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. 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. For the majority of the countries observed, the IRP is the previous

1The 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.

2The 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).
calendar year. 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

---

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    | 13,646 | 39,853.62 | 21,762.94 | -40,221.99 | 69,1034.3 | 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

| Time | Women | Men | Women | Men | Women | Men | Women | Men | Women | Men | % Income |
|------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|----------|
| Full sample | | | | | | | | | | | |
| -3 | 40,167.54 | 21,844.51 | 30,871.45 | 90.57 | 0.23 | | | | | | |
| -2 | 40,727.92 | 22,335.06 | 30,654.24 | 99 | 125.98 | 0.31 | | | | | |
| -1 | 39,032.51 | 17,877.99 | 29,733.18 | 96 | 2,135.60 | 5.47 | | | | | |
| 0 | 39,242.85 | 14,654.34 | 30,120.32 | 98 | 3,916.12 | 9.98 | | | | | |
| 1 | 36,362.67 | 15,097.67 | 27,466.65 | 89 | 2,141.46 | 5.89 | | | | | |
| Nordic | | | | | | | | | | | |
| -3 | 41,240.32 | 24,139.28 | 32,319.44 | 32.28 | 0.08 | | | | | | |
| -2 | 42,599.39 | 24,060.66 | 32,941.51 | 102 | 158.92 | 0.37 | | | | | |
| -1 | 41,715.84 | 16,888.42 | 31,564.28 | 98 | 5,217.85 | 12.51 | | | | | |
| 0 | 41,270.65 | 12,006.90 | 31,085.24 | 96 | 9,857.56 | 23.89 | | | | | |
| 1 | 45,391.48 | 20,625.82 | 32,178.94 | 100 | 5,591.86 | 12.32 | | | | | |
| Western | | | | | | | | | | | |
| -3 | 40,174.35 | 23,306.87 | 29,770.16 | 100 | 173.84 | 0.43 | | | | | |
| -2 | 41,777.92 | 24,539.08 | 30,607.00 | 103 | 274.89 | 0.66 | | | | | |
| -1 | 42,013.36 | 21,562.02 | 31,793.19 | 107 | 1,546.15 | 3.68 | | | | | |
| 0 | 43,179.07 | 18,354.87 | 31,733.19 | 107 | 3,109.34 | 7.20 | | | | | |
| 1 | 41,187.22 | 18,624.01 | 27,901.67 | 94 | 2,831.08 | 6.87 | | | | | |
| German-speaking | | | | | | | | | | | |
| -3 | 56,334.83 | 32,917.96 | 43,483.18 | 29.59 | 0.05 | | | | | | |
| -2 | 55,216.92 | 30,990.26 | 42,912.89 | 99 | 65.39 | 0.12 | | | | | |
| -1 | 51,967.63 | 21,453.15 | 41,201.69 | 95 | 5,350.91 | 10.30 | | | | | |
| 0 | 46,190.85 | 8,059.92 | 43,338.64 | 100 | 9,000.46 | 19.49 | | | | | |
| 1 | 48,356.88 | 12,327.98 | 46,821.61 | 108 | 4,062.50 | 8.40 | | | | | |
| Liberal | | | | | | | | | | | |
| -3 | 53,398.70 | 28,081.65 | 45,601.58 | 50.74 | 0.10 | | | | | | |
| -2 | 56,249.96 | 29,593.72 | 46,528.72 | 103 | 2,09 | 0.00 | | | | | |
| -1 | 51,316.78 | 27,196.18 | 43,327.89 | 95 | 735.74 | 1.43 | | | | | |
| 0 | 51,866.07 | 21,232.17 | 42,806.50 | 94 | 4,199.20 | 8.08 | | | | | |
| 1 | 39,465.73 | 13,783.27 | 35,538.92 | 78 | 1,385.05 | 3.51 | | | | | |
| Southern | | | | | | | | | | | |
| -3 | 37,569.45 | 19,030.83 | 28,113.33 | 122.34 | 0.35 | | | | | | |
| -2 | 38,637.26 | 19,441.19 | 28,223.71 | 102 | 90.77 | 0.26 | | | | | |
| -1 | 36,867.20 | 15,586.13 | 26,970.90 | 96 | 131.81 | 3.58 | | | | | |
| 0 | 35,745.14 | 13,799.63 | 26,970.90 | 95 | 1,491.74 | 4.17 | | | | | |
| 1 | 32,853.46 | 14,278.62 | 23,518.59 | 84 | 39,12.05 | 1.12 | | | | | |
| CEE | | | | | | | | | | | |
| -3 | 27,928.40 | 13,379.79 | 20,475.58 | 17.08 | 0.06 | | | | | | |
| -2 | 27,080.20 | 16,600.53 | 19,255.05 | 94 | 21.75 | 0.08 | | | | | |
| -1 | 27,621.19 | 11,781.45 | 20,466.08 | 100 | 2,556.23 | 9.25 | | | | | |
| 0 | 27,745.90 | 8,852.45 | 21,262.22 | 104 | 4,456.16 | 16.06 | | | | | |
| 1 | 26,876.03 | 10,270.16 | 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 | b         | se       | Model | b         | se       | Model | b         | se       |
|-------|-----------|----------|-------|-----------|----------|-------|-----------|----------|
|       | 1 child   | -0.191***| (0.016) | 2 children | -0.260***| (0.022) | 3 children | -0.283***| (0.034) |
|       | 2 children | -0.186***| (0.016) | 3 children | -0.254***| (0.022) | 4+ children | -0.340***| (0.003) |
|       | Bad health woman | -0.114***| (0.027) | Health missing woman | -0.009 | (0.028) | Bad health man | -0.066***| (0.028) |
|       | Health missing man | 0.002 | (0.020) | Household income | 0.003*** | (0.000) |
|       | Household income | 3.600*** | (0.033) | Overall R2 | 0.021 | 0.119 |
|       | Labour income woman | 0.003*** | (0.000) | Labour income man | 0.002*** | (0.000) |
|       | Constant | 3.688*** | (0.031) | Control variable year | yes | yes |
|       | Control variable age | yes | yes | N | 183670 | 183670 | 183670 |
|       | Overall R2 | 0.021 | 0.119 | 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 | b         | se       | Model | b         | se       | Model | b         | se       |
|-------|-----------|----------|-------|-----------|----------|-------|-----------|----------|
|       | 1 child   | -0.232***| (0.031) | 2 children | -0.344***| (0.045) | 3 children | -0.503***| (0.068) |
|       | 4+ children | -0.815***| (0.121) | Bad health woman | -0.174* | (0.073) | Health missing woman | -0.011 | (0.094) |
|       | Bad health man | -0.021 | (0.091) | Health missing man | -0.014 | (0.084) | Household income | 0.003*** | (0.001) |
|       | Household income | 0.004*** | (0.001) | Labour income woman | 0.003*** | (0.000) |
|       | Labour income man | 4.247*** | (0.086) | Control variable year | yes | yes |
|       | Control variable age | yes | yes | N | 40324 | 40324 | 40324 |
|       | Overall R2 | 0.022 | 0.046 | 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     | -0.200*** | (0.077) | -0.200*** | (0.077) | -0.202*** | (0.077) |
| 4+ children    | -0.117   | (0.140) | -0.121   | (0.141) | -0.093   | (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    | (0.156) |
| Bad health man  | -0.000   | (0.061) | -0.088   | (0.061) | -0.086   | (0.061) |
| Health missing man | 0.107   | (0.177) | 0.099    | (0.175) | 0.065    | (0.176) |
| Household income|         |         | 0.003***  | (0.001) |         |         |
| Labour income woman |        |         | 0.004***  | (0.001) |         |         |
| Labour income man |        |         | 0.003***  | (0.001) |         |         |
| Constant       | 4.291*** | (0.091) | 4.292***  | (0.093) | 4.333***  | (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     | -0.038   | (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) | 3.833***  | (0.154) |

Control variable year: yes, yes, yes
Control variable age: yes, yes, yes
N: 9695, 9695, 9695
Overall R2: 0.027, 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) | -0.292* | (0.107) |
| 3 children               | -0.225 | (0.153) | -0.229 | (0.151) | -0.187 | (0.153) |
| 4+ children              | -0.238 | (0.243) | -0.212 | (0.242) | -0.171 | (0.243) |
| Bad health woman         | -0.200 | (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       | 0.000 | (0.076) | 0.010 | (0.076) | 0.011 | (0.076) |
| Household income         | 0.003** | (0.001) | 0.004* | (0.002) | 0.001 | (0.001) |
| Labour income            | yes         |       | yes         |       | yes         |       |
| 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         | yes         |       | yes         |       | yes         |       |
| Labour income            | yes         |       | yes         |       | yes         |       |
| Control variable year    | yes         |       | yes         |       | yes         |       |
| Control variable age     | yes         |       | yes         |       | yes         |       |
| N                        | 43989      |       | 43989      |       | 43989      |       |
| Overall R2               | 0.051      |       | 0.105      |       | 0.106      |       |
| 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     | -0.0417     | (0.036)     | -0.048      | (0.036)     | -0.047      | (0.036)     |
| Bad health man           | -0.092*     | (0.042)     | -0.090*     | (0.042)     | -0.088*     | (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      |             |             |             |             |             |             |
| Labour income man        |             |             |             |             |             |             |
| 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: Marginal effects of the birth of the first child on SEW based country-specific linear fixed effects estimations of Model 77, 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 analyze 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 explanation, 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 $\mu$. 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 $\mu$, 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 $\mu$ 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 $\mu$. 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. Coeffi-
cients 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.
References

Baetschmann, G., Staub, K. E. & Winkelmann, R. (2015), ‘Consistent estimation of the fixed effects ordered logit model’, *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 178(3), 685–703.

Chamberlain, G. (1980), ‘Analysis of covariance with qualitative data’, *The Review of Economic Studies* 47(1), 225–238.

Cox, N. (2011), ‘Stata tip 96: Cube roots’, *Stata Journal* 11(1), 149–154.

European Commission (2017), Methodological guidelines and description of EU-SILC target variables: 2016 operation, Technical report.

Ferrer-i Carbonell, A. & Frijters, P. (2004), ‘How important is methodology for the estimate of the determinants of happiness?’, *The Economic Journal* 114, 641–659.

Geishecker, I. & Riedl, M. (2010), ‘Ordered response models and non-random personality traits: Monte carlo simulations and a practical guide’, *Center for European, Governance and Economic Development Research Discussion Papers* (116).

Joint Programming Initiative (2018), ‘European Union Statistics on Income and Living Conditions (EU-SILC)’.

URL: [http://www.jpi-dataproject.eu/Home/Database/23?topicId=3](http://www.jpi-dataproject.eu/Home/Database/23?topicId=3)

Longhi, S. & Nandi, A. (2015), *A practical guide to using panel data*, SAGE, Los Angeles/ London/ Washington DC/ New Delhi/ Singapore.

Mack, A. & Lange, B. (2015), ‘Harmonization of Income Data in EU-SILC’, *GESIS Papers* (18).

Riedl, M. & Geishecker, I. (2014), ‘Keep it simple: estimation strategies for ordered response models with fixed effects’, *Journal of Applied Statistics* 41(11), 2358–2374.

Williams, R. (2016), ‘Understanding and interpreting generalized ordered logit models’, *Journal of Mathematical Sociology* 40(1), 7–20.