

Milovanska-Farrington, Stefani; Farrington, Stephen

**Working Paper**

## Happiness, domains of life satisfaction, perceptions, and valuation differences across genders

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# 1128<sup>2021</sup>

**SOEP** papers  
on Multidisciplinary Panel Data Research

## Happiness, Domains of Life Satisfaction, Perceptions, and Valuation Differences Across Genders

Stefani Milovanska-Farrington and Stephen Farrington

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German Socio-Economic Panel (SOEP)  
DIW Berlin  
Mohrenstrasse 58  
10117 Berlin, Germany

Contact: [soeppapers@diw.de](mailto:soeppapers@diw.de)



## **Happiness, Domains of Life Satisfaction, Perceptions, and Valuation Differences Across Genders**

Stefani Milovanska-Farrington, University of Tampa, Department of Economics, [smilovanska@ut.edu](mailto:smilovanska@ut.edu)

Stephen Farrington, University of Tampa and University of South Florida, Department of Finance,  
[sfarrington@ut.edu](mailto:sfarrington@ut.edu)

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### **Abstract**

Happiness is strongly associated with goal attainment, productivity, mental health and suicidal risk. This paper examines the effect of satisfaction with areas of life on subjective well-being (SWB), the importance of relative perceptions compared to absolute measures in predicting overall life satisfaction, and differences in the domains of life which have the greatest impact on happiness of men and women. The findings suggest that relative perceptions have a large statistically significant effect on SWB. Satisfaction with family life and health have the largest while satisfaction with income has the lowest impact on overall SWB for both genders. Work satisfaction is more important for men than for women, whereas partner's happiness is more valued by female respondents. Satisfaction with household compared to personal income has a larger effect on SWB in all subsamples except employed women. Understanding the perceived and factual determinants of happiness has urgent implications in the context of the detrimental impact of the Covid-19 outbreak on SWB.

*Keywords:* subjective well-being, satisfaction with areas of life, perceptions, values, gender differences

*JEL codes:* D60, I31, J16, D03

**Corresponding author:** Stefani Milovanska-Farrington, Ph.D.

Email address: [smilovanska@ut.edu](mailto:smilovanska@ut.edu)

Address: 401 W Kennedy Blvd, Sykes College of Business, The University of Tampa, Tampa, FL 33606

## 1. Introduction

Greater level of happiness is associated with lower risk of heart and stress-related diseases (Blanchflower et al 2008), stronger immune system (Cohen et al. 2003), increased likelihood of goal attainment, greater productivity (Oswald et al. 2015) and motivation. There is a positive correlation between self-declared unhappiness and suicidal risk (Daly et al. 2009). In addition, unhappy individuals are more likely to develop anxiety conditions and depression, the two most common forms of mental disorders, affecting about 10% of the world's population (Layard et al. 2013). More recently, the Covid-19 outbreak has raised concerns about the elevated risk of deterioration of people's mental health due to the social isolation and increased income insecurity caused by the virus and the subsequent policy responses.

These concerns, as well as modern social and demographic change, highlight the importance of reevaluating the determinants of happiness with richer data sources and advanced statistical techniques. This article examines the effect of satisfaction with different areas of life, including satisfaction with work, family life, health, leisure time, household and personal income on overall subjective well-being (SWB) in Germany. It also sheds light on the importance of relative perceptions, as compared to more absolute measures of reality as potential determinants of happiness, a plausible and probable solution to Easterlin's puzzle (1974), and explores the subsequent differences across genders.

Specifically, our research focuses on the impact of perceptions on SWB in a panel setting rather than the effect of more easily verifiable determinants of happiness such as income, education and marital status on happiness. While it is true that there is research which links aspects of life satisfaction with overall happiness, few provide panel evidence of the relationship. An exception is the study of Praag et al. (2003) but although well done, it is based on much older data and does not explore gender differences. We do identify gender differences in values, and also separately investigate individuals who have a partner or a spouse in which case we account for partner's happiness, employment and health. In addition, while most of the happiness literature uses cross-sectional data such as those from the General Social Survey, World Values Survey, Eurobarometer surveys, and the Satisfaction with Life Scale, we use a richer and more recent German panel dataset. Finally, we use ordered logistic regression models which differs from much of the happiness literature (e.g., Headey et al. 2004) which uses ordinary least squares for easier interpretation of the estimates. More generally, we explore the effect of values, relative perceptions and absolute measures on SWB with a focus on valuation differences between men and women.

The results show that self-reported satisfaction with different domains of life has a highly statistically significant effect on overall well-being. Satisfaction with family life and health are most important for happiness, while satisfaction with income although highly statistically significant is the weakest predictor of high levels of well-being for both men and women. Satisfaction with work relative to other areas of life is more important for men than for women, while women extract greater value from their partner's happiness than men do. The results also show that for employed women, high satisfaction with personal income is associated with greater overall life satisfaction than satisfaction with household income, while for men satisfaction with household finances is a more important factor for overall SWB than satisfaction with personal income.

The remainder of this paper is organized as follows. Section 2 reviews the happiness literature related to this study. In Section 3, we establish a framework for estimation. Section 4 describes the data used for the empirical analysis. Results are presented in Section 5. We discuss the findings and their implications in Section 6. Section 7 concludes the paper.

## 2. Literature review

Prior literature recognizes that SWB depends on income (Diener 1984, Winkelmann et al. 1998, Ravallion et al. 2002, Graham et al. 2002, Ferrer-i-Carbonell et al. 2004, Frijters et al. 2004, Senik 2004, Stutzer 2004, Blanchflower et al. 2004, Shields et al. 2005, Ferrer-i-Carbonell et al. 2005, Clark et al. 2005, Frijters et al. 2006, Lelkes 2006, Gardner et al. 2007), education (Nikolaev et al. 2015, Nikolaev 2016, Kristoffersen 2018), marital status (Waite and Gallagher 2000, Argyle 2001, Clark and Oswald 2003, Lucas et al. 2006), number of children (Kohler et al. 2004, Stanca 2016, Farrington et al. 2020), and respondent's cohort norms such as income and education of comparison groups (Clark et al. 1996, McBride 2001, Guilbert et al. 2009, Boyce et al. 2010). For example, Diener (1984), Ferrer-i-Carbonell et al. (2004)<sup>1</sup> and Headey et al. (2004) find a positive relationship between income and SWB within different countries while Stutzer (2004) finds no statistically significant impact of income on well-being. Yet, Easterlin (1974) found that income increase of everyone over time does not relate to higher happiness, a paradox known as the Easterlin's puzzle. In addition, Clark et al. (1996), McBride (2001) and Guilbert et al. (2009) find a negative effect of the income level an individual compares himself with (i.e., his reference group) and happiness<sup>2</sup>. The findings of Stutzer (2004) also suggest that higher income aspirations<sup>3</sup> and a larger gap between aspiration and income level are associated with a lower SWB.

Nikolaev et al. (2015) find evidence that more educated people are on average happier, and as age increases, the effect of education on SWB increases. Contrary, Kristoffersen (2018) finds a negative effect of education on personal well-being, and Nikolaev (2016) finds a negative relationship between education of one's reference group and happiness in Australia. More educated people are affected less by social comparisons (Nikolaev 2016).

Married individuals are found to be happier than never-married ones, but never married are happier than divorced, separated and widowed ones (Argyle 2001; Clark and Oswald 2003; Waite and Gallagher 2000). However, Lucas et al. (2006) finds that marriage leads to only a temporary increase in happiness in Germany, which contradicts the analysis of Easterlin (2003) for the US.

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<sup>1</sup> Ferrer-i-Carbonell et al. (2004) find that income is positively related to SWB in Germany (using the German Socio-Economic panel data), and Headey et al. (2004) confirm the result for Australia.

<sup>2</sup> Guilbert et al. (2009) suggests that the effect is stronger for the poorer people in Australia.

<sup>3</sup> Stutzer (2004) measures income aspiration by the amount of income the respondent considers to be "sufficient," and the amount of monthly household income the respondent needs to make ends meet without running into debt.

Kohler et al. (2004) find a very small effect of the number of biological children on well-being of males and an insignificant effect on women's happiness, while the results of Farrington et al. (2020) suggest that the first child reduces life satisfaction but every additional child increases happiness at an increasing rate.

Social status (Anderson et al. 2012), culture and historic factors (Inglehart et al. 2000), spirituality and religiosity (Wills 2009), negative life events (Oswald et al. 2008), intergenerational mobility (Nikolaev et al. 2014), macroeconomic variables such as unemployment, inflation and growth (DiTella et al. 2001, Di Tella et al. 2003, Helliwell 2003, Alesina et al. 2004), and inequality (Alesina et al. 2004, Graham et al. 2006, Oishi et al. 2011) also influence happiness.

The large number of factors which affect happiness and the mixed findings in the literature raise questions about the cause of these inconclusive results. Previous authors justify them with the use of different specifications and data limitations. However, it is likely that happiness is a function not only of verifiable factors but also of people's perceptions, thoughts and feelings. In this regard, the "bottom-up" theory hypothesizes that one's overall satisfaction depends on individual's satisfaction with different areas of life such as family, work and leisure (Veehoven 1996, Heller et al. 2004, Pavot et al. 2008). This contrasts the more common "top-down" perspective which suggests that personality and personal traits determine how happy a person is (DeNeve and Cooper 1998, Diener et al. 2003, Steel et al. 2008).

For example, Loewe et al. (2014) examine the effect of different domains of life satisfaction (health, leisure, family, work, financial situation, social relationships, and self-worth) on overall SWB in Chile. Satisfaction with financial situation has the largest impact, followed by family, work and health, while the other domains are insignificant (Loewe et al. 2014). Rojas (2006) conducts a similar study for Mexico, and Lachman et al. (2018) show that satisfaction with leisure has the largest effect on overall well-being (Lachman et al. 2018). Also related to perceptions are the studies of Bjornskov et al. (2013) and Moller et al. (2001) which identify a positive relationship between one's subjective perception of fairness and SWB (Bjornskov et al. 2013), and a positive association between positive expectations for the future and satisfaction with life at the current moment (Moller et al. 2011), respectively.

However, evidence of the effect of relative perception on overall happiness is sparse, and the existing studies, although admirably conducted, have limitations. For example, data used in the study of Loewe et al. (2014) has a sample size of 530 individuals; Lachman et al. (2018) establishes only correlations rather than causal relationships; and although Rojas (2006) considers four different specifications in his analysis, he utilizes only OLS regressions. Finally, although our research is similar to that of Van Praag et al. (2003) in that both studies examine various aspects of life satisfaction and base the analysis on a large-scale panel data from Germany, there are several differences. First, we distinguish between genders, which is not a matter of study in Van Praag et al. (2003). Second, although their analysis is very detailed and ordered probit regressions are estimated, marginal effects are not discussed. This is a limitation because the estimated coefficients from an ordered logistic and probit regressions cannot be interpreted as marginal effects. Third, our research utilizes more recent data. While the analysis of Van Praag et al. (2003) is based on data from 1992 to 1997, we use data from 1998 to 2018. Therefore, our analysis can be thought of as a continuation of that of Van Praag et al. (2003) with some extensions.

In summary, we extend the growing happiness literature in several ways. First, we provide panel evidence of the effect of satisfaction in different domains of life on overall SWB and test the hypothesis that perceptions are a better predictor of happiness than more objective factors which influence welfare. Second, we base the empirical analysis on large scale panel data. This improves previous research on happiness which mostly uses data usually extracted from cross sectional surveys. We also use ordered logistic regressions designed for working with categorical outcome variables. Although previous authors in the field use mainly OLS asserting that ordered logit and OLS results are similar but OLS estimates are easier to interpret (e.g., Headey et al. 2004, Ferrer-i-Carbonell et al. 2004, Bjørnskov et al. 2013, Nikolaev et al. 2015, Nikolaev 2016), we show that the two methods yield different results, and utilize an ordered logit model to obtain consistent estimates of the effects of interest. More importantly, we investigate gender differences in values. Specifically, we compare the domains of life satisfaction which have the largest association with male versus female overall well-being. Finally, we separately examine households where a spouse or a partner is present and in these instances, take into account partner's life satisfaction among other factors to test the hypothesis that individuals' utility is a function of the utility of his or her partner.

### 3. Empirical strategy

Our goal is to capture the effect of satisfaction with different life domains on overall SWB. Similarly to most previous authors<sup>4</sup>, we adopt an additive approach for our regression analysis. Because the dependent variable is ordinal, we develop an ordered logit model of the following form:

$$Prob(SWB_{it} = j | X_{it}) = \Lambda(\mathbf{SatisfDim}_{it}'\boldsymbol{\beta} + X_{it}'\boldsymbol{\delta} + \vartheta_i, \zeta_{j-1}, \zeta_j) \quad (1)$$

Subscripts  $i$  in this specification denote individuals, and subscripts  $t$  indicate time periods. The outcome  $SWB_{it}$  refers to the overall life satisfaction of individual  $i$  in year  $t$ . The outcome takes one of the ordered values  $j$  extracted from the survey question revealing respondent's degree of happiness. The vector  $\mathbf{SatisfDim}_{it}$  captures individual  $i$ 's satisfaction with different areas of life. The variables included in the set can take a different number of ordered responses depending on the specification. The term  $X_{it}$  is the vector of controls for individual  $i$  in time period  $t$ . The list of the variables included is provided in the data section of the article. The individual-specific random effects  $\vartheta_i$  capture unobserved, time-invariant, cross-sectional heterogeneity between individuals (e.g., more optimistic people may report higher levels of well-being), while  $\boldsymbol{\beta}$  and  $\boldsymbol{\delta}$  are the coefficients we estimate. In (1),  $\Lambda$  is a logistic cdf for ordered logit, and  $\zeta_{j-1}$  and  $\zeta_j$  are the cutoff parameters between categories from an index model for a latent variable  $SWB_{it}^* = \mathbf{SatisfDim}_{it}'\boldsymbol{\beta} + X_{it}'\boldsymbol{\delta} + \vartheta_i + u_{it}$ , where  $u_{it}$  is an unobserved error term capturing errors and transitory shocks. To capture systematic differences across years, we also add time trends  $\tau_t$  in some specifications.

We obtain maximum likelihood estimates in (1) through iterated reweighted least squares. Regressions are run in the whole population, as well as conditional on gender to capture gender differences between men and women. Although some of the previous papers in the happiness literature suggest that the results produced through (ordered) Probit and Logit regressions are similar to ordinary least squares regression analysis even when the dependent variable is not continuous, we choose an ordered

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<sup>4</sup> Rojas (2006) is one of the few exceptions. They use three alternative specifications in addition to the additive one.



logit specification because OLS would produce inconsistent estimates given the nature of the outcome. To examine the magnitudes of the effects of interest, we estimate interpretable marginal effects after ordered Logit.

In the instances where we consider a binary outcome, it is sufficient to estimate an ordered Logit regression as in (2):

$$Prob(SWB_{it} = 1|X_{it}) = \Lambda(SatisfDim'_{it}\beta + X'_{it}\delta + \vartheta_i + \varepsilon_{it}) \quad (2)$$

where  $\varepsilon_{it}$  is an unobserved, idiosyncratic disturbance.

As robustness checks, we estimate all regressions using (ordered) Probit as well, and fit panel data models with fixed effects. We also estimate parsimonious regressions with fewer control variables, and consider alternative definitions of the categories of life satisfaction and satisfaction with domains of life, add time trends, and estimate the major regressions in subsamples based on marital status, employment and presence of children.

## 4. Data and summary statistics

### 4.1. Variables

This research explores a longitudinal relationship between satisfaction with domains of life and overall happiness using data drawn from the German Socio-Economic Panel (SOEP) released by the Deutsches Institut für Wirtschaftsforschung (DIW), Berlin. The German SOEP is a longitudinal dataset which tracks approximately 11,000 households in Germany. Our sample spans from 1998 to 2017 and consists of 51,684 observations.

We select SOEP because it is a large scale dataset which includes data on household composition, employment and satisfaction with life and areas of life, essential for our research. The main dependent variable in the analysis is a categorical variable which captures individuals' overall life satisfaction, or subjective well-being. It is based on respondents' answer to an interview question indicating how satisfied with life they are on a scale from 0 to 10, where 0 is the lowest score whereas 10 indicates the highest level of satisfaction. From this variable which can take one of 11 ordered values, we construct variables which can take 3 or 2 values. Our main three-category variable we consider distinguishes between low, medium and high satisfaction. We combine the values of 0 to 3, 4 to 7, and 8 to 10 into the categories "low," "medium" and "high," respectively.

Splitting the 11-value life satisfaction scale into 3 categories is likely to contribute to some variance loss. However, we consciously choose to base the main analysis on a 3-point life satisfaction scale because respondents in the survey are not provided clear guidelines what each number in the scale means. Interpretation of the level of satisfaction is left to them and therefore different individuals can interpret it differently. Level of optimism, mood at the time of the survey and personal understanding of the question are only some of the factors which can influence individuals' response. Therefore, grouping several responses in one category increases the likelihood that respondents whose level of satisfaction belongs to the same range exhibit relatively similar satisfaction with life or aspect of life. Another rationale behind the decision to group life satisfaction categories is that using a 11-point scale would produce 68 estimates (60 from the categories of 6 domains of life and 8 from the controls),

not including the marginal effects, which would make interpretation of the results difficult and less meaningful<sup>5</sup>. We still use a 11-point life satisfaction scale as a sensitivity check.

We also consider an alternative 3-outcome variable where original values of 0 to 2, 3 to 7, and 8 to 10 indicate the previously mentioned three categories of life satisfaction as robustness verification. We also use a two-category outcome which splits the original responses into those with values in the range from 0 to 5 (including 5) and from 6 to 10, indicating low and high satisfaction, correspondingly. The results are insensitive to the choice of a number of categories and alternative groupings of the ordered responses.

We also extract a set of variables measuring individuals' satisfaction with their health, work, household income, personal income, leisure time and family life. Similarly to the overall life satisfaction variable, measures of satisfaction with different domains or areas of life can take values from 0 to 10 in the original dataset, and we create variables with 2 and 3 possible outcomes in the same manner as described for the overall SWB variable. Similarly, we obtain a variable which elicits information about partner's or spouse's overall happiness, and consider modifications of this variable allowing it to take one of 2 or 3 ordered values.

We also develop a comprehensive set of conditioning variables capturing respondent's age, marital status, number of children, years of education, natural logarithm of household income, presence of a partner or spouse in the household, employment status and weekly hours worked. In the analysis of individuals with a partner or a spouse, we also include controls related to the partner, capturing his or her employment, weekly hours worked and health status (satisfactory or better, or not). The omitted marital status category is single, which includes never married, divorced or widowed. For both the respondent and the spouse, unemployed is the omitted employment status category, and employed includes full-time and part-time employment, training and workshop. The omitted health status category is poor or bad health.

The complete set of variables and their descriptions are provided in Table A1 in Appendix 1.

## 4.2. Summary statistics

Table 1 provides descriptive statistics of the variables used in the analysis. They are categorized by variables capturing satisfaction with life and areas of life in Panel A, and other variables specified in Panel B.

<b>Table 1. Summary statistics</b>		
<b>Variable</b>	<b>Mean</b>	<b>Std. deviation</b>
<i>Panel A. Variables related to life satisfaction</i>		
Overall life satisfaction	7.458	1.709
0 (lowest)	0.31	
1	0.31	
2	0.80	

<sup>5</sup> Ferrer-i-Carbonell et al. (2004) use a 11-category scale of life satisfaction in their analysis using German data. They show that the results from an OLS and an ordered logit model are similar, but adding fixed effects to an ordered logit model changes the results. Although they emphasize the importance of the econometric methodology when investigating the determinants of happiness, they do not explicitly state that the results would be sensitive to the number of categories in the life satisfaction scale.

3	1.72	
4	2.34	
5	8.32	
6	8.31	
7	18.89	
8	33.37	
9	17.51	
10 (highest)	8.12	
Satisfaction with health	6.817	2.225
Satisfaction with work	7.212	2.094
Satisfaction with household income	6.732	2.309
Satisfaction with personal income	6.296	2.530
Satisfaction with leisure time	7.303	2.173
Satisfaction with family life	8.105	1.901
Spouse life satisfaction	7.582	1.619
<i>Panel B. Other variables</i>		
Age	50.779	17.716
Female	0.532	0.499
Married	0.594	0.491
Number of children	1.447	1.268
Years of education	12.254	2.674
Ln(Household income)	7.816	0.582
Employed	0.559	0.497
Weekly work hours	36.361	13.573
Spouse or partner in household	0.671	0.470
Spouse/ partner employed	0.570	0.495
Spouse/ partner weekly work hours	36.452	13.756
Spouse/ partner health satisfactory or better	0.832	0.374

*Notes:* Summary statistics have been obtained using the statistical software package Stata ®. The source of the data is the German Socio-Economic Panel (SOEP) from 1998 to 2017.

Most respondents (33.37%) rate their overall happiness as 8 on a scale from 0 to 10, followed by those who select ratings of 7 (18.89%) and 9 (17.51%). About 8% of the respondents have classified themselves as extremely happy (i.e., have chosen a rating of 10). The average rating is 7.458. The mean satisfaction with different areas of life varies between 6.296 and 8.105. The average person is least satisfied with personal income, followed by household income and health, and most satisfied with family life. Table 2 shows a correlation matrix for the variables capturing satisfaction with various domains of life. Other than the correlation between personal and household income satisfaction, satisfaction with the remaining areas of life does not exhibit correlation of more than 43.82%, the correlation between work and personal income satisfaction. Overall subjective well-being is related the most with family life (46.70%), followed by household income (41.83%) and health satisfaction (41.25%).

**Table 2. Correlation matrix for the variables eliciting information about life satisfaction**

	Overall life satisfaction	Satisfaction with health	Satisfaction with work	Satisfaction with hhld income	Satisfaction with personal income	Satisfaction with leisure time	Satisfaction with family life
Overall life satisfaction	1.000	-	-	-	-	-	-

Satisfaction with health	0.4125	1.000	-	-	-	-	-
Satisfaction with work	0.3786	0.3232	1.000	-	-	-	-
Satisfaction with hhld income	0.4183	0.2989	0.3800	1.000	-	-	-
Satisfaction with personal income	0.3825	0.2646	0.4382	0.7874	1.000	-	-
Satisfaction with leisure time	0.3492	0.2671	0.2438	0.2852	0.2437	1.000	-
Satisfaction with family life	0.4670	0.2659	0.2353	0.3022	0.2417	0.4152	1.000

*Notes:* This correlation matrix has been obtained using the statistical software package Stata ®. The source of the data is the German Socio-Economic Panel (SOEP) from 1998 to 2017.

Table 1 also shows that 59.4% of the respondents are married although a partner or a spouse is present in 67.1% of the households. A little more than half (53.2%) are female, and the average age of the respondents is 50. The average person has 1 child and 12 years of education. Approximately 55.9% of the respondents are employed<sup>6</sup>, and work a little more than 36 hours a week on average. This includes all respondents regardless of marital status while the percentage of employed spouses is 57% which implies that people are more likely to work if they have a partner or a spouse although the difference is small. Most spouses (83.2%) have reported satisfactory or better health<sup>7</sup>.

## 5. Results

### 5.1. Values, perceptions and reality

In this section, we present the major findings of the study, some extensions and robustness checks. The results reveal the importance of perceptions as determinants of overall happiness, and identify gender differences.

Table 3 shows the results from ordered logistic regressions of overall happiness on individuals' satisfaction with different areas of life. All happiness variables in these regressions are measured on a 3-category scale (i.e., have one of 3 possible outcomes). Because the estimates from logistic regressions cannot be interpreted as marginal effects, we also present the average marginal effects (ME) of the regressors on the likelihood that a respondent places himself in the highest of the three categories of overall happiness in square parentheses. The regressions in Columns (4) – (6) exclude individuals who do not have a partner or a

<sup>6</sup> Differentiating between genders, 52.46% of women and 59.68% of men are employed. However, women work fewer hours on average (31.13 for women relative to 41.59 for men).

<sup>7</sup> We do not include health status as a control variable because although it is available in the dataset, it is self-reported and would not convey information in addition to respondent's satisfaction with their health.

spouse, and have four additional regressors: partner's self-reported level of overall happiness, employment status, hours worked (if employed) and health status.

All variables capturing self-perceived satisfaction with areas of life are highly statistically significant in all specifications and subsamples. This implies that how happy people believe they are with different aspects of life influences their overall well-being. In all regressions, family and health satisfaction have the largest association with overall SWB, while satisfaction with household and personal income have the smallest effect. Specifically, men with a partner or a spouse who are very satisfied with their health and family life are 24.6% and 22.1%, respectively, more likely to be very happy as well, while high satisfaction with their personal income increases this probability with only 8.9%. Women with a partner or a spouse value family life the most: high satisfaction with their family life increases the chance that they would be very happy by 37%, followed by satisfaction with health which if high, increases the probability of high overall happiness by 30.6%. This slightly differs from the finding of Praag et al. (2003) who provide evidence that finances, health and job satisfaction are the main determinants of happiness in Germany between 1992 and 1997 (Praag et al. 2003). This difference can be due to the difference in the studied time period, or the fact that we base the ordering of satisfaction with aspects of life on marginal effect after ordered logit estimation whilst Praag et al. (2003) base it on the estimates themselves.

<b>Table 3. Estimates and marginal effects (ME) on Prob(SWB = High) from ordered logistic regressions, using 3-category SWB and satisfaction with different domains of life</b>						
Dependent variable: Life satisfaction (3 categories)						
	Ordered logit, All people			Ordered logit, Individuals with a partner/ spouse		
	All	Female	Male	All	Female	Male
Satisfaction with health_Medium	0.955*** (0.092) [0.152***]	1.131*** (0.122) [0.184***]	0.734*** (0.138) [0.113***]	0.945*** (0.125) [0.147***]	1.062*** (0.178) [0.169***]	0.813*** (0.174) [0.123***]
Satisfaction with health_High	1.877*** (0.097) [0.289***]	2.077*** (0.131) [0.327***]	1.646*** (0.145) [0.247***]	1.875*** (0.133) [0.277***]	2.042*** (0.192) [0.306***]	1.706*** (0.185) [0.246***]
Satisfaction with work_Medium	0.624*** (0.089) [0.097***]	0.555*** (0.115) [0.086***]	0.719*** (0.138) [0.110***]	0.506*** (0.120) [0.075***]	0.329** (0.163) [0.048**]	0.712*** (0.177) [0.106***]
Satisfaction with work_High	1.213*** (0.092) [0.183***]	0.992*** (0.119) [0.150***]	1.462*** (0.145) [0.219***]	1.089*** (0.125) [0.155***]	0.743*** (0.171) [0.104***]	1.445*** (0.183) [0.207***]
Satisfaction with hhld income_Medium	0.366*** (0.097) [0.056***]	0.304** (0.125) [0.046***]	0.433*** (0.153) [0.065***]	0.508*** (0.134) [0.074***]	0.396** (0.188) [0.057**]	0.589*** (0.227) [0.086***]
Satisfaction with hhld income_High	0.833*** (0.110) [0.124***]	0.708*** (0.142) [0.105***]	0.924*** (0.175) [0.136***]	0.925*** (0.151) [0.131***]	0.661*** (0.209) [0.093***]	1.148*** (0.227) [0.162***]
Satisfaction with pers. income_Medium	0.270*** (0.084) [0.040***]	0.232** (0.106) [0.034**]	0.354*** (0.136) [0.053***]	0.297*** (0.107) [0.042***]	0.354** (0.139) [0.050**]	0.267 (0.166) [0.038]
Satisfaction with pers. income_High	0.575*** (0.098) [0.084***]	0.432*** (0.124) [0.063***]	0.811*** (0.159) [0.118***]	0.645*** (0.128) [0.089***]	0.620*** (0.165) [0.086***]	0.653*** (0.203) [0.089***]
Satisfaction with leisure time_Medium	0.438*** (0.075)	0.403*** (0.100)	0.530*** (0.112)	0.395*** (0.099)	0.324** (0.138)	0.490*** (0.143)

	[0.067***]	[0.062***]	[0.079***]	[0.057***]	[0.047**]	[0.071***]
Satisfaction with leisure time_High	0.945*** (0.082)	0.885*** (0.112)	1.081*** (0.120)	0.920*** (0.109)	0.759*** (0.159)	1.106*** (0.152)
	[0.140***]	[0.132***]	[0.158***]	[0.129***]	[0.106***]	[0.154***]
Satisfaction with family life_Medium	0.905*** (0.131)	0.715*** (0.179)	1.102*** (0.190)	1.0003*** (0.244)	1.220*** (0.308)	0.576 (0.361)
	[0.143***]	[0.117***]	[0.166***]	[0.153***]	[0.190***]	[0.086]
Satisfaction with family life_High	1.9998*** (0.135)	1.911*** (0.186)	2.080*** (0.195)	2.053*** (0.249)	2.418*** (0.317)	1.524*** (0.362)
	[0.311***]	[0.305***]	[0.313***]	[0.307***]	[0.370***]	[0.221***]
Spouse life satisfaction_Medium	-	-	-	0.512*** (0.193)	0.698** (0.294)	0.385 (0.255)
				[0.079***]	[0.110**]	[0.058]
Spouse life satisfaction_High	-	-	-	1.539*** (0.197)	1.760*** (0.298)	1.389*** (0.263)
				[0.226***]	[0.263***]	[0.1999***]
Age	0.00004 (0.002)	0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.003 (0.005)	0.001 (0.004)
	[5.06e-06]	[0.0002]	[-0.0003]	[-0.0002]	[-0.004]	[0.0001]
Married	0.067 (0.071)	0.074 (0.095)	0.081 (0.108)	0.167* (0.091)	0.218* (0.127)	0.080 (0.130)
	[0.010]	[0.011]	[0.011]	[0.022*]	[0.029*]	[0.011]
Number of children	0.047* (0.025)	0.050 (0.034)	0.015 (0.037)	-0.014 (0.031)	-0.002 (0.047)	-0.030 (0.043)
	[0.007*]	[0.007]	[0.002]	[-0.002]	[-0.003]	[-0.004]
Years of education	0.043*** (0.010)	0.047*** (0.014)	0.029** (0.015)	0.029** (0.014)	0.055*** (0.021)	0.010 (0.019)
	[0.006***]	[0.007***]	[0.004**]	[0.004**]	[0.007***]	[0.001]
Ln(Household income)	0.267*** (0.050)	0.346*** (0.071)	0.193*** (0.071)	0.258*** (0.074)	0.226** (0.114)	0.279*** (0.100)
	[0.038***]	[0.049***]	[0.027***]	[0.034***]	[0.030***]	[0.037***]
Employed	-0.238** (0.115)	-0.274* (0.153)	-0.435** (0.187)	-0.149 (0.161)	-0.062 (0.226)	-0.434* (0.248)
	[-0.033**]	[-0.038*]	[-0.059**]	[-0.020]	[-0.008]	[-0.055*]
Weekly work hours*Employed	0.002 (0.002)	0.003 (0.003)	0.007** (0.003)	0.001 (0.003)	-0.004 (0.004)	0.009** (0.004)
	[0.0003]	[0.0005]	[0.001**]	[0.0001]	[-0.0005]	[0.001**]
Spouse or partner in household	0.229*** (0.073)	0.090 (0.098)	0.448*** (0.110)	-	-	-
	[0.033***]	[0.013]	[0.064***]			
Spouse/ partner employed	-	-	-	-0.304** (0.118)	-0.094 (0.224)	-0.356** (0.148)
				[-0.040**]	[-0.013]	[-0.046**]
Spouse/ partner weekly work hours*Spouse/partner employed	-	-	-	0.007*** (0.003)	0.004 (0.005)	0.006 (0.004)
				[0.001***]	[0.0005]	[0.001]
Spouse/ partner health satisfactory or better	-	-	-	0.106 (0.081)	-0.045 (0.116)	0.222* (0.114)
				[0.014]	[-0.006]	[0.030*]
Spouse SWB included	No	No	No	Yes	Yes	Yes
Individual effects included	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	21,745	11,134	10,611	12,696	6,001	6,695

*Notes:* Columns (1) – (3) report the estimates from ordered logistic regressions of happiness on variables eliciting information about the respondents’ satisfaction with different areas of life, age, marital status (married or not), number of children, years of education, natural logarithm of household income, employment status (employed or not), hours worked (if employed) and presence of a partner/spouse in the household. All variables indicating levels of life satisfaction are measured on a 3-category scale (Low, Medium, High): Low if the respondent has ranked satisfaction with a domain as 0, 1, 2, or 3; Medium if his response is 4, 5, 6, or 7; and High if he classifies happiness with an area of life as 8, 9, or 10. The regressions in Columns (4) – (6) differ from those in Columns (1) – (3) in that they are estimated in a subsample of individuals who have a spouse or a partner, and also include partner’s/ spouse’s employment status, hours worked (if employed) and health status (satisfactory or better, or not), and spouse’s self-reported life satisfaction (also on a 3-category scale) as additional regressors. Results in Columns (1) and (4) do not distinguish between genders, while Columns (2) and (5), and (3) and (6) present results in subsamples of female and male respondents, respectively. All regressions include individual-level random effects. Robust standard errors are provided in parentheses. Marginal effects on the likelihood of belonging to the highest of the 3 levels of satisfaction are presented in square parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

However, it is possible that there is a stronger link between income satisfaction and overall satisfaction than the association we find because we control for household income in the forementioned analysis. This is likely to change the ordering of preferences of individuals. To explore this possibility, we exclude all potentially endogenous controls which might influence the effect of satisfaction with aspects of life on overall happiness in Table 4. Although this modification does lead to a slightly higher relationship between satisfaction with both household and personal income and overall life satisfaction, it does not change the order of importance of individuals’ happiness with different domains of life in predicting overall life satisfaction. For example, while belonging to the highest category of satisfaction with personal and household income increases the likelihood of being in the highest overall life satisfaction category by 8.4% and 12.4% (or 8.9% and 13.1% for individuals with a spouse or a partner), respectively, when all controls are included, the increases are correspondingly, 9.8% and 13.8% (or 10.9% and 13.5% for individuals with a spouse or a partner) after the exclusion of these control variables. In all instances, family and health satisfaction are the major determinants of overall life satisfaction. This is confirmed using all individuals, as well as in subsample analyses separately for male and female with and without a spouse.

**Table 4. Estimates and marginal effects (ME) on Prob(SWB = High) from ordered logistic regressions, using 3-category SWB and satisfaction with different domains of life. Excluding endogenous controls.**  
Dependent variable: Life satisfaction (3 categories)

	Ordered logit, All people			Ordered logit, Individuals with a partner/ spouse		
	All	Female	Male	All	Female	Male
Satisfaction with health_Medium	0.966*** (0.087) [0.154***]	1.104*** (0.115) [0.181***]	0.785*** (0.132) [0.121***]	0.968*** (0.116) [0.151***]	1.094*** (0.164) [0.175***]	0.824*** (0.163) [0.124***]
Satisfaction with health_High	1.876*** (0.092) [0.289***]	2.053*** (0.123) [0.324***]	1.669*** (0.138) [0.250***]	1.911*** (0.123) [0.281***]	2.079*** (0.177) [0.312***]	1.173*** (0.171) [0.248***]
Satisfaction with work_Medium	0.557*** (0.084) [0.086***]	0.512*** (0.108) [0.079***]	0.629*** (0.132) [0.096***]	0.412*** (0.111) [0.061***]	0.230 (0.148) [0.033***]	0.640*** (0.168) [0.095***]
Satisfaction with work_High	1.135*** (0.087) [0.171***]	0.949*** (0.112) [0.143***]	1.351*** (0.137) [0.202***]	1.013*** (0.115) [0.143***]	0.680*** (0.156) [0.094***]	1.379*** (0.172) [0.196***]
Satisfaction with hhld income_Medium	0.420*** (0.091) [0.064***]	0.406*** (0.116) [0.063***]	0.413*** (0.147) [0.062***]	0.519*** (0.125) [0.076***]	0.446*** (0.170) [0.064**]	0.543*** (0.186) [0.079***]

Satisfaction with hhld income_High	0.923*** (0.102) [0.138***]	0.852*** (0.129) [0.128***]	0.941*** (0.167) [0.138***]	0.954*** (0.139) [0.135***]	0.739*** (0.184) [0.104***]	1.081*** (0.215) [0.152***]
Satisfaction with pers. income_Medium	0.328*** (0.079) [0.049***]	0.285*** (0.099) [0.043***]	0.438*** (0.129) [0.066***]	0.403*** (0.098) [0.058***]	0.466*** (0.127) [0.067***]	0.384** (0.154) [0.055**]
Satisfaction with pers. income_High	0.665*** (0.092) [0.098***]	0.533*** (0.116) [0.078***]	0.908*** (0.151) [0.133***]	0.787*** (0.117) [0.109***]	0.775*** (0.152) [0.108***]	0.835*** (0.186) [0.115***]
Satisfaction with leisure time_Medium	0.394*** (0.071) [0.060***]	0.307*** (0.096) [0.047***]	0.505*** (0.104) [0.075***]	0.343*** (0.091) [0.049***]	0.266** (0.131) [0.038***]	0.419*** (0.129) [0.060***]
Satisfaction with leisure time_High	0.892*** (0.076) [0.132***]	0.767*** (0.105) [0.114***]	1.037*** (0.111) [0.151***]	0.860*** (0.100) [0.119***]	0.708*** (0.146) [0.098***]	1.002*** (0.138) [0.137***]
Satisfaction with family life_Medium	0.923*** (0.121) [0.146***]	0.776*** (0.167) [0.128***]	1.097*** (0.174) [0.166***]	0.979*** (0.222) [0.150***]	1.247*** (0.289) [0.196***]	0.529* (0.318) [0.078*]
Satisfaction with family life_High	2.015*** (0.124) [0.314***]	1.965*** (0.172) [0.314***]	2.090*** (0.180) [0.315***]	1.992*** (0.227) [0.297***]	2.415*** (0.298) [0.371***]	1.422*** (0.321) [0.204***]
Spouse life satisfaction_Medium	-	-	-	0.534*** (0.174) [0.083***]	0.654** (0.260) [0.104***]	0.457** (0.233) [0.069*]
Spouse life satisfaction_High	-	-	-	1.573*** (0.177) [0.231***]	1.705*** (0.264) [0.255***]	1.494*** (0.239) [0.214***]
Spouse SWB included	No	No	No	Yes	Yes	Yes
Individual effects included	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	25,032	12,784	12,248	14,922	7,057	7,865

Notes: Columns (1) – (3) report the estimates from ordered logistic regressions of happiness on variables eliciting information about the respondents’ satisfaction with different areas of life, age, marital status (married or not), number of children, and years of education. All variables indicating levels of life satisfaction are measured on a 3-category scale (Low, Medium, High): Low if the respondent has ranked satisfaction with a domain as 0, 1, 2, or 3; Medium if his response is 4, 5, 6, or 7; and High if he classifies happiness with an area of life as 8, 9, or 10. The regressions in Columns (4) – (6) differ from those in Columns (1) – (3) in that they are estimated in a subsample of individuals who have a spouse or a partner, and also include partner’s/ spouse’s self-reported life satisfaction (also on a 3-category scale) as additional regressors. Results in Columns (1) and (4) do not distinguish between genders, while Columns (2) and (5), and (3) and (6) present results in subsamples of female and male respondents, respectively. All regressions include individual-level random effects. Robust standard errors are provided in parentheses. Marginal effects on the likelihood of belonging to the highest of the 3 levels of satisfaction are presented in square parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

In all specifications, we also observe gender differences in values. First, for men’s overall happiness, job satisfaction matters more than it does for women. High work satisfaction increases the likelihood of high overall happiness between 9% and 15% for women and between 19% and 22% for men, depending on the subsample. This result may be driven by employed male respondents whose partners are unemployed if their job is of greater importance for the household. To explore this possibility, we estimate the previous regression in a subsample of employed men with a non-working partner. They indicate that this subsample of respondents still extracts greatest happiness from family life and health satisfaction. Work satisfaction becomes less important. Rather, partner’s well-being and satisfaction with personal income gain greater value. Therefore we refute the proposed hypothesis. Thus our finding that men’s happiness depends more on work satisfaction than women’s might be explained by the



fact that men in our dataset work longer hours than women do, 41.59 hours per week for men compared to 31.13 for women. Because men spend more time working, favorable job characteristics are likely to be more valuable.

Another gender difference is that women's overall happiness is affected more by their partner's happiness than men's is. Women and men whose partner is very happy are respectively, 26.3% and about 20% (or 25.5% and 21.4% in the specifications with fewer controls) more likely to feel very happy as well. Partner's happiness is the third largest determinant of overall well-being of women after family life and health, and the fourth largest factor for men's happiness after health, family life and work satisfaction.

Furthermore, for women, even moderate satisfaction with health contributes more to high overall happiness than do high levels of satisfaction with work, leisure and income. The same holds true for the effect of moderate satisfaction with family life for women with a partner as compared to high satisfaction with work, leisure and income. This is not true for men. Although high satisfaction with health contributes the most to men with a partner being very happy, moderate health satisfaction is less valued than high satisfaction with family life, partner's happiness, work, household income and leisure time. Interestingly, although high satisfaction with family life and partner's happiness increase the likelihood of these men being very happy by about 22% and 20% (or 20.4% and 21.4% in the specifications with fewer controls), respectively, moderate family life satisfaction and moderately happy wife have an insignificant impact on men's overall SWB.

We further compare the effect of subjective, intrinsic perceptions to that of measurable, extrinsic factors which influence overall well-being. We cannot draw such comparisons if there are omitted variables or if, similarly to the perception variables, the ones reflecting absolute measures are statistically significant. Omitted variables would bias our results and lead us to incorrectly compare the effect of different factors on life satisfaction. However, most variables which reflect objective factors, such as marital status, number of children, employment, hours worked and age are insignificant in most specifications in our analysis. Only household income and years of education are significant determinants of happiness<sup>8</sup> but the magnitudes of the effects are negligible, and in the subsample of men with a partner, years of education are even a statistically insignificant determinant of SWB. The effect of an extra year of education is identical regardless of whether we consider all women or only those with a partner. True household income matters more for individuals with a partner as compared to those without although the difference is small (about 1%) for both genders. In all instances, however, objective variables are either statistically insignificant, or have a significant but negligibly small effect on happiness. Unlike the latter variables, the effect of the ones reflecting individuals' subjective perceptions, that is self-reported satisfaction with different areas of life, is highly statistically significant and of quantitatively large magnitude in all specifications. This suggests that how people interpret experiences is a better predictor of how happy they are. We check the correlation between income and satisfaction with income on a 11-category (original) scale, and the correlation coefficient is 37.58% (or 34.55% on 3-category classification) with the difference between men and women being about 1% (37.18% for women versus 38.21% for men using 11 categories, and 34.14% for women and 35.22% for men using 3 categories). This implies that in the case of the determinants of happiness, the assumption of rationality may not hold. What

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<sup>8</sup> This result accords with Blanchflower et al. (2004) who find a positive association between happiness, and income and educational level. However, while they find that married people are the happiest, our results suggest no significant impact of marital status on well-being when perceptions are taken into account (Blanchflower et al. 2004).

individuals perceive affects their well-being more than verifiable facts. An individuals' perception of their situation affects their well-being more than the objective facts of that situation.

We repeat the analysis from Table 3 using happiness dependent and explanatory variables classified on a 2-category scale as Low or High. Again, we distinguish between genders, and individuals with and without a partner. The results are provided in Table 5. The average marginal effects in square parenthesis indicate the effect of regressors on the likelihood of the higher of the two levels of subjective well-being.

<b>Table 5. Estimates and marginal effects (ME) on Prob(SWB = High) from logistic regressions, using 2-category SWB and satisfaction with different domains of life</b>						
Dependent variable: Life satisfaction (2 categories)						
	<b>Logit, All people</b>			<b>Logit, Individuals with a partner/ spouse</b>		
	<b>All</b>	<b>Female</b>	<b>Male</b>	<b>All</b>	<b>Female</b>	<b>Male</b>
Satisfaction with health_High	1.208*** (0.071) [0.087***]	1.236*** (0.091) [0.093***]	1.188*** (0.110) [0.082***]	1.102*** (0.0998) [0.067***]	1.049*** (0.139) [0.066***]	1.143*** (0.144) [0.067***]
Satisfaction with work_High	0.955*** (0.071) [0.067***]	0.723*** (0.098) [0.052***]	1.222*** (0.104) [0.085***]	1.002*** (0.099) [0.061***]	0.678*** (0.143) [0.041***]	1.338*** (0.138) [0.081***]
Satisfaction with hhld income_High	0.604*** (0.091) [0.040***]	0.553*** (0.118) [0.038***]	0.658*** (0.146) [0.041***]	0.661*** (0.120) [0.038***]	0.420*** (0.163) [0.024**]	0.974*** (0.184) [0.054***]
Satisfaction with pers. income_High	0.465*** (0.090) [0.030***]	0.476*** (0.115) [0.032***]	0.441*** (0.143) [0.027***]	0.444*** (0.116) [0.024***]	0.580*** (0.154) [0.033***]	0.173*** (0.177) [0.009***]
Satisfaction with leisure time_High	0.757*** (0.069) [0.051***]	0.658*** (0.092) [0.046***]	0.907*** (0.103) [0.059***]	0.812*** (0.096) [0.047***]	0.703*** (0.134) [0.042***]	0.921*** (0.137) [0.050***]
Satisfaction with family life_High	1.423*** (0.085) [0.115***]	1.491*** (0.114) [0.128***]	1.334*** (0.128) [0.100***]	1.435*** (0.135) [0.104***]	1.814*** (0.181) [0.148***]	0.965*** (0.211) [0.059***]
Spouse life satisfaction_High	-	-	-	1.093*** (0.116) [0.071***]	1.116*** (0.162) [0.076***]	1.107*** (0.168) [0.068***]
Age	-0.0097*** (0.003) [-0.001***]	-0.010** (0.004) [-0.0006**]	-0.010** (0.005) [-0.0006**]	-0.007 (0.005) [-0.0004]	-0.003 (0.007) [-0.0001]	-0.008 (0.006) [-0.0004]
Married	0.130 (0.106) [0.008]	0.131 (0.142) [0.008]	0.149 (0.161) [0.009]	0.179 (0.137) [0.010]	0.096 (0.194) [0.005]	0.223 (0.196) [0.011]
Number of children	-0.002 (0.032) [-0.0001]	-0.024 (0.043) [-0.002]	0.012 (0.052) [0.0007]	0.026 (0.045) [0.001]	0.021 (0.069) [0.001]	0.019 (0.063) [0.001]
Years of education	0.090*** (0.015) [0.005***]	0.083*** (0.020) [0.005***]	0.089*** (0.022) [0.005***]	0.079*** (0.021) [0.004***]	0.097*** (0.032) [0.005***]	0.064** (0.030) [0.003**]
Ln(Household income)	0.161** (0.071) [0.010**]	0.238** (0.101) [0.015**]	0.080 (0.101) [0.005]	0.141 (0.104) [0.007]	0.020 (0.165) [0.001]	0.264** (0.132) [0.013**]
Employed	0.080 (0.153)	0.158 (0.198)	-0.136 (0.258)	0.080 (0.216)	0.126 (0.308)	0.166 (0.326)

	[0.005]	[0.010]	[-0.008]	[0.004]	[0.007]	[0.009]
Weekly work hours*Employed	0.007** (0.003)	0.008** (0.004)	0.008* (0.004)	0.004 (0.003)	0.001 (0.005)	0.004 (0.006)
	[0.0004**]	[0.0005**]	[0.0004*]	[0.0002]	[0.00003]	[0.0002]
Spouse or partner in household	0.383*** (0.105)	0.294** (0.141)	0.510*** (0.161)	-	-	-
	[0.024***]	[0.019**]	[0.031***]			
Spouse/ partner employed	-	-	-	-0.210 (0.173)	-0.234 (0.316)	-0.208 (0.225)
				[-0.011]	[-0.012]	[-0.010]
Spouse/ partner weekly work hours*Spouse/partner employed	-	-	-	0.007* (0.004)	0.014** (0.006)	0.0008 (0.006)
				[0.0004*]	[0.0008**]	[0.00004]
Spouse/ partner health satisfactory or better	-	-	-	0.104 (0.123)	0.229 (0.176)	-0.024 (0.174)
				[0.006]	[0.013]	[-0.001]
Spouse SWB included	No	No	No	Yes	Yes	Yes
Individual effects included	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	21,745	11,134	10,611	12,696	6,001	6,695

Notes: Columns (1) – (3) report the estimates from ordered logistic regressions of happiness on variables eliciting information about the respondents’ satisfaction with different areas of life, age, marital status (married or not), number of children, years of education, natural logarithm of household income, employment status (employed or not), hours worked (if employed) and presence of a partner/spouse in the household. All variables indicating levels of life satisfaction are measured on a 2-category scale: Low if the response in the original dataset belongs to the range from 0 to 5, or High if the original answer is 6 or higher. The regressions in Columns (4) – (6) differ from those in Columns (1) – (3) in that they are estimated in a subsample of individuals who have a spouse or a partner, and also include partner’s/ spouse’s employment status, hours worked (if employed) and health status (satisfactory or better, or not), and spouse’s self-reported life satisfaction (also on a 2-category scale) as additional regressors. Results in Columns (1) and (4) do not distinguish between genders, while Columns (2) and (5), and (3) and (6) present results in subsamples of female and male respondents, respectively. All regressions include individual-level random effects. Robust standard errors are provided in parentheses. Marginal effects on the likelihood of belonging to the higher of the 2 levels of satisfaction are presented in square parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

The magnitudes of the effects of interest change because of the difference in the way happiness variables are defined, but qualitatively, the results produced using a 2-category classification of happiness and satisfaction with domains of life confirm our previous findings. There are only two small differences as compared to the previous results. First, spouse’s happiness becomes slightly more important than satisfaction with personal health for women with a partner. Second, satisfaction with work becomes a little more important than health satisfaction for male with a partner, while satisfaction with personal income becomes a statistically insignificant predictor of happiness for this group of male respondents. All other results remain unchanged.

Because happiness literature mainly uses OLS claiming that (ordered) logit and least squares regressions yield similar results while OLS facilitates interpretation, for comparison purposes we present the estimates from GLS regressions in the whole sample (Columns 1 – 3) and in a subsample of individuals who have a spouse or a partner (Columns 4 – 5) in Table 6. We use well-being variables which can take one of three possible outcomes (Low, Medium, or High) in Tables 3 and 6. A comparison of the estimates in these tables indicates that GLS consistently overestimates the effects of interest. The difference in the marginal effect of women’s satisfaction with health on overall well-being (considering all respondents, i.e. both with and without a partner) is 4.9% between the two specifications, and the effect of satisfaction with family life in the subsample of all respondents with a partner differs by 6.6% using ordered logit (30.7%) and GLS (37.3%). These discrepancies clearly indicate that the simplification of previous research is unjustified, and (ordered) logistic specification is preferable.

**Table 6. Estimates from random effects GLS regressions, using 3 categories of overall well-being and satisfaction with areas of life**

Dependent variable: Life satisfaction (3 categories)

	Random effects GLS, All people (i.e., with and without spouse)			Random effects GLS, Individuals with a partner/ spouse		
	All	Female	Male	All	Female	Male
Satisfaction with health_Medium	0.184*** (0.017)	0.229*** (0.024)	0.132*** (0.024)	0.175*** (0.023)	0.208*** (0.034)	0.140*** (0.029)
Satisfaction with health_High	0.326*** (0.018)	0.376*** (0.025)	0.271*** (0.024)	0.306*** (0.023)	0.346*** (0.035)	0.266*** (0.030)
Satisfaction with work_Medium	0.118*** (0.017)	0.109*** (0.022)	0.129*** (0.025)	0.095*** (0.021)	0.059** (0.029)	0.132*** (0.031)
Satisfaction with work_High	0.214*** (0.017)	0.182*** (0.022)	0.246*** (0.025)	0.183*** (0.022)	0.124*** (0.030)	0.241*** (0.031)
Satisfaction with hhld income_Medium	0.079*** (0.018)	0.072*** (0.024)	0.083*** (0.027)	0.106*** (0.024)	0.091*** (0.035)	0.111*** (0.033)
Satisfaction with hhld income_High	0.152*** (0.020)	0.136*** (0.026)	0.160*** (0.030)	0.166*** (0.026)	0.129*** (0.037)	0.191*** (0.037)
Satisfaction with pers. income_Medium	0.051*** (0.016)	0.044** (0.020)	0.068*** (0.024)	0.054*** (0.019)	0.064*** (0.025)	0.051* (0.028)
Satisfaction with pers. income_High	0.092*** (0.017)	0.068*** (0.022)	0.131*** (0.027)	0.098*** (0.021)	0.098*** (0.028)	0.099*** (0.032)
Satisfaction with leisure time_Medium	0.080*** (0.014)	0.077*** (0.019)	0.091*** (0.019)	0.071*** (0.017)	0.059** (0.025)	0.084*** (0.024)
Satisfaction with leisure time_High	0.157*** (0.014)	0.150*** (0.020)	0.174*** (0.020)	0.143*** (0.018)	0.119*** (0.027)	0.168*** (0.025)
Satisfaction with family life_Medium	0.177*** (0.024)	0.153*** (0.035)	0.198*** (0.032)	0.184*** (0.043)	0.238*** (0.057)	0.097* (0.059)
Satisfaction with family life_High	0.376*** (0.025)	0.378*** (0.036)	0.368*** (0.033)	0.373*** (0.044)	0.460*** (0.058)	0.261*** (0.059)
Spouse life satisfaction_Medium	-	-	-	0.092*** (0.034)	0.133** (0.054)	0.063 (0.044)
Spouse life satisfaction_High	-	-	-	0.256*** (0.035)	0.303*** (0.054)	0.222*** (0.045)
Individual effects included	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	21,745	11,134	10,611	12,696	6,001	6,695

*Notes:* Columns (1) – (3) report the estimates from GLS regressions of happiness on variables eliciting information about the respondents’ satisfaction with different areas of life, age, marital status (married or not), number of children, years of education, natural logarithm of household income, employment status (employed or not), hours worked (if employed) and presence of a partner/spouse in the household. All variables indicating levels of life satisfaction are measured on a 3-category scale (Low, Medium, High). The regressions in Columns (4) – (6) differ from those in Columns (1) – (3) in that they are estimated in a subsample of individuals who have a spouse or a partner, and also include partner’s/ spouse’s employment status, hours worked (if employed) and health status (satisfactory or better, or not), and spouse’s self-reported life satisfaction (also on a 3-category scale) as additional regressors. Results in Columns (1) and (4) do not distinguish between genders, while Columns (2) and (5), and (3) and (6) present results in subsamples of female and male respondents, respectively. All regressions include individual-level random effects. Robust standard errors are provided in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

## 5.2. Analysis of employed women with a partner

The previously mentioned results provide evidence that individuals generally value satisfaction with household income more than that with personal income. However, for female respondents, the difference in the effect of satisfaction with household and personal income on overall happiness is small. For example, Tables 3 and 4 indicate that for women who have a partner,

being very satisfied with household and personal income increase the likelihood of being very happy by 9.3% and 8.6% (10.4% and 10.8% with fewer controls included as in Table 4), respectively. Since personal and household income are correlated, this result might imply that women are indifferent between themselves or their partner contributing to the household budget. Alternatively, the negligible difference might indicate that unemployed women value household income more than personal income, while working women place greater importance on personal income.

As a further analysis, we estimate ordered logistic regressions in subsamples of employed women in Table 7. We find that in the subsample of employed women with a partner, high satisfaction with personal income has a larger positive impact on overall happiness than household income satisfaction does although the difference is less than 1% (8.2% versus 7.7%). The gap, however, becomes larger (about 3%) when we also restrict the sample to employed women with a partner and at least one child. These findings are likely to suggest that women are more concerned about security than men are, and women's need for security increases with the presence of children.

In all subsamples, satisfaction with family life and health are the greatest contributors to greater overall happiness. The largest effect is that of high satisfaction with family life on overall SWB of employed women with a partner and children. Specifically, high family life satisfaction increases the likelihood that these women are very happy by 39%.

**Table 7. Estimates and marginal effects (ME) on Prob(SWB = High) from ordered logistic regressions in subsamples of all women, employed women, and employed women with children**

Dependent variable: Life satisfaction (3 categories)

	Ordered logit, All women			Ordered logit, Women with a partner/ spouse		
	All women	Employed women	Employed women with children	All women	Employed women	Employed women with children
Satisfaction with health_Medium	1.131*** (0.122) [0.184***]	1.137*** (0.129) [0.185***]	1.103*** (0.144) [0.178***]	1.062*** (0.178) [0.169***]	1.079*** (0.185) [0.171***]	1.069*** (0.206) [0.167***]
Satisfaction with health_High	2.077*** (0.131) [0.327***]	2.121*** (0.138) [0.333***]	2.043*** (0.154) [0.316***]	2.042*** (0.192) [0.306***]	2.086*** (0.200) [0.312***]	1.989*** (0.220) [0.295***]
Satisfaction with work_Medium	0.555*** (0.115) [0.086***]	0.550*** (0.123) [0.085***]	0.449*** (0.142) [0.068***]	0.329** (0.163) [0.048**]	0.312* (0.174) [0.045*]	0.165 (0.199) [0.023]
Satisfaction with work_High	0.992*** (0.119) [0.150***]	1.003*** (0.127) [0.151***]	0.815*** (0.146) [0.120***]	0.743*** (0.171) [0.104***]	0.739*** (0.183) [0.103***]	0.521** (0.208) [0.071**]
Satisfaction with hhld income_Medium	0.304** (0.125) [0.046***]	0.308** (0.133) [0.047**]	0.309** (0.148) [0.047**]	0.396** (0.188) [0.057**]	0.280 (0.199) [0.040]	0.219 (0.207) [0.031]
Satisfaction with hhld income_High	0.708*** (0.142) [0.105***]	0.727*** (0.152) [0.108***]	0.722*** (0.170) [0.106***]	0.661*** (0.209) [0.093***]	0.555** (0.219) [0.077**]	0.497** (0.231) [0.068**]
Satisfaction with pers. income_Medium	0.232** (0.106) [0.034**]	0.214* (0.114) [0.031*]	0.242* (0.131) [0.035*]	0.354** (0.139) [0.050**]	0.320** (0.147) [0.045**]	0.425*** (0.160) [0.060***]

Satisfaction with pers. income_High	0.432*** (0.124) [0.063***]	0.402*** (0.131) [0.059***]	0.463*** (0.151) [0.067***]	0.620*** (0.165) [0.086***]	0.593*** (0.174) [0.082***]	0.679*** (0.191) [0.094***]
Satisfaction with leisure time_Medium	0.403*** (0.100) [0.062***]	0.416*** (0.103) [0.064***]	0.421*** (0.115) [0.064***]	0.324** (0.138) [0.047**]	0.351** (0.142) [0.051**]	0.355** (0.154) [0.051**]
Satisfaction with leisure time_High	0.885*** (0.112) [0.132***]	0.875*** (0.117) [0.131***]	0.911*** (0.133) [0.135***]	0.759*** (0.159) [0.106***]	0.785*** (0.164) [0.110***]	0.798*** (0.180) [0.111***]
Satisfaction with family life_Medium	0.715*** (0.179) [0.117***]	0.702*** (0.188) [0.114***]	0.616*** (0.218) [0.0999***]	1.220*** (0.308) [0.190***]	1.177*** (0.315) [0.184***]	1.181*** (0.342) [0.183***]
Satisfaction with family life_High	1.911*** (0.186) [0.305***]	1.929*** (0.195) [0.307***]	1.910*** (0.225) [0.301***]	2.418*** (0.317) [0.370***]	2.419*** (0.324) [0.370***]	2.546*** (0.354) [0.390***]
Spouse life satisfaction_Medium	-	-	-	0.698** (0.294) [0.110**]	0.630** (0.311) [0.099**]	0.420 (0.328) [0.066]
Spouse life satisfaction_High	-	-	-	1.760*** (0.298) [0.263***]	1.698*** (0.314) [0.253***]	1.489*** (0.331) [0.219***]
Individual effects included	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	11,134	10,549	7,957	6,001	5,723	4,736

*Notes:* Columns (1) – (3) report the estimates from ordered logistic regressions of happiness on variables eliciting information about the female respondents’ satisfaction with different areas of life, age, marital status (married or not), number of children, years of education, natural logarithm of household income, employment status (employed or not), hours worked (if employed) and presence of a partner/spouse in the household. All variables indicating levels of life satisfaction are measured on a 3-category scale (Low, Medium, High). The regressions in Columns (4) – (6) differ from those in Columns (1) – (3) in that they are estimated in a subsample of women who have a spouse or a partner, and also include partner’s/ spouse’s employment status, hours worked (if employed) and health status (satisfactory or better, or not), and spouse’s self-reported life satisfaction (also on a 3-category scale) as additional regressors. Results in Columns (1) and (4) do not distinguish between employed and unemployed women with and without children, while Columns (2) and (5), and (3) and (6) present results in subsamples of employed women and employed women who have at least one child, respectively. All regressions include individual-level random effects. Robust standard errors are provided in parentheses. Marginal effects (of the significant explanatory variables) on the likelihood of belonging to the highest of the 3 levels of satisfaction are presented in square parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

### 5.3. Robustness checks

To check the stability of the results, we perform several experiments. First, we run the major regressions using variables measuring overall life and domains of life satisfaction but defining the three categories differently. Specifically, we distinguish between low, medium and high satisfaction where the three categories correspond to values 0 to 2, 3 to 7, and 8 to 10, respectively in the original dataset. This modification does not change the significance of the estimates, or the way in which values are ordered for different groups of respondents as specified in the previous subsections. Basing the analysis on 11-category life satisfaction and aspects of life variables does not also qualitatively change the results. Specifically, the ordering of values is preserved. However, interpretation of the results becomes cumbersome due to the large number of estimates when a large number of categories of aspects of life satisfaction are utilized.

Second, the addition of time trends does not change the significance and the qualitative properties of the results. The findings are also not sensitive to using Probit instead of Logit specification. They are also robust in that they differ only modestly

when we impose further restrictions based on whether both or only one of the partners is employed in case a partner or spouse is present, whether the respondents are married or not, and whether the respondents have children or not. Estimations in these subsamples lead to negligible changes in the magnitudes of the effects of interest but no changes in the significance and the qualitative findings. We provide tables with the estimates from the robustness checks as supplementary materials to this paper. Table S1 in the Supplement includes estimates from ordered Probit model, as well as ordered Logit results using subsamples of individuals with children, married, not married, individuals with a partner where only one of the partners is employed, and where both are employed.

Additionally, we estimate the major regressions suggested in Table 3 with fixed effects. Specifically, we fit panel data ordered Logit models with fixed rather than random effects using the method proposed by Baetschmann et al. (2020). The purpose is to relax the assumptions of normally distributed and independent of the regressors individual-specific error terms suggested by random effect methodologies. The results are summarized in Table S2 in the Supplement. Both the estimates and their significance confirm our major findings.

Finally, a potential concern which can influence the results is reverse causality. To address this issue, we estimate the major models using lagged independent variables, specifically lagged household income, employment status, and hours worked, which can be endogenous. The results are shown in Table S3 in the Supplement. The statistical significance of the satisfaction with aspects of life in determining overall life satisfaction is confirmed, and we do not observe any changes in the qualitative properties of our results. Yet, Reed (2015) shows that replacing independent variables with lagged values may not solve simultaneity issues and the estimates can still remain inconsistent. Finding strong instruments and controlling for endogeneity is a fruitful area of future investigation.

## **6. Discussion and implications**

In this section, we provide some potential explanations of our finding that perceptions are a better predictor of happiness than variables reflecting actual circumstances, and explore implications of the study.

First, individuals' satisfaction is a function of their target, a notion known as the aspiration theory, or multiple discrepancies theory, in psychology. It suggests that individuals are not able or willing to make absolute judgements. They form aspirations by comparing themselves to the past, expected future or the surrounding environment, and evaluate outcomes based on the discrepancies between their aspired goals and current circumstances (Stutzer et al. 2014). Therefore happiness depends on the gap between aspiration and achievement rather than the achievement itself (Inglehart 1990, Michalos 1991). For example, Stutzer (2004) finds a negative correlation between a larger gap between aspiration and income, and happiness. Similarly, happiness depends on people's reference group. Literature has found a negative relationship between happiness, and income (Clark et al. 1996, McBride 2001, Guilbert et al. 2009) and education of the comparison group (Nikolaev 2016). If this is true, social comparisons, aspiration and gaps between goals and achievements explain why personal interpretation of the facts has a greater effect on happiness as compared to the true state of reality.

Second, our results are consistent with the findings in the psychology literature that individuals' behavior depends on what they believe the external environment is rather than what it actually is. Psychology explains discrepancies between perceived and

actual circumstances by bounded rationality and cognitive biases, including confirmation (i.e., interpreting facts to match prior beliefs, judgement and choices), anchoring (i.e., judging based on initial information), randomness (i.e., attributing value to irrelevant experiences) and availability (i.e., judging based on readily available information which does not necessarily accurately reflect reality) biases. In addition, genetic factors are found to explain about 44 – 52% percent of the variation in SWB (Lykken et al. 1996).

Third, Easterlin's (1974) paradox is more relevant during the current Covid-19 crisis than ever as it has been proposed by some segments of popular culture that our current economic system might be sacrificing human wellbeing in exchange for GDP per capita growth. The dominance of relative perception over objective level of consumption as determinants of happiness, if externally valid outside of the German panel data analyzed here, would provide an acceptable solution to the puzzle that Easterlin observed.

It may be the case that only rapid economic growth would allow for individuals to notice the increased quality of life in a meaningful way. If so, we would expect to see increased levels of happiness only during periods of extremely rapid economic growth where people have a reference point within their own memory of less abundant times. Regarding the second industrial revolution, Keynes (1919) writes: "What an extraordinary episode in the economic progress of man that age was which came to an end in August 1914! The greater part of the population, it is true, worked hard and lived at a low standard of comfort, yet were, to all appearances, reasonably contented with this lot." The almost overnight transition from iron to steel of the Second Industrial Revolution and the subsequent falling consumer prices could have provided such a time period where quality of life improved fast enough for people to perceive the difference and to derive happiness from their perceptions.

It may also be the case that cultural values play a much larger role in mitigating unhappiness from relative income dissatisfaction. Cultures which promote happiness through relative perceptions might employ devices to alter those perceptions. Mealtime prayers often included reminders of gratitude, and the first links between gratitude, economics, and psychology are starting to be recognized (DeSteno et al. 2014). Also, depending on the version, 20% to 30% of the ten commandments contain prohibitions against covetousness which is shown by Milfont et al. (2009) to negatively affect SWB. Alternatively, cultures which do not succeed in mitigating unhappiness from relative income dissatisfaction might glamorize conspicuous consumption (Veblen 1899) such as the social media phenomenon of the "Instagram model" which could be a major cause of the current mental health crisis in the US through the vector of unhappiness. It also potentially sheds some light on the historical pejorative "nouveau riche" as wealthy members of stable societies may have benefited from avoiding ostentatious displays and harbored animosity toward people who through conspicuous consumption fostered unhappiness in lower income individuals thereby destabilizing society. This is a fruitful area for future research, but the dominance of perception over objective state takes the enigma out of Easterlin's puzzle.

Because of the relationship between happiness, and health, productivity and goals attainment, understanding its determinants is important for predicting individual and social outcomes. More importantly, during the global Covid-19 crisis and lockdowns, social isolation, uncertainty about the future, health and financial concerns have led to a decline in the ratings of life satisfaction, deterioration of individuals' mental health, increased stress and worry rates, rising number of people experiencing symptoms of depression, and elevated suicidal rates (Witters et al. 2020). An insight into the gender differences in the factors which generate



greater life satisfaction is useful in predicting the impact of the pandemic on different groups of people, identifying those at greatest risk, and developing a plan for prevention of the forementioned adverse effects. Specifically, public awareness of the finding that self-perceived factors have a larger impact on SWB as compared to actual current circumstances is likely to incentivize people to put effort in viewing reality differently and realizing their happiness with alternative aspects of life. This can increase their level of overall happiness, and thus prevent mental disorders, long-term diseases and suicidal risk.

Furthermore, our finding that satisfaction with family life and health has a larger effect on happiness relative to satisfaction with income has implications related to the direction of efforts of decision-makers. Our results suggest that their efforts might have a larger positive impact on societal well-being if directed towards ensuring improvement of health outcomes through prevention of further spread of the virus and assistance provided to infected people and those in high risk groups, and emphasizing the importance of strong family support and close attention to family life, rather than increasing the financial well-being of the population.

## **7. Conclusion**

This article studies the effect of satisfaction with domains of life on overall SWB. It also compares the importance of perceived contentment with health, family life, work, leisure time, personal and household income for men and women, and revisits the impact of partner's on personal happiness.

Several results emerge from the empirical analysis. First, all variables measuring perceived happiness with different areas of life are highly statistically significant and of high magnitude while from the considered factors reflecting the actual state of reality, only education and household income are significant and their impact on happiness is small. This implies a mismatch between perceptions and actual circumstances, and suggests that how happy people believe they are with different life aspects is a stronger determinant of their overall happiness. Second, the results provide evidence that although family and health satisfaction consistently matter the most for overall well-being while financial satisfaction is least important for both women and men in almost all specifications, we also find gender differences in values. Where there are differences, men exhibit high valuation of work satisfaction. The latter is much more important (relative to other areas of life) for men than for women. However, women value spousal happiness more than men value spousal happiness. Comparing satisfaction with personal to satisfaction with household income shows that satisfaction with household income contributes more to overall happiness except for the subsample of employed women who extract greater value from personal rather than household funds. The findings are robust to various specifications and definitions of the ordered variables. We also show that the effects are of different magnitude when consistent estimates are obtained using (ordered) logistic models rather than OLS as previously used by most authors for the purpose of easier interpretation of the results.

The insight into the sources of happiness and gender differences this article provides have important implications especially during a time of reduced happiness and increased risk of suicidal thoughts and behavior during the Covid-19 crisis. However, this study also has limitations. Specifically, happiness scores are a noisy measure of people's utility (DiTalla et al. 2006). These data are self-declared and thus cannot be validated and are not interpersonally comparable. First, individuals' responses might depend on the mood, wording and personal interpretation of the survey question, and individuals' current circumstances (Frey et al.

2002). Second, responses are not comparable, partly because previous literature suggests that well-being sometimes depends on individual's reference groups (e.g., McBride 2001, Guilbert et al. 2009). In addition, there are two measures of well-being in the terminology of Kahneman et al. (2010): current “emotional well-being” or happiness, and overall “evaluation of life” satisfaction, and the two types of happiness do not imply each other. The survey data we use do not explicitly specify to respondents what kind of well-being they need to report, which is another source of bias. Common method biases might also influence the effects of interest and comparisons made in the paper. Another caveat of this study is the potential endogeneity. It is likely that happier people are more likely to be married, or employed, or to have children. We partially address the concern through the use of lagged independent variables in some of the robustness checks and do not observe evidence of significant changes in the results, but this concern can be investigated with greater precision in future research through instrumental variables. An area of further improvement is adding a variable which captures individuals' actual health status to compare the impact of perceived relative to true health. This requires data we currently do not have available. The analysis can also be extended to other countries, and cross-cultural differences can be investigated.

### References

- Alesina, A., DiTalla, R., & MacCulloch, R. (2004). Inequality and Happiness: Are Europeans and Americans Different?. *Journal of Public Economics*, 88, 2009 – 2042. doi: 10.1016/j.jpubeco.2003.07.006
- Anderson, C., Kraus, M., & Dacher, K. (2012). The Local Ladder Effect: Social Status and Subjective Well-Being. *Psychological Science*, 23(7), 764 - 771. doi: 10.1177/0956797611434537
- Baetschmann, G., Ballantyne, A., Staub, K., & Winkelmann, R. (2020). Feologit: A new command for fitting fixed-effects ordered logit models. *The Stata Journal*, 20(2), 253 – 275.
- Bjørnskov, C., Dreher, A., Fischer, J., Schnellenbach, J., & Gehring, K. (2013). Inequality and Happiness: When Perceived Social Mobility and Economic Reality Do Not Match. *Journal of Economic Behavior and Organization*, 91(C), 75 – 92.
- Blanchflower, D., & Oswald, A. (2004). Well-Being Over Time in Britain and the USA. *Journal of Public Economics*, 88, 1359 – 1386.
- Blanchflower, D., & Oswald, A. (2008). Hypertension and Happiness across Nations. *Journal of Health Economics*, 27, 218 – 233. doi: 10.1016/j.jhealeco.2007.06.002
- Boyce, C., Brown, G., & Moore, S. (2010). Money and Happiness: Rank of Income, not Income, Affects Life Satisfaction. *Psychological Science*, 21(4), 471 – 475. doi: 10.1177/0956797610362671
- Clark, A., & Oswald, A. (1996). Satisfaction and Comparison Income. *Journal of Public Economics*, 61(3), 359 – 381. doi: 10.1016/0047-2727(95)01564-7

- Cohen, S., Doyle, W., Turner, R., Alper, C., & Skoner, D. (2003). Emotional Style and Susceptibility to the Common Cold. *Psychosomatic Medicine*, 65(4), 652 – 657. doi: 0033-3174/03/6504-0652
- Daly, M., & Wilson, D. (2009). Happiness, Unhappiness, and Suicide: An Empirical Assessment. *Journal of the European Economic Association*, 7(2-3), 539 – 549. doi: 10.1162/JEEA.2009.7.2-3.539
- DeNeve, K. M., & Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin*, 124, 197–229.
- Desteno, Y., Li, L., Dickens, J., Lerner, S. (2014). Gratitude: A Tool for Reducing Economic Impatience *Psychological Science*, 25, 1262 – 1267.
- Deutsches Institut für Wirtschaftsforschung (DIW). (2019). German Socio-Economic Panel (SOEP), 1998 – 2017, version 34. doi: 10.5684/soep.v34
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95, 542 – 575.
- Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, culture, and subjective well-being: Emotional and cognitive evaluations of life. *Annual Review of Psychology*, 54, 403–425.
- DiTalla, R., & MacCulloch, R. (2006). Some Uses of Happiness Data in Economics. *Journal of Economic Perspectives*, 20(1), 25 – 46.
- DiTella, R., MacCulloch, R., & Oswald, A. (2001). Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness. *The American Economic Review*, 91(1), 335 – 341. Retrieved from <https://www.jstor.org/stable/2677914>.
- DiTella, R., MacCulloch, R., & Oswald, A. (2003). The Macroeconomics of Happiness. *Review of Economics and Statistics*, 85(4), 809 – 827.
- Easterlin, R. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence. *In Nations and Households in Economic Growth*. 89 – 125. doi: 10.1016/B978-0-12-205050-3.50008-7
- Ferrer-i-Carbonell, A., & Frijters, P. (2004). How Important is Methodology for the Estimates of the Determinants of Happiness. *Economic Journal*, 114, 641 – 659.
- Frey, B., & Stutzer, A. (2002). What Can Economists Learn from Happiness Research?. *Journal of Economic Literature*, XL, 402 – 435.
- Graham, C., & Felton, A. (2006). Inequality and Happiness: Insights from Latin America. *Journal of Economic Inequality*, 4(1), 107 – 122. doi: 10.1007/s10888-005-9009-1

- Guilbert, D., & Paul, S. (2009). Income and Happiness: An Analysis of Adaptation and Comparison Income Effects. *HILDA Survey Research Conference 2009*.
- Headey, B., & Wooden, M. (2004). The Effects of Wealth and Income on Subjective Well-Being and Ill-Being. *Economic Record*, 80(s1), S24 – S33. doi: 10.1111/j.1475-4932.2004.00181.x
- Heller, D., Watson, D., & Ilies, R. (2004). The role of person versus situation in life satisfaction: A critical examination. *Psychological Bulletin*, 130, 574–600.
- Inglehart, R., & Klingemann, H. (2000). Genes, Culture, Democracy, and Happiness. In Diener, E., & Suh, E. (Eds.), *Culture and Subjective Well-Being* (165 – 182). MA: The MIT Press.
- Kahneman, D., & Deaton, A. (2010). High Income Improves Evaluation of Life but not Emotional Well-being. *Proceedings of the National Academy of Sciences*, 107(38), 16489 – 16493.
- Keynes, J. (1919). The Economic Consequences of the Peace. *History of Economic Thought Books*, McMaster University Archive for the History of Economic Thought.
- Kohler, H., Behrman, J., & Skytthe, A. (2004). Partner + Children = Happiness? An Assessment of the Effect of Fertility and Partnerships on Subjective Well-Being. *Population and Development Review*, 31(3), 407 – 445. doi: 10.1111/j.1728-4457.2005.00078.x
- Kristoffersen, I. (2018). Great expectations: Education and subjective wellbeing. *Journal of Economic Psychology*, 66(C), 64 - 78. doi: 10.1016/j.joep.2018.04.005
- Lachman, B., Sariyska, R., Kannen, C., Blaszkiewicz, K., Trendafilov, B., Andone, I., Eibes, M., Markowitz, A., Li, M., Kendrick, K., & Montag, C. (2018). Contributing to Overall Life Satisfaction: Personality Traits Versus Life Satisfaction Variables Revisited – Is Replication Impossible?. *Behavioral Sciences*, 8(1), 1 – 23. doi: 10.3390/bs8010001
- Layard, R., Chisholm, D., Patel, V., & Saxena, S. (2013). Mental Illness and Unhappiness. IZA Discussion Paper No. 7620. Available at SSRN: <https://ssrn.com/abstract=2336397>
- Loewe, N., Bagherzadeh, M., Araya-Castillo, L., Thieme, C., & Batista-Foguet, J. (2014). Life Domain Satisfaction as Predictors of Overall Life Satisfaction Among Workers: Evidence from Chile. *Social Indicators Research*, 118, 71 – 86. doi: 10.1007/s11205-013-0408-6
- Lucas, R., & Clark, A. (2006). Do People Really Adapt to Marriage?. *Journal of Happiness Studies*, 7(4), 405 – 426.
- Lykken, D., & Tellegen, A. (1996). Happiness is a Stochastic Phenomenon. *Psychological Science*, 7(3), 186 – 189. doi: 10.1111/j.1467-9280.1996.tb00355.x

- McBride, M. (2001). Relative-Income Effects on Subjective Well-Being in the Cross-Section. *Journal of Economic Behavior & Organization*, 45, 251 – 278.
- Milfont, T., & Gouveia, V. (2009). A capital Sin: Dispositional Envy and its Relations to Wellbeing. *Interamerican Journal of Psychology*, 43(3), 547 – 551.
- Møller, V., & Saris W. (2001). The Relationship between Subjective Well-Being and Domain Satisfaction in South Africa. *Social Indicators Research*, 55, 97 – 114.
- Nikolaev, B. (2016). Does Other People's Education Make Us Less Happy?. *Economics of Education Review*, 52(C), 176 – 191. doi: 10.1016/j.econedurev.2016.02.005
- Nikolaev, B., & Burns, A. (2014). Intergenerational Mobility and Subjective Well-Being – Evidence from the General Social Survey. *Journal of Behavioral and Experimental Economics*, 53(C), 82 – 96. doi: 10.1016/j.socec.2014.08.005
- Nikolaev, B., & Rusakov, P. (2015). Education and Happiness: An Alternative Hypothesis. *Applied Economics Letters*, 23(12), 827 – 830. doi: 10.1080/13504851.2015.1111982
- Oishi, S., Kesebir, S., & Diener, E. (2011). Income Inequality and Happiness. *Psychological Science*, 22(9), 1095 – 1100. doi: 10.1177/0956797611417262
- Oswald, A., & Nattavudh, P. (2008). Does Happiness Adapt? A Longitudinal Study of Disability with Implications for Economists and Judges. *Journal of Public Economics*, 92(5-6), 1061 – 1077. doi: 10.1016/j.jpubeco.2008.01.002
- Oswald, A., Proto, E., & Sgroi, D. (2015). Happiness and Productivity. *Journal of Labor Economics*, 33(4), 789 – 822.
- Pavot, W., & Diener, E. (2008). The satisfaction with life scale and the emerging construct of life satisfaction. *Journal of Positive Psychology*, 3, 137–152.
- Reed, William. (2015). On the Practice of Lagging Variables to Avoid Simultaneity. *Oxford Bulletin of Economics and Statistics*, 77(6), 897 – 905. doi: 10.1111/obes.12088.
- Rojas, M. (2006). Life Satisfaction and Satisfaction in Domains of Life: Is it a Simple Relationship?. *Journal of Happiness Studies*, 7, 467–497. doi: 10.1007/s10902-006-9009-2
- Stanca, L. (2016). “The Geography of Parenthood and Well-Being: Do Children Make Us Happy, Where and Why?”. In *World Happiness Report, United Nations*.
- Steel, P., Schmidt, J., & Shultz, J. (2008). Refining the relationship between personality and subjective wellbeing. *Psychological Bulletin*, 134, 138–161.

- Stutzer, A. (2004). The Role of Income Aspirations in Individual Happiness. *Journal of Economic Behavior and Organization*, 54, 89 – 109.
- Stutzer A., & Henne T. (2014). Aspiration Theory. In: Michalos A.C. (eds) Encyclopedia of Quality of Life and Well-Being Research. Springer, Dordrecht. doi: 10.1007/978-94-007-0753-5
- Van Praag, B., Frijters, P., & Ferrer-i-Carbonell, A. (2003). The anatomy of subjective well-being. *Journal of Economic Behavior & Organization*, 51(1), 29 – 49.
- Veblen, T. (1899). The Theory of the Leisure Class. McMaster University Archive for the History of Economic Thought. Retrieved from <https://EconPapers.repec.org/RePEc:hay:hetboo:veblen1899>.
- Veenhoven, R. (1996). Developments in satisfaction research. *Social Indicators Research*, 37, 1–45.
- Wills, E. (2009). Spirituality and Subjective Well-Being: Evidences for a New Domain in the Personal Well-Being Index. *Journal of Happiness Studies*, 10, 49 – 69. doi: 10.1007/s10902-007-9061-6
- Witters, D., & Harter, J. (2020). In U.S., Life Ratings Plummet to 12-Year Low. In Gallup News. Retrieved from <https://news.gallup.com/>

## Appendix A1

**Table A1. Variables used in the empirical analysis and their descriptions**

Variable	Description
<i>LifeSatisfaction</i>	<p>A categorical variable which captures overall life satisfaction on a scale from 0 (lowest) to 10 (highest). We construct variables which can take one of 2 or 3 ordered values. The following are the variables we create:</p> <ul style="list-style-type: none"> <li>- LifeSatisf3cat37 (3 categories) can take a value of Low (0) if the value of the life satisfaction variable is 0, 1, 2, or 3 in the original dataset, Medium (1) if life satisfaction is originally rated 4, 5, 6, or 7, or High (2) if the original value of the life satisfaction variable is 8, 9, or 10.</li> <li>- LifeSatisf3cat27 (3 categories) can take a value of Low (0) if the value of the life satisfaction variable is 0, 1, or 2 in the original dataset, Medium (1) if life satisfaction is originally rated 3, 4, 5, 6, or 7, or High (2) if the original value of the life satisfaction variable is 8, 9, or 10.</li> <li>- LifeSatisf2cat5 (2 categories) can take a value of Low (0) if the value of the life satisfaction variable is 0,1,2, 3, 4, or 5 in the original dataset, or High (2) if the original value of the life satisfaction variable is 6 or higher.</li> </ul>
<i>SatisfHealth</i>	A categorical variable which captures respondent's satisfaction with health on a scale from 0 (lowest) to 10 (highest) in the original dataset. We create alternative variables which take 2 or 3 ordered values in the way described for the overall life satisfaction variable.
<i>SatisfWork</i>	A categorical variable which captures respondent's satisfaction with work on a scale from 0 (lowest) to 10 (highest) in the original dataset. We create alternative variables

	which take 2 or 3 ordered values in the way described for the overall life satisfaction variable.
<i>SatisfHhIncome</i>	A categorical variable which captures respondent's satisfaction with household income on a scale from 0 (lowest) to 10 (highest) in the original dataset. We create alternative variables which take 2 or 3 ordered values in the way described for the overall life satisfaction variable.
<i>SatisfPersIncome</i>	A categorical variable which captures respondent's satisfaction with personal income on a scale from 0 (lowest) to 10 (highest) in the original dataset. We create alternative variables which take 2 or 3 ordered values in the way described for the overall life satisfaction variable.
<i>SatisfLeisureTime</i>	A categorical variable which captures respondent's satisfaction with leisure time on a scale from 0 (lowest) to 10 (highest) in the original dataset. We create alternative variables which take 2 or 3 ordered values in the way described for the overall life satisfaction variable.
<i>SatisfFamilyLife</i>	A categorical variable which captures respondent's satisfaction with family life on a scale from 0 (lowest) to 10 (highest) in the original dataset. We create alternative variables which take 2 or 3 ordered values in the way described for the overall life satisfaction variable.
<i>SpouseLifeSatisfaction</i>	A categorical variable which captures overall life satisfaction of the spouse or partner of the respondent on a scale from 0 (lowest) to 10 (highest) in the original dataset. We create alternative variables which take 2 or 3 ordered values in the way described for the overall life satisfaction variable.
<i>Age</i>	Age of the respondent
<i>Married</i>	A binary variable which takes the value of 1 if the respondent is married, and 0 if (s)he is single, widowed or divorced.
<i>NumKids</i>	Number of children the respondent has
<i>YearsEduc</i>	Respondent's number of years of education
<i>lnHhIncome</i>	Natural logarithm of household income
<i>Employed</i>	A binary variable which takes the value of 1 if the respondent is employed part time or full time, in training or workshop, and 0, otherwise.
<i>HoursWorkWk</i>	Number of hours the respondent works per week if employed
<i>InterEmplHours</i>	An interaction term of Employed and HoursWorkWk
<i>PartnerOrSpouseInHh</i>	An indicator which takes the value of 1 if the partner or spouse of the respondent is present in the household, and 0, otherwise.
<i>SpouseEmployed</i>	A binary variable which takes the value of 1 if the partner or spouse of the respondent is employed part time or full time, in training or workshop, and 0, otherwise.
<i>SpouseHoursWorkWk</i>	Number of hours the spouse or partner of the respondent works per week if employed
<i>SpouseInterEmplHours</i>	An interaction term of SpouseEmployed and SpouseHoursWorkWk
<i>SpouseHealthSatisfOrBetter</i>	A binary variable which takes the value of 1 if the partner or spouse of the respondent is in very good, good or satisfactory health condition as reported by the spouse/ partner, and 0 if (s)he is in bad or poor health.

Notes: Data are obtained from the German Socio-Economic Panel (SOEP) from 1998 to 2017

### Supplementary materials

**Table S1. Estimates from ordered logistic regressions**

Dependent variable: Life satisfaction (3 categories)

Ordered logit, Individuals with a partner/ spouse								
	Ordered probit	With kids, ordered	Ordered probit	Married	Not married	With kids	Both partners employed	Only one partner employed

	<b>logit, all people</b>							
Satisfaction with health_Medium	0.542*** (0.050)	0.914*** (0.104)	0.540*** (0.068)	1.0001*** (0.135)	0.664** (0.330)	0.922*** (0.136)	0.907*** (0.144)	1.183*** (0.269)
Satisfaction with health_High	1.054*** (0.054)	1.794*** (0.111)	1.057*** (0.073)	1.959*** (0.144)	1.509*** (0.349)	1.806*** (0.144)	1.870*** (0.152)	2.207*** (0.295)
Satisfaction with work_Medium	0.339*** (0.049)	0.558*** (0.104)	0.284*** (0.065)	0.652*** (0.132)	-0.048 (0.297)	0.443*** (0.134)	0.579*** (0.144)	0.367 (0.245)
Satisfaction with work_High	0.670*** (0.051)	1.101*** (0.109)	0.613*** (0.068)	1.213*** (0.138)	0.637** (0.301)	1.038*** (0.141)	1.153*** (0.150)	1.079*** (0.256)
Satisfaction with hhld	0.197*** (0.054)	0.413*** (0.113)	0.277*** (0.073)	0.382** (0.149)	1.060*** (0.322)	0.424*** (0.146)	0.610*** (0.171)	0.057 (0.227)
income_Medium								
Satisfaction with hhld income_High	0.460*** (0.061)	0.914*** (0.130)	0.510*** (0.083)	0.813*** (0.0.167)	1.420*** (0.370)	0.838*** (0.166)	1.006*** (0.190)	0.596** (0.271)
Satisfaction with pers. income_Medium	0.144*** (0.047)	0.254** (0.100)	0.161*** (0.059)	0.239** (0.118)	0.698*** (0.258)	0.344*** (0.119)	0.171 (0.130)	0.837*** (0.206)
Satisfaction with pers. income_High	0.310*** (0.055)	0.522*** (0.118)	0.354*** (0.072)	0.541*** (0.140)	1.312*** (0.309)	0.664*** (0.143)	0.569*** (0.155)	1.072*** (0.250)
Satisfaction with leisure time_Medium	0.237*** (0.041)	0.399*** (0.084)	0.214*** (0.054)	0.335*** (0.109)	0.786*** (0.254)	0.349*** (0.107)	0.478*** (0.112)	0.175 (0.217)
Satisfaction with leisure time_High	0.524*** (0.045)	0.925*** (0.094)	0.512*** (0.061)	0.868*** (0.120)	1.270*** (0.277)	0.886*** (0.119)	0.997*** (0.124)	0.605** (0.237)
Satisfaction with family life_Medium	0.469*** (0.069)	0.835*** (0.166)	0.514*** (0.126)	0.824*** (0.274)	1.672*** (0.547)	1.008*** (0.260)	0.819*** (0.286)	1.557*** (0.508)
Satisfaction with family life_High	1.079*** (0.071)	1.976*** (0.166)	1.095*** (0.128)	1.861*** (0.278)	2.894*** (0.566)	2.082*** (0.256)	1.911*** (0.291)	2.672*** (0.524)
Spouse life satisfaction_Medium	-	-	0.276*** (0.104)	0.531** (0.205)	0.345 (0.574)	0.470** (0.207)	0.677*** (0.263)	0.358 (0.301)
Spouse life satisfaction_High	-	-	0.848*** (0.106)	1.517*** (0.210)	1.630*** (0.583)	1.509*** (0.211)	1.666*** (0.267)	1.573*** (0.311)
Spouse SWB included	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Individual effects included	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	21,745	15,362	12,696	10,483	2,213	10,448	9,636	2,828

Notes: This table is similar to Table 3 but we fit models using subsamples of data as specified in the table. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

**Table S2. Estimates from panel data ordered logit model with FE (feologit) using Baetschmann et al. (2020)**

Dependent variable: Life satisfaction (3 categories)

	<b>Ordered logit, All people</b>			<b>Ordered logit, Individuals with a partner/ spouse</b>		
	<b>All</b>	<b>Female</b>	<b>Male</b>	<b>All</b>	<b>Female</b>	<b>Male</b>
Satisfaction with health_Medium	1.077*** (0.111)	1.214*** (0.147)	0.907*** (0.174)	1.147*** (0.162)	1.296*** (0.229)	0.981*** (0.229)
Satisfaction with health_High	1.691*** (0.121)	1.884*** (0.163)	1.467*** (0.187)	1.799*** (0.177)	2.019*** (0.256)	1.586*** (0.247)



Satisfaction with work_Medium	0.586*** (0.103)	0.546*** (0.136)	0.631*** (0.157)	0.551*** (0.149)	0.417** (0.202)	0.660*** (0.216)
Satisfaction with work_High	0.978*** (0.109)	0.809*** (0.144)	1.161*** (0.166)	1.020*** (0.158)	0.810*** (0.217)	1.203*** (0.225)
Satisfaction with hhld income_Medium	0.250** (0.119)	0.257 (0.163)	0.236 (0.172)	0.512*** (0.179)	0.555** (0.267)	0.453* (0.244)
Satisfaction with hhld income_High	0.430*** (0.134)	0.384** (0.182)	0.451** (0.198)	0.702*** (0.199)	0.669** (0.293)	0.649** (0.276)
Satisfaction with pers. income_Medium	0.157 (0.102)	0.094 (0.135)	0.253 (0.157)	0.198 (0.141)	0.195 (0.185)	0.275 (0.218)
Satisfaction with pers. income_High	0.298** (0.122)	0.088 (0.164)	0.576*** (0.185)	0.383** (0.171)	0.191 (0.229)	0.651** (0.261)
Satisfaction with leisure time_Medium	0.416*** (0.090)	0.350*** (0.122)	0.514*** (0.134)	0.432*** (0.127)	0.372* (0.192)	0.482*** (0.173)
Satisfaction with leisure time_High	0.704*** (0.103)	0.627*** (0.144)	0.809*** (0.147)	0.848*** (0.145)	0.733*** (0.226)	0.940*** (0.192)
Satisfaction with family life_Medium	0.836*** (0.150)	0.620*** (0.192)	1.176*** (0.243)	1.212*** (0.325)	1.427*** (0.422)	0.993** (0.505)
Satisfaction with family life_High	1.544*** (0.158)	1.428*** (0.206)	1.748*** (0.252)	1.909*** (0.337)	2.311*** (0.445)	1.519*** (0.514)
Spouse life satisfaction_Medium	-	-	-	0.502** (0.225)	0.855** (0.379)	0.262 (0.276)
Spouse life satisfaction_High	-	-	-	1.289*** (0.233)	1.712*** (0.386)	0.983*** (0.294)
Spouse SWB included	No	No	No	Yes	Yes	Yes
Individual effects included	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	11,967	6,252	5,715	6,523	3,126	3,397

Notes: This table is similar to Table 3, except that it fits panel data ordered logit models with fixed effects using the method proposed by Baetschmann et al. (2020). \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

<b>Table S3. Estimates from ordered logistic regressions, using lagged independent variables</b>						
Dependent variable: Life satisfaction (3 categories)						
	<b>Ordered logit, All people</b>			<b>Ordered logit, Individuals with a partner/ spouse</b>		
	<b>All</b>	<b>Female</b>	<b>Male</b>	<b>All</b>	<b>Female</b>	<b>Male</b>
Satisfaction with health_Medium	1.085*** (0.104)	1.244*** (0.138)	0.874*** (0.157)	1.101*** (0.142)	1.284*** (0.207)	0.914*** (0.195)
Satisfaction with health_High	1.995*** (0.112)	2.168*** (0.151)	1.786*** (0.166)	2.054*** (0.155)	2.276*** (0.229)	1.839*** (0.209)
Satisfaction with work_Medium	0.594*** (0.104)	0.446*** (0.132)	0.799*** (0.165)	0.379*** (0.140)	0.225 (0.183)	0.579*** (0.214)
Satisfaction with work_High	1.222*** (0.108)	0.986*** (0.136)	1.518*** (0.174)	1.041*** (0.147)	0.749*** (0.194)	1.360*** (0.223)
Satisfaction with hhld income_Medium	0.285** (0.110)	0.272* (0.145)	0.303* (0.170)	0.437*** (0.150)	0.467** (0.208)	0.385* (0.218)
Satisfaction with hhld income_High	0.759*** (0.126)	0.704*** (0.164)	0.774*** (0.198)	0.833*** (0.171)	0.773*** (0.233)	0.808*** (0.256)
Satisfaction with pers. income_Medium	0.370*** (0.096)	0.333*** (0.123)	0.440*** (0.155)	0.390*** (0.120)	0.410*** (0.159)	0.405** (0.181)
Satisfaction with pers. income_High	0.729*** (0.113)	0.560*** (0.143)	0.998*** (0.182)	0.822*** (0.145)	0.667*** (0.191)	1.030*** (0.223)

Satisfaction with leisure time_Medium	0.356*** (0.086)	0.385*** (0.114)	0.355*** (0.132)	0.275** (0.113)	0.335** (0.158)	0.209 (0.164)
Satisfaction with leisure time_High	0.836*** (0.094)	0.821*** (0.128)	0.892*** (0.139)	0.812*** (0.125)	0.760*** (0.180)	0.858*** (0.174)
Satisfaction with family life_Medium	0.917*** (0.151)	0.714*** (0.206)	1.141*** (0.221)	1.125*** (0.274)	1.204*** (0.356)	0.886** (0.407)
Satisfaction with family life_High	2.070*** (0.156)	2.019*** (0.214)	2.109*** (0.227)	2.266*** (0.279)	2.515*** (0.365)	1.887*** (0.409)
Spouse life satisfaction_Medium	-	-	-	0.482** (0.212)	0.668** (0.328)	0.328 (0.272)
Spouse life satisfaction_High	-	-	-	1.502*** (0.216)	1.728*** (0.333)	1.318*** (0.281)
Spouse SWB included	No	No	No	Yes	Yes	Yes
Individual effects included	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	16,427	8,499	7,928	9,566	4,568	4,998

*Notes:* This table is similar to Table 3, except that lags of the independent variables household income, employment status and hours worked have been used in place of their current values. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.