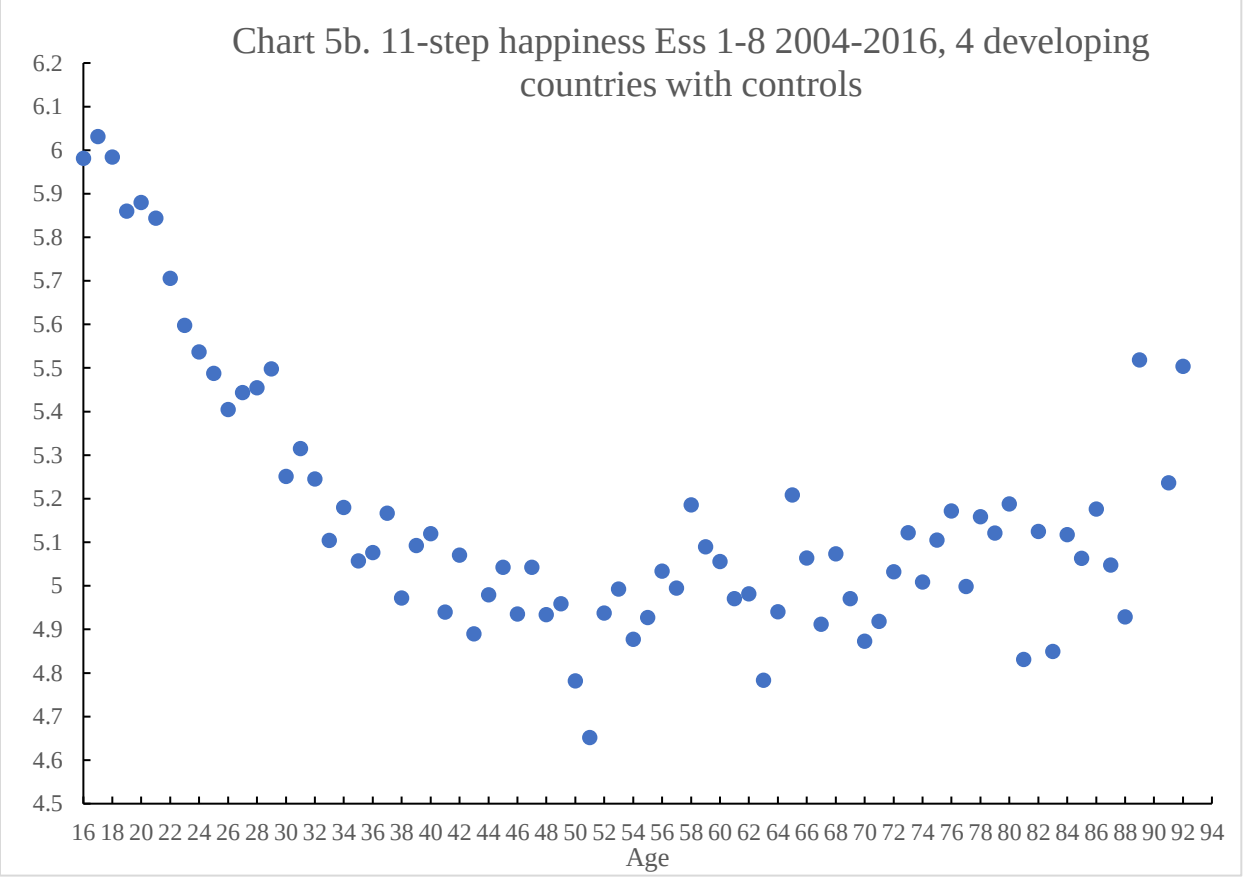


Chart 5b. 11-step happiness Ess 1-8 2004-2016, 4 developing countries with controls
6.2
6.1
6
5.9
5.8
5.7
5.6
5.5
5.4
5.3
5.2
5.1
5
4.9
4.8
4.7
4.6
4.5
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94
Age

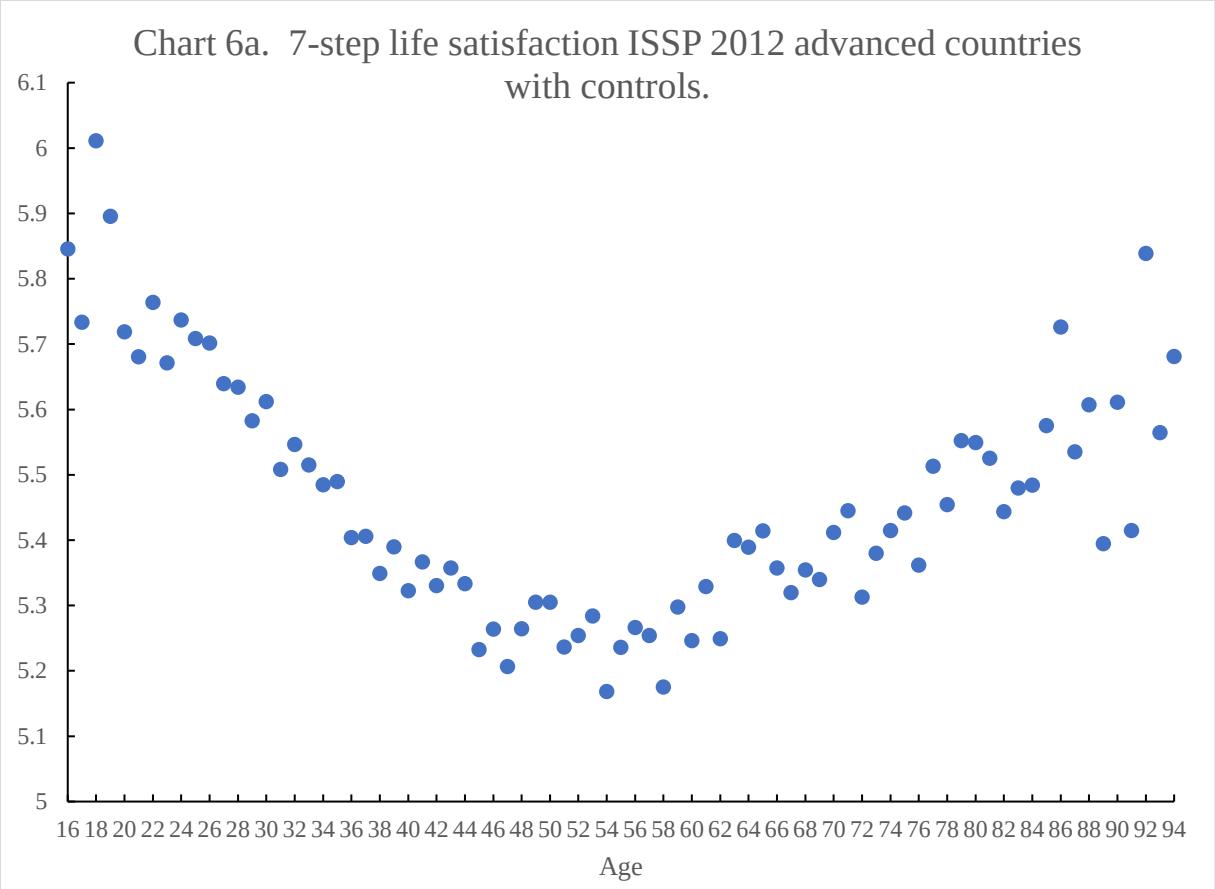
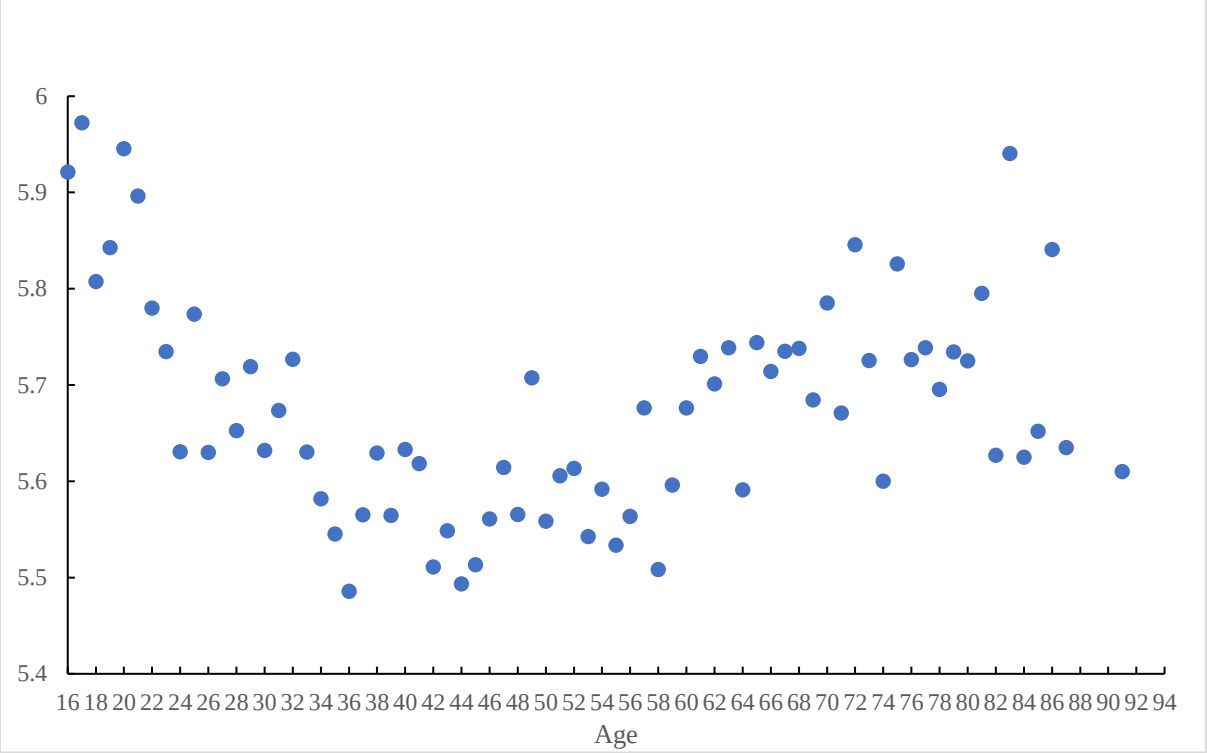


Chart 6a. 7-step life satisfaction ISSP 2012 advanced countries with controls.
6.1
6
5.9
5.8
5.7
5.6
5.5
5.4
5.3
5.2
5.1
5
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94
Age


6
5.9
5.8
5.7
5.6
5.5
5.4
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94
Age

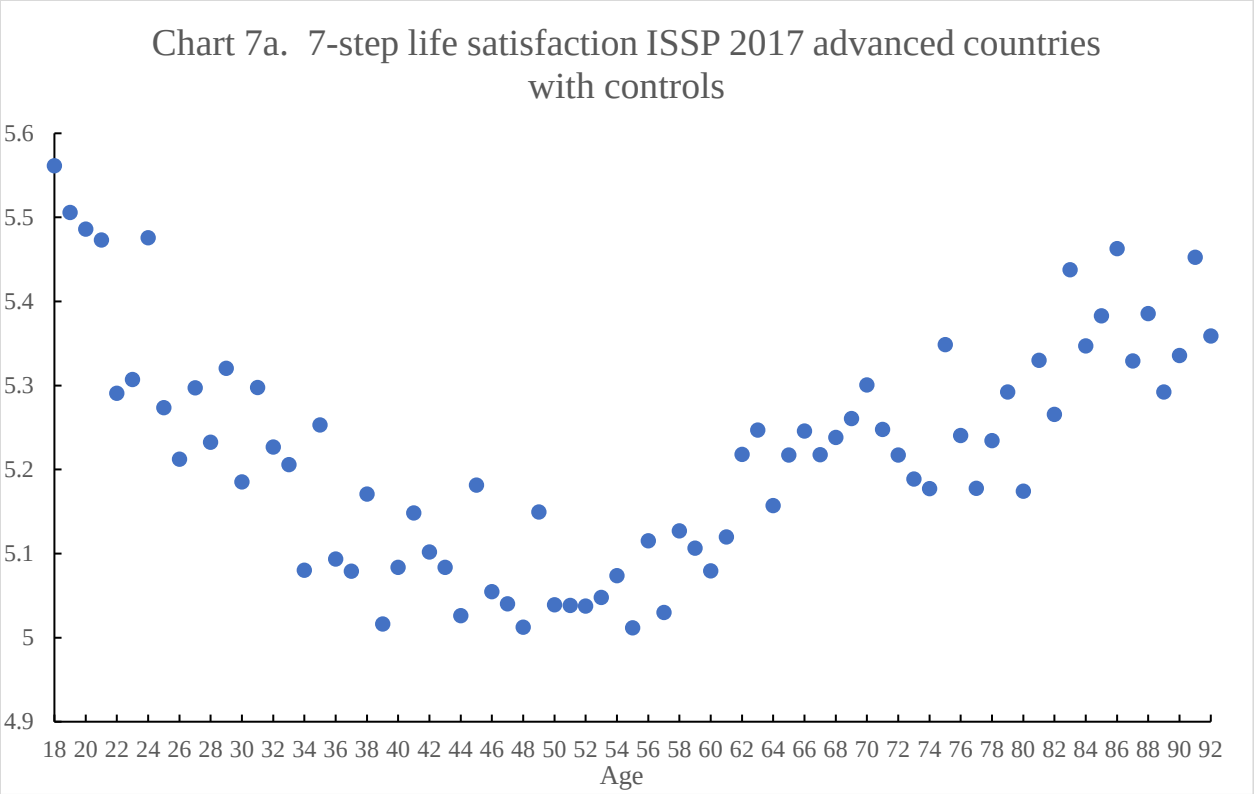


Chart 7a. 7-step life satisfaction ISSP 2017 advanced countries with controls
5.6
5.5
5.4
5.3
5.2
5.1
5
4.9
18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92
Age

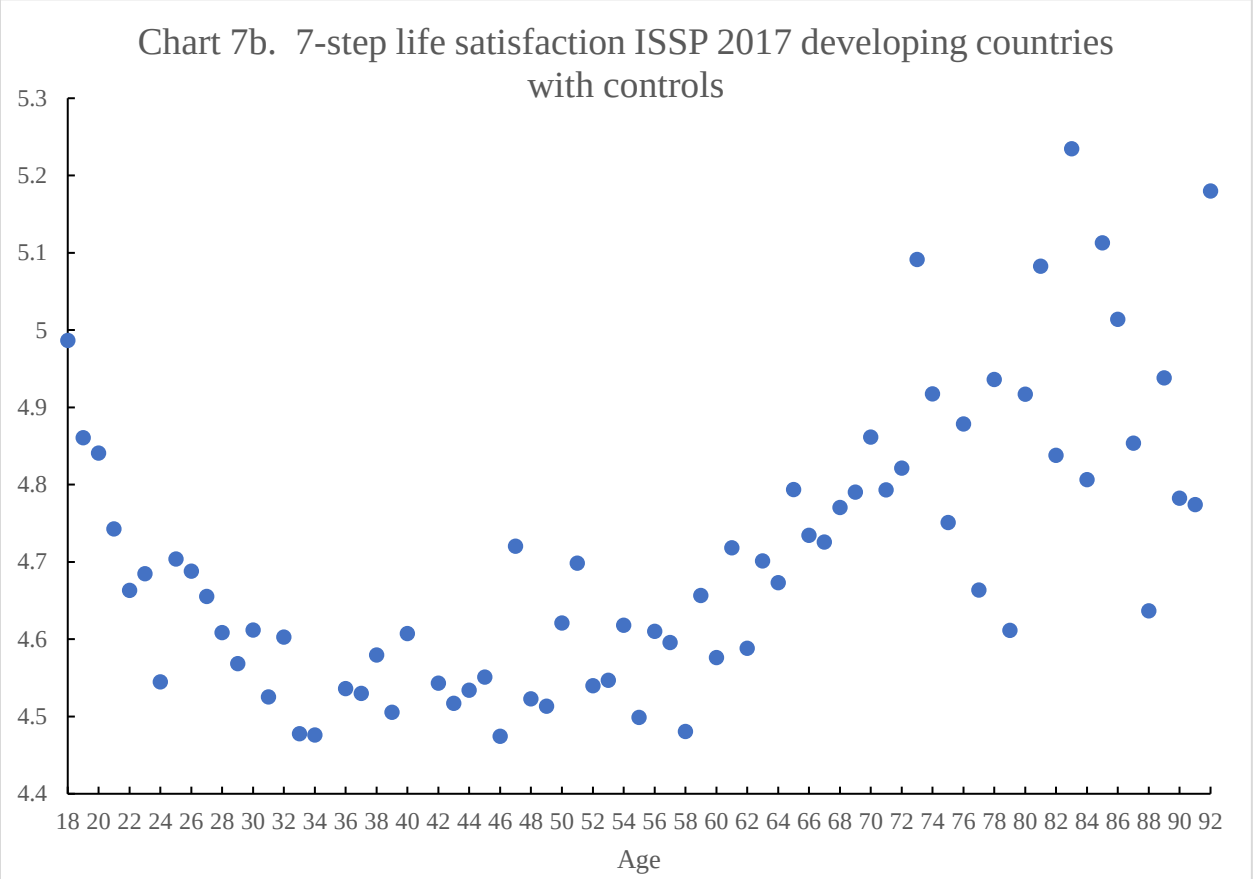


Chart 7b. 7-step life satisfaction ISSP 2017 developing countries with controls
5.3
5.2
5.1
5
4.9
4.8
4.7
4.6
4.5
4.4
18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92
Age

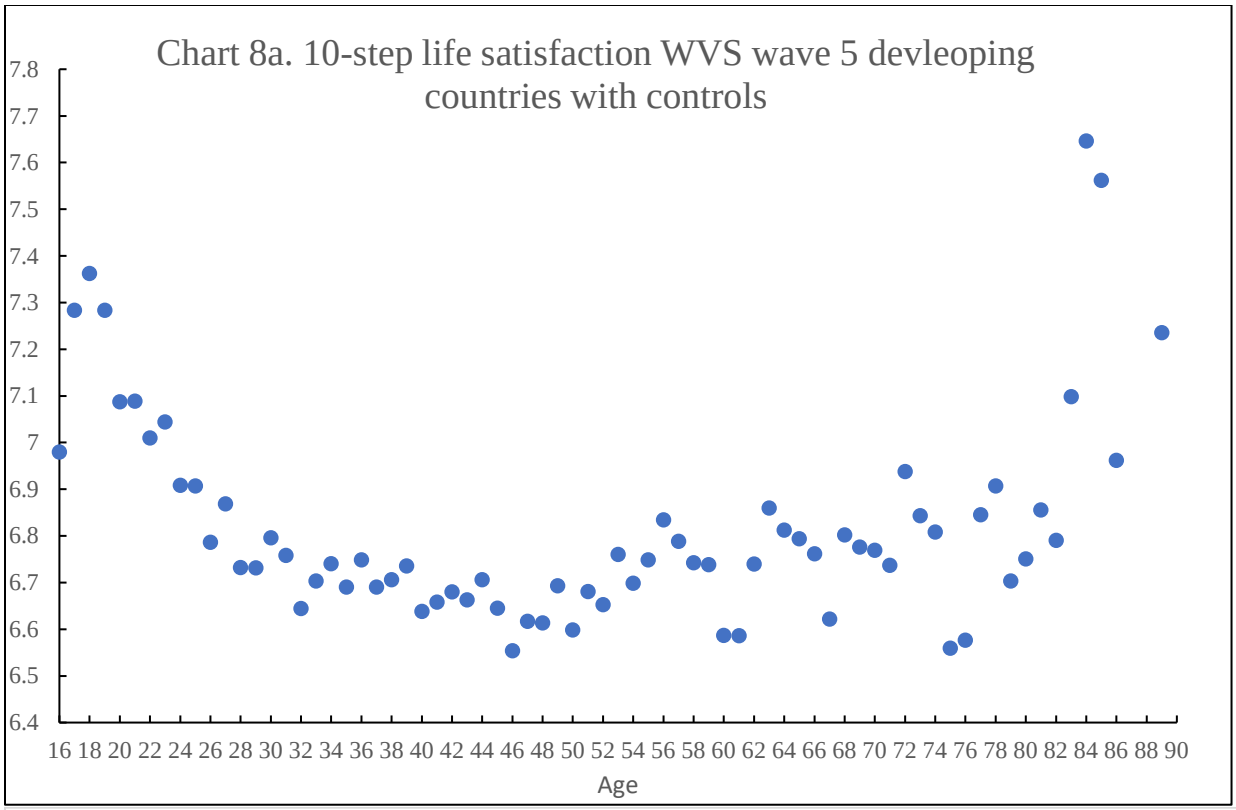


Chart 8a. 10-step life satisfaction WVS wave 5 devleoping countries with controls
7.8
7.7
7.6
7.5
7.4
7.3
7.2
7.1
7
6.9
6.8
6.7
6.6
6.5
6.4
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90
Age

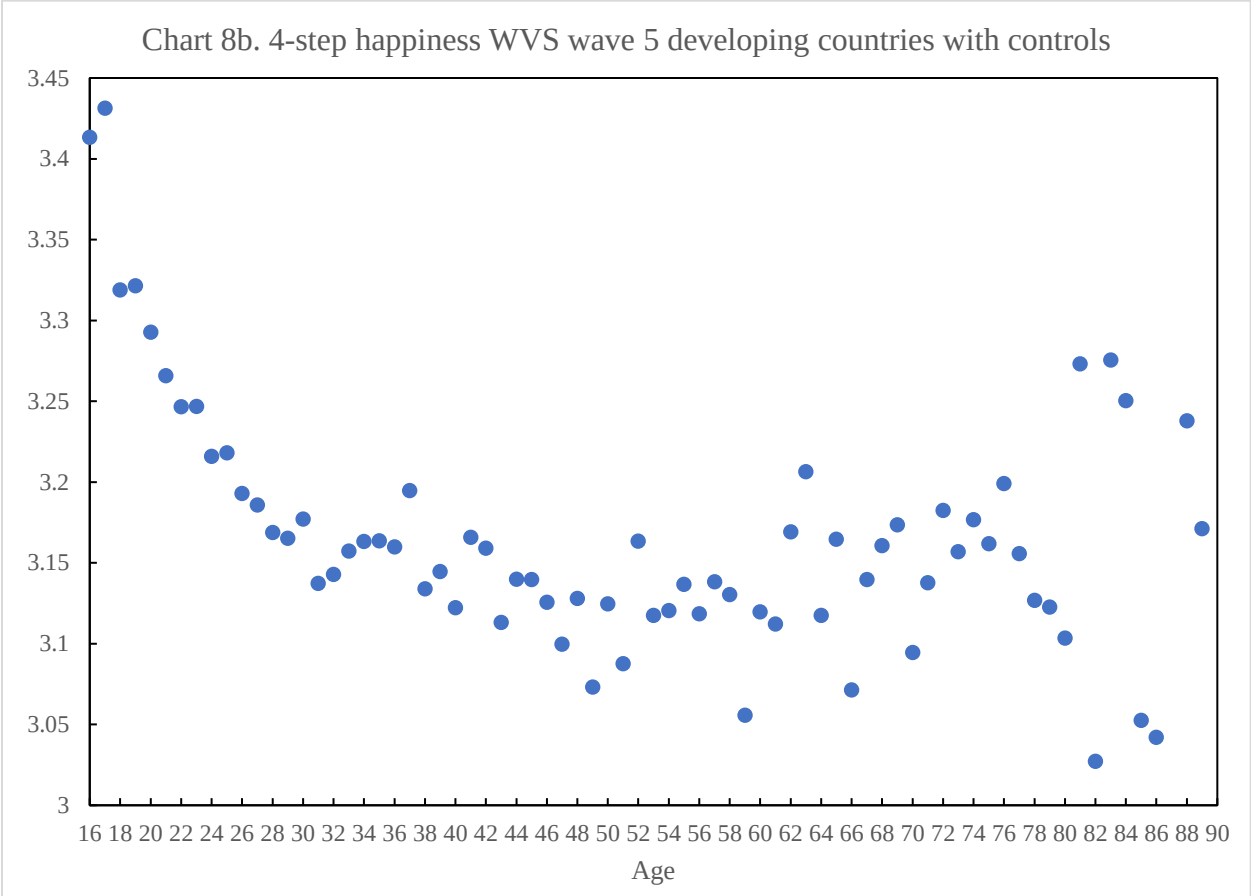


Chart 8b. 4-step happiness WVS wave 5 developing countries with controls
3.45
3.4
3.35
3.3
3.25
3.2
3.15
3.1
3.05
3
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90
Age

Chart 9a. 10-step life satisfaction WVS wave 6 developing countries with controls

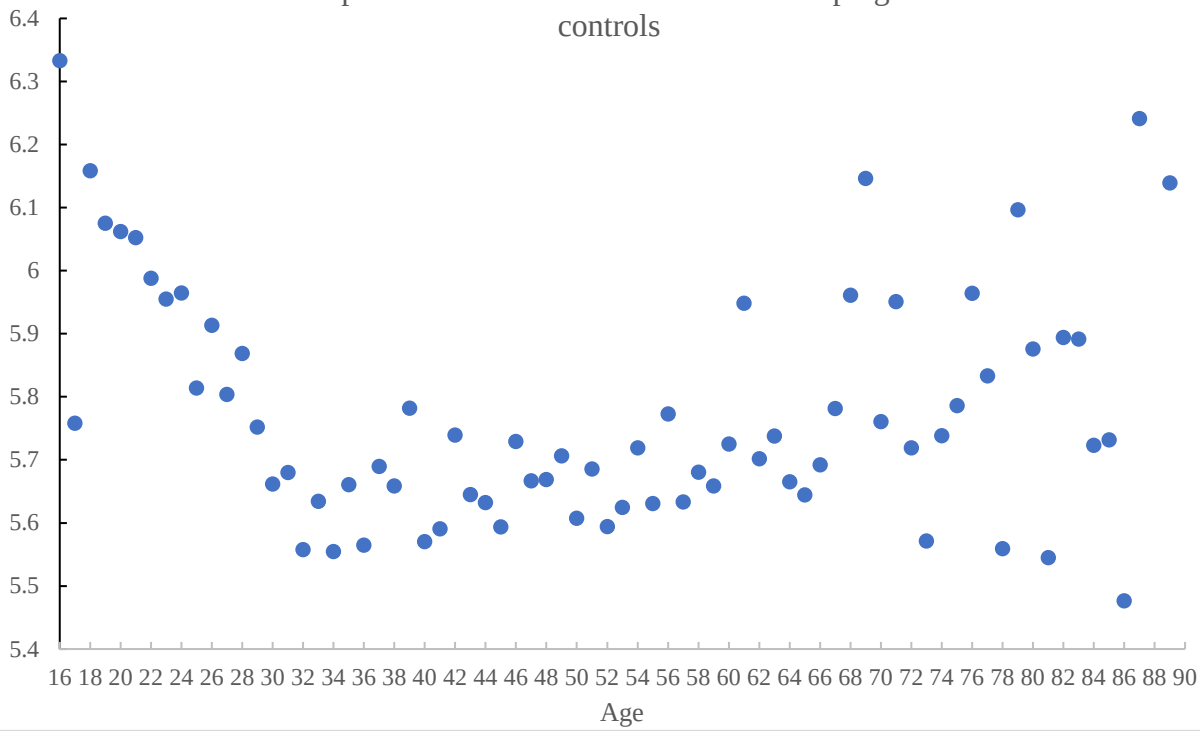


Chart 9b. 4-step happiness WVS wave 6 developing countries with controls

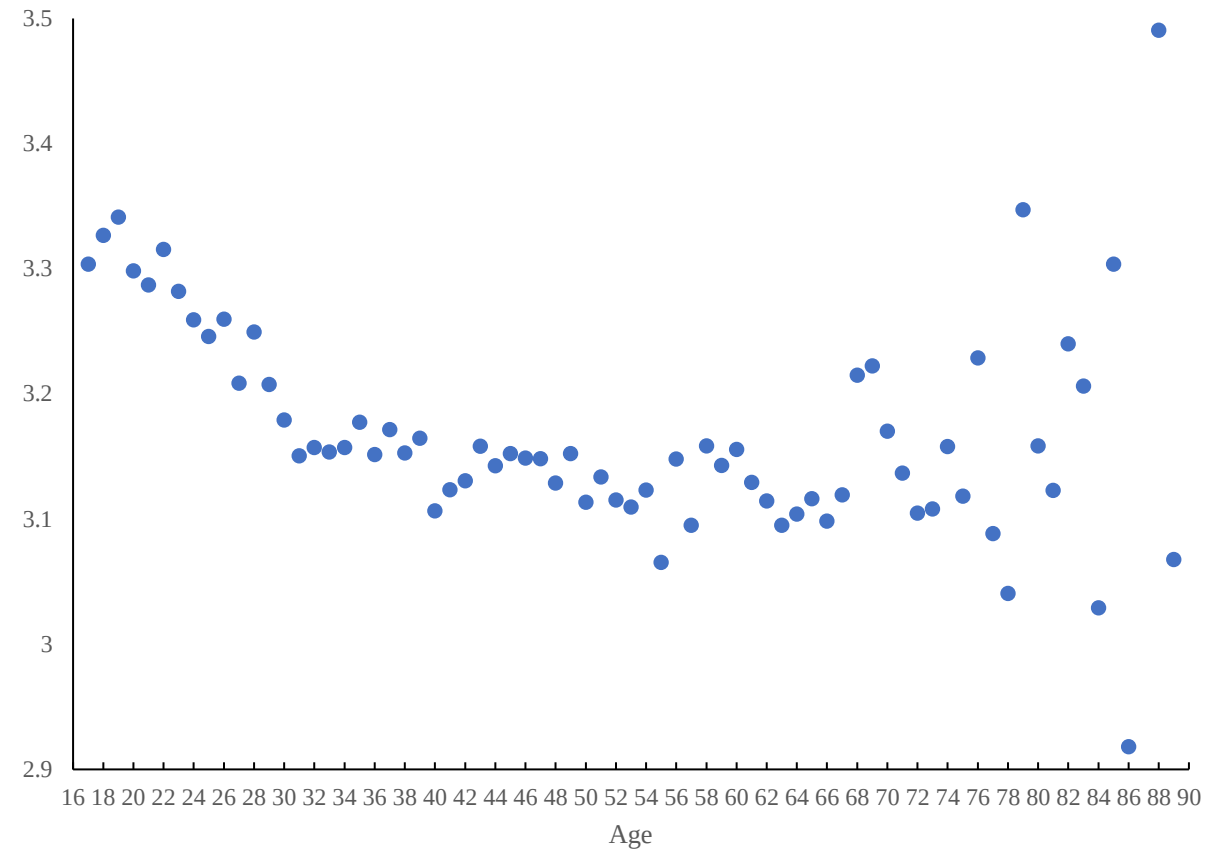


Chart 10a. 4-step life satisfaction Latinobarometers, 2017 with controls

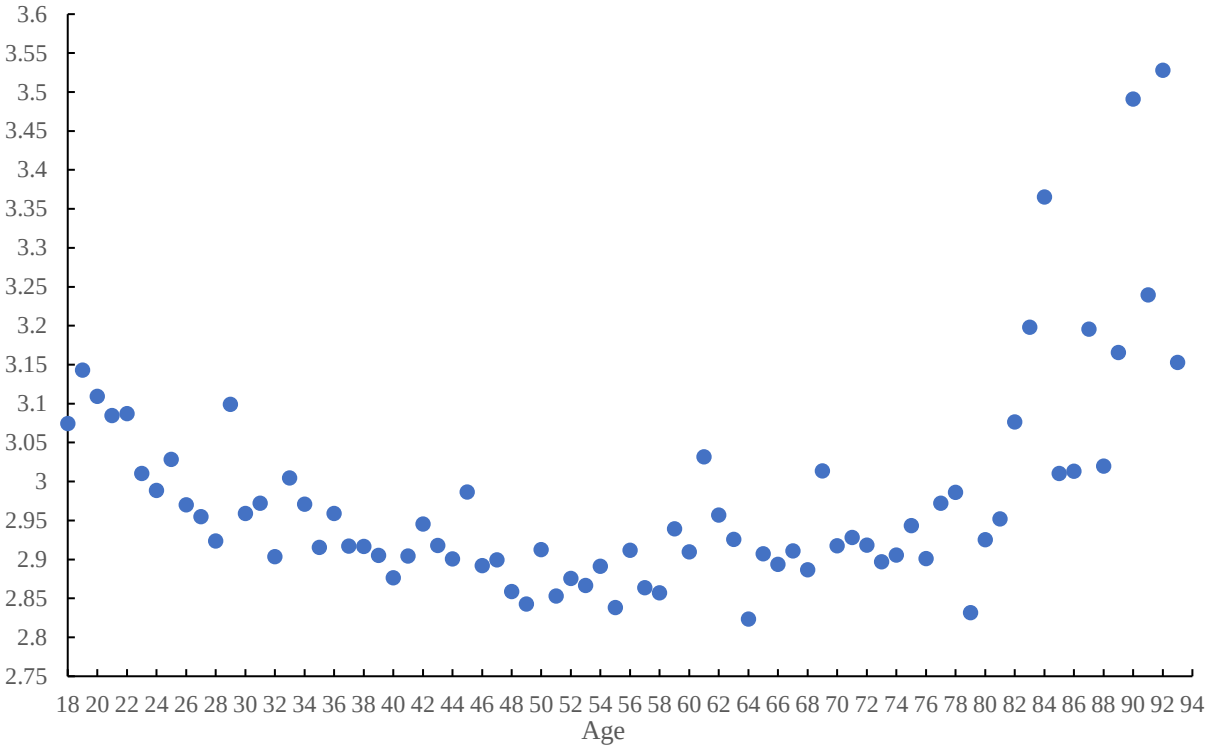
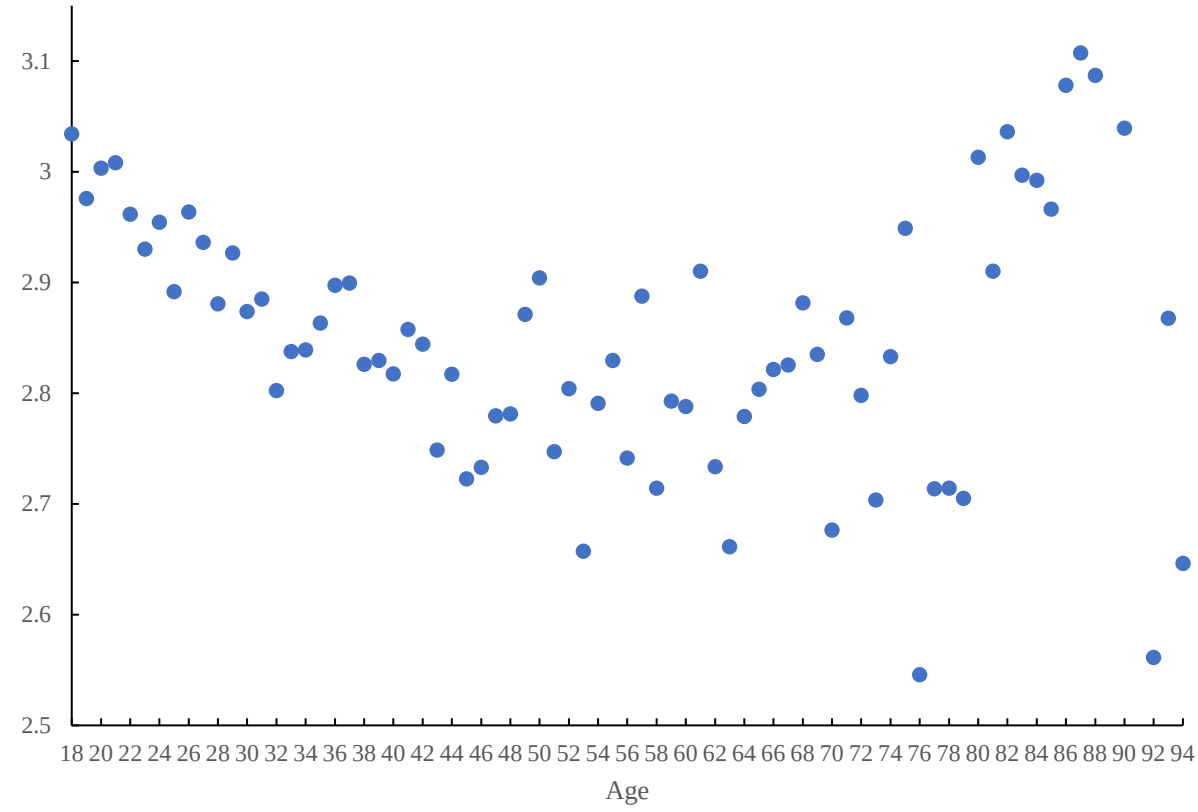


Chart 10b. 4-step life satisfaction Latinobarometers 2018 with controls



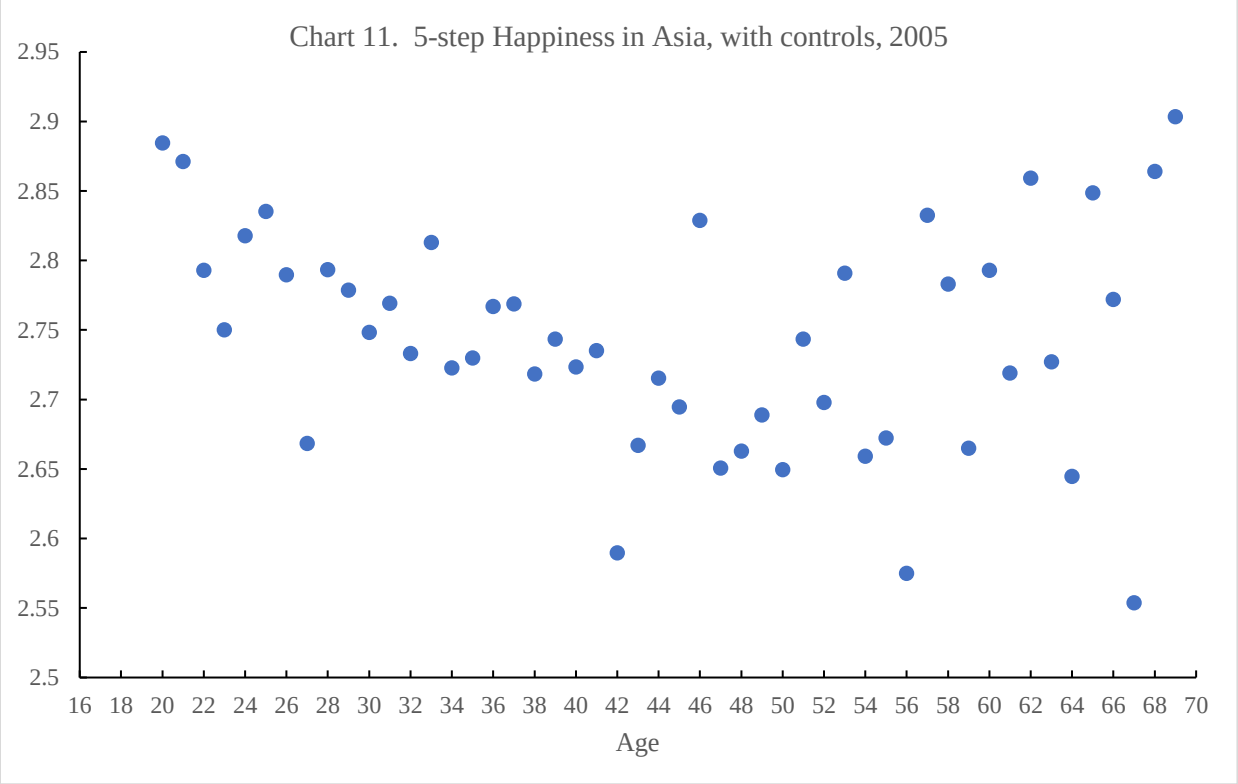


Chart 11. 5-step Happiness in Asia, with controls, 2005
2.95
2.9
2.85
2.8
2.75
2.7
2.65
2.6
2.55
2.5
16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
Age

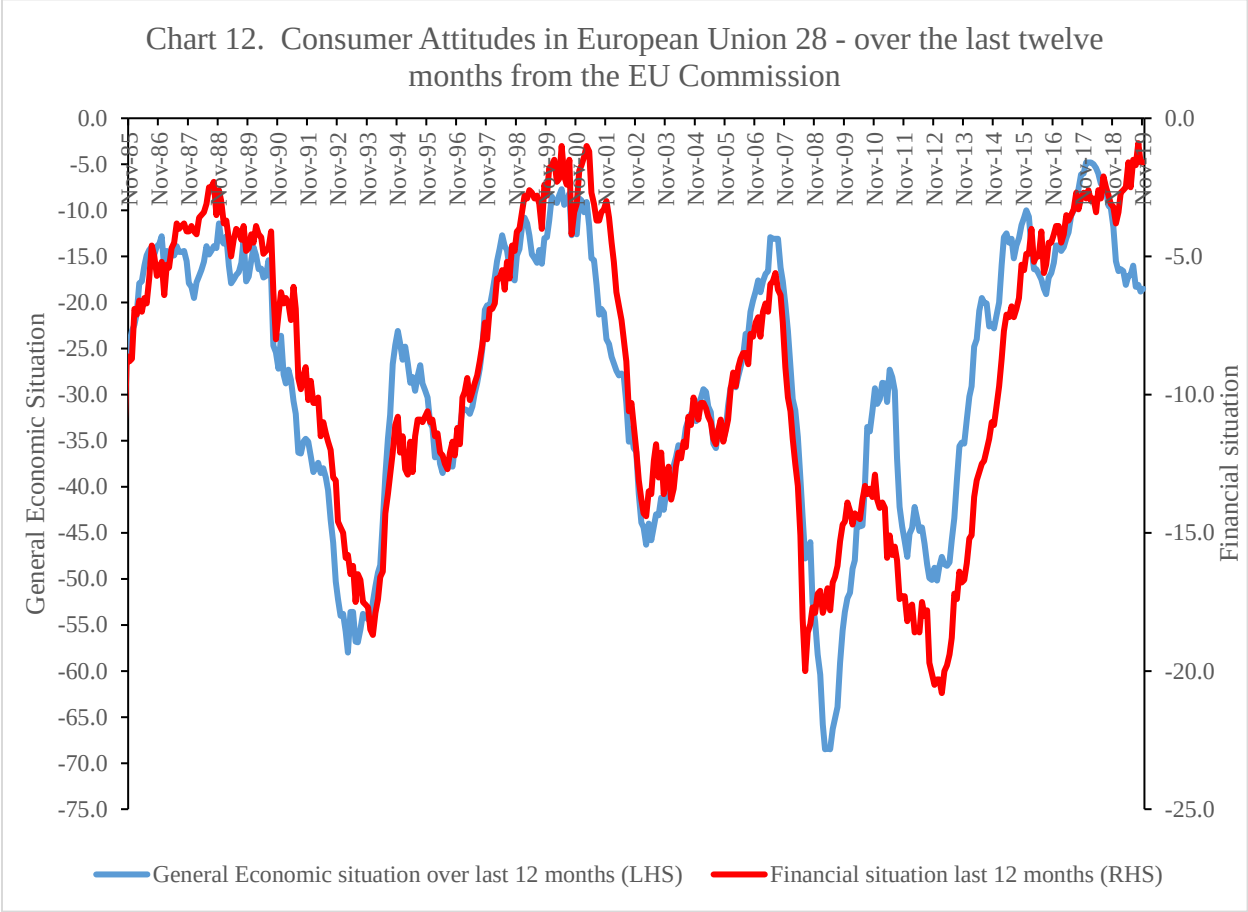
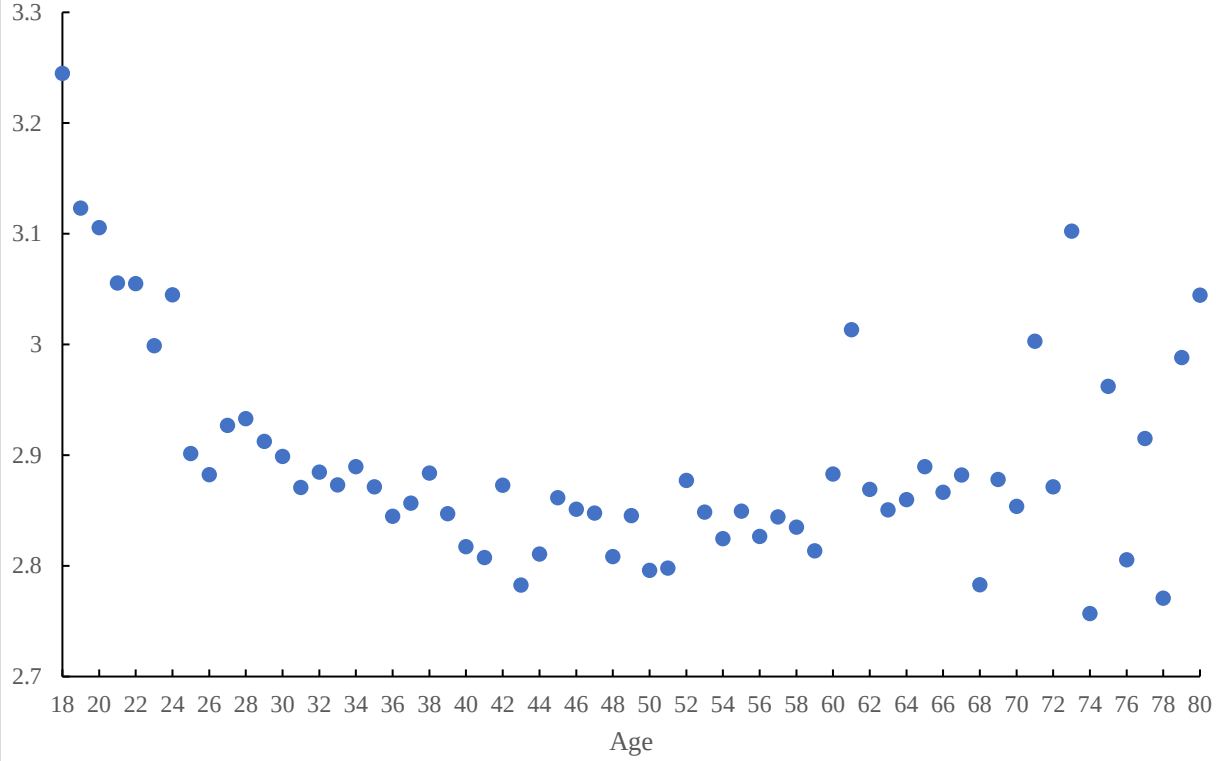
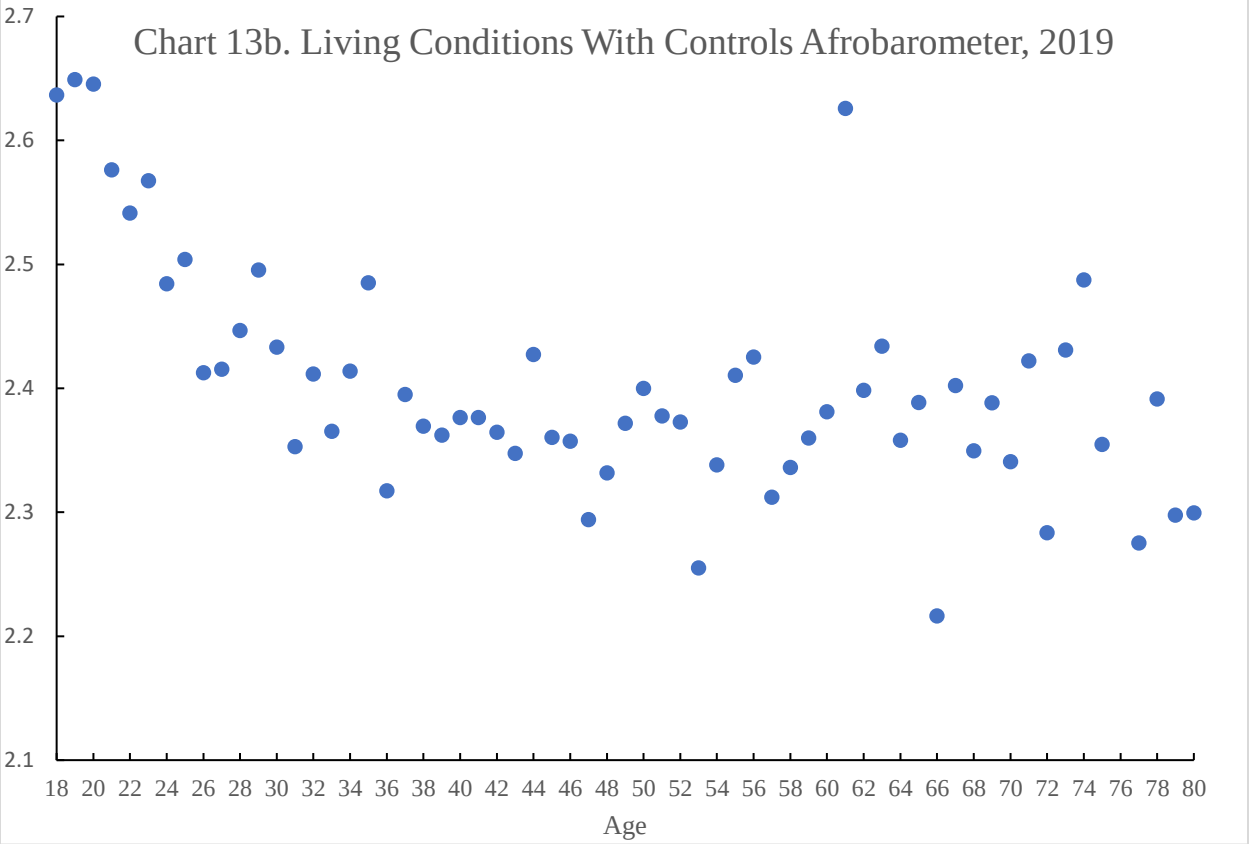


Chart 12. Consumer Attitudes in European Union 28 - over the last twelve months from the EU Commission
General Economic Situation
Financial situation
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
-55.0
-60.0
-65.0
-70.0
-75.0
Nov-85 Nov-86 Nov-87 Nov-88 Nov-89 Nov-90 Nov-91 Nov-92 Nov-93 Nov-94 Nov-95 Nov-96 Nov-97 Nov-98 Nov-99 Nov-00 Nov-01 Nov-02 Nov-03 Nov-04 Nov-05 Nov-06 Nov-07 Nov-08 Nov-09 Nov-10 Nov-11 Nov-12 Nov-13 Nov-14 Nov-15 Nov-16 Nov-17 Nov-18 Nov-19
General Economic situation over last 12 months (LHS)
Financial situation last 12 months (RHS)

Chart 13a. Living conditions with controls Afrobarometers, 2016





Appendix 1. Developing countries by data set

a) World Values Survey

Wave 6 (2010-2014)

Algeria; Azerbaijan; Argentina; Armenia; Brazil; Belarus; Chile; China; Taiwan; Colombia; Ecuador; Georgia; Palestine; Ghana; Haiti; Hong Kong; India; Iraq; Kazakhstan; Jordan; South Korea; Kuwait; Kyrgyzstan; Lebanon; Libya; Malaysia; Mexico; Morocco; Nigeria; Pakistan; Peru; Philippines; Qatar; Russia; Rwanda; Singapore; South Africa; Zimbabwe; Thailand; Trinidad and Tobago; Tunisia; Turkey; Ukraine; Egypt; Uruguay; Uzbekistan and Yemen.

Wave 5 (2005-2009)

Andorra; Argentina; Brazil; Chile; China; Taiwan; Colombia; Ethiopia; Georgia; Ghana; Guatemala; Hong Kong; India; Indonesia; Iran; Iraq; Jordan; South Korea; Malaysia; Mali; Mexico; Moldova; Morocco; Peru; Russia; Rwanda; Serbia; Vietnam; South Africa; Thailand; Trinidad and Tobago; Turkey; Ukraine; Egypt; Burkina Faso; Uruguay and Zambia.

Wave 4 (1999-2004)

Albania; Algeria; Argentina; Bangladesh; Chile; China; India; Indonesia; Iran; Iraq; Israel; Jordan; South Korea; Kyrgyzstan; Mexico; Moldova; Morocco; Nigeria; Pakistan; Peru; Philippines; Puerto Rico; Saudi Arabia; Singapore; Vietnam; South Africa; Zimbabwe; Turkey; Uganda; Macedonia; Egypt; Tanzania; Venezuela; Serbia and Montenegro.

Wave 3 (1995-1998)

Albania; Azerbaijan; Argentina; Bangladesh; Armenia; Brazil; SrpSka Republic; Belarus; Chile; China; Taiwan; Colombia; Dominican Rep.; El Salvador; Georgia; India; South Korea; Mexico; Moldova; Nigeria; Pakistan; Peru; Philippines; Puerto Rico; Russia; South Africa; Turkey; Macedonia; Uruguay; Venezuela; Serbia; Montenegro and Bosnia.

Wave 2 (1990-1994)

Argentina; Brazil; Belarus; Chile; China; India; South Korea; Mexico; Nigeria; Russia; South Africa and Turkey.

b) International Social Survey Programme

2017

China; Taiwan; India; Israel; Mexico; Philippines; Russia; South Africa; Surinam; Thailand

2012

Argentina; Chile; China; Taiwan; India; Israel; South Korea; -Mexico; Philippines; Russia; South Africa; Turkey; Venezuela

c) Asiabarometers

2007

Malaysia; Indonesia; Philippines; Thailand; Myanmar; Cambodia and Laos

2006

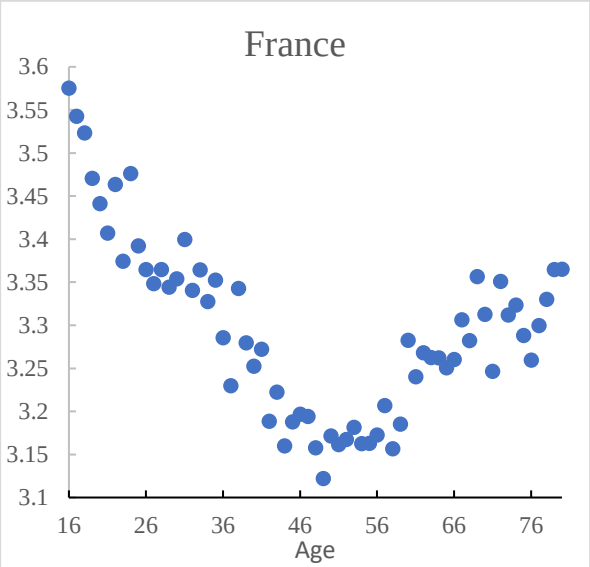
China; Hong Kong; Japan; Singapore; South Korea; Taiwan and Vietnam

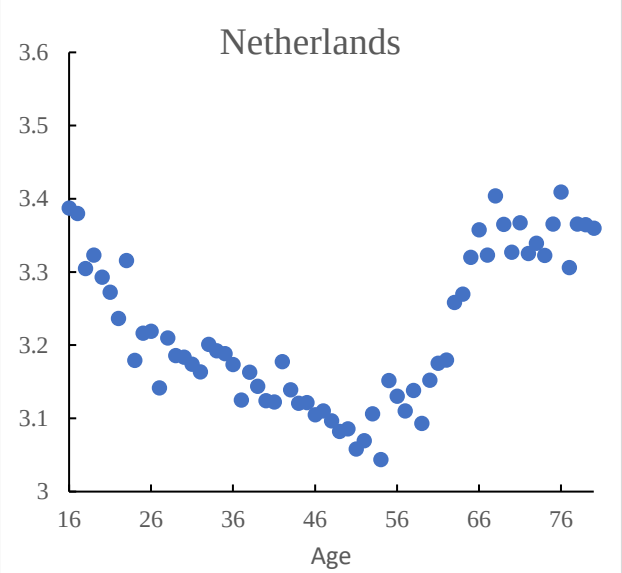
2005
Afghanistan; Bangladesh; Bhutan; India; Kazakhstan; Kyrgyzstan; Maldives; Mongolia; Nepal; Pakistan; Sri Lanka; Tajikistan; Turkmenistan and Uzbekistan

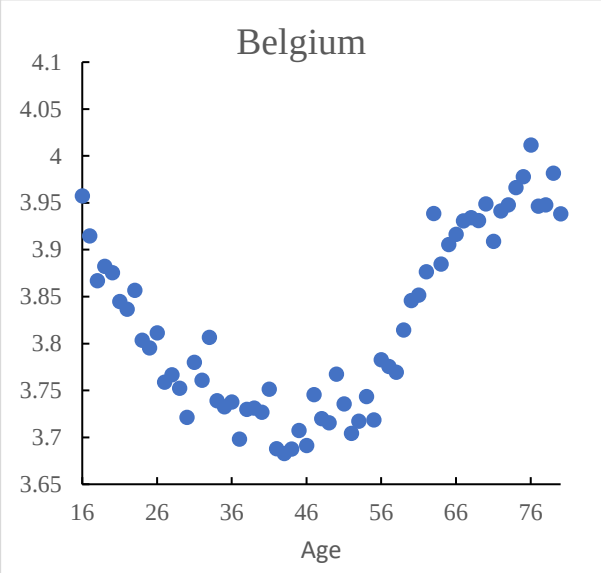
d) Latinobarometers

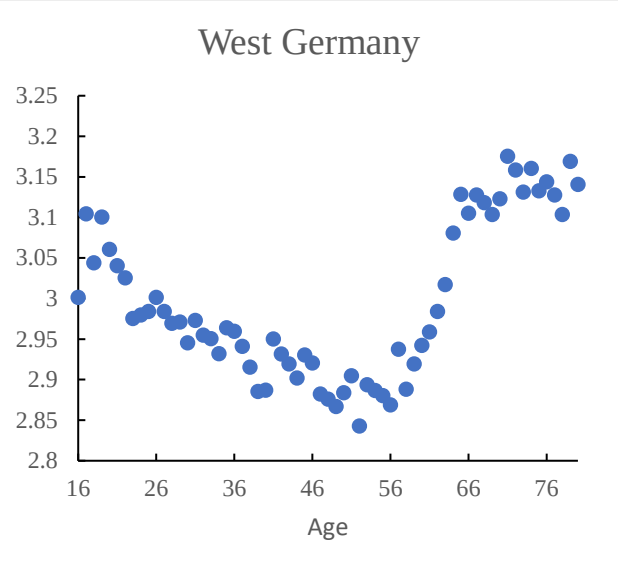
2017 and 2018
Argentina; Bolivia; Brazil; Chile; Colombia; Costa Rica; Dominican Rep of; Ecuador; El Salvador; Guatemala; Honduras; Mexico; Nicaragua; Panama; Paraguay; Peru; Uruguay and Venezuela

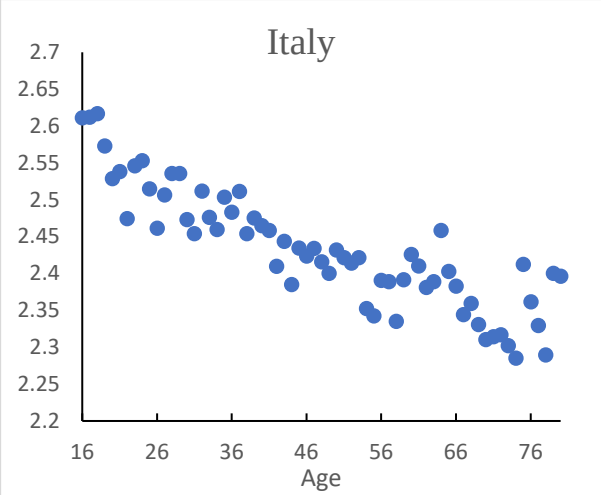
Appendix B. Raw Plots of data from MO's Eurobarometer Data Series, 1973-2016

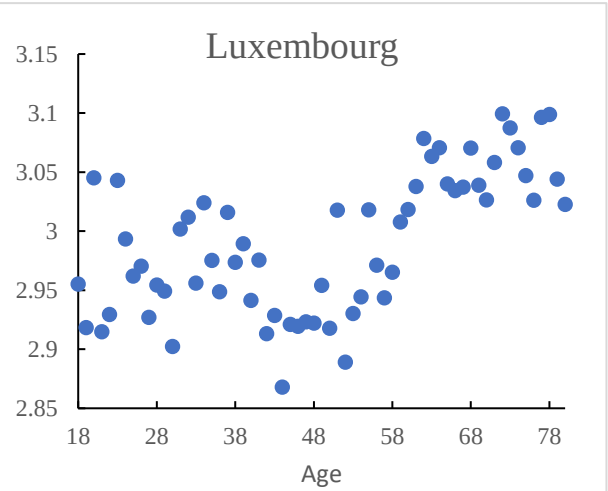


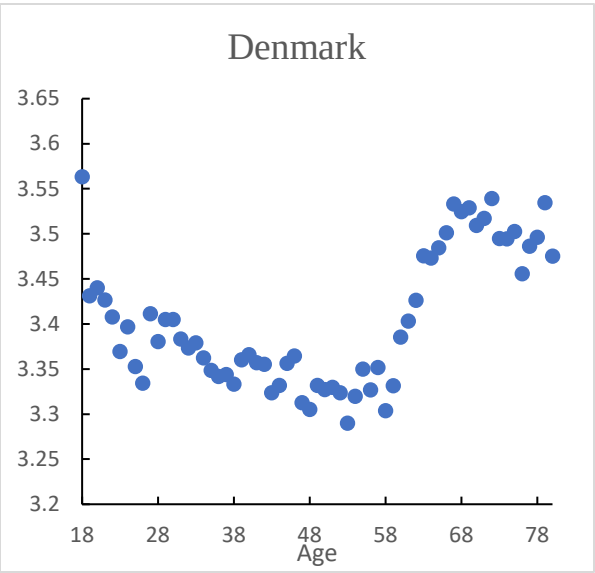


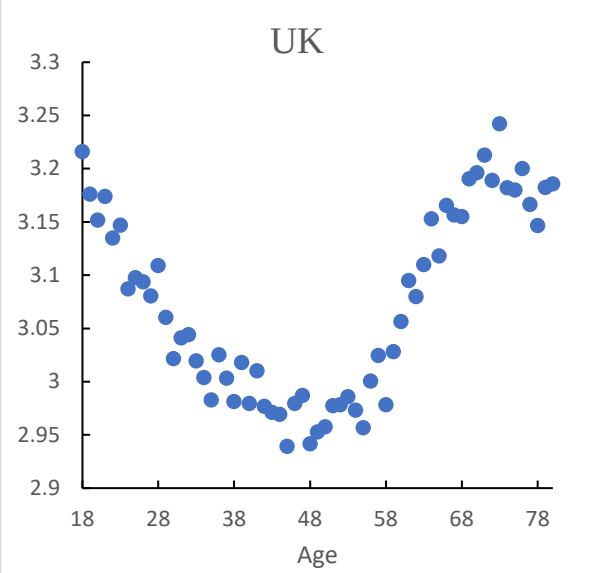


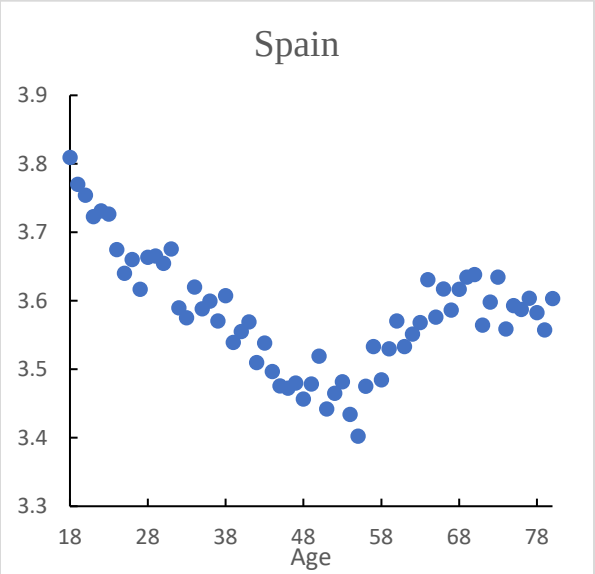


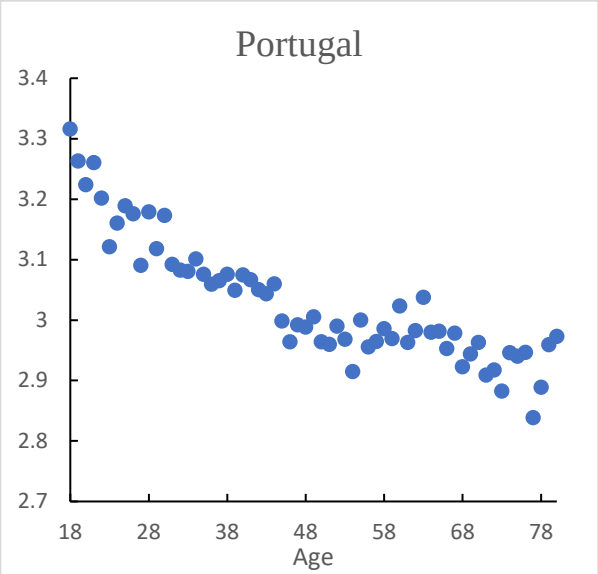


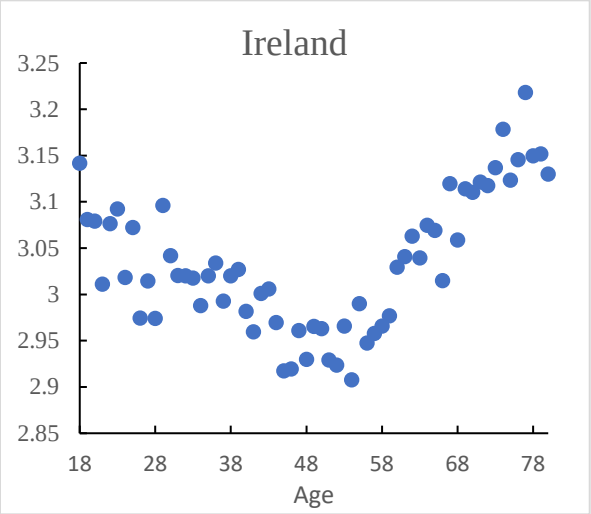


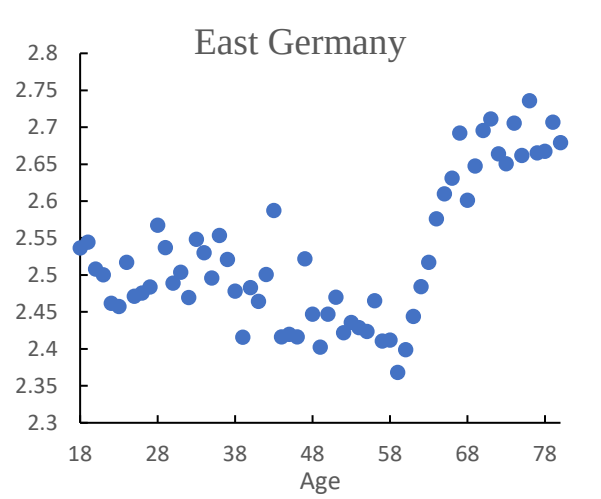

Denmark
3.65
3.6
3.55
3.5
3.45
3.4
3.35
3.3
3.25
3.2
18
28
38
48
58
68
78
Age

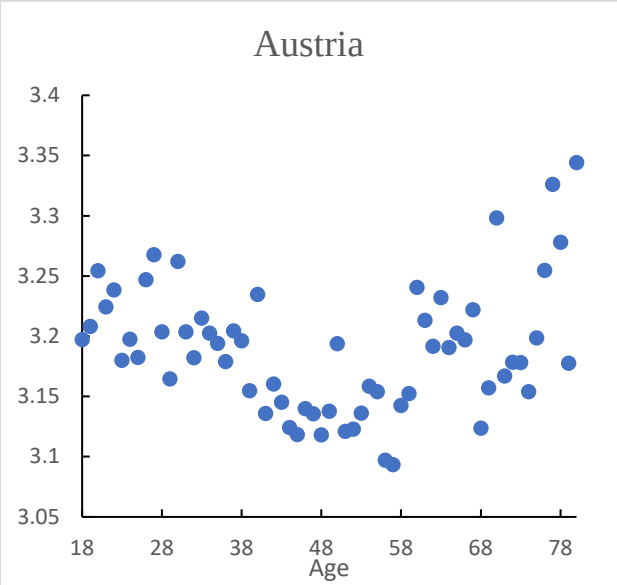

UK
3.3
3.25
3.2
3.15
3.1
3.05
3
2.95
2.9
18
28
38
48
58
68
78
Age

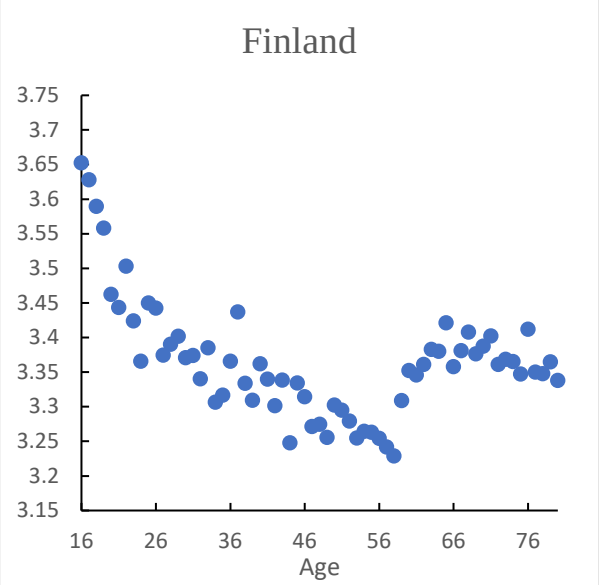

Spain
3.9
3.8
3.7
3.6
3.5
3.4
3.3
18
28
38
48
58
68
78
Age

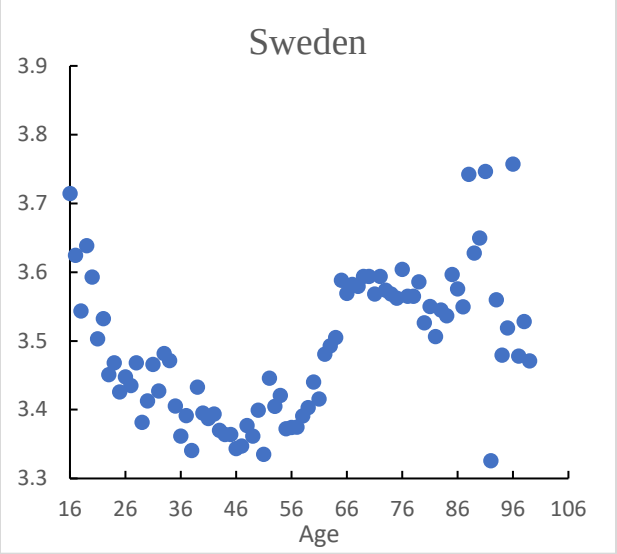

Portugal
3.4
3.3
3.2
3.1
3
2.9
2.8
2.7
18
28
38
48
58
68
78
Age


Ireland
3.25
3.2
3.15
3.1
3.05
3
2.95
2.9
2.85
18
28
38
48
58
68
78
Age


East Germany
2.8
2.75
2.7
2.65
2.6
2.55
2.5
2.45
2.4
2.35
2.3
18
28
38
48
58
68
78
Age


Austria
3.4
3.35
3.3
3.25
3.2
3.15
3.1
3.05
18
28
38
48
58
68
78
Age


Finland
3.75
3.7
3.65
3.6
3.55
3.5
3.45
3.4
3.35
3.3
3.25
3.2
3.15
16
26
36
46
56
66
76
Age


Sweden
3.9
3.8
3.7
3.6
3.5
3.4
3.3
16
26
36
46
56
66
76
86
96
106
Age