The Subjective Cost of Young Children: A European Comparison

A SUPPLEMENTARY MATERIAL

A.1 Panel structure

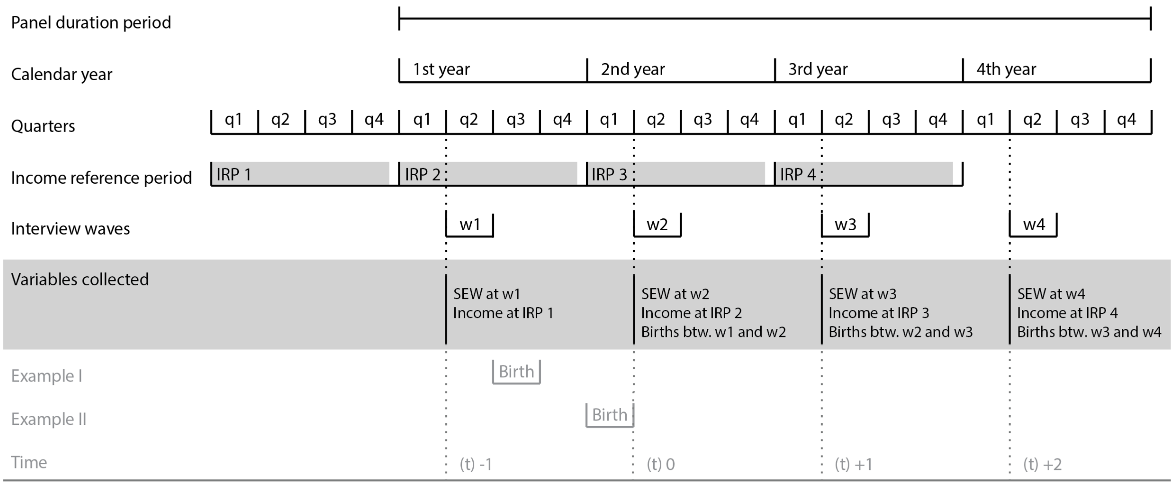
Figure A.1 illustrates the default panel structure. As mentioned in the main text, the panel duration period consists of a maximum of four waves. Changes in the number of children and concomitantly the arrival of a newborn can be observed for a maximum three times. For more clarity, Figure A.1 provides examples. In example I, a child is born between wave 1 and wave 2. Therefore, the newborn is first registered in wave 2. A variable "number of children" would be x in wave 1 and x+1 in wave 2. The corresponding SEW is collected in wave 2 as well. When respondents evaluate their SEW, they are expected to refer to their household's current situation rather than to a specific period (European Commission 2017). Consequently, the day that a child is born and the corresponding SEW can be months apart.[1] Still, the birth always took place before the evaluation of SEW. This fixed sequence allows the impact of children on SEW to be clearly identified, without issues of inverse causality.

The income reference period (IRP) and the period between two interview waves were changed, which is also shown in Figure A.1. Hence, the income variable refers to a different time period than the SEW variable.[2] For the majority of the countries observed, the IRP is the previous

[1]The spacing between the birth and the collection of SEW depends on the time of the birth and the time of the interviews. The births in the sample are roughly uniformly distributed over the year, with slightly more births in the second half of the year. Consequently, the difference between the birth and the collection of SEW varies within a certain period that is defined by the interval between interviews. 73 per cent of all interviews took place in the same quarter as the previous interview. In these cases, the possible maximum period between the birth of a child and the corresponding interview wave was 12 months. Hence, the birth and the collection of SEW could be 12 months apart if the baby was born immediately after the previous interview. In 14 per cent of the observations, the interview took place one quarter earlier than in the previous wave. In these cases, the maximum difference between the birth of a child and the corresponding interview wave was nine months. In 9 per cent of all observations, the interview took place one quarter later, which increased the maximum difference to 15 months. Only in four per cent of all observations did the interview quarter deviate by more than one from the previous interview quarter. So, the possible minimum delay between the childbirth and the report of SEW is one day, the maximum delay is 24 months.

[2]The European Commission allows for a maximum of 8 months between the end of the income reference period and the interview, unless income data was based on registers, in which case the interval can be up to 12 months (European Commission 2017). Income was based on a data register in Denmark, Finland, Iceland, the Netherlands, Norway, Slovenia and Sweden (Joint Programming Initiative 2018).

Figure A.1: Default panel structure and examples



calendar year.[3] Consequently, the income variable captures the income from the previous calendar year. However, the survey interviews in which the SEW variable is collected took place after the IRP, namely in the following year. The majority of survey participants were interviewed in the second quarter, which is the scenario shown in Figure A.1. For example, interview wave 2 took place in the 2nd calendar year, during IRP 3. Hence, the collected SEW also refers to IRP 3 but income was collected from the previous year, in IRP 2. In our analysis, we want to link changes in SEW to changes in the number of children and changes in income. For this, we need to identify which observation of income is relevant to the observed SEW. The change in IRP and the interviews had major consequences for our identification strategy. By the time the variable SEW was collected, the corresponding IRP was already over.

The change in IRP and the survey interviews was not only relevant for the link between SEW and income, but also for the link between child birth and income. Again, let us take the examples in Figure A.1 by way of illustration. Both children in example I and II were born between wave 1 and wave 2. Consequently, the survey registered both births at wave 2. However, the babies were born in different IRPs. The birth in example I took place in the third quarter of the first year, hence in IRP 2. The birth in example II, however, took place in the first quarter of the second year, hence in IRP 3. We partly tackle this inaccuracy by linking variables from interview wave 1 to income from IRP 2, hence, we use the lead variable of income. Since the

[3]Exceptions are Ireland and the UK. In Ireland, the income of the last 12 months preceding the actual interview was considered. In the UK, the IRP was for the current year (Mack & Lange 2015). To make the data provided by the UK comparable with the other countries, the IRP from the previous wave was used in the analysis for the UK. Consequently, the first observations of each household from the UK are not considered in the analysis, as they did not yet have a corresponding IRP.

last observations of each couple does not have a lead variable for income, this procedure reduces the sample size drastically and income can only be observed until time t+1.

There is one remaining problem. The IRPs observed in both examples are likely to cover periods during which the mothers were working and periods in which they were not working. In example I, IRP 2 might still have covered labour income before the mother went into maternity leave. Furthermore, that same mother might not yet have been working at the beginning of IRP 3, but she might have started again at the end of it. A similar mixture is possible in Example II. That mother might already have been on maternity leave in IRP 2 or may have gone back to work in IRP 3. We expect SEW to drop when mothers' labour income drops due to the birth of their child. Unfortunately, EU-SILC only provides income data on a yearly basis. Consequently, it is not possible to assign income clearly to times in which mothers were working, and times in which they were not. Changes in SEW will always be related to changes in income that refer to yearly income and consequently might be a mixture of income during employment and income during maternity /paternity /parental leave. Hence, estimates based on this relationship are always somewhat imprecise and income can already drop at time -1, as shown in Figure 1 in the main text.

A.2 Summary statistics

Table A.1: Summary statistics based on the full sample (includes couples with and without children)

Variable	N	Mean	Std. Dev.	Minimum	Maximum	50th percentile
SEW	364,131	3.48	1.30	1	6	3
Number of children	365,528	1.30	1.02	0	4	1
Household income	188,603	37,281.59	23,790.92	-320,225.10	1,076,450.00	34,334.54
Labour income women	183,852	15,373.11	15,577.27	-138,605.70	456,467.20	12,470.59
Labour income men	183,852	29,088.02	25,682.40	-340,067.30	1,923,772.00	25,032.36
Benefits	183,334	2,502.02	4,028.60	0	87,441.29	1,041.43
Health women	305,105	0.02	0.14	0	1	0
Health men	296,257	0.02	0.14	0	1	0
Age women	365,528	32.37	5.10	16	40	33
Age men	365,528	35.49	6.47	16	80	36
Employment women	361,185	0.70	0.46	0	1	1
Part-time employment women	361,185	0.17	0.38	0	1	0

Note: For the variable "subjective economic well-being (SEW)", respondents rated their household's ability to make ends meet from (1) "with great difficulty" to (6) "very easily". The "number of children" is a categorical variable ranging from zero to four, where the maximum category of four includes any observation with four or more children. All income values are provided per annum and are adjusted for inflation and differences in purchasing power. Household income is a net value, labour income a gross value. Income from self-employment is added if not missing, which is why labour income can be below zero. Health refers to mean self-reported general health, which ranges from (1) "very good" to (5) "very bad". "Employment women" includes full-time and part-time employment, while "part-time employment" only includes the latter. N refers to the number of observations.

Table A.2: Summary statistics based on the reduced sample (only includes first-time parents)

Variable	N	Mean	Std. Dev.	Minimum	Maximum	50th percentile
SEW	20,326	3.87	1.23	1	6	4
Number of children	20,348	0.52	0.50	0	1	1
Household income	13,951	39,853.62	21,762.94	-40,221.99	69,4034.3	37,559.75
Labour income women	13,646	17,398.62	14,981.39	-2,780.72	200,386.60	15,671.14
Labour income men	13,646	30,454.77	24,030.82	-39,711.22	760,587.90	27,499.90
Benefits	13,615	3,123.15	5,192.52	0	72,946.82	734.01
Health women	16,277	0.01	0.10	0	1	0
Health men	16,120	0.01	0.11	0	1	0
Age women	20,348	29.42	4.39	16	40	29
Age men	20,348	32.05	5.45	18	77	31
Employment women	20,102	0.72	0.45	0	1	1
Part-time employment women	20,102	0.13	0.34	0	1	0

Note: For the variable "subjective economic well-being (SEW)", respondents rated their household's ability to make ends meet from (1) "with great difficulty" to (6) "very easily". The "number of children" is a categorical variable ranging from zero to four, where the maximum category of four includes any observation with four or more children. All income values are provided per annum and are adjusted for inflation and differences in purchasing power. Household income is a net value, labour income a gross value. Income from self-employment is added if not missing, which is why labour income can be below zero. Health refers to mean self-reported general health, which ranges from (1) "very good" to (5) "very bad". "Employment women" includes full-time and part-time employment, while "part-time employment" only includes the latter. N refers to the number of observations.

Table A.3: Objective economic well-being before and after the birth of the first child

		Household income		**Labour income**				**Benefits**	
				Women		Men			
	Time	Absolute	Indexed	Absolute	Indexed	Absolute	Indexed	Absolute	% Income
Full sample	-3	40,167.54	100	21,844.51	100	30,871.45	100	90.57	0.23
	-2	40,727.92	101	22,335.06	102	30,654.24	99	125.98	0.31
	-1	39,032.51	97	17,877.99	82	29,733.18	96	2,135.60	5.47
	0	39,242.85	98	14,654.34	67	30,120.32	98	3,916.12	9.98
	1	36,362.67	91	15,097.67	69	27,466.65	89	2,141.46	5.89
Nordic	-3	41,240.32	100	24,139.28	100	32,319.44	100	32.28	0.08
	-2	42,599.39	103	24,060.66	100	32,941.51	102	158.92	0.37
	-1	41,715.84	101	16,888.42	70	31,564.28	98	5,217.85	12.51
	0	41,270.65	100	12,006.90	50	31,085.24	96	9,857.56	23.89
	1	45,391.48	110	20,625.82	85	32,178.94	100	5,591.86	12.32
Western	-3	40,474.35	100	23,306.87	100	29,770.16	100	173.84	0.43
	-2	41,777.92	103	24,539.08	105	30,607.00	103	274.89	0.66
	-1	42,013.36	104	21,562.02	93	31,793.19	107	1,546.15	3.68
	0	43,179.07	107	18,354.87	79	31,733.19	107	3,109.34	7.20
	1	41,187.22	102	18,624.01	80	27,901.67	94	2,831.08	6.87
German-speaking	-3	56,334.83	100	32,917.96	100	43,483.18	100	29.59	0.05
	-2	55,216.92	98	30,990.26	94	42,912.89	99	65.39	0.12
	-1	51,967.63	92	21,453.15	65	41,201.69	95	5,350.91	10.30
	0	46,190.85	82	8,059.92	24	43,338.64	100	9,000.46	19.49
	1	48,356.88	86	12,327.98	37	46,821.61	108	4,062.50	8.40
Liberal	-3	53,398.70	100	28081.65	100	45,601.58	100	50.74	0.10
	-2	56,249.96	105	29,593.72	105	46,528.72	102	0.09	0.00
	-1	51,316.78	96	27,196.18	97	43,327.89	95	735.74	1.43
	0	51,866.07	97	21,232.17	76	42,868.50	94	4,189.20	8.08
	1	39,465.73	74	13,783.27	49	35,538.92	78	1,385.05	3.51
Southern	-3	37,569.45	100	19,030.83	100	28,113.33	100	132.34	0.35
	-2	38,637.26	103	19,443.19	102	28,223.71	100	99.77	0.26
	-1	36,867.20	98	15,586.13	82	26,970.99	96	1318.11	3.58
	0	35,745.14	95	13,799.63	73	26,797.95	95	1491.73	4.17
	1	32,853.46	87	14,278.62	75	23,518.58	84	367.70	1.12
CEE	-3	27,928.40	100	13,379.79	100	20,475.58	100	17.08	0.06
	-2	27,080.20	97	16,060.53	120	19,295.05	94	21.75	0.08
	-1	27,621.19	99	11,784.45	88	20,406.08	100	2,556.23	9.25
	0	27,745.90	99	8,852.45	66	21,262.22	104	4,456.16	16.06
	1	26,876.03	96	10,270.16	77	22,071.65	108	2,104.11	7.83

Source: EU-SILC longitudinal data 2004–2019. The weighted means presented in this table are based on the 6,396 couples in the sample that had their first child but no additional child during the panel duration period. Time denotes the years before and after the child was first observed in the dataset; zero refers to the first survey wave in which a newborn was recorded. Due to the shift between interviews and the income reference period, the child can be born up to two years earlier (see supplementary material Section A.1 for details). Values are provided per annum and are adjusted for inflation and differences in purchasing power. Household income is a net value, labour income a gross value. Benefits include family-related financial support only. For better comparability across regions, income is – in addition – set to 100 at the beginning of the observation period, i.e. three years before the birth was observed.

A.3 Regression output

Table A.4: LFE estimations for all countries

	Model 1		Model 2		Model 3	
	b	se	b	se	b	se
1 child	-0.191***	(0.016)	-0.186***	(0.016)	-0.176***	(0.016)
2 children	-0.260***	(0.022)	-0.254***	(0.022)	-0.235***	(0.022)
3 children	-0.283***	(0.034)	-0.274***	(0.034)	-0.245***	(0.034)
4+ children	-0.340***	(0.063)	-0.328***	(0.063)	-0.295***	(0.063)
Bad health woman	-0.148***	(0.027)	-0.147***	(0.027)	-0.146***	(0.027)
Health missing woman	-0.009	(0.028)	-0.009	(0.028)	-0.009	(0.028)
Bad health man	-0.096***	(0.028)	-0.096***	(0.028)	-0.094***	(0.028)
Health missing man	0.002	(0.020)	0.002	(0.020)	0.003	(0.020)
Household income			0.003***	(0.000)		
Labour income woman					0.003***	(0.000)
Labour income man					0.002***	(0.000)
Constant	3.688***	(0.031)	3.600***	(0.033)	3.613***	(0.032)
Control variable year	yes		yes		yes	
Control variable age	yes		yes		yes	
N	183670		183670		183670	
Overall R2	0.021		0.119		0.138	
SE	cluster		cluster		cluster	

Note: the reference group for the number of children is "no child" and for health "no bad health"; income is actual yearly income in thousands of euros; SE are clustered at the household level; control variables for the survey year and age of both men and women were included in the estimations; * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table A.5: LFE estimations for Nordic countries

	Model 1		Model 2		Model 3	
	b	se	b	se	b	se
1 child	-0.232***	(0.031)	-0.222***	(0.031)	-0.204***	(0.031)
2 children	-0.344***	(0.045)	-0.332***	(0.045)	-0.299***	(0.045)
3 children	-0.503***	(0.068)	-0.481***	(0.068)	-0.430***	(0.069)
4+ children	-0.815***	(0.124)	-0.776***	(0.125)	-0.731***	(0.125)
Bad health woman	-0.174*	(0.073)	-0.175*	(0.073)	-0.169*	(0.073)
Health missing woman	-0.011	(0.094)	-0.009	(0.094)	-0.004	(0.093)
Bad health man	-0.021	(0.091)	-0.020	(0.091)	-0.021	(0.090)
Health missing man	-0.014	(0.084)	-0.011	(0.084)	-0.012	(0.084)
Household income			0.003***	(0.001)		
Labour income woman					0.004***	(0.001)
Labour income man					0.003***	(0.000)
Constant	4.247***	(0.086)	4.144***	(0.090)	4.102***	(0.088)
Control variable year	yes		yes		yes	
Control variable age	yes		yes		yes	
N	40324		40324		40324	
Overall R2	0.022		0.046		0.072	
SE	cluster		cluster		cluster	

Note: the reference group for the number of children is "no child" and for health "no bad health"; income is actual yearly income in thousands of euros; SE are clustered at the household level; control variables for the survey year and age of both men and women were included in the estimations; * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table A.6: LFE estimations for Western European countries

	Model 1		Model 2		Model 3	
	b	se	b	se	b	se
1 child	-0.186***	(0.036)	-0.187***	(0.036)	-0.174***	(0.036)
2 children	-0.266***	(0.052)	-0.268***	(0.052)	-0.248***	(0.052)
3 children	-0.290***	(0.077)	-0.289***	(0.077)	-0.262***	(0.077)
4+ children	-0.117	(0.140)	-0.121	(0.141)	-0.083	(0.141)
Bad health woman	-0.126*	(0.064)	-0.126*	(0.064)	-0.124	(0.064)
Health missing woman	0.028	(0.158)	0.025	(0.157)	0.007	(0.158)
Bad health man	-0.090	(0.061)	-0.088	(0.061)	-0.086	(0.061)
Health missing man	0.107	(0.177)	0.099	(0.175)	0.095	(0.176)
Household income			0.003***	(0.001)		
Labour income woman					0.004***	(0.001)
Labour income man					0.003***	(0.001)
Constant	4.391***	(0.091)	4.292***	(0.093)	4.343***	(0.091)
Control variable year	yes		yes		yes	
Control variable age	yes		yes		yes	
N	24393		24393		24393	
Overall R2	0.031		0.087		0.146	
SE	cluster		cluster		cluster	

Note: the reference group for the number of children is “no child” and for health “no bad health”; income is actual yearly income in thousands of euros; SE are clustered at the household level; control variables for the survey year and age of both men and women were included in the estimations; * p<0.05, ** p<0.01, *** p<0.001

Table A.7: LFE estimations for German-speaking countries

	Model 1		Model 2		Model 3	
	b	se	b	se	b	se
1 child	-0.269***	(0.070)	-0.253***	(0.070)	-0.227**	(0.074)
2 children	-0.202*	(0.100)	-0.185	(0.100)	-0.150	(0.105)
3 children	-0.058	(0.142)	-0.035	(0.142)	0.014	(0.146)
4+ children	-0.243	(0.289)	-0.233	(0.288)	-0.171	(0.289)
Bad health woman	-0.134	(0.137)	-0.131	(0.137)	-0.133	(0.137)
Health missing woman	0.147	(0.113)	0.148	(0.113)	0.145	(0.112)
Bad health man	-0.124	(0.136)	-0.127	(0.136)	-0.120	(0.136)
Health missing man	0.011	(0.133)	0.016	(0.132)	0.016	(0.133)
Household income			0.002*	(0.001)		
Labour income woman					0.003*	(0.001)
Labour income man					0.001	(0.001)
Constant	3.935***	(0.150)	3.848***	(0.154)	3.853***	(0.154)
Control variable year	yes		yes		yes	
Control variable age	yes		yes		yes	
N	9695		9695		9695	
Overall R2	0.027		0.052		0.057	
SE	cluster		cluster		cluster	

Note: the reference group for the number of children is “no child” and for health “no bad health”; income is actual yearly income in thousands of euros; SE are clustered at the household level; control variables for the survey year and age of both men and women were included in the estimations; * p<0.05, ** p<0.01, *** p<0.001

Table A.8: LFE estimations for Liberal countries

	Model 1		Model 2		Model 3	
	b	se	b	se	b	se
1 child	-0.189*	(0.080)	-0.186*	(0.080)	-0.166*	(0.081)
2 children	-0.288**	(0.106)	-0.290**	(0.106)	-0.262*	(0.107)
3 children	-0.225	(0.153)	-0.229	(0.151)	-0.187	(0.153)
4+ children	-0.208	(0.243)	-0.212	(0.242)	-0.171	(0.243)
Bad health woman	-0.209	(0.150)	-0.203	(0.149)	-0.200	(0.149)
Health missing woman	0.109	(0.100)	0.108	(0.099)	0.105	(0.098)
Bad health man	-0.147	(0.150)	-0.148	(0.150)	-0.150	(0.149)
Health missing man	0.009	(0.076)	0.010	(0.076)	0.011	(0.076)
Household income			0.003**	(0.001)		
Labour income woman					0.004*	(0.002)
Labour income man					0.001	(0.001)
Constant	3.826***	(0.139)	3.702***	(0.142)	3.706***	(0.144)
Control variable year	yes		yes		yes	
Control variable age	yes		yes		yes	
N	10220		10220		10220	
Overall R2	0.055		0.106		0.109	
SE	cluster		cluster		cluster	

Note: the reference group for the number of children is "no child" and for health "no bad health"; income is actual yearly income in thousands of euros; SE are clustered at the household level; control variables for the survey year and age of both men and women were included in the estimations; * p<0.05, ** p<0.01, *** p<0.001

Table A.9: LFE estimations for Southern European countries

	Model 1		Model 2		Model 3	
	b	se	b	se	b	se
1 child	-0.151***	(0.035)	-0.151***	(0.035)	-0.148***	(0.035)
2 children	-0.222***	(0.048)	-0.220***	(0.048)	-0.214***	(0.049)
3 children	-0.238**	(0.083)	-0.237**	(0.083)	-0.230**	(0.083)
4+ children	-0.219	(0.186)	-0.220	(0.186)	-0.212	(0.186)
Bad health woman	-0.217***	(0.062)	-0.217***	(0.062)	-0.218***	(0.062)
Health missing woman	0.024	(0.083)	0.024	(0.084)	0.028	(0.084)
Bad health man	-0.139*	(0.057)	-0.139*	(0.057)	-0.138*	(0.057)
Health missing man	0.011	(0.096)	0.010	(0.096)	0.006	(0.096)
Household income			0.001	(0.001)		
Labour income woman					0.002*	(0.001)
Labour income man					0.001	(0.001)
Constant	3.353***	(0.077)	3.320***	(0.078)	3.303***	(0.078)
Control variable year	yes		yes		yes	
Control variable age	yes		yes		yes	
N	43989		43989		43989	
Overall R2	0.034		0.055		0.075	
SE	cluster		cluster		cluster	

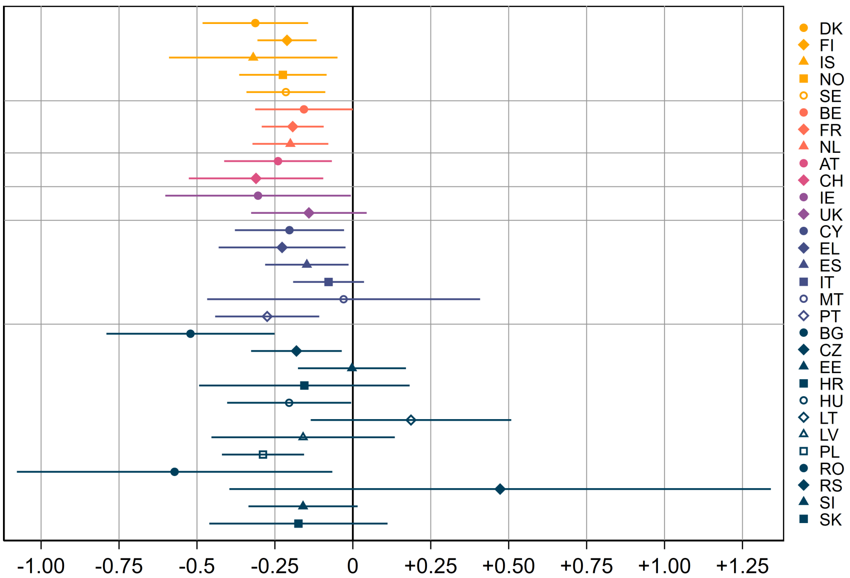
Note: the reference group for the number of children is "no child" and for health "no bad health"; income is actual yearly income in thousands of euros; SE are clustered at the household level; control variables for the survey year and age of both men and women were included in the estimations; * p<0.05, ** p<0.01, *** p<0.001

Table A.10: LFE estimations for CEE countries

	Model 1		Model 2		Model 3	
	b	se	b	se	b	se
1 child	-0.173***	(0.033)	-0.165***	(0.033)	-0.158***	(0.033)
2 children	-0.219***	(0.043)	-0.208***	(0.043)	-0.195***	(0.043)
3 children	-0.163*	(0.065)	-0.154*	(0.065)	-0.126	(0.066)
4+ children	-0.201	(0.110)	-0.192	(0.110)	-0.151	(0.111)
Bad health woman	-0.092*	(0.038)	-0.091*	(0.038)	-0.092*	(0.038)
Health missing woman	-0.047	(0.036)	-0.048	(0.036)	-0.047	(0.036)
Bad health man	-0.092*	(0.042)	-0.090*	(0.042)	-0.089*	(0.042)
Health missing man	-0.002	(0.022)	-0.002	(0.022)	-0.002	(0.022)
Household income			0.005***	(0.001)		
Labour income woman					0.003***	(0.001)
Labour income man					0.005***	(0.001)
Constant	3.268***	(0.078)	3.175***	(0.078)	3.180***	(0.078)
Control variable year	yes		yes		yes	
Control variable age	yes		yes		yes	
N	55049		55049		55049	
Overall R2	0.023		0.129		0.129	
SE	cluster		cluster		cluster	

Note: the reference group for the number of children is “no child” and for health “no bad health”; income is actual yearly income in thousands of euros; SE are clustered at the household level; control variables for the survey year and age of both men and women were included in the estimations; * p<0.05, ** p<0.01, *** p<0.001

Figure A.2



Note: Note: Marginal effects of the birth of the first child on SEW based country-specific linear fixed effects estimations of Model ??, with explanatory variables being the number of children, the age and health of both partners, and year fixed effects. Standard errors are clustered at the household level.

A.4 Robustness Analyses

Robustness analyses mostly support the findings described in this article – output tables can be provided upon request. First, we analyse if our findings are sensitive with respect to the estimation method. When estimating linear models, it is assumed that the response variable SEW is cardinal. Yet it could be argued that SEW is actually an ordinal variable, in which case OLS would not be the appropriate choice of estimator (for a detailed explanations, see Longhi & Nandi 2015, Williams 2016). To account for this, a robustness analysis is conducted applying an ordinal logit method that treats SEW as an ordinal variable.

In an ordered logit context, SEW is seen as the collapsed version of an underlying latent variable SEW*. Household respondents have a specific level of SEW* somewhere along that underlying continuous variable. When they are asked to evaluate their SEW, they pick the answer on a Likert scale that is closest to their actual value of SEW*. One can imagine that there are thresholds along the SEW variable. When households cross these thresholds, the observed value of the ordered variable SEW changes for that household. These thresholds are called cut-off points denoted by μ. In the case presented in this paper, the ordinal variable SEW has six outcomes and consequently five cut-off points.

Estimating ordered logit models is straightforward, but adding fixed effects is not. Simply combining ordered logit models with fixed effects leads to inconsistent estimators (Geishecker & Riedl 2010) in particular when some observed groups consist of rather small observations, which is the case in the dataset observed (Geishecker & Riedl 2010, Chamberlain 1980). To account for the ordered nature of the dependent variable as well as for unobserved heterogeneity, the so-called "blow-up and cluster" (BUC) estimator proposed by Baetschmann et al. (2015) is applied. It is based on the conditional logit estimator first introduced by Chamberlain (1980) and estimates the probability of one of the six outcomes of SEW. The underlying idea is that the ordered variable could simply be dichotomised by splitting it along any of the cut-off points μ, and then estimated via logistic regression. However, this approach reduces a lot of variation in the dependent variable SEW. Households would much less often cross thresholds μ if SEW were reduced to being a binary variable. Since fixed effect estimators for panel data rely on within-variation only, reducing this variation is not desirable. Thus, for the BUC estimator, SEW is first recoded into all possible dichotomisations along the five thresholds μ. After this process, each observation appears five times in the dataset, hence the name “blow-up”. Following the “blowing u” of the data, conditional logit estimators with standard errors clustered at the household level can be applied.

Even though the ordered logit model is theoretically the correct choice for ordered response variables, Ferrer-i Carbonell & Frijters (2004) as well as Riedl & Geishecker (2014) find little difference between assuming ordinality or cardinality of ordered variables, especially when the scale of potential answers is long. Also in our analysis, there is little difference between the results based on the LFE approach and the results based on the ordinal BUC estimator. Coefficients based on the BUC estimator are given in log odds and direct and indirect costs cannot be disentangled due to non-linearity. Consequently, the results are not directly comparable. Yet the relative size of each coefficient compared to all other coefficients in the same model as well as across models is the same for both methods. Consequently, LFE and BUC estimations lead to the same findings.

As a second robustness analysis, we analyse whether the control variable “health” biases our results. In the original model, we assume that health affects SEW, because needs increase when a household member gets sick. However, the causal direction could also be the other way around since financial stress could also have a negative impact on health. For our robustness analysis, we estimated all models excluding the health variables of both partners. Still, the estimated values of all coefficients remain almost identical, no matter whether the health variables are included or not. Output tables presenting the results of this as well as the following robustness analyses are provided upon request.

Finally, we analyse whether the skewed income variables have an impact on the results. Both household and labour income are highly non-normally distributed, with a strong right skew. Due to the many zeros in women’s labour income, a log transformation of the variable is not feasible. Instead, the cube root of income was taken for the sensitivity test to account for the skewed distribution of income (Cox 2011). Results based on the cube root specification yield almost identical results as the original estimations. Since income in thousands of euros is easier to interpret, these results were presented in this paper.

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