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Do people care about future generations? Evidence from happiness data

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Abstract

We investigate the very long-term time preference using subjective well-being data and people's expectations about the very long-term future. We use survey data to estimate a standard happiness regression augmented with people's expectation about the future. We account for possible endogeneity between expectations about the future and current well-being using 2SLS. We find that expecting the worst (the best) for future generations has a very large negative (positive) impact on subjective well-being. This suggests that the very long-term discount rate is much lower than implied by most economic theory.

keywords: Subjective well-being · long-term discount rate · intergenerational equity · time preference

JEL classification codes: D62 · D64 · D91 · I31

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1 Introduction

How much do we care about future generations? The very long-term time preference is critical for assessing the amount of resources that current generations are willing to allocate to the prevention or mitigation of the environmental problems that may affect future generations. Typically, the results from cost-benefit analysis of projects aimed at reducing the impact of loss of biodiversity, groundwater pollution, fishery depletion, radioactive waste disposal, minerals depletion etc., crucially depend on the very long run discounting. A paradigmatic example concerns the debate raised by the Stern Review (Stern, 2007). The latter's call for immediate action to reduce global warming is based on the assumption of very low discount rates. Stern and collaborators argue that discounting the very long-term future involves an ethical care for future generations, which is not implied by discounting the future over one's lifetime. Weitzman (2007) and Nordhaus (2006), among others, criticized Stern's claim for being based on an extreme assumption about time preference, thus amplifying the benefits of deep emissions cuts of greenhouse gases. Most criticism focused upon the high discount rates revealed by asset markets, often close to 6%, the private return to capital.

However, the question opening this paper can hardly be answered with market data. While private markets provide reliable information about societal evaluation of time within a generation, no comparable private rates exist to evaluate events that will not occur during the lifetimes of most who are alive today. Long-maturity assets providing information on individuals valuation of very long-run claims are very scarce.

The few estimates of private market discount rates for very long horizons (100 or more years), conclude that they are much lower than implied by most economic theory. Giglio et al. (2014) find a downward sloping term structure of discount rates, consistently with models including hyperbolic discounting, (Laibson, 1997) and (Luttmer and Mariotti, 2003) and gamma discounting (Weitzman, 1998, 2001). Layton and Brown (2000) took a survey approach, asking 376 subjects to state their preferences for mitigating impacts of climate change that will occur in the distant future. Consistent with Giglio et al. (2014), they find a decreasing term structure of discounting. Several countries – such as France, the UK, Denmark or Norway – adopted such a structure in their policy decisions, using low discount rates to evaluate projects that imply important intergenerational benefits or costs. However, these decisions are based on ethical evaluations and interactions with experts, revealing the difficulty to estimate the very long-term discount rate (Cropper et al., 2014; Sunstein, 2014).¹

In this paper we provide a test of the degree of people's concern for the very long-term future. We derive information on this issue estimating the relationship between individuals' current well-being and their expectations about a future far enough to concern only future generations. If the discount rate is high, we expect people's vision of the future – whatever it is – to have a weak or null influence on their current well-being. Instead, if the rate of time preference is low such influence should be sizeable and positive (the better the future expectation,

¹In particular, in the absence of a quantification of the discount rate, experts may simply replicate the different opinions on the long-term discount rate: those involved in environmental agencies, highly attentive to the interests of future generations, might favor low discount rates, while economic advisers might favor higher rates (Sunstein, 2014).

the greater current happiness).

To estimate such relationship we use survey data from several international and national data-bases. We proxy current well-being with subjective well-being (SWB) and the expectations of the very long-term future with specific questions on the issue. We run 2SLS regressions to account for possible reverse causality. As instruments, we use measures of trust in science and political trust. These two variables are present at the same time only in one of our data bases, the General Social Survey, whereas political trust alone is observed in the World Values Survey and in the European Social Survey. The relationship of these two forms of trust with SWB is basically flat in our datasets, and in the literature we did not find evidence of their correlation. Yet, both trust in science and in political institutions are good predictors of the expectations about the future. The reason is that a bright future requires a substantial scientific contribution in many respects, including sustainability. Moreover, it requires effective political decisions. This is why, for instance, those who think that political institutions have short-term goals, are self-serving, or serve special interests are less likely to expect a “bright future”.

We find that expecting the worst (the best) for future generations has a very large negative (positive) impact on subjective well-being. These results support the view that intergenerational discount rates are low.

The paper is organized as follows: Section 2 summarizes the literature related to our results. Section 3 presents our data while section 4 discusses the methodological issues. Section 5 presents our findings and section 6 concludes.

2 Background

2.1 Two opposed environmentalist views

A paradigmatic example of the crucial importance of the opinions on the discount rate concerns the debate dividing the advocates of strong environmental protection. The environmentalist culture that began to develop during the 70s (Meadows et al., 1972) has traditionally emphasized that current generations are over-exploiting local and global resources, threatening their sustainability and the living standards of future generations. This violates any plausible criterion of inter-generational equity in the allocation of resources. All streams of environmentalism agree on these claims, but they disagree for what concerns who is to be held responsible. Two different answers have been provided: the people or the socio-economic system.

According to the first answer, the problem is rooted in people’s time preference. The current over-exploitation of resources simply reflects the limited relevance attributed to the living standards of future generations by a humanity obsessed by its own standards (Pearce et al., 1990; Bromley, 1998). Accordingly, the problem of sustainability lies in human nature, that is, in its alleged inter-temporal greed. We label this explanation as “naturalist”. Note that the possibility of rooting the problem of sustainability in human nature rests entirely on the assumption that the behaviour of the economic systems reflects the time preference of individuals.

Conversely, the second answer – also widespread among environmentalists – locates unsustainability in some failure of the economic, political, social or cul-

tural organization. For instance, according to many economists market failures prevent the economy from following more sustainable paths. Climate change has been defined as “a result of the greatest market failure the world has seen” (Stern, 2007). Others emphasise that people are not adequately informed of the relevance and urgency of policies for sustainability.² Others blame global corporations³, while some authors accuse capitalism *tout-court* (Klein, 2014).

We label these views as “institutionalist”, since they share the idea that unsustainability is not rooted in the inter-temporal greed of human beings. People would prefer a less aggressive economy towards the future but some failure of the institutions of our societies prevent this option.

Do people consider spoiling the future as a reasonable price to pay for current well-being? Are the current possible threats to sustainability the outcome of an optimal inter-generational allocation of resources (from the point of view of current generations)? The difference between the institutionalist and the naturalist view is summarized by their answers to such questions: negative and positive, respectively. Such answers rely on opposite views about how much current generations care about future ones.

2.2 The tragedy of collective impotence

The ineffectiveness of collective action is another systemic failure that might exacerbate the threats to sustainability, especially when the very long-term discount rate is low. This apparently paradoxical finding is shown by another institutionalist approach (Antoci and Bartolini, 2004; Bartolini and Bonatti, 2003, 2008). In these models there are two relevant assets for future well-being and productive capacity: the output accumulated and an environmental common. But only the former can be privately accumulated, given that a common can be accumulated only collectively. Collective accumulation requires effective collective action. If individuals do not trust collective action – for instance political decisions – they will expect a decline in the common resource over the very long run. Thus, they will defend the well-being and productive capacity of their descendants by accumulating (and leaving them) the only asset that they are able to accumulate: the private good. However, this accumulation of private assets generates externalities that negatively affect the future environmental quality. Each individual’s contribution to the depletion of environmental assets is negligible but their aggregate impact is substantial.

In this context of defensive growth the dynamics of the economic system does not reflect the time preference of individuals. Distrust in collective action, coupled with low discount rates, may be an engine for unsustainability. Indeed, the more individuals who distrust collective action are concerned for the well-being of their descendants, the more they will accumulate. But this greater

²Some scientists have been accused to produce reports that intentionally distort the evidence for economic interests. The American Enterprise Institute, an ExxonMobil-funded think tank, offered rewards to scientists writing articles that emphasise the shortcomings of a report from the UN’s Intergovernmental Panel on Climate Change (IPCC) urging governments to adopt policies against global warming.

³According to this view, the multinational corporations are responsible of producing environmental threats ranging from the oversized role of fossil fuel in the energy supply, to the adoption of GMOs, to the promotion of consumerism (see for instance Shiva, 2013; Latouche, 2009). This view is supported, for example, by the antiglobalization movements who accuse the global corporate capitalism (Boveé and Dufour, 2005).

accumulation of privately owned assets does not compensate for the lower environmental quality that it unintentionally causes, thus producing a decline in well-being across generations. In this economy people’s perception of future unsustainability feeds the accumulation of private assets because they believe that the protection of one’s descendants can be effectively achieved only through individual actions. As a paradoxical result, the lower the present discount rate, the lower the well-being of future generations.

In conclusion, according to this approach, the problem of sustainability does not arise from intergenerational conflict, but from a failure – nourished by mistrust in collective action – to coordinate the actions among individuals belonging to the same generation. This ‘tragedy of collective impotence’ is fed by the fact that wealth becomes the private way out from common decay. Yet, the quest for private wealth makes common decay more likely.

This view suggests that the declining trends of trust in political institutions in western countries – and the connected loss of confidence in the ability of societies to cope with global and local ecological crises – may boost the accumulation of private assets, thus feeding an unsustainable growth path. The trend of confidence in political institutions is sharply declining in the US since the 60s (Lipset and Schneider, 1983; Putnam, 2000; Bartolini et al., 2013) and it is similar in Western Europe (Sarracino, 2012) and Australia (Papadakis, 1999). The decline in average trust in political systems may mirror the decline of the capacity of the decisions of western political systems to reflect the interest of a vast majority of citizens. Influential political scientists have defined the contemporary political systems as post-democracies, meaning that the growing influence of economic elites in the political decision-making process has regressed the exercise of political power to a pre-democratic situation, where this was the prerogative of closed elites (Crouch, 2004). Gilens and Page (2014) provide empirical support for this. Analysing the influence of the American public on 1779 policy issues between 1981 and 2002, they conclude that policy-making is dominated by powerful business organizations and a small number of affluent Americans, while average citizens and mass-based interest groups have little or no influence.

Summarizing, if people have low trust in collective action – which means scarce confidence that it is possible to pursue shared sustainable objectives – they will arguably consider adopting sustainable behaviours as useless and probably expensive. In this scenario, people find more convenient to adopt individual solutions to provide their descendants with the necessary tools to face future difficulties. The aggregate result of such private defensive strategies is to increase shared future difficulties.

2.3 Policy implications

Whether unsustainability arises from the long-term time preference or from institutional failures has profound implications for policy-making. If the discount rate is high (naturalist view) policies for sustainability require some doses of coercion to force people’s choices to deviate from their time preference. Conversely, if the discount rate is low (institutionalist view), then the aim of environmental policies is to correct the systemic failures preventing the economy from reflecting people’s time preferences. In such case, bottom-up policies – emphasizing people’s participation and involvement rather than coercion – could be effective.

An example of bottom-up policy concern the empowerment of local communities suggested by Ostrom. She documented that “common resources (...) can be managed successfully by the people who use them rather than by governments or private companies”.⁴ Other examples regard education to sustainability and eco-labeling. Eco-labeling is based on consumers’ willingness to pay a higher price for sustainably produced goods. These examples are inspired by the common view that environmentally friendly behaviors can be motivated by a preference for sustainability. This is why the naturalist view tends to be skeptical about the effectiveness of bottom-up environmental policies: in this view a relevant preference for sustainability does not exist.⁵

Our results are also relevant to the debate about proposals of policies aimed at increasing subjective well-being (Layard, 2005). A major objection points to a trade-off between current well-being and that of future generations. Since maximizing current subjective well-being is likely to induce the over-exploitation of resources, an increase in current well-being may cost the decrease of future well-being. Thus, policies should not target current, but sustainable well-being, i.e. the well-being sustainable across generations.⁶ Our findings suggest that there is no conflict between promoting current and future well-being because the perception of sustainability is an important component of current happiness.

3 Data

To perform our test we need individual level information about subjective well-being – our outcome variable – and people’s perceptions about future, along with a standard set of socio-demographic control variables.

This information is available in various national and international data-sets. Among these, the World Values Survey (WVS)⁷ is the largest source of information covering many developed, developing and transition countries. The WVS has been established in 1981 and is conducted in more than 80 countries worldwide on nationally representative samples. In each wave, between 800 and 4000 people are surveyed in each country with a total of about 250,000 observations. The WVS has been administered in 1981-1984, 1989-1993, 1994-1999, 1999-2004 and 2005-2009. We run our baseline analysis using the WVS because of its large world coverage and of the availability of reliable instrument to check for potential endogeneity. We emphasize that also the American General Social Survey (GSS) and the European Social Survey (ESS) provide valuable information about people’s well-being and expectations about the future along with

⁴ The citation is drawn from the official motivation of the Nobel prize awarded to Elinor Ostrom. Her work (for instance Ostrom, 2000, 1990) is a prominent example of a wide range of anthropological and historical studies documenting literally hundreds of cases in which local communities have guaranteed for centuries, if not millennia, the sustainability of local commons in various parts of the world (Bowles and Gintis, 2011)

⁵The issue of the possible doses of coercion implied by policies for sustainability has always been present in the environmental debate since its early development. See for example the contrast that opposed two early ecologists, Ehrlich and Commoner, in the ’70s. Commoner accused the policies proposed by Ehrlich for slowing population growth of being politically totalitarian and coercive (Ehrlich and Club, 1971; Holden, 1972)

⁶Attempts to build indicators based on both current well-being and measures of ecological quality – as the Happy Planet Index of the New Economic Foundation – have this motivation

⁷World Values Survey 1981-2008 official aggregate v.20090901, 2009. World Values Survey Association (www.worldvaluessurvey.org). Aggregate File Producer: ASEP/JDS, Madrid.

suitable instruments. We report the results using these surveys in section 5.3.2. Finally, useful information is present also in the American’s Changing Lives of 2002 (ACL), the Eurobarometer of 2009, the German General Social Survey (GGSS) of 2008, and the European Quality of Life of 2007 (EQL). We use figures from these data-sets to check the robustness of our findings (see section 5.3).

3.1 Subjective Well-Being

People’s well-being is proxied by subjective well-being, a concept developed in social psychology since the early ’50s, and increasingly adopted in social sciences, including economics (Dolan et al., 2008; Powdthavee, 2010). Subjective well-being is the reported evaluation of one’s own well-being and it is commonly observed through answers to questions about people’s *happiness* or *life satisfaction* (Van Praag et al., 2003).

The wording of the happiness question in the WVS is: “Taking all things together, would you say you are: 1 Very happy, 2 Quite happy, 3 Not very happy or 4 Not at all happy.”, whereas the wording of the question about life satisfaction is: “All things considered, how satisfied are you with your life as a whole these days? Please use this card to help with your answer.”, the card displaying a scale from 1 to 10, where 1 is “dissatisfied” and 10 is “satisfied”.

For the purposes of present work, we will refer to subjective well-being as proxied by life satisfaction. However, our conclusions are also confirmed in case happiness substitutes for life satisfaction to proxy people’s well-being. In this case we reverted the scale of the happiness question so that higher values are associated with stronger feelings of well-being. Results for the happiness variable are provided in the appendix.

The reliability of subjective well-being has been investigated by an interdisciplinary literature. Subjective well-being is well correlated with objective measures of well-being such as the heart rate, blood pressure, frequency of Duchenne smiles and neurological tests of brain activity (Blanchflower and Oswald, 2004; van Reekum et al., 2007). Moreover, subjective measures of well-being are strongly correlated with other proxies of subjective well-being (Schwarz and Strack, 1999; Wanous and Hudy, 2001; Schimmack et al., 2010) and with the evaluations about the respondent’s happiness provided by friends, relatives or clinical experts (Schneider and Schimmack, 2009; Kahneman and Krueger, 2006; Layard, 2005).

3.2 Perception about the future

We are interested in a question that asks people’s perception about the very long-term future, i.e. a future remote enough not to regard the respondent. This question must concern collective conditions of life, i.e. affecting very large numbers of people and not only special groups of the population.

The wording of the question on expectations about the future available in the WVS is:

“For each of the following pairs of statements, please tell me which one comes closest to your own views: (A) Humanity has a bright future; (B) Humanity has a bleak future.” This variable has been recoded to 1 if the respondent expects that humanity has a bleak future and 0 otherwise.

We include such variable in a standard happiness regression to check whether future expectations are related to current well-being. A high discount rate implies a weak or non-significant relationship between subjective well-being and the perception of the future. Instead, a low discount rate implies that people’s expectations about the future should significantly impact people’s current well-being.

Table 1: Cross-tabulation of life satisfaction and the expectations about the future

Life satisfaction	0 <i>Bright future</i>	1 <i>Bleak future</i>	Total
1 <i>Dissatisfied</i>	43	93	136
2	24	84	108
3	112	207	319
4	137	247	384
5	409	810	1219
6	519	639	1158
7	990	1074	2064
8	1641	1343	2984
9	1058	811	1869
10 <i>Satisfied</i>	978	657	1635
Total	5911	5965	11876

Table 1 informs that across countries there are more people who are dissatisfied with their life and think that humanity has a bleak future than dissatisfied people with good expectations for future. This suggests a positive correlation between life satisfaction and the variable of interest. A similar pattern can be observed when using happiness instead of life satisfaction (see table 7 in the appendix). Remarkably, the sample is equally distributed between the two categories of the expectations about the future.

3.3 Control variables

We also include a standard set of socio-demographic and economic control variables. In particular, we include a variable on gender, taking the value 1 if the respondent is female, 0 otherwise. We control for age and age squared to account for the non linear relationship between aging and well-being⁸. We include a set of dummies to control for the marital status of the respondent as well. The dummies are: “married”, “living together as married”, “divorced”, “separated” and “widowed”, whereas “single” is used as the reference category.

Regressors also include the number of children of the respondent. The variable has been recoded in three dummies: one child, two children and three or more children. Having no child constitutes the reference category. Likewise, we control whether the respondent is living with his/her parents with a dichotomous variable. To control for the employment status of the respondent, we included a further set of dummy variables, namely: “retired”, “housewife”,

⁸We divided age squared by 100 to indicate the minimum of the parabolic age curve.

“students” and “unemployed”, leaving “employed” as the reference category. We control for the education of the respondent including a categorical variable taking values on a scale from 1 to 8, 1 and 8 representing an “inadequately completed elementary education” and a “University with degree/Higher education - upper-level tertiary certificate”, respectively.

Household income is observed through people’s self-reports. Each respondent is asked to declare to which income interval he/she belongs. The variable is organized in 10 intervals, where 1 and 10 stand for the lowest and the highest income class, respectively. Finally, we control for the years and the countries where the interviews were taken. The appendix provides a table of descriptive statistics of the control variables.

3.4 Sample selection

We begin our investigation from the sample of developed countries available in the WVS, from which we derive our main results. The reason for this choice is that such countries bear the main responsibility for the environmental degradation, largely the legacy of two centuries of industrial history. The time preference of people living in industrial countries is crucial because substantial ecological improvements can be obtained only through a strong commitment of such countries to downsize their disproportionate contribution to ecological threats. However, in section 5.3 we extend our analysis to developing and transition countries.

Table 2 provides the list of countries and years in which the question on humanity’s future was asked. Overall, our sample includes 17,493 observations collected over a period of six years between 1994 and 1998. Only New Zealand has been surveyed twice for our question of interest in 1998 and 2004.

Section 5.3 is devoted to some robustness checks in which we first show that our conclusion holds also for developing and transition countries separately, and for all countries together. Table 13 in the appendix provides an overview of the 54 countries in the WVS for which data on well-being and future expectations are available. Second, we check the robustness of our results using all the data-sets where questions on well-being are available along with information on people’s perceptions about the future. Furthermore, the GSS and the ESS provide also good instruments to test the robustness of the check for endogeneity. This gives us the possibility to test our relationship in a variety of contexts and using various wordings.

3.5 Instrumenting expectations about the future

In our model we assume that expectations about the future are an explanatory factor of subjective well-being. However, it is also plausible that individuals’ well-being affects the way they perceive the future. For example, happier people may tend to have more optimistic views about the future and vice versa. Conversely, more depressed individuals tend to self-identify as losers: they may expect for themselves a bleak future, while exaggerating the brightness of others’ future. In sum, the two variables may be endogenous.

To deal with this possible endogeneity we instrument the expectations about the future with measures of confidence in science and political distrust. Both

Table 2: Availability of data over time

	<i>Developed countries</i>						Total
	1994	1995	1996	1997	1998	2004	
Australia	0	2048	0	0	0	0	2048
Taiwan	780	0	0	0	0	0	780
Finland	0	0	987	0	0	0	987
Germany	0	0	0	2026	0	0	2026
Japan	0	1054	0	0	0	0	1054
South Korea	0	0	1249	0	0	0	1249
New Zealand	0	0	0	0	1201	954	2155
Norway	0	0	1127	0	0	0	1127
Spain	0	1211	0	0	0	0	1211
Sweden	0	0	1009	0	0	0	1009
Switzerland	0	0	1212	0	0	0	1212
Great Britain	0	0	0	0	1093	0	1093
United States	0	1542	0	0	0	0	1542
Total	780	5855	5584	2026	2294	954	17493

variables are available in the American GSS, while confidence in political institutions is available in the WVS and the ESS.

The wording of the question about confidence in scientific community in the GSS is: “As far as the people in scientific community are concerned, would you say you have a great deal of confidence, only some confidence, or hardly any confidence at all in them?”. Answers are coded on a 3 points scale where 1 means “a great deal” and 3 stands for “hardly any”.

Arguably, a bright future requires a substantial scientific contribution in many respects, including sustainability. Critical issues for sustainability, as the development of renewable supply of energy, crucially hinge on scientific progress. Some technical change has already given a contribution to sustainability, as the drop in the generation cost per kilowatt/hour of photovoltaic energy or the collapse in paper consumption due to the substitution of paper with screens. Thus, individuals who distrust science are more likely to expect a bleak future. Conversely, Bartolini et al. (2013) show that confidence in scientific community is not correlated to happiness in the American GSS. For these reasons we consider our proxy of trust in science a valid instrument for the expectations about the future. As mentioned before, the GSS provides also information about people’s confidence in political institutions. In particular, during the interviews people were asked the following question: “As far as the people running the Congress are concerned, would you say you have a great deal of confidence, only some confidence, or hardly any confidence at all in them?”. The answers are coded from 1 (‘A great deal’) to 3 (‘Hardly any’). Hence, in case of GSS data we run one 2SLS with confidence in science as an instrument, and one 2SLS with two instruments: confidence in science and in the Congress.

As for confidence in political institutions, this is a relevant instrument because it is hard to imagine that a bright future can be built in the absence of collective choices aimed at improving future conditions of life. Low confi-

dence in political institutions – the main form of collective action – implies low confidence that it is possible to coordinate actions towards a desirable shared future. The effectiveness of political institutions is critical to prevent and cope with future crises, including ecological ones. This is why ‘bright future’ is not the favorite prediction of those who think that political institutions have – for instance – short-term goals or serve special interests. Hence, people who do not trust political institutions are more likely to foresee a bleak future. As shown in tab. 4, political distrust is a good predictor of long-term future expectations.

Conversely, in the literature on subjective well-being we did not find evidence that political distrust affects well-being. Several political factors are related to well-being, as the degree of direct democracy and the quality of government (Bjørnskov et al., 2010; Ott, 2010). Frey and Stutzer (2000) exploiting variation in institutional settings across Swiss regions, found that people who can exercise direct democracy through tools such as popular initiatives and referenda are happier than those whose cannot. Helliwell and Huang (2008); Helliwell et al. (2014), found in a large sample of countries that life satisfaction is more closely related to the quality of governments (as measured by World Bank indicators) than to GDP. However, trust in political institutions is not usually included among the happiness regressors and the scarcity of papers on this argument probably reflects the lack of micro, cross-country and time-series correlation between subjective well-being and political trust. Bartolini et al. (2013) show that confidence in the Congress is not correlated to happiness in the American GSS, once controlled for confidence in other institutions. This is confirmed by our evidence showing that the correlation between political distrust and well-being in the WVS is basically flat.

In sum, there is no evidence suggesting that political distrust might affect well-being in other ways than through the possibility of pursuing socially coordinated actions aimed at improving the future. This suggests that political distrust satisfies the conditions of validity, which requires that the instrument is orthogonal to the error term. These relationships are statistically tested in the first step of regression 4 presented below and the results are discussed in section 5 (see table 4 in section 5.2).

In the WVS, people were asked about their confidence in the Parliament and in the Government. In both cases the wording is as follows:

“I am going to name a number of organisations. For each one, could you tell me how much confidence you have in them: is it (1) a great deal of confidence, (2) quite a lot of confidence, (3) not very much confidence or (4) none at all?”.

Based on these two items, we create a dummy variable that takes the value 1 if the respondent answered “not very much” or “not at all” to at least one of the two questions, 0 in all other cases.

Useful instruments are available also in the ESS that provides figures about trust in the Parliament. This variable is coded on an 11 points scale where 0 means the respondent does not trust the parliament at all, and 10 means that the respondent has complete trust in the Parliament.⁹ Results are reported in section F.

The lack of correlation between trust in political and scientific institutions and subjective well-being can appear surprising in the light of the well-known

⁹The exact wording of the question is: “Using this card, please tell me on a score of 0-10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust.”

positive correlation between trust in others and well-being. The difference is due to the fact that trust in others is a relational variable, i.e. a measure of the quality of human relationships. All the relational variables, also called “relational goods” (Uhlener, 1989; Gui and Sugden, 2005), such as one’s quantity and quality of relationships with friends, relatives and neighbors, or associational activity, or other forms of relational trust (e.g. in others’ solidarity or honesty), are well correlated to subjective well-being (Helliwell, 2001,?; Helliwell and Putnam, 2004; Bruni and Stanca, 2008; Becchetti et al., 2008, 2009). Conversely, trust in institutions has a different nature because it does not concern relationships between people, but between people and institutions. This is why confidence in political and scientific institutions, are not correlated to subjective well-being in the GSS, differently from relational goods (Bartolini et al., 2013).

A downside of our instruments is that they come from the same surveys of our variables of interest. This makes more difficult to support the hypothesis that they are not correlated to the dependent variable. In our case, it is possible that some omitted variables, such as personality traits, may violate the exclusion restriction, but our data do not allow to control for such confounders. Yet, empirically our instruments are not correlated with the dependent variable which suggests that the exclusion restriction is satisfied.

4 Methodological issues

To test our hypothesis we use OLS regressions. We are aware that, given the ordinal nature of our dependent variable, ordered probit or logit models should be preferred. However, the recent literature demonstrated that, when the dependent variable has a sufficient number of categories, OLS provide equivalent results and have the advantage of making comparisons across different models easier (Ferrer-i Carbonell and Frijters, 2004). In particular, Ferrer-i Carbonell and Frijters (2004) conclude that assumptions on ordinality or cardinality of the answers to a subjective well-being question are “relatively unimportant to results”¹⁰.

However, to check the consistency of our results, we replicate our estimates using ordered probit and logit models as well. Results are provided in the appendix on page 24.

The baseline regression model is:

$$SWB_i = \alpha + \beta \cdot \mathbf{X}_i + \epsilon_i \quad (1)$$

where SWB is proxied by life satisfaction and happiness, respectively; β is the vector of parameters to be estimated; \mathbf{X}_i represents the vector of independent variables, including the expectations about the future, socio-demographic control variables, country and time dummies; ϵ_i is the error term and the index i stands for individuals.

In a second step, we instrument the variable of interest in order to check for causality.

¹⁰Ferrer-i Carbonell and Frijters (2004)

4.1 Testing for causality

The coefficients from equation 1 inform about the sign and magnitude of partial correlations among variables, but they do not allow any causal interpretation.

To address this issue, we run a further set of regressions with instrumental variables using the two stage least squares (2SLS) model (Wooldridge, 2002). The method consists in identifying one or more suitable instruments for each endogenous variables. If such variable exists, it can be used in a first step to predict the endogenous variable and, in a second step, its predicted values can be used as regressors.

In case of the GSS, where 2 instruments are available, the 2SLS model is as follows:

$$bleakfuture_i = \gamma_1 + \gamma_2 \cdot confidence_congress + \gamma_3 \cdot confidence_science + \gamma_4 \cdot \mathbf{X}_i + \mu_i \quad (2)$$

$$SWB_i = \alpha + \Phi \cdot \mathbf{X}_i + \vartheta \cdot \widehat{bleak_future}_i + \varepsilon_i \quad (3)$$

where SWB is proxied by happiness; Φ is a vector of parameters of the control variables \mathbf{X} including year dummies; ϑ is the coefficient of the expectations about the future; *bleakfuture_i* is the variable of interest and it is based on people’s agreement with the sentence: “It’s hardly fair to bring children into the world with the way things look for the future”. Answers are coded in a dichotomous variable; ε_i is the error term.

In the WVS and the ESS our instrument is political distrust and it is used to predict the expectations about the future in the first step regression. The predicted values are subsequently used in the second step regression to explain subjective well-being . In this case the 2SLS model can be written as:

$$bleakfuture_i = \pi_1 + \pi_2 \cdot political_distrust + \pi_3 \cdot \mathbf{X}_i + \nu_i \quad (4)$$

$$SWB_i = \alpha + \theta \cdot \mathbf{X}_i + \gamma \cdot \widehat{bleak_future}_i + \epsilon_i \quad (5)$$

where SWB is proxied by life satisfaction and happiness, respectively; θ is a vector of parameters of the control variables \mathbf{X} including year dummies; γ is the coefficient of the expectations about the future; *bleakfuture_i* is the variable of interest; ϵ_i is the error term; $E[\epsilon_i | x_i, political_distrust_i] = 0$ with *political_distrust_i* being the instrument as defined in section 3.5. Each regression uses robust standard errors clustered by year and country.

5 Results

Table 3 shows the estimation results from the WVS for developed countries. The correlation between expecting a bleak future and life satisfaction is largely negative and highly significant. Having the perception that the future will be bleak rather than bright goes with about 5.2% lower life satisfaction. This is a remarkably high correlation, comparable with the coefficients of the well-established most important correlates of well-being, as being married or unemployed. The same result is confirmed in case we use happiness as a dependent variable rather

than life satisfaction. Happiness is 4.25% lower for those who tend to see the future as bleak compared to those who see it bright (see table 11 in the appendix).

The sign and magnitude of the coefficient on future expectations suggest that this variable is an important component of people's well-being. In other words, people are less satisfied with their lives if they expect the future generations to have a bleak life. This result is robust to the inclusion of all the standard ingredients of a happiness regression.

For what concerns the other control variables, they all have the expected signs and are consistent with previous findings from the literature.

Table 3: Expectations about the future and life satisfaction in developed countries

	life satisfaction	
bleak future	-0.515***	(-8.42)
woman	0.166**	(3.64)
married	0.664***	(5.88)
living together	0.594**	(4.02)
divorced	0.0300	(0.24)
separated	-0.643***	(-5.57)
widowed	0.00102	(0.01)
retired	-0.0696	(-0.91)
housewife	0.0188	(0.28)
student	0.102	(1.02)
unemployed	-0.741**	(-3.75)
one child	-0.0677	(-1.20)
two children	-0.111	(-1.51)
three or more children	-0.0606	(-0.86)
living with parents	-0.0784	(-0.97)
age	-0.0680***	(-10.11)
age ² /100	0.0756***	(11.59)
education level	0.0296	(2.00)
scale of income	0.0724**	(4.28)
Constant	7.068***	(30.59)
Observations	8989	
Adjusted R^2	0.134	

t statistics in parentheses

Regressors include both year and country dummies, but coefficients are omitted for brevity.

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

5.1 Time preference across sub-groups of the population

One might suspect that various sub-groups of population have different attitudes towards the future. For example, it is plausible that women or more educated people are relatively more concerned for the long-term future. The same might apply to people with children compared to people without; or younger individ-

uals compared to elderly ones, because the former have (or will have) younger descendants that are more likely to be affected by future ecological crises. In this light, demographic changes as the decline in the birth rate or the aging of the population may drive an increase in the discount rate. To test these hypotheses we run a set of regressions where the model of equation 1 is extended to include the interaction terms between the expectations about the future and age, having children, gender, marital status, and education (see table 16 and 17 in Appendix E).

We do not find any remarkable difference in the time preference among sub-groups. This result is consistent with Stern’s (2007) claim that discounting the very long-term future involves an ethical care for future generations, which is not implied by discounting the future over one’s lifetime. In particular, the egalitarian distribution of the concern for future generations among age cohorts and sub-groups with/without offspring suggests that the time preference is not shaped by inter-temporal self-interest.

5.2 Test of causality

The first column of tab. 4 shows the coefficients of the first step where the variable *bleak future* is regressed on political distrust and a set of control variables using clustered standard errors; the second column of tab. 4 provides the coefficients from the standard OLS model for ease of comparison; the last column reports the coefficients from the second step of the 2SLS regression where life satisfaction is regressed on the predicted values of *bleak future*, along with the set of control variables and using clustered standard errors.

The results of the estimated reduced form model validate the relevance condition of the instrument (see section 4.1): political distrust is positively and significantly correlated to expectations about the future. The relevance of the instrument is further confirmed in the first stage regression by the high value of the F-statistic¹¹. The correlation between our instrument and subjective well-being is basically flat, satisfying the conditions of validity, which requires that the instrument is orthogonal to the error term.

Results from the 2SLS show that the coefficient of expectations about the future becomes about two times bigger than in the OLS case and it remains statistically very significant. Similarly, several significant coefficients of control variables in the OLS estimation turn more significant in the 2SLS case. Estimates suggest that a respondent who expects humanity to have a bleak future is 12.85% less satisfied with his life than a respondent having positive expectations. The happiness regression shows similar results: having bad expectations about the future reduces current well-being by about 7% (see tab. 12 in the appendix).

According to the estimates from the WVS the income equivalent of having a bright future for an American earning 16250 U.S.\$ in 1995 is 87500 U.S.\$. This amounts to passing from the first to the seventh income decile. Using 2SLS estimates, this is equivalent to passing from the first to the tenth income decile.

¹¹The rule of thumb suggests that values larger than ten indicate a strong instrument (Gujarati, 2011).

Table 4: Political distrust as an instrument for the expectations about the future.

<i>Dependent variable</i>	Reduced form	OLS	2SLS
	<i>Bleak future</i>	<i>Life satisfaction</i>	<i>Life satisfaction</i>
bleak future		-0.515*** (-8.42)	-1.285*** (-4.73)
political distrust	0.176*** (12.93)		
woman	0.0279 (1.01)	0.166** (3.64)	0.191*** (3.52)
married	-0.0208 (-1.41)	0.664*** (5.88)	0.643*** (6.03)
living together	0.00867 (0.44)	0.594** (4.02)	0.602*** (4.29)
divorced	0.0407 (1.57)	0.0300 (0.24)	0.0618 (0.54)
separated	-0.0784 (-1.53)	-0.643*** (-5.57)	-0.697*** (-5.91)
widowed	-0.000778 (-0.03)	0.00102 (0.01)	-0.00715 (-0.06)
retired	0.0514 (2.18)	-0.0696 (-0.91)	-0.0320 (-0.41)
housewife	-0.0190 (-1.05)	0.0188 (0.28)	0.00103 (0.02)
student	-0.0349 (-1.51)	0.102 (1.02)	0.0691 (0.76)
unemployed	0.0503* (2.89)	-0.741** (-3.75)	-0.698*** (-3.90)
one child	0.0169 (0.67)	-0.0677 (-1.20)	-0.0501 (-0.90)
two children	0.0106 (1.11)	-0.111 (-1.51)	-0.0993 (-1.43)
three or more children	-0.00781 (-0.39)	-0.0606 (-0.86)	-0.0657 (-0.92)
living with parents	0.0275 (1.08)	-0.0784 (-0.97)	-0.0588 (-0.74)
age	-0.00144 (-0.51)	-0.0680*** (-10.11)	-0.0690*** (-11.78)
age ² /100	0.000905 (0.32)	0.0756*** (11.59)	0.0762*** (11.44)
education level	-0.0175** (-4.14)	0.0296 (2.00)	0.0154 (1.31)
scale of income	-0.00783* (-2.67)	0.0724** (4.28)	0.0655*** (3.85)
Constant	0.491*** (7.33)	7.068*** (30.59)	7.354*** (38.23)
Observations	9008	8989	8989
Adjusted R ²	0.134	0.134	-
F-statistic			166.22

t statistics in parentheses

Regressors include both year and country dummies, but coefficients are omitted for brevity.

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

5.3 Robustness checks

5.3.1 Estimates using different sets of countries

How much does the selection of the countries affect the results? To what extent our results hold outside the industrialized world? The WVS allows to answer this questions as it provides information on a large number of countries, including many developing and transition ones¹².

Results are presented in table 5. For comparative reasons, the first two columns report the results of the OLS and the 2SLS regressions for the sample of developed countries. Columns 3 and 4 provide the same information for transition economies, columns 5 and 6 refer to developing countries, whereas the last two columns provide the results of regressions including all the countries available in the WVS¹³.

Results concerning the relationship between expectations about the future and life satisfaction are very consistent across samples. The F-statistics from the first-stage regressions are large enough to confirm the relevance of the instrument and its strength. The signs of the instrumented variables are always negative, very large and significant. Moreover, the coefficients for transition and developing countries are always larger than the ones for developed countries. In case of the 2SLS regressions, a bleak perception of the future lowers people's life satisfaction by 31.65% in transition countries and 27.73% in developing ones (12.85% in developed ones).

In all cases numbers are large. Although the coefficient for transition and developing countries is more than two times larger than the one of industrial countries, people living in the latter seem to be seriously concerned for future generations. This evidence is inconsistent with the idea that people's concerns for environmental quality tend to increase with income. In the overall sample having bad expectations about the future lowers life satisfaction by 23.8%.

Moreover, the signs and the significance of the control variables are quite consistent across samples and in line with previous results from the literature.

Our results are confirmed when life satisfaction is substituted by happiness as dependent variable (see table 15 in the Appendix).

5.3.2 Estimates using different data-sets

Besides the WVS, we found other 6 data-sets providing information on people's expectations about the long-term future and subjective well-being along with a set of control variables. We replicate our regressions on these other data-sets to check the robustness of our results.

The complete list of available data-sets, the exact wording of the proxies of well-being and of expectations about the future and eventual transformations applied to these variables are presented in table 6. As illustrated in columns 2 and 3, these data-sets provide a rich set of alternative wordings to test the robustness of our findings.

Results are presented in tables from 18 to 26 in Appendix F. For each data-set we run three different models: the first one, where a proxy of well-being is regressed only on the expectations about the future; the second one, includes

¹²For a complete list of countries, their sample sizes and the years of observation, please, refer to table 13 in the Appendix.

¹³Results using happiness as dependent variable are available in Appendix D.

Table 5: Effect of the expectations about the future on life satisfaction considering various groups of countries in the WVS.

	Developed countries		Transition countries		Developing countries		All countries	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
bleak future	-0.315*** (-8.42)	-1.285*** (-4.73)	-0.908*** (-14.61)	-3.165*** (-8.05)	-0.367*** (-3.46)	-2.773** (-2.83)	-0.582*** (-8.42)	-2.380*** (-5.16)
woman	0.166** (5.88)	0.191*** (3.52)	-0.00789 (-0.14)	-0.00246 (-0.04)	0.0344 (0.64)	0.0373 (0.79)	0.0464 (1.34)	0.0643 (1.68)
married	0.664*** (5.88)	0.643*** (6.03)	0.185 (1.74)	0.174 (1.29)	0.483*** (5.06)	0.503*** (4.57)	0.465*** (6.44)	0.459*** (5.77)
living together	0.594** (4.02)	0.602*** (4.29)	-0.0259 (-0.20)	0.00296 (0.02)	0.133 (1.11)	0.144 (1.20)	0.218* (2.50)	0.219** (2.59)
divorced	0.0300 (0.24)	0.0618 (0.54)	-0.269 (-2.05)	-0.227 (-1.43)	-0.114 (-0.65)	0.0258 (0.17)	-0.0580 (-0.63)	0.0243 (0.26)
separated	-0.643*** (-5.57)	-0.697*** (-5.91)	-0.576* (-2.92)	-0.497* (-2.54)	-0.156 (-1.06)	-0.0711 (-0.44)	-0.299* (-2.59)	-0.278* (-2.07)
widowed	0.00102 (0.01)	-0.00715 (-0.06)	-0.179 (-1.41)	-0.169 (-1.43)	0.0141 (0.10)	0.00645 (0.03)	-0.0184 (-0.22)	-0.0127 (-0.13)
retired	-0.0696 (-0.91)	-0.0320 (-0.41)	-0.0176 (-0.30)	0.0379 (0.71)	0.127 (0.97)	0.159 (1.41)	-0.0309 (-0.51)	0.0362 (0.66)
housewife	0.0188 (0.28)	0.00103 (0.02)	-0.194 (-1.34)	-0.266 (-1.92)	0.178 (1.98)	0.206* (2.06)	0.0973 (1.31)	0.0777 (0.89)
student	0.102 (1.02)	0.0691 (0.76)	0.108 (0.78)	0.0217 (0.15)	0.0817 (0.93)	0.0491 (0.46)	0.0789 (1.17)	0.0378 (0.53)
unemployed	-0.741** (-3.75)	-0.698*** (-3.90)	-0.521** (-3.63)	-0.480*** (-3.55)	-0.375** (-3.21)	-0.366** (-2.78)	-0.475*** (-5.67)	-0.446*** (-5.14)
one child	-0.0677 (-1.20)	-0.0501 (-0.90)	-0.0575 (-0.69)	-0.0336 (-0.33)	-0.0673 (-0.74)	-0.102 (-0.93)	-0.0942 (-1.66)	-0.0938 (-1.39)
two children	-0.111 (-1.51)	-0.0993 (-1.43)	-0.0189 (-0.21)	0.0451 (0.39)	-0.0614 (-0.75)	-0.0469 (-0.43)	-0.0926 (-1.46)	-0.0666 (-0.90)
three or more children	-0.0606 (-0.86)	-0.0657 (-0.92)	0.0374 (0.37)	0.0851 (0.68)	-0.0269 (-0.25)	-0.0489 (-0.35)	-0.00167 (-0.02)	-0.00823 (-0.10)
living with parents	-0.0784 (-0.97)	-0.0588 (-0.74)	-0.0433 (-0.49)	-0.0145 (-0.15)	0.0357 (0.52)	-0.000802 (-0.01)	0.0302 (0.61)	0.0224 (0.43)
age	-0.0680*** (-10.11)	-0.0690*** (-11.78)	-0.0960*** (-10.60)	-0.0908*** (-11.45)	-0.0495*** (-4.85)	-0.0505*** (-4.89)	-0.0733*** (-10.99)	-0.0738*** (-10.55)
age ² /100	0.0756*** (11.59)	0.0762*** (11.44)	0.0899*** (8.53)	0.0848*** (10.25)	0.0557*** (4.43)	0.0565*** (4.44)	0.0768*** (10.75)	0.0773*** (10.09)
education level	0.0296 (2.00)	0.0154 (1.31)	0.0745*** (4.17)	0.0589*** (3.88)	0.0404 (1.36)	0.0729** (2.68)	0.0511** (2.91)	0.0542** (2.94)
scale of income	0.0724** (4.28)	0.0655*** (3.85)	0.155** (4.07)	0.148*** (4.38)	0.176*** (6.35)	0.185*** (5.95)	0.149*** (7.33)	0.148*** (6.69)
Constant	7.068*** (30.59)	7.354*** (38.23)	6.074*** (23.87)	6.661*** (27.98)	7.395*** (28.15)	10.15*** (10.97)	5.302*** (21.62)	7.203*** (23.37)
Observations	8989	8989	14766	14766	21046	21046	44801	44801
Adjusted R ²	0.134	-	0.176	0.146	0.146	0.281	-	-
F-statistic	-	166.22	-	74.74	-	32.98	-	136.29

t statistics in parentheses
 Regressors include control variables, year and country dummies, but coefficients are omitted for brevity. All the regressions include robust standard errors clustered by year and country. * p < 0.05, ** p < 0.01, *** p < 0.001

Table 6: Description of the data-sets and of the proxies of well-being and expectations about the future available for present study.

Dataset	Subjective Well-Being	Proxy for future expectations	Transformations of the proxy
World Value Survey (WVS)	<i>Satisfaction with your life</i> : "All things considered, how satisfied are you with your life as a whole these days? 1 Dissatisfied . . . 10 Satisfied." <i>Feeling of happiness</i> : "All things together, would you say you are: 1 Very happy, 2 Quite happy, 3 Not very happy, Not at all happy."	<i>Humanity has a bright or bleak future</i> : "For each of the following pairs of statements, please tell me which one comes closest to your own views. <i>A</i> Humanity has a bright future; <i>B</i> Humanity has a bleak future. 1 Bright future, 2 Bleak future, 3 Both, 4 Neither, 5 Other."	Recorded so that 0 is "Bright Future" and 1 is "Bleak Future".
General Social Survey (GSS)	<i>Happiness</i> : "Taken all together, how would you say things are these days-would you say that you are 1 very happy, 2 pretty happy, or 3 not too happy?"	<i>No children with this future, agree or disagree</i> : "It's hardly fair to bring children into the world with the way things look for the future. 1 Agree, 2 Disagree, 8 Don't know."	Recorded so that 0 is "Disagree" and 1 is "Agree".
European Social Survey (ESS) - 2012	<i>Life Satisfaction</i> : "All things considered, how satisfied are you with your life as a whole nowadays? Please answer using this card, where 0 means 'extremely dissatisfied' and 10 means 'extremely satisfied'." <i>Happiness</i> : "Taking all things together, how happy would you say you are? Here 0 means you are extremely unhappy and 10 means you are extremely happy."	<i>Hopeful about the future</i> : "Please, say to what extent you agree or disagree with each of the following statements. The way things are now, I find it hard to be hopeful about the future of the world." where 1 means 'agree strongly' and 5 means 'disagree strongly'.	Recorded so that 1 is 'disagree strongly' and 5 is 'agree strongly'.
American's Changing Lives (ACL) - Wave 4 (2002)	<i>Life Satisfaction</i> : "Now please think about your life as a whole. How satisfied are you with it - are you 1 completely satisfied, 2 very satisfied, 3 somewhat satisfied, 4 not very satisfied or 5 not at all satisfied."	<i>Hopeless Future</i> : "The future seems hopeless to me and I can't believe that things are changing for the better. 1 Agree strongly, 2 Agree Somewhat, 3 Disagree somewhat, 4 Disagree strongly."	Recorded so that 1,2,3,4 become 4,3,2,1, respectively.
Eurobarometer 72.4 (Oct-Nov 2009)	<i>Life Satisfaction</i> : "On the whole, are you 1 very satisfied, 2 fairly satisfied, 3 not very satisfied or 4 not at all satisfied with your life?"	<i>Life for next generation</i> : "Generally speaking, do you think that the life of those who are children today will be 1 easier, 2 more difficult or 3 neither easier nor more difficult of those from your own generation?"	Recorded so that 2 is "Neither easier not more difficult" and 3 is "more difficult" (with 1 remaining "Easier").
German General Social Survey (2008)	<i>Life Satisfaction</i> : "Considering your life today, what would you say, on the whole, how happy or unhappy are you? 1 very happy, 2 pretty happy, 3 not really happy, 4 not happy at all, 8 I can't say."	<i>No children with this future, agree or disagree</i> : "Given the future, one can hardly take responsibility to bring children into the world. 1 I agree, 2 I disagree, 8 I don't know."	Recorded so that 0 is "I disagree" and 1 is "I agree".
European Quality of Life (EQL) - 2007	<i>Life Satisfaction</i> : "All things considered, how satisfied would you say you are with your life these days? Please use a scale from 1 to 10 where 1 means 'very dissatisfied' and 10 means 'very satisfied'." <i>Happiness</i> : "Taking all things together on a scale of 1 to 10, how happy would you say you are? Here 1 means you are very unhappy and 10 means you are very happy."	<i>Optimism about future</i> : "I am optimistic about the future. Please tell me whether you 1 strongly agree, 2 agree, 3 neither agree nor disagree, 4 disagree or 5 strongly disagree."	Not recoded.

year or, in case of cross-national surveys, country control variables; the third one includes also a set of control variables that are standard in happiness regressions. We adopted ordered probit models with robust standard errors reporting marginal effects. In case of the European Quality of Life survey we run an OLS with robust standard errors as the dependent variable ranges on a 1 to 10 points scale. Additionally, in case of the ESS and of the GSS, we also report a table with 2SLS estimates along with the reduced model and the happiness regressions.

Results are very consistent with the pattern already identified in the WVS. Data from the American GSS collected between 1973 and 1994 confirm that agreeing that it is hardly fair to bring children into the world with the way things look for the future, correlates with -9.34% in people's happiness. Table 19 shows the results accounting for potential endogeneity between people's well-being and their feelings that bringing children to world is fair. We estimate two sets of 2SLS: in the first one (columns 3 and 4) we use only confidence in the scientific community as instrument; in the second set of 2SLS we use confidence in scientific community and in congress to predict the reduced form of the 2SLS (columns 5 and 6). In both cases the results are consistent: the first steps, reported in column 3 and 5, show that the instruments are significantly associated with the perception about the future. In case of the model with two instruments, the test of over-identifying restrictions (J-statistic) confirms the validity of our instruments. The predicted values are then used in the second stages (columns 4 and 6) where it becomes respectively 3 and 4 times bigger than in the case of the OLS. After accounting for endogeneity, the expectations about the future determine a substantial portion of people's well-being. The F-statistic from the first stage is large enough to confirm the relevance of the instrument and its strength. According to these estimates the income equivalent of positive expectations about the future is 96356 U.S.\$ of 1995 for an American earning 15000 U.S.\$ per year, which is very similar to the estimates from the WVS.

In 2012 the ESS included for the first time a question about the perception of the future. Interviewers asked respondents to answer a question about how much they agreed with the statement that, given the way things are, it is hard to be hopeful about the future of the world¹⁴. The answers range on a scale from 1 to 5, where larger values indicate more disagreement. After recoding the answers, so that higher values stand for stronger agreement, we find that perceptions about the future correlate positively and significantly with people's happiness and life satisfaction (see column 2 of tables 25 and 26, respectively). Since both life satisfaction and happiness are measured on a 10 points scale, it is unsurprising that the size of the coefficients of the perception about the future are very similar in the two equations: -0.358 for life satisfaction and -0.349 for happiness. The ESS also allows to account for endogeneity using confidence in country's parliament as an instrument for the perceptions about the future (see column 1 of tables 25 and 26). The second stage confirms that having negative expectations about the future affects negatively and significantly people's well-being. The coefficients become nearly 19 times bigger than in the case of the OLS (see column 3 of tables 25 and 26). In both cases the F-statistic is large

¹⁴The list of countries includes: Belgium, Bulgaria, Switzerland, Cyprus, Czech Republic, Germany, Denmark, Estonia, Spain, Finland, Great Britain, Ireland, Israel, Iceland, Netherlands, Norway, Poland, Portugal, Russia, Sweden, Slovenia, Slovakia and Croatia.

enough to confirm the relevance of the instrument and its strength.

The fourth wave of the American's Changing Lives survey administered in 2002 informs that those who strongly believe that the future is hopeless and that things are not changing for the better, report on average a 10.6% lower life satisfaction than those who strongly disagree. Remarkably, this coefficient is very similar to the one of people who somewhat believe that the future is hopeless, while those who somewhat disagree report a milder decrease in well-being of about 6%.

In 2009 the respondents from 33 European countries were asked by Eurobarometer whether they expected the younger generations to have an easier or more difficult life than the one of current generations. In this case the figures from Eurobarometer show that those with worst expectations report on average a 7.33% lower life satisfaction, that is to say a coefficient two times larger than the one relative to neutral expectations.

The German General Social Survey in 2008 asked to its respondents whether they agreed or disagreed with the idea that, given the future, one can hardly take responsibility to bring children into the world. Estimates document that those more worried for the future report a 9.25% lower life satisfaction than the others.

The European Quality of Life survey of 2007 asked about people's optimism for the future in 31 European countries¹⁵. Life satisfaction and happiness are available, both ranging on a 1 to 10 points scale. Estimates are in line with previous results and consistent between life satisfaction and happiness. Strongly disagreeing with an optimistic view about the future goes with a 27% lower life satisfaction and a 21% lower happiness than those in the reference group (strongly agreeing). Similarly to the results from the American's Changing Lives survey, the more people tend to agree with an optimistic view about the future, the lower their well-being.

Summarizing, a set of regressions using different data from various countries, different years and different wordings provide a substantially consistent picture. Pessimistic (optimistic) expectations about the future are associated to lower (higher) current well-being. The tests of causality performed on the GSS, WVS and the ESS consistently suggest that the expectations about the very long-term future have a remarkable impact on SWB.

6 Conclusion

The very long-term time preference is a crucial issue in the debates concerning all long-term ecological threats, including global warming. Different opinions on the extent to which current generations are willing to sacrifice their standards of life for the sake of future generations motivate the contrast between the advocates of strong environmental policies and their opponents.

The same difference in opinions is at the root of the contrast opposing two different streams of environmentalism. Advocates of strong environmental protection agree in claiming that the current pattern of economic activity is unsus-

¹⁵The list of countries includes: Belgium, Denmark, Germany, Greece, Spain, Finland, France, Ireland, Italy, Luxembourg, Netherlands, Austria, Portugal, Sweden, Great Britain, Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovak Republic, Slovenia, Turkey, Norway, Croatia and Macedonia.

tainable. Yet, they disagree about who is to be held responsible. Two different answers are provided: the people or the socio-economic system. The first answer claims that people are inter-temporally greedy: the behavior of the economic system simply mirrors the high discount rate. The second answer suggests that people would prefer a less aggressive economy towards the future, but institutional failures prevent the economic system from reflecting the discount rate of individuals.

Such contrasting opinions on the very long run discount rate are fed by the scarcity of empirical evidence. The question “how much we care about future generations?” can hardly be answered with market data. While private markets provide reliable information about societal evaluation of time within a generation, no comparable private rates exist to evaluate events that will not occur during the lifetimes of most who are alive today. Using survey data, we assess the very long-term time preference estimating the relationship between subjective well-being and individuals’ expectations about the living conditions of future generations. If people are inter-temporally greedy, their expectations about the future – whatever they are – should have weak or null influence on people’s current well-being. Conversely, if individuals are concerned for future generations such influence should be positive and sizable. We proxy current well-being with subjective well-being and the expectations of the very long-term future with specific questions on the issue. We run subjective well-being regressions where the standard controls are augmented with the perception of the future. We find that the importance of the latter is comparable to the most important correlates of subjective well-being, as being married or unemployed. Current well-being is sharply and negatively (positively) associated to a negative (positive) expectation of the future. Results are consistent across different data-sets, countries, years, wordings. Where possible, we use 2SLS to account for possible endogeneity between expectations about the future and current well-being. We find that expecting the worst (the best) for future generations has a very large negative (positive) impact on subjective well-being. Income compensations for the loss of well-being associated to gloomy expectations about the living conditions of future generations are large, both in relative and absolute terms. This suggests substantial willingness to pay for preventing unsustainable conditions of life. While discarding the hypothesis that people are inter-temporally greedy, our results support the view that current problems of sustainability are due to some failure of the socio-economic organization.

A Descriptive Statistics of the sample of Developed countries from the WVS.

Table 7: Cross-tabulation of happiness and the expectations about the future

	0 <i>Bright future</i>	1 <i>Bleak future</i>	Total
1 <i>not at all happy</i>	40	108	148
2 <i>not very happy</i>	297	698	995
3 <i>quite happy</i>	3906	3989	7895
4 <i>very happy</i>	2484	1570	4054
Total	6727	6365	13092

Table 8: Descriptive statistics of control variables

<i>Variable</i>	<i>Mean</i>	<i>Sd</i>	<i>Min</i>	<i>Max</i>	<i>Obs.</i>
Female	0.519	0.500	0	1	17463
Married	0.584	0.493	0	1	17405
Living together as married	0.076	0.265	0	1	17405
Divorced	0.053	0.224	0	1	17405
Separated	0.019	0.137	0	1	17405
Widowed	0.063	0.243	0	1	17405
Retired	0.170	0.376	0	1	16404
Housewife	0.115	0.319	0	1	16404
Student	0.057	0.231	0	1	16404
Unemployed	0.056	0.230	0	1	16404
One child	0.141	0.348	0	1	17330
Two children	0.286	0.452	0	1	17330
Three or more children	0.267	0.442	0	1	17330
Living with parents	0.140	0.347	0	1	15000
Age	44.384	16.870	15	95	17407
Age ² /100	22.545	16.421	2.25	90.25	17407
Education level	4.751	2.266	1	8	16114
Income scale	5.489	2.737	1	10	15180

B Regressions with various estimation methods on the sample of Developed countries. For Online Publication

Table 9: Estimates using ordered probit, ordered logit and OLS models on WVS data using life satisfaction as a dependent variable.

	Ordered Probit	Ordered Logit	OLS
bleak future	-0.283*** (-8.44)	-0.469*** (-7.48)	-0.515*** (-8.42)
woman	0.108*** (3.85)	0.194*** (3.90)	0.166** (3.64)
married	0.376*** (5.93)	0.650*** (5.63)	0.664*** (5.88)
living together	0.346*** (4.27)	0.609*** (4.48)	0.594** (4.02)
divorced	0.0111 (0.16)	0.0178 (0.15)	0.0300 (0.24)
separated	-0.311*** (-4.93)	-0.629*** (-6.07)	-0.643*** (-5.57)
widowed	0.000789 (0.01)	-0.0349 (-0.27)	0.00102 (0.01)
retired	-0.0183 (-0.42)	-0.0444 (-0.50)	-0.0696 (-0.91)
housewife	0.0141 (0.38)	0.0513 (0.93)	0.0188 (0.28)
student	0.0696 (1.17)	0.114 (1.09)	0.102 (1.02)
unemployed	-0.375*** (-3.72)	-0.685*** (-3.73)	-0.741** (-3.75)
one child	-0.0308 (-0.97)	-0.0673 (-1.10)	-0.0677 (-1.20)
two children	-0.0666 (-1.65)	-0.112 (-1.68)	-0.111 (-1.51)
three or more children	-0.0316 (-0.82)	-0.0570 (-0.86)	-0.0606 (-0.86)
living with parents	-0.0352 (-0.79)	-0.0452 (-0.57)	-0.0784 (-0.97)
age	-0.0374*** (-7.58)	-0.0675*** (-7.30)	-0.0680*** (-10.11)
age ² /100	0.0429*** (8.32)	0.0775*** (7.88)	0.0756*** (11.59)
education level	0.0117 (1.27)	0.0262 (1.57)	0.0296 (2.00)
scale of income	0.0379*** (3.99)	0.0608*** (3.60)	0.0724** (4.28)
Observations	8989	8989	8989
Adjusted R^2			0.134
Pseudo R^2	0.036	0.038	

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
Regressors include both year and country dummies, but coefficients are omitted for brevity.

Table 10: Estimates using ordered probit, ordered logit and OLS models on WVS data using happiness as a dependent variable.

	Ordered Probit	Ordered Logit	OLS
bleak future	-0.343*** (-10.37)	-0.574*** (-9.57)	-0.171*** (-8.49)
woman	0.147*** (3.78)	0.257*** (3.74)	0.0711** (3.62)
married	0.594*** (13.43)	1.041*** (13.02)	0.294*** (16.60)
living together	0.477*** (10.42)	0.850*** (10.75)	0.240*** (10.08)
divorced	0.0397 (0.70)	0.0920 (0.92)	0.00862 (0.29)
separated	-0.115 (-1.87)	-0.235 (-1.90)	-0.0697 (-1.94)
widowed	-0.0219 (-0.24)	-0.0738 (-0.36)	-0.0312 (-0.60)
retired	-0.0369 (-0.55)	-0.0685 (-0.56)	-0.0228 (-0.64)
housewife	-0.0296 (-0.56)	-0.0245 (-0.27)	-0.0173 (-0.68)
student	0.0730 (0.84)	0.142 (0.90)	0.0347 (0.83)
unemployed	-0.273* (-2.30)	-0.500* (-2.17)	-0.152 (-2.21)
one child	-0.121*** (-3.64)	-0.219*** (-3.57)	-0.0622** (-3.92)
two children	-0.0527 (-1.35)	-0.103 (-1.50)	-0.0256 (-1.30)
three or more children	-0.0510 (-0.98)	-0.103 (-1.02)	-0.0232 (-0.91)
living with parents	0.0776* (1.98)	0.135 (1.87)	0.0399 (2.07)
age	-0.0341*** (-4.72)	-0.0584*** (-4.33)	-0.0173*** (-5.04)
age ² /100	0.0315*** (4.25)	0.0548*** (4.00)	0.0160** (4.54)
education level	0.0115* (2.07)	0.0173 (1.62)	0.00607 (2.23)
scale of income	0.0241** (2.64)	0.0372* (2.37)	0.0116* (2.47)
Observations	8965	8965	8965
Adjusted R^2			0.138
Pseudo R^2	0.080	0.079	

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Regressors include both year and country dummies, but coefficients are omitted for brevity.

C Happiness Regressions

Table 11: Expectations about the future and happiness in developed countries

	happiness	
bleak future	-0.171***	(-8.49)
woman	0.0711**	(3.62)
married	0.294***	(16.60)
living together	0.240***	(10.08)
divorced	0.00862	(0.29)
separated	-0.0697	(-1.94)
widowed	-0.0312	(-0.60)
retired	-0.0228	(-0.64)
housewife	-0.0173	(-0.68)
student	0.0347	(0.83)
unemployed	-0.152	(-2.21)
one child	-0.0622**	(-3.92)
two children	-0.0256	(-1.30)
three or more children	-0.0232	(-0.91)
living with parents	0.0399	(2.07)
age	-0.0173***	(-5.04)
age ² /100	0.0160**	(4.54)
education level	0.00607	(2.23)
scale of income	0.0116*	(2.47)
Constant	3.310***	(43.13)
Observations	8965	
Adjusted R^2	0.138	

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Regressors include both year and country dummies, but coefficients are omitted for brevity.

Table 12: Using political distrust as an instrument for the expectations about the future. The sample includes the Developed countries from the WVS.

	Reduced form	OLS	2SLS
<i>Dependent variable</i>	<i>Bleak future</i>	<i>Happiness</i>	<i>Happiness</i>
bleak future		-0.171*** (-8.49)	-0.289*** (-3.64)
political distrust	0.176*** (12.93)		
woman	0.0279 (1.01)	0.0711** (3.62)	0.0750*** (3.65)
married	-0.0208 (-1.41)	0.294*** (16.60)	0.291*** (16.05)
living together	0.00867 (0.44)	0.240*** (10.08)	0.241*** (11.17)
divorced	0.0407 (1.57)	0.00862 (0.29)	0.0135 (0.46)
separated	-0.0784 (-1.53)	-0.0697 (-1.94)	-0.0787* (-2.38)
widowed	-0.000778 (-0.03)	-0.0312 (-0.60)	-0.0325 (-0.65)
retired	0.0514 (2.18)	-0.0228 (-0.64)	-0.0169 (-0.49)
housewife	-0.0190 (-1.05)	-0.0173 (-0.68)	-0.0198 (-0.81)
student	-0.0349 (-1.51)	0.0347 (0.83)	0.0298 (0.77)
unemployed	0.0503* (2.89)	-0.152 (-2.21)	-0.145* (-2.28)
one child	0.0169 (0.67)	-0.0622** (-3.92)	-0.0593*** (-3.72)
two children	0.0106 (1.11)	-0.0256 (-1.30)	-0.0236 (-1.27)
three or more children	-0.00781 (-0.39)	-0.0232 (-0.91)	-0.0239 (-0.97)
living with parents	0.0275 (1.08)	0.0399 (2.07)	0.0431* (2.56)
age	-0.00144 (-0.51)	-0.0173*** (-5.04)	-0.0174*** (-5.66)
age ² /100	0.000905 (0.32)	0.0160** (4.54)	0.0161*** (4.91)
education level	-0.0175** (-4.14)	0.00607 (2.23)	0.00393 (1.81)
scale of income	-0.00783* (-2.67)	0.0116* (2.47)	0.0106* (2.48)
Constant	0.491*** (7.33)	3.310*** (43.13)	3.353*** (47.33)
Observations	9008	8965	8965
Adjusted R^2	0.134	0.138	-
F-statistics			164.39

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Regressors include both year and country dummies, but coefficients are omitted for brevity.

D Regression including all the countries in the WVS. For Online Publication

Table 13: Availability of WVS data across countries and over time.

	1994	1995	1996	1997	1998	1999	2004	Total
Albania	0	0	0	0	999	0	0	999
Azerbaijan	0	0	0	2002	0	0	0	2002
Argentina	0	1079	0	0	0	0	0	1079
Australia	0	2048	0	0	0	0	0	2048
Bangladesh	0	0	1525	0	0	0	0	1525
Armenia	0	0	0	2000	0	0	0	2000
Bosnia and Herzegovina	0	0	0	0	1200	0	0	1200
Brazil	0	0	0	1149	0	0	0	1149
Bulgaria	0	0	0	1072	0	0	0	1072
Belarus	0	0	2092	0	0	0	0	2092
Chile	0	0	1000	0	0	0	0	1000
China	0	1500	0	0	0	0	0	1500
Taiwan	780	0	0	0	0	0	0	780
Colombia	0	0	0	3029	2996	0	0	6025
Croatia	0	0	1196	0	0	0	0	1196
Czech Republic	0	0	0	0	1147	0	0	1147
Dominican Republic	0	0	417	0	0	0	0	417
El Salvador	0	0	0	0	0	1254	0	1254
Estonia	0	0	1021	0	0	0	0	1021
Finland	0	0	987	0	0	0	0	987
Georgia	0	0	2008	0	0	0	0	2008
Germany	0	0	0	2026	0	0	0	2026
Hungary	0	0	0	0	650	0	0	650
India	0	2040	0	0	0	0	0	2040
Japan	0	1054	0	0	0	0	0	1054
South Korea	0	0	1249	0	0	0	0	1249
Latvia	0	0	1200	0	0	0	0	1200
Lithuania	0	0	0	1009	0	0	0	1009
Mexico	0	0	2364	0	0	0	0	2364
Moldova	0	0	984	0	0	0	0	984
New Zealand	0	0	0	0	1201	0	954	2155
Nigeria	0	1996	0	0	0	0	0	1996
Norway	0	0	1127	0	0	0	0	1127
Pakistan	0	0	0	733	0	0	0	733
Peru	0	0	1211	0	0	0	0	1211
Philippines	0	0	1200	0	0	0	0	1200
Poland	0	0	0	1153	0	0	0	1153
Puerto Rico	0	1164	0	0	0	0	0	1164
Romania	0	0	0	0	1239	0	0	1239
Russian Federation	0	2040	0	0	0	0	0	2040
Slovakia	0	0	0	0	1095	0	0	1095
Slovenia	0	1007	0	0	0	0	0	1007
South Africa	0	0	2935	0	0	0	0	2935
Spain	0	1211	0	0	0	0	0	1211
Sweden	0	0	1009	0	0	0	0	1009
Switzerland	0	0	1212	0	0	0	0	1212
Turkey	0	0	1907	0	0	0	0	1907
Ukraine	0	0	2811	0	0	0	0	2811
Macedonia	0	0	0	0	995	0	0	995
Great Britain	0	0	0	0	1093	0	0	1093
United States	0	1542	0	0	0	0	0	1542
Uruguay	0	0	1000	0	0	0	0	1000
Venezuela	0	0	1200	0	0	0	0	1200
Serbia and Montenegro	0	0	1520	0	0	0	0	1520
Total	780	16681	33175	14173	12615	1254	954	79632

Table 14: List of all countries available in the WVS organized in developed, developing and transition countries.

Developed countries	Developing countries	Transition economies
Australia	Argentina	Albania
Taiwan	Bangladesh	Azerbaijan
Finland	Brazil	Armenia
Germany	Chile	Bosnia and Herzegovina
Japan	China	Bulgaria
South Korea	Colombia	Belarus
New Zealand	Dominican Republic	Croatia
Norway	El Salvador	Czech Republic
Spain	India	Estonia
Sweden	Mexico	Georgia
Switzerland	Nigeria	Hungary
Great Britain	Pakistan	Latvia
United States	Peru	Lithuania
	Puerto Rico	Moldova
	South Africa	Poland
	Turkey	Romania
	Uruguay	Russian Federation
	Venezuela	Slovakia
	Serbia and Montenegro	Slovenia
		Ukraine
		Macedonia

Table 15: Expectations about the future and happiness considering various groups of countries in the WVS.

	Developed countries		Transition countries		Developing countries		All countries	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
bleak future	-0.171*** (-8.49)	-0.289*** (-3.64)	-0.243*** (-17.50)	-0.849*** (-6.32)	-0.136*** (-5.55)	-0.777** (-2.23)	-0.178*** (-11.22)	-0.643*** (-4.17)
woman	0.0711*** (3.62)	0.0750*** (3.65)	-0.00678 (-0.70)	-0.00618 (-0.54)	0.0236 (1.34)	0.0257 (1.68)	0.0226* (2.17)	0.0276* (2.40)
married	0.294*** (16.60)	0.291*** (16.05)	0.195*** (7.16)	0.194*** (5.97)	0.170*** (5.95)	0.174*** (5.56)	0.204*** (10.55)	0.203*** (9.88)
living together	0.240*** (10.08)	0.241*** (11.17)	0.105** (3.90)	0.111*** (4.00)	0.0561 (1.22)	0.0561 (1.42)	0.103*** (3.56)	0.102*** (3.93)
divorced	0.00862 (0.29)	0.0135 (0.46)	-0.134*** (-4.32)	-0.119*** (-3.50)	-0.0848 (-1.60)	-0.0516 (-1.11)	-0.0828** (-2.96)	-0.0617* (-2.24)
separated	-0.0607 (-1.94)	-0.0787* (-2.38)	-0.131 (-1.68)	-0.106 (-1.39)	-0.0979 (-1.88)	-0.0756 (-1.39)	-0.0938** (-2.79)	-0.0885* (-2.42)
widowed	-0.0312 (-0.60)	-0.0325 (-0.65)	-0.0795* (-2.19)	-0.0772* (-2.38)	-0.0863 (-1.86)	-0.0889 (-1.54)	-0.0768** (-2.80)	-0.0763** (-2.60)
retired	-0.0228 (-0.64)	-0.0169 (-0.49)	-0.00373 (-0.13)	0.0125 (0.43)	0.0466 (1.05)	0.0534 (1.26)	-0.00318 (-0.14)	0.0140 (0.63)
housewife	-0.0173 (-0.68)	-0.0198 (-0.81)	-0.0173 (-0.54)	-0.0364 (-1.08)	0.0544 (1.42)	0.0622 (1.94)	0.0277 (1.06)	0.0236 (0.84)
student	0.0347 (0.83)	0.0298 (0.77)	0.0206 (0.75)	-0.00202 (-0.07)	0.0183 (1.00)	0.00867 (0.49)	0.0273 (1.91)	0.0166 (1.19)
unemployed	-0.152 (-2.21)	-0.145* (-2.28)	-0.135*** (-4.16)	-0.124*** (-4.13)	-0.0808* (-2.73)	-0.0800* (-2.41)	-0.107*** (-5.12)	-0.100*** (-4.57)
one child	-0.0622** (-3.52)	-0.0593*** (-3.72)	0.00445 (0.20)	0.00973 (0.40)	-0.0461 (-1.33)	-0.0564 (-1.46)	-0.0403* (-2.14)	-0.0405 (-1.94)
two children	-0.0256 (-1.30)	-0.0236 (-1.27)	0.0282 (1.62)	0.0534* (2.05)	-0.0574 (-1.56)	-0.0549 (-1.30)	-0.0259 (-1.25)	-0.0199 (-0.85)
three or more children	-0.0232 (-0.91)	-0.0239 (-0.97)	0.0464 (1.66)	0.0565* (2.00)	-0.0988 (-2.01)	-0.105* (-2.01)	-0.0412 (-1.50)	-0.0435 (-1.48)
living with parents	0.0399 (2.07)	0.0431* (2.56)	0.0149 (0.76)	0.0238 (1.05)	0.0196 (0.77)	0.00881 (0.33)	0.0264 (1.65)	0.0242 (1.43)
age	-0.0173*** (-5.04)	-0.0174*** (-5.66)	-0.0244*** (-8.09)	-0.0228*** (-7.45)	-0.0132*** (-4.36)	-0.0136*** (-4.69)	-0.0177*** (-8.32)	-0.0179*** (-8.37)
age ² /100	0.0160** (4.54)	0.0161*** (4.91)	0.0207*** (5.77)	0.0191*** (5.66)	0.0140*** (4.46)	0.0144*** (4.79)	0.0167*** (7.85)	0.0168*** (7.69)
education level	0.00607 (2.23)	0.00393 (1.81)	0.0200*** (4.62)	0.0155*** (4.57)	0.0148* (2.55)	0.0231*** (3.89)	0.0156*** (4.37)	0.0163*** (4.05)
scale of income	0.0116* (2.47)	0.0106* (2.48)	0.0285*** (4.42)	0.0266*** (4.90)	0.0356*** (5.19)	0.0375*** (5.03)	0.0292*** (6.41)	0.0288*** (5.66)
Constant	3.310*** (43.13)	3.353*** (47.33)	2.928*** (51.26)	2.715*** (43.02)	3.397*** (45.01)	3.868*** (12.74)	3.223*** (58.09)	3.364*** (40.77)
Observations	8965	8965	14647	14647	21558	21558	45170	45170
Adjusted R ²	0.138		0.156		0.089		0.210	
F-statistic		164.39		72.35		31.1		131.28

t-statistics in parentheses. * p < 0.05, ** p < 0.01, *** p < 0.001.
Regressors include control variables, year and country dummies, but coefficients are omitted for brevity. All the regressions include robust standard errors clustered by year and country.

E Models with interaction terms for sub-groups of the sample. For Online Publication

Table 16: Models with interaction terms for life satisfaction on all countries using the World Values Surveys.

	gender		marital status		education		age		children	
bleak future	-0.546***	(-7.15)	-0.695***	(-8.51)	-0.369**	(-2.77)	-0.717***	(-8.13)	-0.706***	(-9.41)
woman	0.0850	(1.94)	0.0505	(1.43)	0.0498	(1.42)	0.0487	(1.37)	0.0503	(1.43)
woman * bleak	-0.0735	(-1.41)								
married	0.408***	(6.06)	0.325***	(4.85)	0.407***	(6.08)	0.380***	(5.74)	0.422***	(6.29)
divorced	-0.164*	(-2.06)	-0.0875	(-0.81)	-0.165*	(-2.08)	-0.224**	(-2.74)	-0.152	(-1.90)
widowed	-0.0619	(-0.76)	-0.0962	(-0.93)	-0.0639	(-0.79)	-0.0321	(-0.40)	-0.0393	(-0.49)
vocational	0.186	(1.93)	0.185	(1.94)	0.341*	(2.63)	0.183	(1.94)	0.188	(1.97)
secondary	0.193	(1.56)	0.193	(1.57)	0.309*	(2.24)	0.196	(1.61)	0.195	(1.59)
university	0.299*	(2.66)	0.298*	(2.66)	0.399**	(3.00)	0.289*	(2.58)	0.305*	(2.72)
one child	-0.0818	(-1.43)	-0.0798	(-1.39)	-0.0788	(-1.40)	-0.0963	(-1.58)	-0.157*	(-2.34)
two children	-0.0788	(-1.25)	-0.0783	(-1.25)	-0.0777	(-1.25)	-0.120	(-1.95)	-0.150	(-2.01)
three or more children	0.00704	(0.10)	0.00999	(0.14)	0.00923	(0.13)	-0.0546	(-0.80)	-0.0651	(-0.80)
living with parents	0.0278	(0.55)	0.0285	(0.56)	0.0264	(0.52)	0.0528	(1.04)	0.0239	(0.47)
age	-0.0707***	(-10.29)	-0.0705***	(-10.32)	-0.0706***	(-10.35)			-0.0754***	(-7.77)
age ² /100	0.0749***	(10.37)	0.0747***	(10.35)	0.0747***	(10.37)	-0.00411	(-1.22)	0.0775***	(7.67)
scale of income	0.152***	(7.26)	0.153***	(7.30)	0.153***	(7.25)	0.150***	(7.14)	0.152***	(7.30)
married * bleak			0.172**	(3.18)						
divorced * bleak			-0.115	(-1.12)						
widowed * bleak			0.0760	(0.65)						
vocational * bleak					-0.337*	(-2.62)				
secondary * bleak					-0.250**	(-2.96)				
university * bleak					-0.219	(-1.84)				
25 < age < 50							-0.411***	(-8.08)	-0.0145	(-0.24)
50 < age < 75							-0.242**	(-3.00)	0.113	(1.30)
age > 75							0.113	(0.72)	-0.0672	(-0.45)
25 < age < 50 * bleak							0.167*	(2.41)		
50 < age < 75 * bleak							0.123	(1.49)		
age > 75 * bleaks							0.263	(1.37)		
having children * bleak									0.164**	(2.74)
Constant	5.288***	(19.66)	5.354***	(19.69)	5.206***	(18.25)	4.243***	(19.03)	5.475***	(18.92)
Observations	44801		44801		44801		44801		44801	
Adjusted R ²	0.281		0.281		0.281		0.279		0.281	

t statistics in parentheses. * p < 0.05, ** p < 0.01, *** p < 0.001.
Regressors include control variables, year and country dummies, but coefficients are omitted for brevity.

Table 17: Models with interaction terms for happiness on all countries using the World Values Surveys.

	gender		marital status		education		age		children	
bleak future	-0.178***	(-10.34)	-0.174***	(-8.51)	-0.167***	(-4.78)	-0.175***	(-8.52)	-0.177***	(-10.41)
woman	0.0252	(2.02)	0.0239*	(2.26)	0.0238*	(2.26)	0.0239*	(2.23)	0.0238*	(2.26)
woman * bleak	-0.09288	(-0.21)								
married	0.181***	(9.47)	0.180***	(10.49)	0.181***	(9.48)	0.175***	(9.02)	0.185***	(9.36)
divorced	-0.0970***	(-3.96)	-0.0773*	(-2.49)	-0.0971***	(-3.98)	-0.110***	(-4.44)	-0.0935***	(-3.82)
widowed	-0.0934**	(-3.49)	-0.0459	(-1.47)	-0.0936**	(-3.51)	-0.0854**	(-3.12)	-0.0877***	(-3.18)
vocational	0.0779**	(3.37)	0.0778**	(3.35)	0.0908**	(2.76)	0.0766**	(3.34)	0.0790**	(3.42)
secondary	0.0800**	(3.02)	0.0799**	(3.00)	0.0844**	(2.78)	0.0797**	(3.05)	0.0807**	(3.06)
university	0.0995***	(4.17)	0.0994***	(4.16)	0.104**	(3.20)	0.0970***	(4.06)	0.102***	(4.26)
child	-0.0356	(-1.29)	-0.0359	(-1.30)	-0.0354	(-1.29)	-0.0370*	(-2.09)	-0.0321	(-1.67)
one child	0.0000102	(0.00)	0.000299	(0.02)	0.0000636	(0.00)				
two children	0.0155	(1.26)	0.0157	(1.28)	0.0154	(1.26)	0.00814	(0.68)	0.0163	(1.36)
living with parents	0.0249	(1.56)	0.0252	(1.58)	0.0248	(1.56)	0.0308	(1.95)	0.0236	(1.47)
age	-0.0167***	(-7.43)	-0.0167***	(-7.50)	-0.0167***	(-7.46)			-0.0173***	(-5.99)
age ² /100	0.0161***	(7.32)	0.0161***	(7.36)	0.0161***	(7.33)	-0.00221*	(-2.07)	0.0166***	(5.71)
scale of income	0.0304***	(6.44)	0.0303***	(6.47)	0.0304***	(6.44)	0.0297***	(6.34)	0.0302***	(6.45)
married * bleak			0.00374	(0.19)						
divorced * bleak			-0.0344	(-1.23)						
widowed * bleak			-0.0901*	(-2.48)						
vocational * bleak					-0.0274	(-0.82)				
secondary * bleak					-0.00947	(-0.37)				
university * bleak					-0.00919	(-0.27)				
25 < age < 50							-0.0941***	(-5.20)	-0.0157	(-0.90)
50 < age < 75							-0.0414	(-1.17)	0.00754	(0.24)
age > 75							0.0722	(1.04)	-0.0484	(-0.99)
25 < age < 50 * bleak							0.0132	(0.76)		
50 < age < 75 * bleak							-0.0389	(-1.71)		
age > 75 * bleaks							-0.0901	(-1.21)		
having children * bleak									-0.00336	(-0.18)
Constant	3.213***	(53.34)	3.211***	(54.22)	3.207***	(48.12)	2.952***	(75.99)	3.235***	(51.89)
Observations	45170		45170		45170		45170		45170	
Adjusted R ²	0.210		0.210		0.210		0.209		0.210	

t statistics in parentheses. * p < 0.05, ** p < 0.01, *** p < 0.001.
Regressors include control variables, year and country dummies, but coefficients are omitted for brevity.

F Estimations using different data-sets

Table 18: General Social Survey, Ordered probit estimates for happiness

	(1)	(2)	(3)
unfair to give birth to child	-0.360*** (-21.45)	-0.361*** (-21.42)	-0.279*** (-14.85)
woman			0.166*** (8.37)
married			0.387*** (12.60)
widowed			-0.205*** (-4.48)
divorced			-0.115** (-3.01)
separated			-0.255*** (-4.58)
part-time			-0.0385 (-1.28)
temporary no work			-0.136* (-2.34)
unemployed			-0.396*** (-7.31)
retired			0.0184 (0.47)
school			0.0777 (1.44)
housekeeping			-0.0598* (-2.11)
other			-0.178* (-2.05)
one child			-0.141*** (-4.63)
two children			-0.0747* (-2.43)
three or more children			-0.100** (-3.10)
age of respondent			-0.0167*** (-4.62)
age ² /100			0.0232*** (6.12)
degree			0.0173* (1.96)
Inflation-adjusted family income (log)			0.151*** (12.45)
number of persons in household			-0.0135 (-1.84)
cut1	-1.317*** (-98.97)	-1.366*** (-41.81)	0.141 (1.00)
cut2	0.314*** (28.52)	0.267*** (8.45)	1.873*** (13.25)
Observations	19665	19665	17972
Pseudo R ²	0.013	0.014	0.054

Marginal effects; *t* statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

(1) The only regressor is the expectation about the future

(2) and (3) Regressors include year dummies, but coefficients are omitted for brevity.

(d) for discrete change of dummy variable from 0 to 1.

Table 19: U.S. General Social Survey, IV estimates for happiness: using confidence in the scientific community and in Congress as instruments for the expectations about the future.

	OLS	Reduced form one instrument	2SLS one instrument	Reduced form two instruments	2SLS two instruments
unfair to give birth to child	-0.148*** (-14.82)		-0.754*** (-5.38)		-1.077*** (-7.66)
woman	0.0875*** (8.40)	0.0737** (2.69)	0.124*** (8.78)	0.0786** (2.85)	0.132*** (8.41)
married	0.206*** (12.69)	-0.0413 (-0.95)	0.193*** (9.04)	-0.0447 (-1.02)	0.187*** (7.81)
widowed	-0.108*** (-4.44)	-0.0126 (-0.20)	-0.122*** (-3.71)	-0.0136 (-0.22)	-0.120** (-3.24)
divorced	-0.0624** (-3.06)	0.0799 (1.47)	-0.0471 (-1.72)	0.0694 (1.27)	-0.0405 (-1.33)
separated	-0.140*** (-4.67)	0.203** (2.69)	-0.0725 (-1.77)	0.201** (2.66)	-0.0479 (-1.06)
part-time	-0.0209 (-1.31)	-0.203*** (-4.78)	-0.0709** (-3.02)	-0.201*** (-4.72)	-0.0966*** (-3.75)
temporary no work	-0.0725* (-2.34)	0.00382 (0.05)	-0.0866* (-2.09)	0.0117 (0.15)	-0.0821 (-1.79)
unemployed	-0.215*** (-7.41)	0.114 (1.64)	-0.197*** (-5.51)	0.113 (1.62)	-0.180*** (-4.56)
retired	0.00912 (0.44)	0.0546 (1.03)	0.0371 (1.30)	0.0554 (1.04)	0.0429 (1.34)
school	0.0409 (1.42)	-0.282*** (-3.79)	-0.0271 (-0.70)	-0.281*** (-3.75)	-0.0674 (-1.61)
housekeeping	-0.0327* (-2.20)	-0.0734* (-1.97)	-0.0651** (-3.29)	-0.0722 (-1.93)	-0.0715** (-3.24)
other	-0.0972* (-2.09)	-0.114 (-1.03)	-0.137* (-2.26)	-0.0782 (-0.70)	-0.138* (-2.08)
one child	-0.0743*** (-4.64)	-0.00184 (-0.04)	-0.0675** (-3.24)	-0.00124 (-0.03)	-0.0680** (-2.91)
two children	-0.0396* (-2.46)	-0.00400 (-0.10)	-0.0258 (-1.24)	-0.00330 (-0.08)	-0.0278 (-1.19)
three or more children	-0.0534** (-3.13)	-0.0562 (-1.29)	-0.0477* (-2.12)	-0.0497 (-1.13)	-0.0530* (-2.12)
age of respondent	-0.00889*** (-4.64)	0.0121* (2.45)	-0.00639* (-2.36)	0.0122* (2.45)	-0.00460 (-1.52)
age ² /100	0.0123*** (6.17)	-0.0132* (-2.54)	0.0101*** (3.52)	-0.0134* (-2.57)	0.00810* (2.52)
degree	0.00891 (1.95)	-0.293*** (-22.08)	-0.0556*** (-3.66)	-0.294*** (-22.09)	-0.0884*** (-5.72)
Inflation-adjusted family income (log)	0.0803*** (12.48)	-0.194*** (-11.89)	0.0393** (2.95)	-0.197*** (-11.96)	0.0145 (1.04)
number of persons in household	-0.00699 (-1.79)	0.0102 (1.06)	-0.00366 (-0.73)	0.0108 (1.12)	-0.00168 (-0.30)
confidence in scientific community		0.198*** (10.22)		0.171*** (8.47)	
confidence in congress				0.103*** (5.16)	
Constant	1.468*** (19.66)	1.343*** (7.10)	2.099*** (11.38)	1.220*** (6.37)	2.472*** (13.01)
Observations	17972	12795	12724	12687	12617
Adjusted R ²	0.096				
F-statistic		107.76		66.34	
J-statistic					27.34

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
Regressors include year dummies, but coefficients are omitted for brevity.

Table 20: American's Changing Lives W4 (2002), Ordered probit estimates for life satisfaction.

	(1)		(2)	
futhop==2	-0.270***	(-4.28)	-0.322***	(-4.90)
futhop==3	-0.437***	(-5.08)	-0.562***	(-6.11)
futhop==4	-0.498***	(-3.59)	-0.589***	(-4.13)
female			0.000229	(0.00)
married			0.256**	(2.65)
separated			-0.0389	(-0.22)
divorced			-0.254*	(-2.22)
widowed			-0.0800	(-0.63)
unemployed			-0.397**	(-2.66)
retired			-0.0750	(-0.89)
disabled			-0.456**	(-2.84)
housekeeping			-0.0407	(-0.40)
student			0.0123	(0.02)
age			0.0157	(1.06)
age ² /100			0.000468	(0.03)
9 < educ <= 11 years			-0.175	(-1.25)
educ = 12 years			-0.249*	(-1.96)
13 < educ <= 15 years			-0.350**	(-2.69)
educ > 16 years			-0.283*	(-2.14)
Observations	1656		1654	
Pseudo R ²	0.012		0.043	

Marginal effects; *t* statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Variable of interest:

The future seems hopeless to me and I can't believe that things are changing for the better.

The variable ranges on a scale where 1 Strongly disagree and 4 Strongly agree.

(d) for discrete change of dummy variable from 0 to 1.

Table 21: Eurobarometer 72.4 (Oct-Nov 2009), Ordered probit estimates for life satisfaction.

	(1)		(2)		(3)	
lifefut==2	-0.0545**	(-2.79)	-0.0849***	(-4.09)	-0.101***	(-4.79)
lifefut==3	-0.150***	(-9.04)	-0.251***	(-13.87)	-0.214***	(-11.55)
woman					0.0333*	(2.43)
married					0.257***	(11.87)
living with partner					0.119***	(4.25)
divorced					-0.105**	(-3.29)
widowed					-0.0579	(-1.75)
student					0.507***	(12.14)
unemployed					-0.584***	(-22.90)
retired					-0.0628**	(-2.71)
age					-0.0432***	(-15.98)
age ² /100					0.0415***	(15.21)
15 years					0.0822*	(2.49)
16 years					0.160***	(4.93)
17 years					0.160***	(4.95)
18 years					0.276***	(10.35)
19 years					0.318***	(10.23)
20 years					0.298***	(7.97)
21 years					0.433***	(10.33)
22+ years					0.522***	(19.02)
no full-time education					-0.139*	(-2.03)
cut1	-1.562***	(-91.47)	-1.996***	(-48.91)	-2.684***	(-34.92)
cut2	-0.738***	(-48.95)	-1.056***	(-26.85)	-1.687***	(-22.25)
cut3	0.727***	(48.25)	0.658***	(16.82)	0.111	(1.48)
Observations	29011		29011		28488	
Pseudo R ²	0.001		0.108		0.142	

Marginal effects; *t* statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Variable of interest:

Generally speaking, do you think that the life of those who are children today will be easier, more difficult or neither easier nor more difficult than the life of those from your own generation? 1 is Easier, 2 Neither easier nor more difficult, and 3 is more difficult.

(1) The only regressor is the expectation about the future; (2) and (3) Regressors include only country dummies, but coefficients are omitted for brevity. (d) for discrete change of dummy variable from 0 to 1.

Table 22: ALLBUS - German General Social Survey, Ordered probit estimates for life satisfaction.

	(1)		(2)	
life satisfaction				
no more children with this future	-0.457***	(-7.69)	-0.364***	(-5.26)
woman			-0.0234	(-0.32)
married			0.412***	(3.50)
separated			-0.911***	(-4.09)
widowed			-0.0816	(-0.48)
divorced			-0.0393	(-0.26)
part-time emp.			0.00672	(0.05)
along-side job			0.263	(1.75)
unemployed			-0.0481	(-0.52)
number of persons in household			-0.000608	(-0.02)
age			-0.0473***	(-3.65)
age ² /100			0.0427***	(3.39)
degree			0.0391	(1.36)
net household income (log)			0.322***	(4.84)
Observations	1605		1296	
Pseudo R ²	0.021		0.080	

Marginal effects; *t* statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Variable of interest:

Given the future, one can hardly take responsibility to bring children into the world. 1 is agree and 0 is disagree.

(1) The only regressor is the variable of interest. (2) Regressors also include control variables.

(d) for discrete change of dummy variable from 0 to 1.

Table 23: European Quality of Life - Sept-2008, OLS estimates for life satisfaction.

	(1)	(2)	(3)
futopt==2	-0.608*** (-18.90)	-0.524*** (-16.94)	-0.531*** (-14.26)
futopt==3	-1.499*** (-42.01)	-1.246*** (-35.43)	-1.107*** (-25.77)
futopt==4	-2.177*** (-52.19)	-1.923*** (-47.11)	-1.766*** (-35.46)
futopt==5	-3.226*** (-46.45)	-2.887*** (-42.74)	-2.621*** (-32.15)
woman			0.0708** (2.76)
married or living together			0.303*** (6.23)
separated or divorced			-0.313*** (-5.20)
widowed			-0.188** (-2.93)
unemployed			-0.779*** (-12.28)
home making			-0.00172 (-0.04)
retired			-0.0378 (-0.72)
one child			0.136** (3.01)
two children			0.148** (3.27)
three or more children			0.152** (2.95)
age			-0.0441*** (-8.92)
age ² /100			0.0482*** (9.88)
Household income PPP (log)			0.489*** (22.63)
number of people in household			0.0404** (3.11)
Constant	8.006*** (280.94)	8.597*** (141.19)	5.709*** (26.99)
Observations	35065	35065	22632
Adjusted R ²	0.152	0.257	0.333

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Variable of interest:

I am optimistic about the future, graded on a scale from 1 to 5, where 1 is strongly agree and 5 is strongly disagree.

(1) The only regressor is the variable of interest

(2) Regressors include country dummies, but coefficients are omitted for brevity

(3) Regressors include control variables and country dummies, but coefficients of the latter are omitted for brevity.

Table 24: European Quality of Life - Sept-2008, OLS estimates for happiness.

	(1)	(2)	(3)
futopt==2	-0.544*** (-19.61)	-0.513*** (-18.66)	-0.472*** (-14.27)
futopt==3	-1.230*** (-39.33)	-1.113*** (-35.19)	-0.925*** (-23.84)
futopt==4	-1.741*** (-46.73)	-1.628*** (-43.53)	-1.388*** (-30.50)
futopt==5	-2.507*** (-38.77)	-2.347*** (-36.80)	-2.035*** (-26.41)
woman			0.0705** (2.98)
married or living together			0.440*** (9.69)
separated or divorced			-0.344*** (-5.97)
widowed			-0.368*** (-6.07)
unemployed			-0.526*** (-9.02)
home making			-0.0292 (-0.70)
retired			-0.0994* (-2.03)
one child			0.157*** (3.70)
two children			0.194*** (4.60)
three or more children			0.204*** (4.21)
age			-0.0487*** (-10.56)
age ² /100			0.0446*** (9.69)
Household income PPP (log)			0.362*** (18.27)
number of people in household			0.0483*** (3.93)
Constant	8.260*** (340.36)	8.728*** (160.86)	6.868*** (35.59)
Observations	34963	34963	22605
Adjusted R ²	0.116	0.185	0.266

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Variable of interest:

I am optimistic about the future, graded on a scale from 1 to 5, where 1 is strongly agree and 5 is strongly disagree.

(1) The only regressor is the variable of interest

(2) Regressors include country dummies, but coefficients are omitted for brevity

(3) Regressors include control variables and country dummies, but coefficients of the latter are omitted for brevity.

Table 25: European Social Survey, IV estimates for life satisfaction: using dis-trust in the parliament as an instrument for the expectations about the future.

	Reduced form	OLS	2SLS
Trust in country's parliament	-0.00360*** (-7.59)	0.0207*** (3.72)	
gender	-0.0236* (-2.09)	-0.0937 (-1.77)	-0.231* (-2.49)
married	0.162*** (3.54)	-0.419 (-1.78)	0.522 (1.15)
civil union	0.183 (1.75)	-0.341 (-1.87)	0.895 (1.18)
separated	0.135 (1.69)	-0.691 (-1.54)	0.183 (0.26)
divorced	0.0673*** (3.32)	-0.592*** (-5.54)	-0.202 (-1.04)
Widowed	0.0957*** (4.23)	-0.370** (-2.80)	0.172 (0.69)
employment contract	-0.118*** (-8.43)	0.283*** (4.13)	-0.413 (-1.79)
Age	0.00836*** (20.14)	0.00471* (2.39)	0.0551*** (3.45)
age squared / 100	-0.000812*** (-18.83)	-0.000405 (-1.63)	-0.00529*** (-3.39)
Number of people in household	-0.00676 (-1.89)	-0.000965 (-0.09)	-0.0415 (-1.47)
Household's total net income	-0.000658** (-3.16)	0.00626*** (4.70)	0.00249 (1.15)
Hard to be hopeful about the future of the world		-0.358*** (-11.38)	-6.608*** (-3.49)
Constant		8.125*** (53.49)	27.38*** (4.73)
cut1	-1.683*** (-42.43)		
cut2	-0.453*** (-11.85)		
cut3	0.271*** (7.11)		
cut4	1.488*** (38.32)		
Observations	34529	34529	34529
Adjusted R^2		0.041	.
F-statistic			54.09

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Regressors include country dummies, but coefficients are omitted for brevity.

Table 26: European Social Survey, IV estimates for happiness: using distrust in the parliament as an instrument for the expectations about the future.

	Reduced form	OLS	2SLS
Trust in country's parliament	-0.00360*** (-7.59)	0.0200*** (3.45)	
gender	-0.0236* (-2.09)	-0.210** (-3.09)	-0.344*** (-3.48)
married	0.162*** (3.54)	-0.421 (-1.53)	0.488 (1.04)
civil union	0.183 (1.75)	-0.0895 (-0.55)	1.104 (1.44)
separated	0.135 (1.69)	-0.536 (-1.26)	0.309 (0.46)
divorced	0.0673*** (3.32)	-0.516*** (-3.80)	-0.138 (-0.64)
Widowed	0.0957*** (4.23)	-0.889*** (-5.58)	-0.365 (-1.48)
employment contract	-0.118*** (-8.43)	0.225** (2.81)	-0.447 (-1.79)
Age	0.00836*** (20.14)	0.00961*** (3.89)	0.0583*** (3.53)
age squared / 100	-0.000812*** (-18.83)	-0.000359 (-0.88)	-0.00508** (-3.09)
Number of people in household	-0.00676 (-1.89)	0.0130 (1.05)	-0.0261 (-0.95)
Household's total net income	-0.000658** (-3.16)	0.00557*** (3.69)	0.00192 (0.87)
Hard to be hopeful about the future of the world		-0.349*** (-9.99)	-6.389*** (-3.32)
Constant		8.206*** (48.76)	26.82*** (4.57)
cut1	-1.683*** (-42.43)		
cut2	-0.453*** (-11.85)		
cut3	0.271*** (7.11)		
cut4	1.488*** (38.32)		
Observations	34529	34529	34529
Adjusted R^2		0.018	.
F-statistic			54.09

t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
Regressors include country dummies, but coefficients are omitted for brevity.

References

- Antoci, A. and Bartolini, S. (2004). Negative externalities, and labor input in an evolutionary games. *Environment and Development Economics*, (9):1–22.
- Bartolini, S., Bilancini, E., and Pugno, M. (2013). Did the decline in social connections depress Americans’ happiness? *Social Indicators Research*, 110(3):1033–1059.
- Bartolini, S. and Bonatti, L. (2003). Endogenous growth and negative externalities. *Journal of economics*, 79:123–144.
- Bartolini, S. and Bonatti, L. (2008). Endogenous growth, decline in social capital and expansion of market activities. *Journal of Economic Behavior & Organization*, 67(3):917–926.
- Becchetti, L., Giachin Ricca, E., and Pelloni, A. (2009). The 60es turnaround as a test on the causal relationship between sociability and happiness. *Econometrica Working Papers wp07, Econometrica*.
- Becchetti, L., Pelloni, A., and Rossetti, F. (2008). Relational goods, sociability and happiness. *Kyklos*, 61(3):343 – 363.
- Bjørnskov, C., Dreher, A., and Fischer, J. A. (2010). Formal institutions and subjective well-being: Revisiting the cross-country evidence. *European Journal of Political Economy*, 26(4):419–430.
- Blanchflower, D. and Oswald, A. (2004). Money, sex and happiness: An empirical study. *The Scandinavian Journal of Economics*, 106(3):393–415.
- Boveé, J. and Dufour, F. (2005). *Food for the future: Agriculture for a global age*. Cambridge: Polity.
- Bowles, S. and Gintis, H. (2011). *A cooperative species: Human reciprocity and its evolution*. Princeton University Press.
- Bromley, D. W. (1998). Searching for sustainability: the poverty of spontaneous order. *Ecological Economics*, 24(2):231–240.
- Bruni, L. and Stanca, L. (2008). Watching alone: relational goods, television and happiness. *Journal of Economic Behavior and Organization*, 65 (3-4):pp. 506 – 528.
- Cropper, M., Freeman, M., Groom, B., and Pizer, W. (2014). Declining discount rates. *American Economic Review*, 104(5):538–543.
- Crouch, C. (2004). *Post-democracy*. Cambridge: Polity.
- Dolan, P., Peasgood, T., and White, M. (2008). Do we really know what makes us happy? a review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, 29(1):94–122.
- Ehrlich, P. R. and Club, S. (1971). *The population bomb*, volume 68. Ballantine Books New York.

- Ferrer-i Carbonell, A. and Frijters, P. (2004). How important is methodology for the estimates of the determinants of happiness?*. *The Economic Journal*, 114(497):641–659.
- Frey, B. S. and Stutzer, A. (2000). Happiness, economy and institutions. *The Economic Journal*, 110(466):918–938.
- Giglio, S., Maggiori, M., and Stroebel, J. (2014). Very long-run discount rates. Technical report, National Bureau of Economic Research.
- Gilens, M. and Page, B. I. (2014). Testing theories of American politics: Elites, interest groups, and average citizens. *Perspectives on Politics*, 12(03):564–581.
- Gui, M. and Sugden, R. (2005). *Economics and social interaction*. Cambridge University Press, Cambridge.
- Gujarati, D. N. (2011). *Econometrics by example*. Palgrave Macmillan Hampshire, UK.
- Helliwell, J. (2001). Social capital, the economy and wellbeing. In *The Review of Economic Performance: The Longest Decade: Canada in the 1990s*. Centre for the Study of Living Standards, Ottawa, Canada.
- Helliwell, J. and Huang, H. (2008). How’s your government? International evidence linking good government and well-being. *British Journal of Political Science*, 38:595–619.
- Helliwell, J. F., Huang, H., Grover, S., and Wang, S. (2014). Empirical linkages between good government and national well-being. article, National Bureau of Economic Research.
- Helliwell, J. F. and Putnam, R. D. (2004). The social context of well-being. *Philosophical Transactions: Royal Society of London Series Biological Sciences*, 359(1449):1435 – 1446.
- Holden, C. (1972). Ehrlich versus commoner: an environmental fallout. *Science*, 177(4045):245–247.
- Kahneman, D. and Krueger, A. (2006). Developments in the measurement of subjective well-being. *Journal of Economic Perspectives*, 20:3 – 24.
- Klein, N. (2014). *This changes everything: capitalism vs. the climate*. Simon and Schuster.
- Laibson, D. (1997). Golden eggs and hyperbolic discounting. *The Quarterly Journal of Economics*, 112(2):443–478.
- Latouche, S. (2009). *Farewell to Growth*. Cambridge: Polity.
- Layard, R. (2005). *Happiness: Lessons from a new science*. Penguin, New York.
- Layton, D. F. and Brown, G. (2000). Heterogeneous preferences regarding global climate change. *Review of Economics and Statistics*, 82(4):616–624.

- Lipset, S. M. and Schneider, W. G. (1983). The decline of confidence in American institutions. *Political Science Quarterly*, 98(3):379–402.
- Luttmer, E. G. and Mariotti, T. (2003). Subjective discounting in an exchange economy. *Journal of Political Economy*, 111(5):959–989.
- Meadows, D. H., Meadows, D. L., Randers, J., and Behrens, W. W. (1972). *The Limits to Growth*. Universe Books, New York.
- Nordhaus, W. D. (2006). The “Stern review” on the economics of climate change. Technical report, National Bureau of Economic Research.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge university press.
- Ostrom, E. (2000). Collective action and the evolution of social norms. *The Journal of Economic Perspectives*, 14(3):137–158.
- Ott, J. (2010). Good governance and happiness in nations: Technical quality precedes democracy and quality beats size. *Journal of Happiness Studies*, 11(3):353–368.
- Papadakis, E. (1999). Constituents of confidence and mistrust in Australian institutions. *Australian Journal of Political Science*, 34(1):75–93.
- Pearce, D. W., Barbier, E. B., and Markandya, A. (1990). *Sustainable Development: Economics and Environment in the Third World*. Earthscan.
- Powdthavee, N. (2010). *The happiness equation: The surprising economics of our most valuable asset*. Icon Books.
- Putnam, R. (2000). *Bowling alone: The collapse and revival of American community*. Simon and Schuster.
- Sarracino, F. (2012). Money, sociability and happiness: Are developed countries doomed to social erosion and unhappiness? *Social Indicators Research*, 109(2):135–188.
- Schimmack, U., Krause, P., Wagner, G., and Schupp, J. (2010). Stability and change of well-being: An experimentally enhanced latent state-trait-error analysis. *Social Indicators Research*, 95(1):19 – 31.
- Schneider, L. and Schimmack, U. (2009). Self-informant agreement in well-being ratings: A meta-analysis. *Social Indicators Research*, 94(3):363–376.
- Schwarz, N. and Strack, F. (1999). Reports of subjective well-being: Judgmental processes and their methodological implications. In D. Kahneman, E. D. and Schwarz, N., editors, *Well-being: the foundations of hedonist psychology*. Russell Sage Foundation, New York.
- Shiva, V. (2013). *Making Peace with the Earth*. Fernwood, Black Point.
- Stern, N. H. (2007). *The economics of climate change: the Stern review*. Cambridge University press.

- Sunstein, C. (2014). On not revisiting official discount rates: Institutional inertia and the social cost of carbon. *American Economic Review*, 104(5):547–551.
- Uhlaner, C. (1989). Relational goods and participation: incorporating sociability into a theory of rational action. *Public Choice*, 62:253 – 285.
- Van Praag, B. M., Frijters, P., and Ferrer-i Carbonell, A. (2003). The anatomy of subjective well-being. *Journal of Economic Behavior & Organization*, 51(1):29–49.
- van Reekum, C., Urry, H., Johnstone, T., Thurow, M., Frye, C., Jackson, C., Schaefer, H., Alexander, A., and Davidson, R. (2007). Individual differences in amygdala and ventromedial prefrontal cortex activity are associated with evaluation speed and psychological well-being. *Journal of Cognitive Neuroscience*, 19(2):237–248.
- Wanous, J. and Hudy, M. (2001). Single-item reliability: a replication and extension. *Organizational Research Methods*, 4:pp. 361 – 375.
- Weitzman, M. L. (1998). Why the far-distant future should be discounted at its lowest possible rate. *Journal of environmental economics and management*, 36(3):201–208.
- Weitzman, M. L. (2001). Gamma discounting. *American Economic Review*, pages 260–271.
- Weitzman, M. L. (2007). A review of the Stern Review on the economics of climate change. *Journal of Economic literature*, 45(3):703–724.
- Wooldridge, J. M. (2002). *Econometric analysis of cross section and panel data*. The MIT press.