

## Chapter 4

# THE GEOGRAPHY OF PARENTHOOD AND WELL-BEING: DO CHILDREN MAKE US HAPPY, WHERE AND WHY?

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## Executive Summary

This paper investigates the relationship between parenthood and subjective well-being, focusing on cross-country spatial heterogeneity. Using a large sample of individuals from more than 100 countries, we find that life satisfaction is higher, *ceteris paribus*, among those without children. The negative parenthood premium is stronger for females and it turns positive for older age groups and for widowers. Across countries, the sensitivity of well-being to parenthood is significantly related to macroeconomic conditions: The negative relationship between parenthood and life satisfaction is stronger in countries with higher GDP per capita or a higher unemployment rate.

## Introduction

Children are arguably one of the most important parts of life. Yet despite the importance of fertility decisions for households and individuals, the literature has only recently started to investigate the effects of parenthood on well-being.<sup>1</sup> Quite surprisingly, a number of studies indicate that, controlling for economic and socio-demographic characteristics, parenthood is negatively related to subjective well-being.

In a recent paper using individual-level data for 94 countries, Stanca finds that parenthood is negatively related to life satisfaction.<sup>2</sup> To shed light on this puzzling finding, the present paper investigates the cross-country distribution of the effects of parenthood on subjective well-being, using a larger sample of individuals and countries from the World Values Survey (WVS). We focus on how parenthood's effects on subjective well-being at the individual level vary across countries throughout the world. This allows us to investigate the link between country-level socio-economic characteristics and the relationship between parenthood and subjective well-being.

The findings indicate a worldwide negative relationship between parenthood and life satisfaction. This relationship is stronger for females, turning positive only for older age groups and for those who have been widowed. At the country level, a negative relationship between parenthood and life satisfaction is found in 66 percent of the countries under investigation. We do not find evidence of spatial dependence in the cross-country distribution of the effects of parenthood on subjective well-being. The negative effect of parenthood on life satisfaction is significantly stronger in countries with a higher GDP per capita or a higher unemployment rate.

The paper is structured as follows: Section 2 discusses the related literature. Sections 3 and 4 describe the data and methods. Section 5 presents the results. Section 6 presents conclusions.

## Related Literature

Until recently, the literature on the determinants of happiness has largely neglected the role of parenthood.<sup>3</sup> Early studies of the relationship between parenthood and well-being include McLanahan and Adams, Umberson, and Umberson and Gove.<sup>4</sup> More recent studies generally obtain mixed findings, which are sensitive to the type of data used, the definition and measurement of the key variables, and the methods of investigation.

Clark and Oswald<sup>5</sup> find that parenthood is not associated with well-being in longitudinal analyses, once individual fixed effects are controlled for. Nomaguchi and Milkie<sup>6</sup> study the effects of parenthood on social integration, self-esteem, self-efficacy, hours of housework, marital conflict, and depression, finding that having children can have positive or negative effects depending on parents' social position. Tao<sup>7</sup> uses data from the Taiwan Panel Study of Family Dynamics to study whether an optimal number of children exists, and find that the

number of children is not significantly related to marital happiness. Kohler et al.<sup>8</sup> analyze the impact of parenthood on well-being using a data set of monozygotic twins, thus controlling for unobserved characteristics related to genetic dispositions. Their findings indicate that the first child has a large and positive effect on happiness, whereas additional children do not affect happiness. Frey and Stutzer<sup>9</sup> and Haller and Hadler<sup>10</sup> find a positive relationship between parenthood and well-being.

Hansen et al.<sup>11</sup> explore the effects of parental status on a range of psychological well-being outcomes, using individual-level data for Norway. Their results indicate that childless women report significantly lower life satisfaction and self-esteem, whereas motherhood is not related to affective well-being. Among men, parental status is unrelated to any well-being indicator. Angeles<sup>12</sup> investigates the effects of having children at home on individual happiness, using a large panel of British households from 1991 to 2005. On average, the study finds the number of children negatively related to individual happiness, but controlling for individuals' characteristics, the effect is found to be positive. Aassve et al.<sup>13</sup> use data from the European Social Survey to study the relationship between parenthood and happiness across European countries. They find a positive and significant association between parenthood and subjective well-being.

More recently, Baetschmann et al.<sup>14</sup> investigate the relationship between parenthood and life satisfaction, focusing on the issue of self-selection into motherhood. By exploiting the extended longitudinal dimension of the German Socio-Economic Panel, the study finds that motherhood is associated with substantial positive gains in subjective well-being. In a study closely related to the present one, Stanca<sup>15</sup> investigates the effects of parenthood on individual well-being, using World Values Survey data for 94 countries. The results indicate that having children is negatively related to subjective well-being. Controlling for individual character-

istics can only partially explain this finding. The paper shows that the overall negative effect of parenthood on well-being can be explained by a large adverse impact on financial satisfaction, which more than offsets the positive impact on non-financial satisfaction. Nelson et al.<sup>16</sup> provides evidence from three studies that aim to test parenthood's effects on different dimensions of well-being. Their results indicate that parenthood is associated with higher levels of happiness, positive emotion, and meaning in life. Yet when Bhargava et al.<sup>17</sup> re-examine that analysis, they reach the opposite conclusion (see also the counter-argument from Nelson et al.).<sup>18</sup> Hank and Wagner<sup>19</sup> use pooled cross-sectional data from the first two waves of the Survey of Health, Ageing, and Retirement in Europe to assess the effects of parenthood on various dimensions of well-being in old-age. The results indicate that childless individuals do not report lower economic, psychological, or social well-being than parents. Pollmann-Schult<sup>20</sup> uses data from the German Socio-Economic Panel to investigate the role of the cost of raising children on the relationship between parenthood and life satisfaction. He finds that parenthood has substantial positive effects on life satisfaction, which are offset by the financial and time costs of parenthood.

Herbst and Ifcher<sup>21</sup> examine the relationship between parenthood and happiness among US individuals, using data from the General Social Survey and the DDB Lifestyle Survey. Their findings indicate that parents become happier over time relative to non-parents, while non-parents' happiness declines absolutely, and estimates of the parental happiness gap are sensitive to the time-period analyzed. Beja<sup>22</sup> uses individual-level data from the 4th and 5th waves of the World Values Survey to disentangle the direct and indirect effects of parenthood on happiness. The findings indicate that parenthood's overall impact on happiness is generally negative because the negative indirect impact more than offsets the positive direct effect on happiness.

**Table 1. Descriptive statistics, individual-level**

Variable	Mean	Std. Dev.	Min.	Max.	N
<b>Life satisfaction</b>	<b>66.98</b>	<b>24.17</b>	<b>10</b>	<b>100</b>	<b>421782</b>
Happiness	30.48	7.41	10	40	416422
Parent dummy	0.72	0.45	0	1	406842
No children	0.28	0.45	0	1	406842
1 child	0.16	0.37	0	1	406842
2 children	0.27	0.44	0	1	406842
3 children	0.14	0.35	0	1	406842
4 children	0.07	0.25	0	1	406842
5 children or more	0.08	0.27	0	1	406842
Income	4.72	2.38	1	10	379297
Unemployed	0.08	0.28	0	1	416237
Employment: full-time	0.37	0.48	0	1	416237
Employment: part-time	0.08	0.27	0	1	416237
Employment: self-employed	0.10	0.3	0	1	416237
Employment: other	0.02	0.13	0	1	416237
Retired	0.13	0.34	0	1	416237
At home	0.15	0.35	0	1	416237
Student	0.07	0.26	0	1	416237
Education, lower	0.31	0.46	0	1	323386
Education, middle	0.45	0.5	0	1	323386
Education, upper	0.24	0.43	0	1	323386
Married	0.58	0.49	0	1	422675
As married	0.05	0.23	0	1	422675
Divorced	0.04	0.19	0	1	422675
Separated	0.02	0.13	0	1	422675
Widowed	0.07	0.25	0	1	422675
Single	0.24	0.43	0	1	422675
Number of children	1.89	1.78	0	20	406842
Age	41.42	16.47	13	101	423539
Male	0.48	0.5	0	1	423263
Survey wave 1	0.08	0.27	0	1	428055
Survey wave 2	0.15	0.35	0	1	428055
Survey wave 3	0.17	0.38	0	1	428055
Survey wave 4	0.23	0.42	0	1	428055
Survey wave 5	0.20	0.4	0	1	428055
Survey wave 6	0.17	0.38	0	1	428055

Source: World Values Survey (2014).

## Data

The source for our micro-level data is the World Values Survey (2014), a compilation of surveys conducted in more than 100 countries, representing about 90 percent of the world population.<sup>23</sup> The WVS provides information on individual beliefs about politics, the economy, religious, social and ethical topics, personal finances, familial and social relationships, happiness and life satisfaction. Within each country, samples are selected randomly from administrative regional units after stratification by region and degree of urbanization. Six WVS waves are currently available (1981–1984, 1989–1993, 1994–1998, 1999–2004, 2005–2009, 2010–2014) for a total of more than 400,000 individual observations.

Summary statistics for all the variables in the micro-level data set are reported in Table 1. Life satisfaction is measured on a 1–10 scale, based on the question, “All things considered, how satisfied are you with your life as a whole these days?”<sup>24</sup> Happiness is a four-item ordinal variable, based on the question, “Taking all things together, would you say you are: very happy, quite happy, not very happy, or not at all happy?” Income is measured by self-reported deciles in the national distribution of income, so that income levels are expressed in relative terms and are comparable across countries and individuals. Unemployment is one item from a full set of employment dummies that includes the following categories: employed, unemployed, retired, student, at home, part-time, full-time, and other employment. Educational levels are measured by dummy variables for low education (inadequately completed or completed elementary education, incomplete secondary school); medium education (completed technical/vocational secondary school, incomplete or completed university/preparatory secondary school); and high education (some university with or without degree/higher education).

The data source for the country-level data is the World Development Indicators database.<sup>25</sup> GDP per capita is measured at constant 2000 US dollars. Government expenditure is general government final consumption expenditure as a percentage of GDP. Health expenditure is total health expenditure as a percentage of GDP. The fertility rate is the average number of children born to a woman during her lifetime. Summary statistics for all the variables used in the macro-level analysis are reported in Table 2.

**Table 2. Descriptive statistics, country-wave level**

Variable	Mean	Std. Dev.	Min.	Max.	N
Log GDP per capita	8.38	1.42	5.25	10.8	270
Unemployment rate	9.34	6.34	0.58	36.4	266
Government spending / GDP	16.66	5.02	4.53	28.72	264
Health expenditure / GDP	6.96	2.36	0.01	17.89	258
Fertility rate	2.21	1.11	1.04	6.71	271

Source: World Development Indicators, World Bank (2014).

## Methods

As in Stanca<sup>26</sup>, we model the well-being (*WB*) of individual *i* in country *j* as being linearly related to parenthood status (*CH*), economic conditions (*ECO*), and socio-demographic factors (*SD*):

$$WB_{ij} = \alpha_0 + \beta_1 CH_{ij} + \beta_2 ECO_{ij} + \beta_3 SD_{ij} + \alpha_j + \varepsilon_{ij} \quad (1)$$

where  $\varepsilon_{ij}$  is an individual-specific error term and  $\alpha_j$  is a country fixed effect that captures the characteristics of the external context.

Well-being is measured with either life satisfaction or happiness. Parenthood is measured with either a dummy variable for having children or a set of dummy variables for individual number-of-children categories (between 0 and 5 or

more), in order to allow for possible non-linear relations. Economic conditions are measured by self-reported household income, converted into the corresponding decile in the national income distribution, and employment status. Socio-demographic characteristics include age, gender, marital status, and education level. We control for age by using six 10-year age groups (from 15–24 to 65 and above), to allow for possible non-linear relationships.

The characteristics of the external context are controlled for with a set of country dummy variables ( $\alpha_j$ ). The set of regressors also includes wave-specific dummy variables to account for heterogeneity across the six WVS survey waves. Equation (1) is estimated by Ordinary Least Squares (OLS) for life satisfaction and by ordered probit for happiness, to take into account the ordinal nature of the latter dependent variable. We consider estimates obtained for the whole sample with and without controlling for individuals' socio-demographic characteristics (age, gender, income, employment status, marital status, education). Test statistics are based on standard errors robust to heteroskedasticity.

Regarding identification issues, we consider reverse causality to be unlikely, given that parenthood decisions were generally made several years before subjective well-being levels were reported. Unobserved heterogeneity is instead more likely to be present, as unobservable individual characteristics may determine both self-reported well-being and decisions about parenthood. In the absence of longitudinal data, or appropriate instrumental variables for parenthood decisions, the causal interpretation of our estimates must be taken with care.<sup>27</sup>

We then investigate the relationship between parenthood and subjective well-being for each country in the sample. This allows us to investigate across countries the link between aggregate socio-economic conditions and the effect of

parenthood on subjective well-being. We therefore use the estimated sensitivities of life satisfaction to parenthood as the dependent variable in cross-country regressions, where macroeconomic and socio-demographic conditions are used as the main explanatory variables.<sup>28</sup> We consider both country-specific estimates for the overall sample and country-wave specific estimates, which provide us with an unbalanced panel data set (N=106 countries, T=6 survey waves). This allows us to use a fixed-effect estimator, to take into account potentially unobserved heterogeneity in the estimation of the macro-level specification.

## Results

We start by presenting results for the overall sample, pooling all countries in the sample as a benchmark. We also consider estimates obtained for the overall sample, controlling for individual socio-demographic characteristics, thus focusing on sub-samples by age, gender, education, and marital status. We then present country-specific estimates of the effect of parenthood on life satisfaction. Finally, we examine the country-level determinants of the relationship between parenthood and life satisfaction.

### Do Children Make Us Happy?

Table 3 presents OLS estimation results for equation (1), using life satisfaction as a dependent variable, based on the whole sample. To check the robustness of the results, we consider two specifications: one that does not include individual characteristics (columns 1–2), and a second (columns 3–4) that includes a full set of socio-demographic characteristics, as described above (gender, age, marital status, education level, income decile, employment status). The sample size for estimation in the two cases is about 400,000 and 340,000 observations, respectively. For each of these two specifications,

we report estimates obtained by using either a single dummy variable for parenthood (columns 1 and 3) or a set of individual number-of-children dummy variables (columns 2 and 4). We only report coefficient estimates for parenthood variables, as this is the focus of the analysis.

**Table 3. Parenthood and life satisfaction, overall**

	(1)	(2)	(3)	(4)
Parenthood dummy	-0.62**		-0.57**	
	(0.08)		(0.13)	
1 child		-0.50**		-0.71**
		(0.11)		(0.15)
2 children		-0.26**		-0.62**
		(0.10)		(0.15)
3 children		-0.53**		-0.44**
		(0.11)		(0.16)
4 children		-0.90**		-0.18
		(0.15)		(0.20)
5 children and more		-1.79**		-0.28
		(0.15)		(0.20)
Individual-level controls	No	No	Yes	Yes
R <sup>2</sup>	0.16	0.16	0.21	0.21
Observations	400894	400894	342732	342732

(Dependent variable: Life satisfaction. OLS estimates, heteroskedasticity-robust standard errors reported in brackets. \* indicates  $p < 0.05$ , \*\* indicates  $p < 0.01$ .)

Consistent with the existing literature, the findings indicate that having children is negatively and significantly related to life satisfaction. Controlling only for country and survey wave fixed effects, the estimated parenthood life satisfaction premium is -0.62, statistically significant at the one percent level (column 1). That is, on a scale between 1 and 100, life satisfaction is 0.62 lower for those who have children than for those who do not. This negative premium is virtually unchanged (-0.57), and remains strongly significant, when controlling for individual socio-demographic characteristics

(column 3). The results are even more clear-cut when we use dummy variables to capture the effects of individual number-of-children categories. When compared with the no-children reference group, the life satisfaction of individuals with a positive number of children is in all cases (1 child to 5 children or more) negative and strongly significant (column 2). Controlling for individual socio-demographic characteristics (column 4), the size of the effect is inversely related to the number of children. The negative effect is large and significant up to 3 children, whereas it is negative but smaller and not significant above this threshold.

Table 4 reports the same set of results for equation (1) in the overall sample, using happiness as a dependent variable and an ordered probit estimator. The relationship between parenthood and happiness is found to be negative (columns 1 and 3), but the estimated coefficients (log-odds ratios) are not statistically significant. When using dummy variables for individual number-of-children categories, without controlling for individual characteristics (column 2), we find a positive coefficient for the one-child or two-children groups, while the effect is negative and significant for the 4-children and the 5-and-above groups. However, controlling for individual characteristics (column 4), happiness is not significantly related to any individual number-of-children category.

**Table 4. Parenthood and happiness, overall**

	(1)	(2)	(3)	(4)
Parenthood dummy	-0.01		-0.00	
	(0.00)		(0.01)	
1 child		0.02**		-0.01
		(0.01)		(0.01)
2 children		0.02**		-0.00
		(0.00)		(0.01)
3 children		0.00		0.01
		(0.01)		(0.01)
4 children		-0.06**		-0.01

	(1)	(2)	(3)	(4)
		(0.01)		(0.01)
5 children and more		-0.10**		0.01
		(0.01)		(0.01)
Individual-level controls	No	No	Yes	Yes
Pseudo-R <sup>2</sup>	0.06	0.06	0.08	0.08
Number of observations	398607	398607	341842	341842

(Dependent variable: happiness. Ordered Probit estimates, heteroskedasticity-robust standard errors reported in brackets. \* indicates  $p < 0.05$ , \*\* indicates  $p < 0.01$ .)

Let us turn to the role played by personal characteristics such as gender, age, marital status, and education level as moderators of the effects of parenthood on well-being. Figure 1 compares the parenthood life-satisfaction premium by gender. Interestingly, the negative relationship between parenthood and life satisfaction is stronger for females than for males (-0.79 and -0.48, respectively), and the difference is strongly statistically significant ( $p < 0.01$ ).

**Figure 1. Parenthood and life satisfaction, by gender**

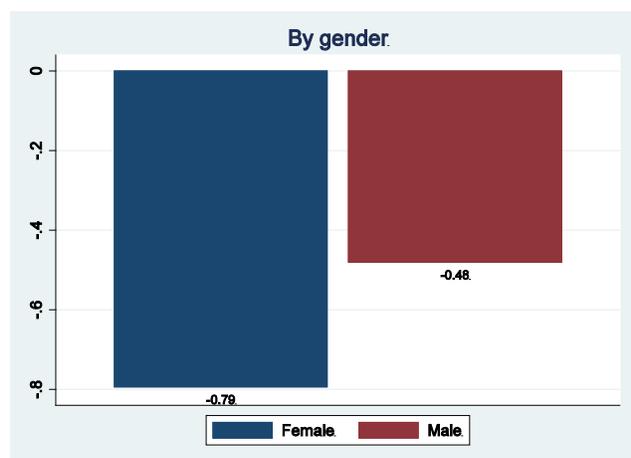


Figure 2 compares the life-satisfaction parenthood premium for different age groups. The results clearly indicate that the effect of having children on life satisfaction is positively related to age. We find a strong and significant negative relationship for younger parents (-2.42 and -1.15, respectively, for the 15–24 and 25–34 age groups), while we find a significant positive relationship (1.59) for parents in the over-65 group. The parenthood coefficient is negative for the 35–44 and 45–54 groups and positive for the 55–64 group, but not statistically significant in any of these cases.

**Figure 2. Parenthood and life satisfaction, by age group**

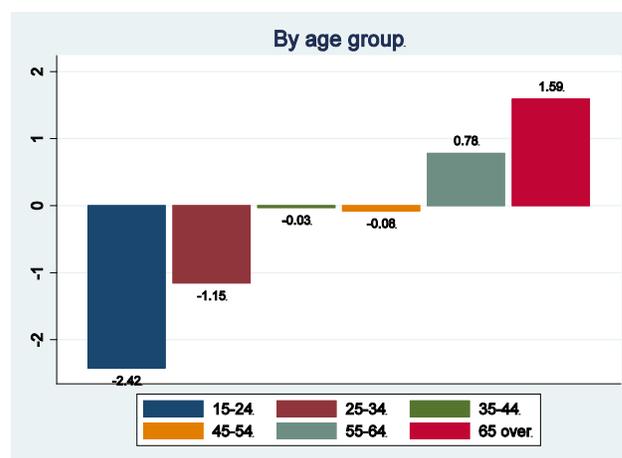
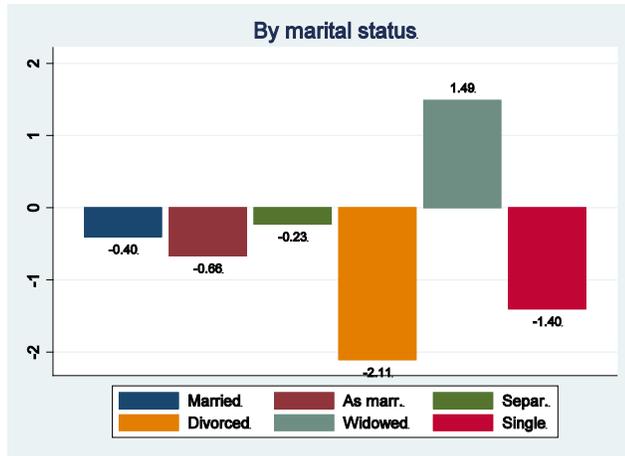


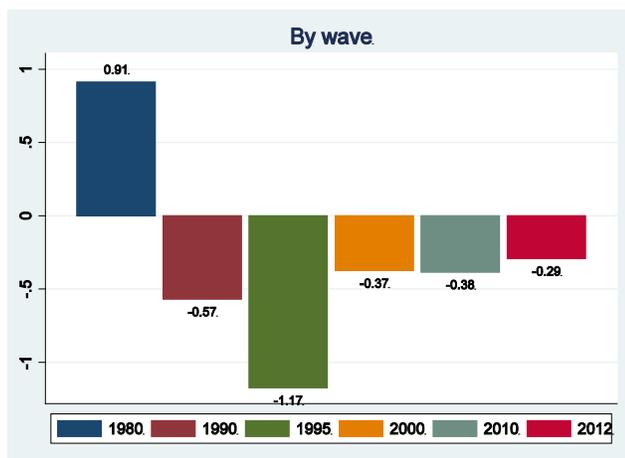
Figure 3 compares the life-satisfaction parenthood premium by marital status. Interestingly, the estimated coefficient for parenthood is positive and significant only for those who have been widowed (1.49). It is negative and significant for those who are married (-0.4), separated (-2.11) or single (-1.40), while negative but not significant for those living as married (-0.66) or divorced (-0.23).

**Figure 3. Parenthood and life satisfaction, by marital status**



Finally, Figure 4 indicates that our finding of a negative relationship between parenthood and life satisfaction is qualitatively robust when estimating equation (1) separately by survey wave, to account for possible changes over time. The parenthood coefficient is positive (but not significant) only in the first wave (1980); it is negative in each of the other survey waves.

**Figure 4. Parenthood and life satisfaction, by survey wave**



Overall, these results confirm, and extend to a worldwide sample, the finding that *ceteris paribus*, life satisfaction is higher on average among those without children. No clear-cut relationship is found between parenthood and

happiness. The negative life-satisfaction premium for parenthood in the overall sample is larger for females, and turns positive only for older age groups and for widowers.

### Where?

Table 5 reports results for equation (1) by country. The estimated coefficients for the life-satisfaction premium of parenthood range from a minimum of -6.82 to a maximum of 5.12. Out of the 105 countries in the estimation sample, 36 display positive coefficients, which are statistically significant only in 9 cases. The five countries displaying the largest life-satisfaction premia to parenthood are Montenegro (5.12), China (4.85), Kyrgyzstan (4.64), Taiwan (3.70), and Vietnam (3.13). At the other extreme, the five countries displaying the largest negative parenthood premia are Macedonia (-6.82), Tunisia (-4.71), Libya (-3.87), Jordan (-3.71), and Zimbabwe (-3.51).

**Table 5. Parenthood and Life Satisfaction, by country**

Rank	Country	Coeff.	t-stat
1	Montenegro	5.12	3.48
2	China	4.85	3.95
3	Kyrgyzstan	4.64	3.39
4	Taiwan	3.70	2.46
5	Viet Nam	3.13	2.13
6	Guatemala	2.86	1.63
7	Kazakstan	2.53	1.76
8	Kuwait	2.09	1.20
9	New Zealand	2.03	1.83
10	Morocco	1.92	1.38
11	Saudi Arabia	1.88	1.03
12	Estonia	1.64	1.68
13	Latvia	1.62	1.36
14	Venezuela	1.60	1.12
15	Bangladesh	1.59	1.09
16	Slovenia	1.58	1.30
17	Cyprus	1.52	1.10

Rank	Country	Coeff.	t-stat
18	Portugal	1.45	0.91
19	Singapore	1.41	1.27
20	Belgium	1.28	1.20
21	Sweden	0.98	1.12
22	Hong Kong	0.98	0.70
23	Pakistan	0.96	0.82
24	Russian Fed.	0.82	0.90
25	Ireland	0.76	0.58
26	Hungary	0.71	0.56
27	Indonesia	0.68	0.48
28	El Salvador	0.64	0.37
29	Ukraine	0.51	0.47
30	Australia	0.31	0.35
31	Mali	0.25	0.14
32	Palestine	0.22	0.10
33	Norway	0.17	0.17
34	Netherlands	0.15	0.19
35	Belarus	0.08	0.07
36	Rwanda	0.06	0.05
37	Czech Republic	-0.02	-0.01
38	India	-0.03	-0.03
39	Serbia	-0.05	-0.04
40	Yemen	-0.05	-0.03
41	Greece	-0.09	-0.05
42	Bulgaria	-0.11	-0.08
43	United States	-0.17	-0.23
44	Dominican Rep.	-0.17	-0.08
45	Denmark	-0.18	-0.16
46	Austria	-0.22	-0.18
47	Moldova	-0.24	-0.19
48	United Kingdom	-0.27	-0.31
49	Spain	-0.30	-0.34
50	France	-0.33	-0.29
51	Colombia	-0.36	-0.38
52	Armenia	-0.36	-0.25
53	Canada	-0.41	-0.48
54	Nigeria	-0.42	-0.38
55	Switzerland	-0.47	-0.47
56	Algeria	-0.48	-0.32

Rank	Country	Coeff.	t-stat
57	Andorra	-0.49	-0.39
58	Finland	-0.51	-0.54
59	Ecuador	-0.63	-0.49
60	Iraq	-0.68	-0.58
61	Iran	-0.77	-0.67
62	Zambia	-0.77	-0.54
63	Azerbaijan	-0.93	-0.66
64	Ghana	-0.95	-0.77
65	Iceland	-0.95	-0.83
66	Uganda	-0.96	-0.56
67	Italy	-0.96	-0.86
68	South Korea	-1.00	-0.72
69	Mexico	-1.21	-1.25
70	Argentina	-1.21	-1.01
71	Germany	-1.22	-1.68
72	Bosnia-Her.	-1.29	-1.08
73	Egypt	-1.29	-1.17
74	Uzbekistan	-1.33	-0.83
75	Thailand	-1.37	-0.90
76	Uruguay	-1.44	-1.30
77	Croatia	-1.44	-0.95
78	Turkey	-1.47	-1.43
79	Ethiopia	-1.52	-1.16
80	Peru	-1.69	-1.46
81	Lebanon	-1.73	-1.02
82	Japan	-1.83	-1.87
83	Slovakia	-1.91	-1.49
84	Puerto Rico	-1.94	-1.41
85	Brazil	-1.95	-1.65
86	Lithuania	-2.00	-1.38
87	Luxembourg	-2.04	-1.32
88	Malaysia	-2.14	-1.60
89	South Africa	-2.14	-2.44
90	Philippines	-2.22	-1.57
91	Romania	-2.25	-2.23
92	Trinidad-Tobago	-2.31	-1.98
93	Malta	-2.39	-1.57
94	Georgia	-2.42	-1.44
95	Tanzania	-2.53	-1.42

Rank	Country	Coeff.	t-stat
96	Burkina Faso	-2.56	-1.65
97	Chile	-2.65	-2.60
98	Albania	-2.66	-1.50
99	Poland	-2.68	-2.29
100	Qatar	-3.07	-1.99
101	Zimbabwe	-3.51	-2.53
102	Jordan	-3.71	-2.34
103	Libya	-3.87	-2.63
104	Tunisia	-4.71	-2.55
105	Macedonia	-6.82	-4.18

Source: World Values Survey (2014).

The estimated parenthood premia reported in Table 5 are mapped geographically in Figure 5. The spatial representation indicates a clustering of large parenthood premia in Asia (China, Kyrgyzstan and Kazakhstan). Relatively smaller (and negative) parenthood premia are observed in Western Europe, Africa, and Latin America. These clustering patterns, however, turn out not to be statistically significant when testing for spatial correlation. We do not find evidence of spatial dependence in the cross-country distribution of the effects of parenthood on well-being, using either a spatial lag or a spatial error model, even after accounting for differences in aggregate economic and social conditions.<sup>29</sup>

Figure 5. Parenthood and life satisfaction, world

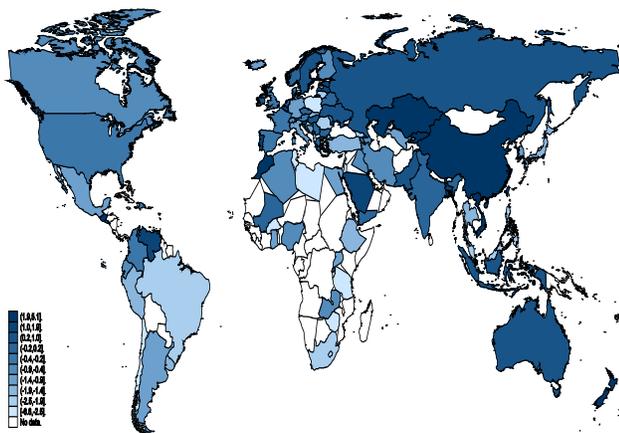
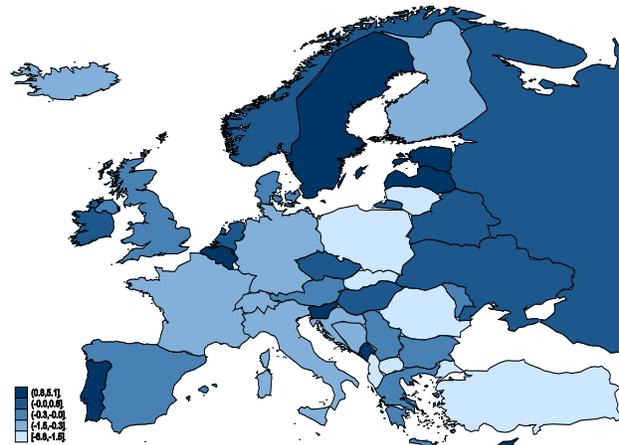


Figure 6 takes a closer look at estimated parenthood premia for European countries. A clustering of positive and large parenthood premia is generally observed in Northern Europe (Estonia 1.64, Latvia 1.62, Sweden 0.98, and Norway 0.17) and former Soviet Union countries (Russian Federation 0.82, Ukraine 0.51, and Belarus 0.08). Negative and relatively large parenthood premia are observed in Poland (-2.68), Albania (-2.66), Romania (-2.25), and Turkey (-1.47).

Figure 6. Parenthood and life satisfaction, Europe



### Why?

Table 6 reports results obtained by regressing the country-specific sensitivities of life-satisfaction to parenthood, reported in Table 5, on indicators of macroeconomic and social conditions. We focus in particular on GDP per capita, unemployment rate, government spending relative to GDP, health expenditure relative to GDP, and fertility rate. We consider three alternative specifications. The first (column 1) takes countries as the unit of analysis, thus focusing on averages for the entire time span. The second and third specifications (columns 2-3) focus instead on country-wave specific observations, thus resulting in an (unbalanced) panel data structure (N=106 countries, T=6 survey waves).

**Table 6. Determinants of parenthood life satisfaction premium**

	(1) Cross-section	(2) Panel - OLS	(3) Panel - FE
Log GDP per capita	-1.19*	-1.73**	-2.65**
	(0.56)	(0.53)	(0.65)
Unemployment rate	-0.16*	-0.22*	-0.29*
	(0.08)	(0.09)	(0.12)
Government spending / GDP	0.04	0.27	0.48
	(0.07)	(0.17)	(0.39)
Health expenditure / GDP	0.02	0.14	0.70*
	(0.14)	(0.11)	(0.34)
Fertility rate	-1.15*	-1.96**	0.76
	(0.48)	(0.44)	(0.90)
R <sup>2</sup>	0.44	0.33	0.23
Number of observations	100	235	235

Dependent variable: sensitivity of life satisfaction to parenthood.

As shown in Table 6, the coefficient for GDP per capita is negative and strongly significant in all three specifications. This indicates that the micro-level relationship between parenthood and life satisfaction is more strongly negative (or less strongly positive) in richer countries. The effect of parenthood on life satisfaction is also negatively related to the unemployment rate. Interestingly, the coefficients for government spending and health expenditure are not statistically significant. The coefficient for the fertility rate is negative and significant in the cross-sectional and pooled specifications, but positive and not significant when using a fixed-effect estimator (column 3).

Overall, these findings indicate that macroeconomic conditions primarily account for the cross-country distribution of the micro-level sensitivity of well-being to parenthood. Having

children is worth less, in terms of subjective well-being, in richer countries and in countries where the unemployment rate is higher.

## Concluding Remarks

Despite growing interest in parenthood's effects on well-being, the existing evidence is not conclusive. Previous studies have found different effects of parenthood on well-being, depending on the type of data used, the definition and measurement of the key variables, and the methods of investigation. To shed light on these findings, we investigated the relationship between parenthood and well-being based on individual-level worldwide data, with a focus on how the effects of parenthood on subjective well-being vary across countries.

Our findings indicate that the relationship between parenthood and life satisfaction is generally negative throughout the world. The parenthood life-satisfaction gap is stronger for females, and turns positive only for older age groups and for widows and widowers. Within countries, a negative relationship between parenthood and life satisfaction is found in 66 percent of the countries under investigation. Across countries, the negative effect of parenthood on life satisfaction is significantly stronger in countries with higher GDP per capita or a higher unemployment rate. These findings indicate that, on the one hand, having children is valued less, in terms of life satisfaction, in countries where the opportunity cost of time is higher.<sup>30</sup> On the other hand, worse labor market conditions enhance the adverse effects of parenthood's financial and time costs.<sup>31</sup>

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1. See, e.g., Hansen (2012), Kravdal (2014), Nelson et al. (2014a) for recent comprehensive reviews.
  2. Stanca (2012).
  3. See Di Tella and MacCulloch (2006), Blanchflower (2008), Dolan et al. (2008) for comprehensive reviews.
  4. McLanahan and Adams (1987); Umberson (1989); Umberson and Gove (1989).
  5. Clark and Oswald (2002).
  6. Nomaguchi and Milkie (2003).
  7. Tao (2005).
  8. Kohler et al. (2005).
  9. Frey and Stutzer (2006).
  10. Haller and Hadler (2006).
  11. Hansen et al. (2009).
  12. Angeles (2010).
  13. Aassve et al. (2012).
  14. Baetschmann et al. (2012).
  15. Stanca (2012).
  16. Nelson et al. (2013).
  17. Bhargava et al. (2014).
  18. See also the counter-argument in Nelson et al. (2014b).
  19. Hank and Wagner (2014).
  20. Pollmann-Schult (2014).
  21. Herbst and Ifcher (2015).
  22. Beja (2015).
  23. World Values Survey (2014).
  24. The original variable on a scale 1 (dissatisfied) to 10 (satisfied) was multiplied by 10 in order to ease interpretation of regression results.
  25. World Bank (2014).
  26. Stanca (2012).
  27. Clark and Oswald (2002).
  28. See, e.g., Lewis and Linzer (2005), Hornstein and Greene (2012) for a discussion of regression models in which estimated coefficients are used as dependent variables.
  29. See Stanca (2010).
  30. See also Stanca (2010).
  31. Pollmann-Schult (2014).

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