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**Life Events and Subjective Well-being – The Case of Having Children**

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## **Life Events and Subjective Well-being – The Case of Having Children**

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### **Abstract**

The literature on Happiness and Subjective Well-Being (SWB) has been dominated by studies of the impact from income and labour market status - and the impact on happiness from changes in these determinants. It seems obvious to expect an impact from non-economic factors as well. In the present paper we focus on the eventual impact on SWB from having children. The dominant result in the rather few studies until now is the finding of no – or even a negative - impact on subjective well being following birth of a child. We focus on the impact from having children using two very big panel data sets. The first is the European Community Household Panel (ECHP) with data collected over 8 annual waves from 1994 to 2001 in the EU member countries. Two advantages for the study using these data are, first the panel property where data were collected over 8 annual waves implying that pre- and post birth satisfaction level is available for a large number of individuals. Secondly, these observations are available for up to 15 countries with big differences in fertility levels, child care institutions and labour force participation for married women. At the same time, the ECHP data contains a lot of relevant demographic and labour market background variables to be included in the econometric analyses of the SWB impact from children. The second data set is The German Socio Economic Panel (GSOEP) where panel data are available for the years 1984 – 2009. Like the ECHP, the GSOEP data contains many relevant background factors. This presents a unique opportunity to combine the cross country perspective in the ECHP data with the possibility presented by the GSOEP of following the impact from birth order and the impact over the full cycle from birth and until the child leaves home.

Key words: Subjective well-being, life events, panel data

JEL codes: D1, I31, J13

## **1. Introduction**

The demographic challenge facing most OECD countries consists of two elements, a decline in mortality and a strong decline in fertility, implying together the ageing of many high income countries, mostly in Europe, but also e.g. in Japan. The topic here is to focus on one special aspect of these big demographic changes, i.e. the trend in fertility. More precisely, the purpose in the present paper is to examine the impact on subjective well-being from having children in a setting of low or very low fertility in many countries. We apply data from the German Socioeconomic Panel (GSOEP) and the European Community Household Panel (ECHP) to describe and analyse the impact from having children or from the life event of giving birth to a child on subjective well-being.

Section 2 contains a brief survey of the fairly few contributions to analyses of the impact from children on subjective well-being. Section 3 contains a brief survey of the trend in European fertility which has resulted in the present “scarcity” of children in many countries. In a cross-country perspective trends differ following a North-South divide, however with Germany as a notable exception. At the same time we relate the trends in fertility to the trends in female labor force participation. In a cross-European context the relationship between fertility and participation has shifted from being predominantly negative to being predominantly positive. This last observation relates to the brief survey in Section 4 of cross-country differences in family oriented policies consisting of costs and availability of child care institutions along with changes in family related cash benefits. There is an obvious simultaneity in this area where policy can have an impact on fertility at the same time as changes in fertility along with trends in labor force participation can have an impact on how having children can influence subjective well-being.

Next, Section 5 summarizes descriptive evidence regarding the impact on subjective well-being from having children and becoming parents based on data from the ECHP covering a number of EU countries over the 8 years 1994 – 2001 and based furthermore on data from the GSOEP covering a very long panel from 1984 to 2010. Section 6 presents results from a number of quantitative analyses of how having children or experiencing the birth of a child influences parental subjective well-being. Finally, Section 7 summarizes and discusses results.

## **2. Earlier studies**

A main impression from the literature on the interaction between SWB and children is that the evidence seems to be very mixed. There does not seem to be consensus on the sign of the impact in

case of it being significant. Further, there is clear evidence of differences in the results depending on whether the issue is the impact from the birth of a child, especially birth of a first child, or the eventual impact from the number of children in the family. The results also seem to vary depending on the national background, i.e. the type of welfare state in which a specific family lives, and on marital status of the mother. A final aspect where panel data are necessary is whether anticipation and adaptation effects are present in the sense of an eventual impact before for instance the birth of a first child and further the question of how SWB changes over time after a life event, here the birth of a child.

A natural starting point in this area with an economic approach is the seminal book on the economics of the family by Becker (1981). In the present context, the expectation based on Becker (1989) is a positive impact from children as individuals are assumed to enter into a family and to have children as utility increasing activities. The empirical results, of which a brief and partial survey is presented below, are however as mentioned not in perfect harmony with this expectation, but more mixed.

In a compact survey of results Hillerås et al. (2001) in their section on the impact on SWB from marital status and children do not report any specific results regarding the impact from a birth or from the number of children in a family. Instead, they report as a general result that married individuals were happier after their children had left home, i.e. a reverse of the standard “empty nest” hypothesis. Further, they report that contact with children improves life satisfaction among elderly. Part of the seeming paradox between utility theory and a significant number of empirical studies could thus be that the impact from having children should be considered in a lifelong perspective. On the other hand, Suh et al. (1996) claim that only recent life events matter. This could however be relevant when looking into the impact from a birth – especially a first birth – relative to the impact from the state of having children in the family.

Clark and Oswald (2002) present a number of results using cross-section regressions to find monetary valuations of the importance of life events. Veenhoven (2002) comments on this approach and points to the relevance of using panel data to evaluate the impact from life events. One of these is having a child where Clark et al. (2008) based on GSOEP data find a negative impact on SWB for both women and men but full adaptation, i.e. return to the pre-birth SWB level after 5 years. Impact before birth, anticipation, is however found to be positive.

Assvee et al. (2005) are using ECHP data to analyse the impact on a number of well-being measures from child bearing. The well-being measures are household income, poverty status and a

number of deprivation indices. They find quite strong impact in the liberal type of EU welfare states while the impact is small in other welfare state settings.

Hansen et al. (2009) analyse a Norwegian survey consisting of childless, parents with resident children and “empty nest” parents. They find only a – positive – impact for women compared with the childless. Kohler et al. (2005) are using data from a long run Danish register of MZ twins. They analyse the impact from the number of children, found to be insignificant for women and – surprisingly – positive and significant, however numerically small, for men. At the same time they analyse the impact from having a first birth. This is found to have a big positive impact for women while subsequent births are found to have a negative or no effect. This kind of asymmetry might be part of the explanation of finding no impact in a number of cases from the number of children.

Angeles (2009) concludes that empirical results have so far been dominated by negative effects from having children. Using BHPS data he finds, however, a positive impact when only married women are included in the analysis. The impact is further found to be increasing in the number of children. Below we use the same strategy and focus on married couples alone. Plagnol and Scott (2011) also use the BHPS data. Their focus is however slightly different as they look into the impact from life events on perceptions on what matters for quality of life. Regarding the impact from birth of 1. child they find a significant positive impact on perception of family as important and at the same time – not surprisingly – a negative impact on the perception of the family financial situation as important.

Powdthavee (2010) has no new empirical results but concludes in a general discussion that the finding of almost zero association between having children and happiness reflects the need for more comprehensive research also including more results from outside the OECD area. This approach is taken in Margolis and Myrskylä (2011) working with data for 86 countries coming from the World Value Survey. The problem reaching conclusive evidence is illustrated by their presentation of results from two model specifications. The dependent variable is happiness level in both models. The covariates in the first model are number of children, gender and age. The finding here is a significant positive impact from having 1 – 3 children, while no impact is found in case of 4 or more children. But including income, Socio-economic and marital status in the second of the models results in the finding of significantly negative impact from children.

In a broad survey of international results, Blanchflower (2009) concludes that the dominant result is children having a negative impact on SWB. This is to some extent supported in Angeles (2010) following up on the work in Clark et al. (2008). Angeles uses BHPS data and finds the impact from

the number of children to be significantly negative for women. The birth of a child has a significantly positive impact for women, but only in the year of the birth and – anticipating – in the year preceding the birth. Having given birth to a child has however an insignificant impact on SWB in up to 5 and more years after the birth.

Finally, Cáceres-Depiano and Simonsen (2010) study the impact of increases in family size, not on SBB directly but on the risk of divorce, participation in welfare programs and risk of poverty and the impact on certain health risks for the mother. Using US data they find that increases in family size results in higher risks in the mentioned areas.

### **3. Socioeconomic background**

An obvious motivation for having focus on children and well-being is the extremely dramatic decline in fertility occurring in Europe over the last 50 years. Figure 1 shows fertility rates in 6 Northern European countries from 1960 to 2010. UK is the first country to cross the replacement level at a fertility rate slightly above 2 in the late 1960s followed a few years later by Denmark, France, the Netherlands and Germany. In Ireland the fertility rate is way above the other countries until around 1980. But in the late 1980s Ireland too crosses the replacement level to a fertility at the same level as in the other five countries.

Figure 2 shows the even more dramatic change occurring in the four Southern European countries Greece, Spain, Italy and Portugal. In those countries fertility crosses the replacement level in the second half of the 1970s and ends at a significantly lower level than in Northern Europe. In both country groups we observe signs of a moderate trend shift towards an increase in fertility rates over the last decade. In relation to the present topic Figures 1 and 2 do not carry any predictions regarding the children – happiness relationship. Fertility could go down due to less well-being attached to children – or child related happiness could increase as children become less numerous.

Figure 1. Fertility, Northern Europe, 1960-2010.

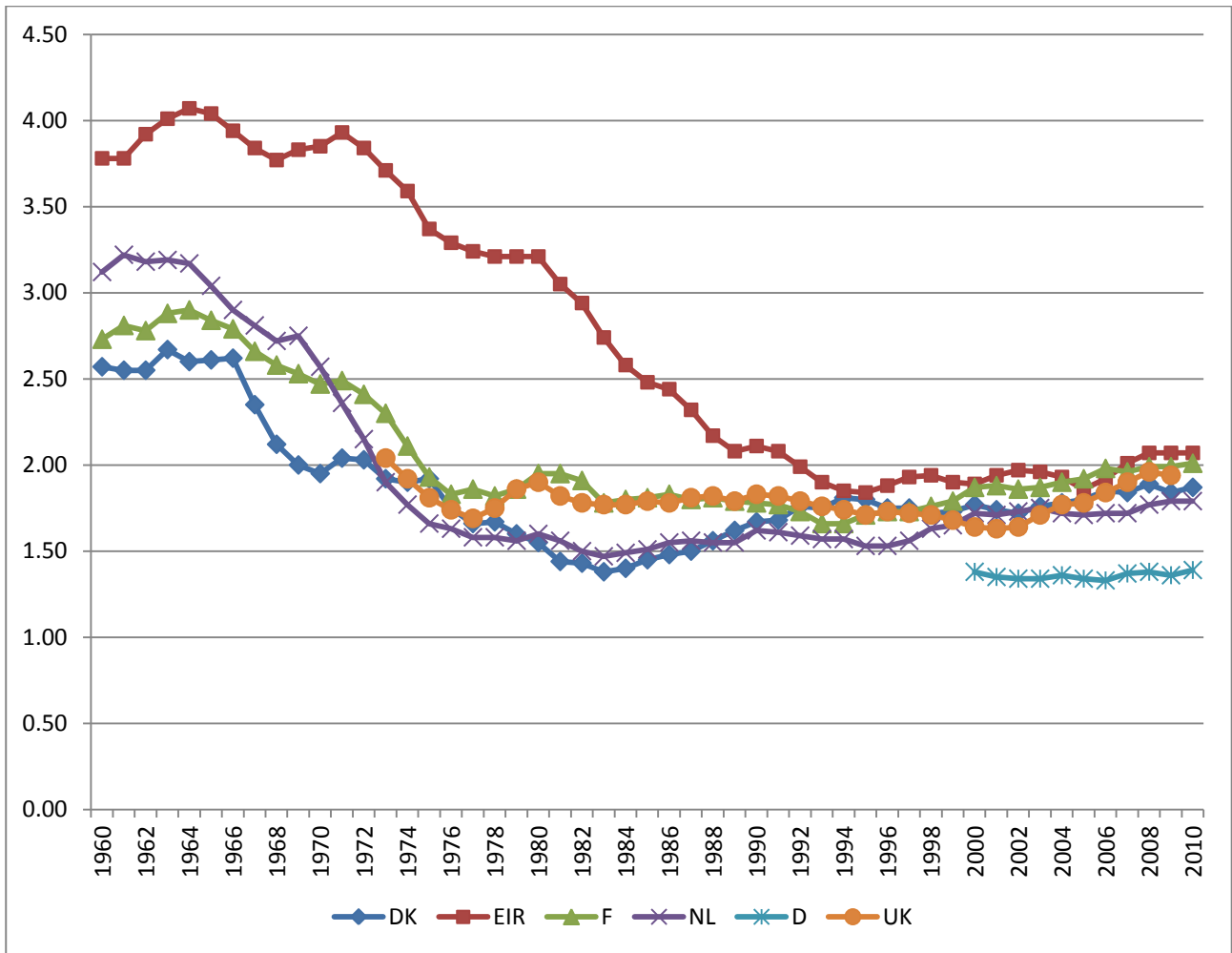
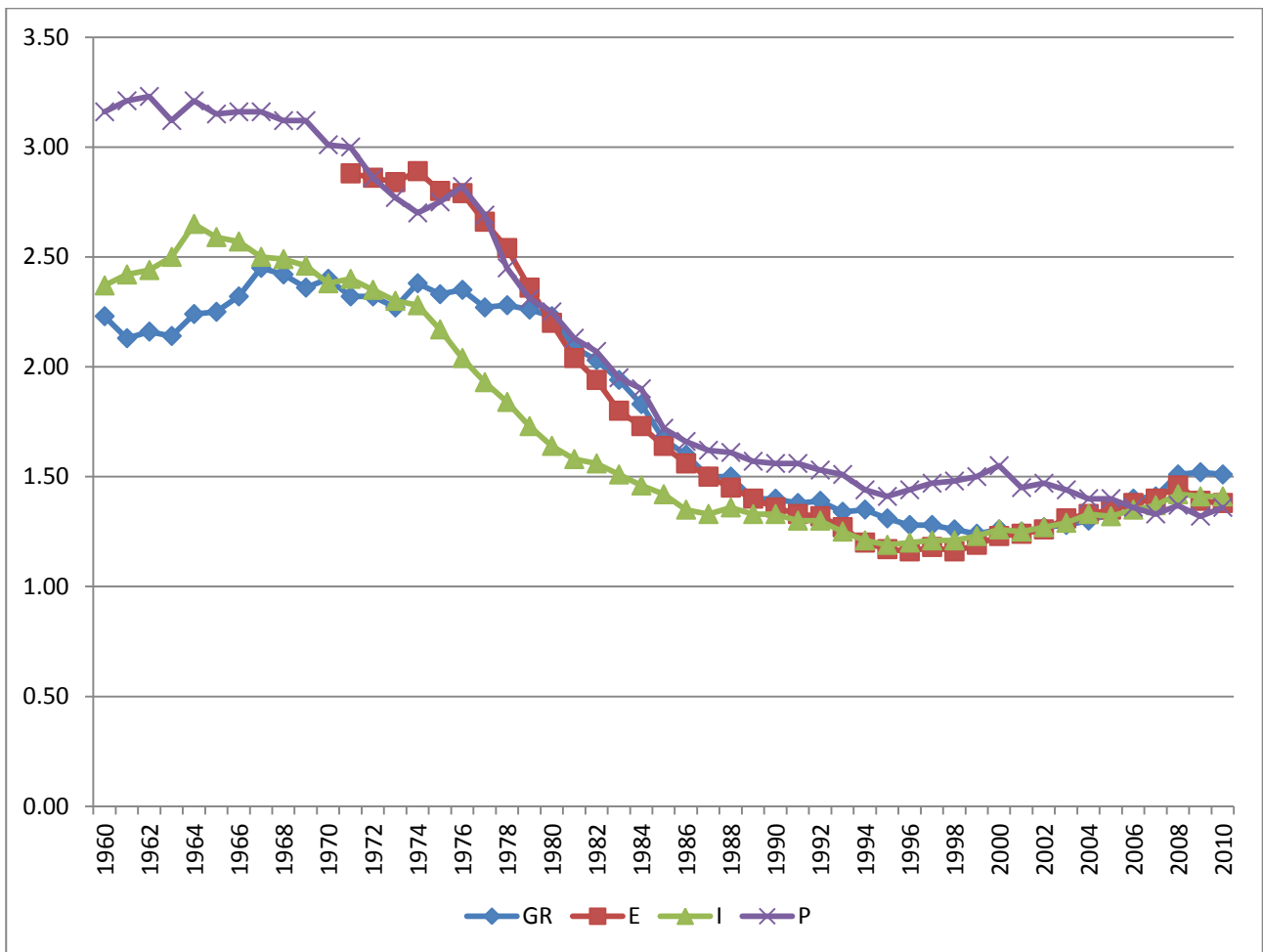


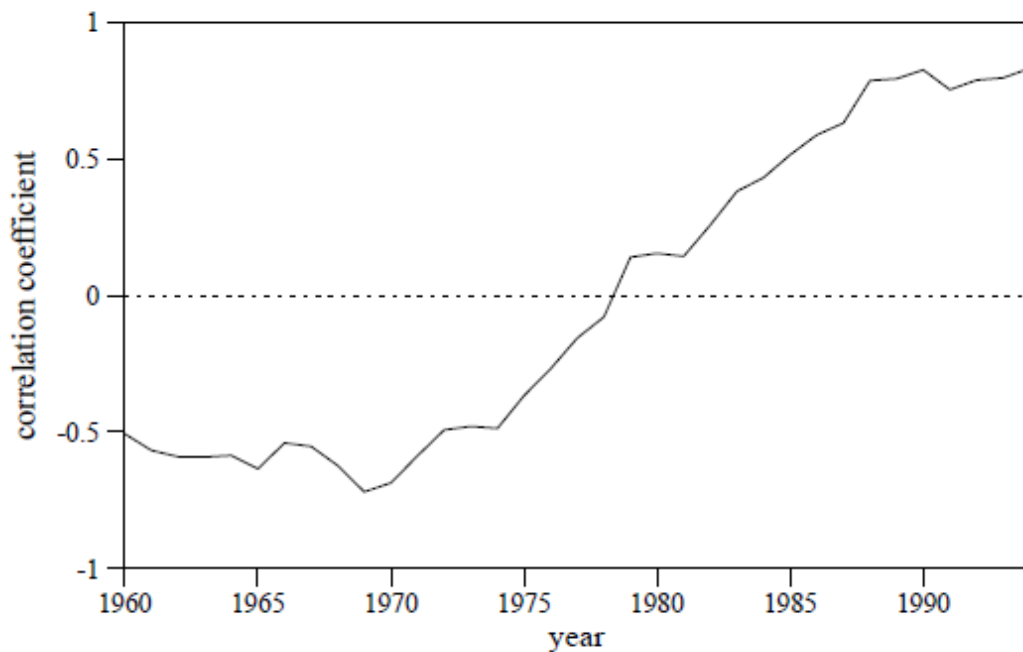
Figure 2. Fertility, Southern Europe, 1960-2010.



Another “grand” hypothesis could be that Figures 1 and 2 simply reflect women entering the labor market, to an increasing degree in full time jobs and that fewer children is an effect of this structural shift. This, however, is a clear simplification of a more complex story as shown in Figure 3. For the years 1960 – 1994 Figure 3 shows the annual correlation between fertility rate and the female labor force participation rate, and the main point in the correlation profile is obviously the shift of sign from negative to positive at about the same time when fertility crosses the replacement level. Figure 3 is a reflection of both structural changes and policy changes in the area of family policy and contributes presumably to explain the Southern European countries ending up at a significant lower fertility level than the countries in Northern Europe.



Figure 3. Correlation between the total fertility rate and female labor force participation rate, 1960-1994. (source: Engelhardt et al. (2001)).

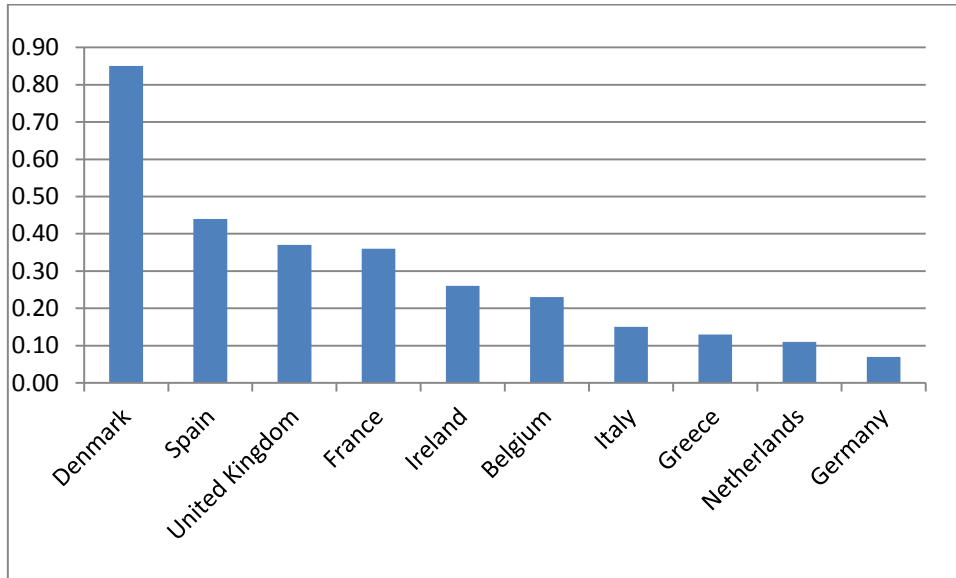


#### 4. Some trends in family policy

It is obvious that satisfaction or well-being from having children in a family can be affected by a multitude of outside factors, making it harder or easier to accommodate children in a family. In this section we present a few indicators for the extent and ambition regarding family policies in Europe. The main point is to illustrate the big variation, not to pretend any easy and clear mechanism linking instruments in family policy to the reported satisfaction of mothers. Further, there is reason to emphasize that the types of indicators shown here for illustration could be endogenous, i.e. for given policy parameters they would reflect variations in child cohort sizes.

Figure 4 illustrates the big variation in public spending on childcare, kindergarten and pre-school arrangements, from nearly 1 percent of GDP in Denmark to less than 0,1 percent in Germany in 2005.

Figure 4. Public spending on child care and early education as percentage of GDP, 2005. (source: DICE database. Primary source: OECD Family database)



The big variation in overall public expenditures for families comparing 1980 and 2007 is illustrated in Figure 5. While the level differs, between 1 and 3 percent of GDP we also see predominantly increases in the ratio from 1980 when, except in Ireland, fertility had stabilized at a below replacement level in Northern Europe, while fertility declined further from around 1980 to the mid-1990s in the Southern European countries. A final indicator is found in Figure 6 showing the variation in social expenditures on maternity and parental leave programs as a percentage of GDP. Data are mostly available for the last year making it difficult to link to the development in fertility and well-being.

Figure 5. Public expenditures for families as a percentage of GDP, 1980 and 2007. (source: DICE database. Primary source: OECD Family database)

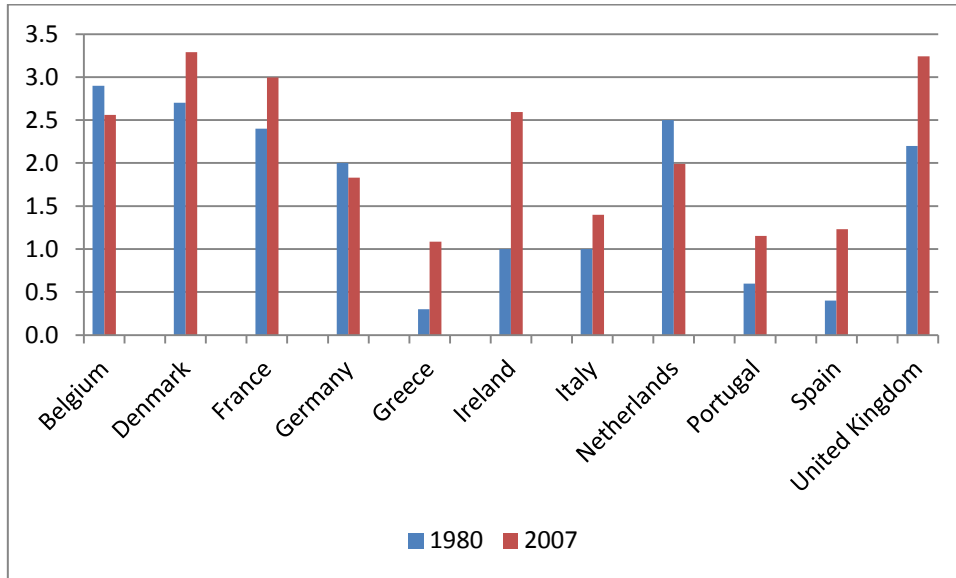
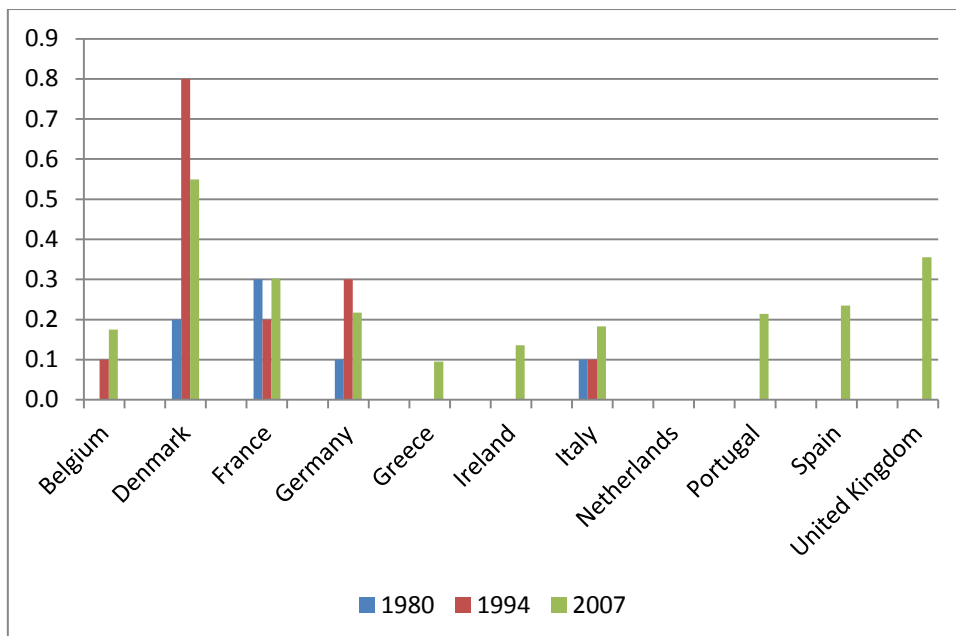


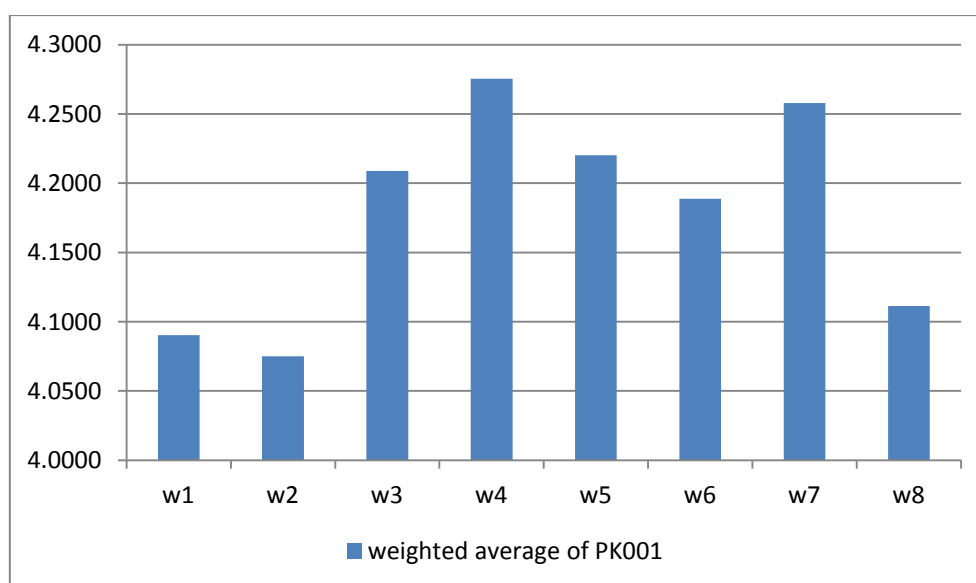
Figure 6. Social expenditures on Maternity and Parental leave as a as a percentage of GDP, 1980, 1994 and 2007. (source: DICE database. Primary source: OECD Family database)



## 5. Descriptive evidence

In this section we present descriptive evidence regarding the impact from giving birth to your first, respectively your second child. We use data from the ECHP and restrict the sample to focus on married and cohabiting women only, following the suggestion tested in Angeles (2010a). To be more specific we study a sample consisting of married or cohabiting women, 20 – 42 years old in the year of giving birth to a first or a second child. In the first round we focus on births in 1996 being the 3. wave of the panel and calculate for each country the average value of the variable PK001, measuring general satisfaction, for the two years, wave 1 and 2, before the year of the birth in wave 3, and for the five years after the birth. Next, we calculate an average over the whole panel using number of observations in each country as weights. For births of the first child these averages are shown in Figure 4. Country average values are shown in the Appendix, Table A1.

Figure 4. Weighted average of satisfaction variable for married women having their first child in w3 (1996).



Two observations follow from Figure 4. First, while the variation in the average values is small, it seems evident that there is a jump up in the year where the first birth occurs, compared with a lower and fairly stationary level in the two preceding years. Secondly, the average level of satisfaction seems to remain at the new slightly higher level at least for the next five years.

Figure 5. Weighted average of satisfaction variable for married women having their second child in w3 (1996).

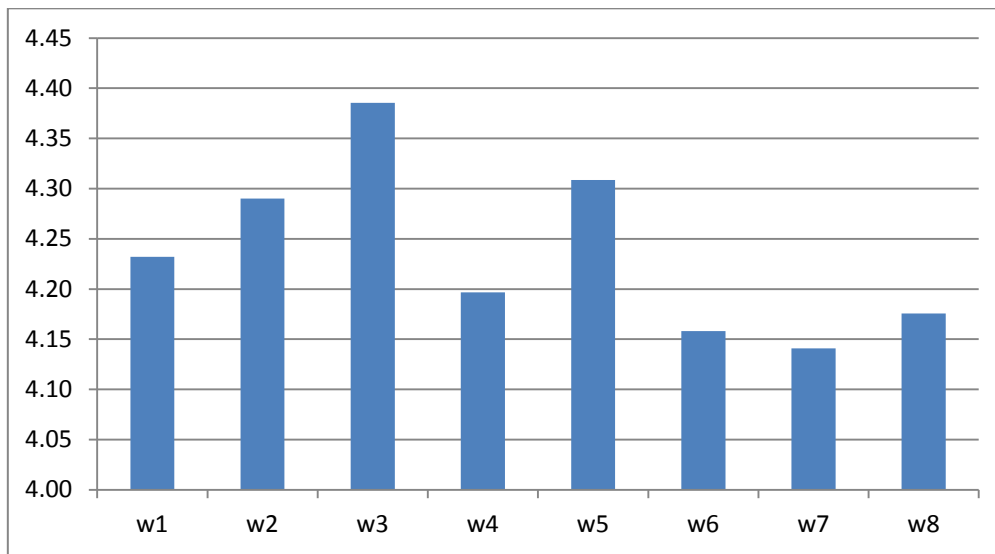


Figure 5 shows the result from making the same type of calculation for the event of having a second child. The number of observations is somewhat higher here as the population under “risk” is somewhat higher consisting of all married or cohabiting women in the specific age group having one child already. As in Figure 4 the differences are small, however we find a peak in the year of having the second child. The jump up from the two preceding years is much less pronounced than for the first birth and might be interpreted as anticipation being better founded in a situation where a veil of ignorance has been lifted as the women in Figure 5 has one child already. On average, satisfaction after the second birth declines to below the pre-birth level.

In Figures 4 and 5 the idea was to use the 8 waves in the ECHP panel in a way giving the option of following satisfaction two years before giving birth and the maximum number of years the panel allows after the event of birth of either first or second child<sup>1</sup>. Another approach is behind the the profile in average satisfaction shown in Figure 6. We still want observations both before and after a first birth. To maximize the number of observations we select a moving 4 years window as observation period, of which the 8 years long panel allows us 5 windows. In each period we calculate the average satisfaction in the year before birth, in the year having your first child and in the two years after the birth. Throughout the calculations are based on married or cohabiting women 20-42 years old in the year of the birth. The resulting 5 windows with average satisfaction profiles

<sup>1</sup> We have extracted the same type of data as those behind Figures 4 and 5 for a third birth. The number of observations are however too small for analysis.

are shown in the appendix where country average values are weighted by number of observations. Figures A1-A5 shows a jump up from the year before to the year of the 1. birth in all 5 cases. For four of the five windows it turns out that the peak value is in the year of birth. Finally, we have aggregated the five 4-year windows by weighting with the number of observations. The result from this “super aggregation” is shown in Figure 6. Once again, the differences are small, but based on nearly 8.000 observations it seems fairly convincing that the first birth on average increases subjective well-being for married or cohabiting women across Europe<sup>2</sup>.

Figure 6. Weighted average value of satisfaction based on all 1. birth observations with the option of observing satisfaction as well before as after the birth

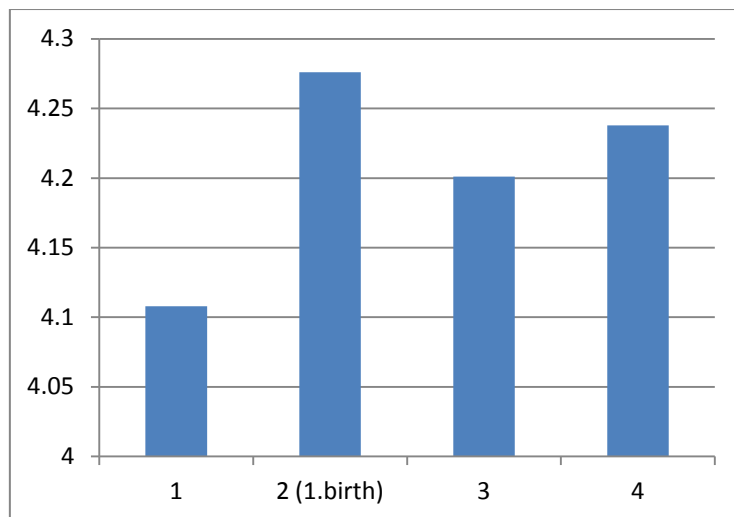
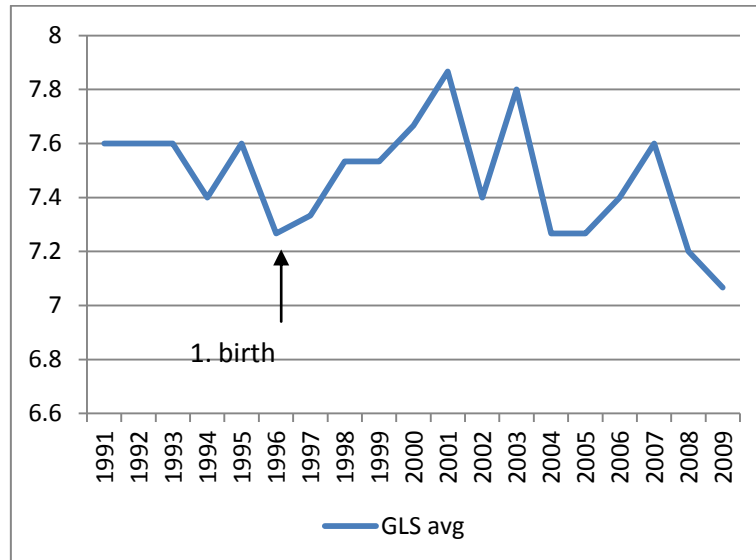


Figure 7, finally, shows a very first attempt in the same direction using GSOEP data to obtain a longer period. We select all married or cohabiting women, 20 – 40 years old, who had their first child in 1996, and follow the average value for their global life satisfaction from 1991 to 2009. However, only 63 women in the sample had their first child in this year and the 18 years of observation implies that only 15 are present in each of the 18 years. With this very big reservation Figure 7 shows a local minimum in the year of the first child followed by increasing average GLS until the child is 5 years old, when school age is followed by a (highly volatile) decline in average GLS. However, as mentioned, the number of observations is too small for any more convincing interpretation of the profile.

<sup>2</sup> An obvious continuation of the present calculations would be to make it also for the fathers.

Figure 7. Average Global Life Satisfaction (GLS) for married women in Germany who have their first child in 1996, (GSOEP data)



## 6. Some quantitative results

The purpose in this section is to analyze if the impact found in the descriptive survey in Section 5 is supported when other covariates than giving birth are included in correlations with the satisfaction variable. We use the ECHP data to examine whether – not giving birth to your first or second child as analyzed above – but having children per se has a significant impact or not on the satisfaction variable. A first round of probit results are presented in Tables 1 and 2. The left hand side variable is the satisfaction variable PK001 with 6 possible outcomes converted to a binary variable set at 1 for PK001 = {4,5,6} and set at 0 for PK001 = {1,2,3}. The sample being used in the estimation is all married or cohabiting women 20-42 years old in W3 (1996) of the ECHP. The explanatory variable in focus is the number of children which is also entered squared to capture possible non-linearities in the eventual impact. Further, a number of covariates are included. The first one, eqinc, is the equivalence scale adjusted household income. Next, mainacti is a binary variable set at 1 if the main self reported activity is being in the labor force (either working or unemployed) and set at 0 otherwise. The variable badhealth is a self reported health evaluation converted from a 5 point scale to be a binary variable. Education is entered at two levels with basic school education as the left out category. Finally crime is a binary indicator for the neighbourhood in which the respondent lives.

Regarding the results we find a significant impact from the number of children for 6 out of 11 countries. The impact is significant and positive for Spain, France, Greece, Ireland, Italy and the UK. If this can be interpreted in terms of welfare state types, an impact is found in the Southern European welfare states with low fertility, except in Portugal, and in the liberal type of welfare states consisting here of Ireland and UK. France does not fit into this pattern. In the North European continental and social democratic welfare states there is no impact from the number of children. For France, Greece, Ireland and the UK we further find indications of a non-linearity in the number of children. The covariates mostly have the expected signs. The variable *mainacti* has mixed effects, probably reflecting differences in family policies relative to having children. The corresponding marginal effects are found in Table 2.

In Table 3 we report some results from entering both 1., 2. and 3. birth among married or cohabiting women 20-42 years old in W3 (1996). For Ireland, UK and the Netherlands we find a significant positive impact from having the first child. For Belgium, the impact is negative on satisfaction. For two countries, Ireland and the Netherlands, having the second child also has a positive effect with the same impact on satisfaction as the birth of a first child. For Spain and France, only the second child seems to have a significant impact on satisfaction.

Table 4 includes only birth of a first child, but includes three age interval dummies for the same sample of married or cohabiting women, 20-42 years old in W3 (1996). We find significant positive effects in four countries from birth of a first child, i.e. in France, Ireland, the Netherlands and UK. Like in Table 3 we find a significant negative impact in Belgium. For the new covariates, the age interval dummies, we find a number of significantly negative effects from being younger than 30.

We have tested for an anticipation effect up towards a birth by running satisfaction in W2 against having a first birth in W3. We find however no effect. Surprisingly, we find a positive anticipation effect relative to having the birth of a second child in Spain, France and Germany. Finally, we have tried to find the change in satisfaction from the year before to the year of the first birth as shown in Section 5 also with an estimation approach. Both multinomial logit on the change in the binary version of the satisfaction variable and regression of the change in the non-transformed version of the satisfaction variable show no statistical significance relative to having a first birth.

Finally, the GSOEP gives an opportunity to test the relationship between GLS and the number of children outside the ECHP period 1994 – 2001. In Table 5 we show some preliminary results from estimating this relation for Germany for the years 1991, 2000 and 2009. In all three estimations on married women, 20 – 40 years old, we get the same result here as in Table 1 based on the ECHP for



Germany for 1995. The coefficient to the number of children and to the share of children 0 – 7 years old increases over time and changes sign to become positive but remains insignificant throughout. Self reported health is clearly the dominant variable explaining GLS. Being in the labor force is found significantly negative in 1991 and 2000 but completely insignificant in 2009, probably reflecting changes in attitudes and structures relative to married women in jobs over the nearly 20 years. Finally, education becomes significant and positive in 2000 and 2009.

## 7. Conclusions

Broad consensus is lacking regarding the relationship between satisfaction/happiness and having children, respectively giving birth to a child. The relationship seems to be important in policy terms and relevant in a more broad approach recognizing the very big structural changes occurring over the last 50 years. In descriptive analyses using the ECHP data we find convincing evidence that there is on average in Europe a positive impact on satisfaction for married and cohabitating women from having especially the first child and to a lesser extent from having the second child. The impact is however small in absolute magnitude. In subsequent multivariate analyses using ECHP data we find significant positive effects both from having children in the family, defined here to include only married or cohabitating women, and from giving birth to a first and a second child. This is not the case for all countries in the ECHP but most systematically so for the Southern European countries and for UK and Ireland representing the liberal type of welfare state. For the Continental and the Socialdemocratic welfare state we find no impact on satisfaction from having children or from birth of a child. A positive impact correlates to some extent with either a high level of or a big increase in relative public expenditures for families. Further work should include the single mothers, the state of the fathers and make explicit use of the panel nature in the German data set.

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Figure A1. Weighted average of satisfaction variable for married women having their first child in 1995.

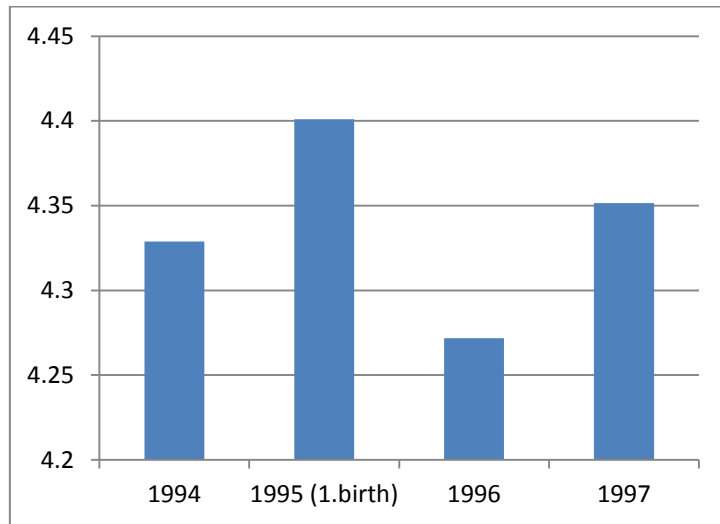


Figure A2. Weighted average of satisfaction variable for married women having their first child in 1996.

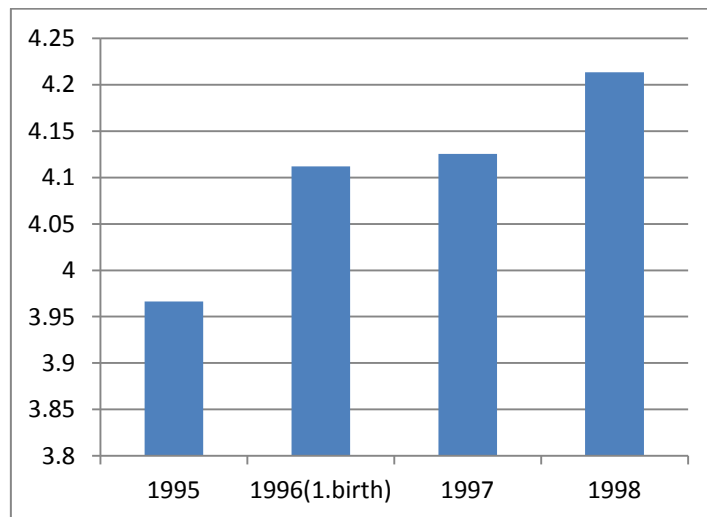


Figure A3. Weighted average of satisfaction variable for married women having their first child in 1997.

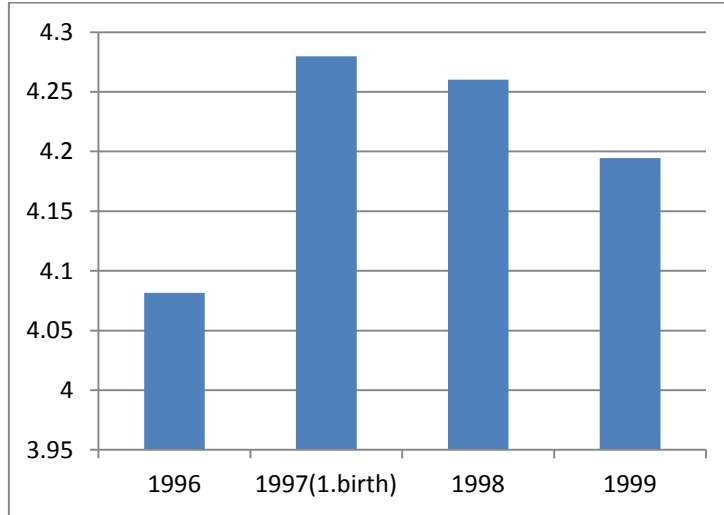


Figure A4. Weighted average of satisfaction variable for married women having their first child in 1998.

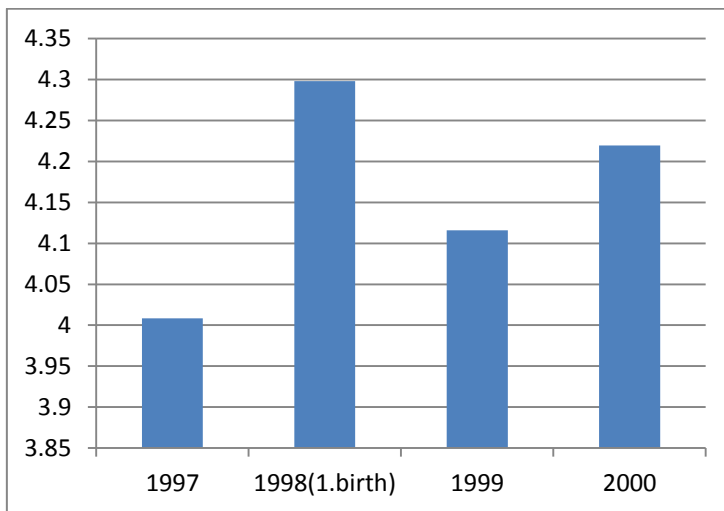


Figure A5. Weighted average of satisfaction variable for married women having their first child in 1999.

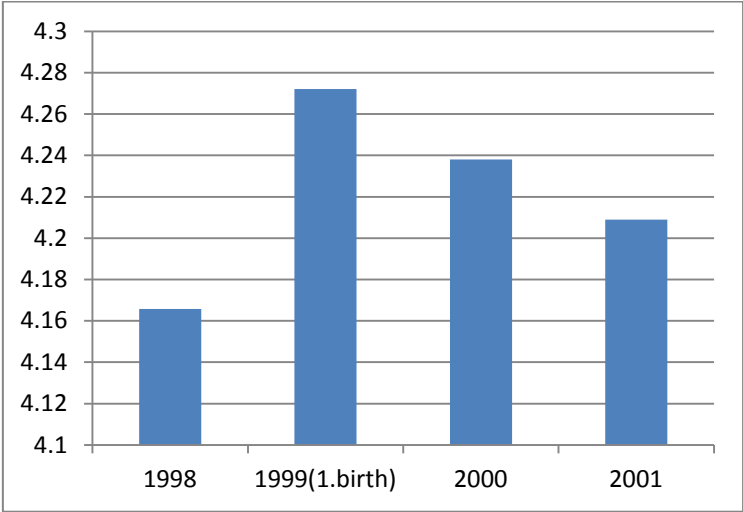


Table 1. Coefficients in probit estimations on satisfaction, married or cohabiting mothers, in W2 of the ECHP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Country	B	DK	E	F	D	GR	IRL	I	NL	PORT	UK
VARIABLES											
children14	0.0265 (0.171)	-0.438 (0.347)	0.245* (0.134)	0.361*** (0.119)	0.157 (0.133)	0.374** (0.157)	0.416** (0.193)	0.182* (0.108)	-0.162 (0.217)	0.0438 (0.118)	0.549*** (0.173)
children14sq	0.0116 (0.0445)	0.180 (0.127)	-0.0333 (0.0463)	-0.0732** (0.0310)	-0.0485 (0.0340)	-0.0966* (0.0568)	-0.0712* (0.0384)	-0.0223 (0.0348)	0.0362 (0.0662)	-0.0243 (0.0299)	-0.120** (0.0498)
eqiinc	1.488*** (0.465)	-3.193 (2.317)	0.459*** (0.0929)	7.920*** (2.144)	17.96*** (6.326)	0.612*** (0.0748)	51.16* (30.76)	56.54*** (6.966)	21.42** (9.140)	0.843*** (0.161)	11.28 (15.60)
mainacti	0.0636 (0.224)	0.221 (0.315)	-0.279*** (0.107)	-0.607*** (0.160)	-0.0207 (0.152)	-0.0351 (0.117)	0.238 (0.217)	0.537*** (0.101)	-0.457** (0.201)	0.471*** (0.132)	0.355** (0.174)
badhealth	-0.996*** (0.190)	-0.533* (0.322)	-0.228 (0.139)	-0.349*** (0.130)	-0.813*** (0.156)	-0.0266 (0.251)	-0.451* (0.263)	-0.477*** (0.104)	-1.227*** (0.179)	-0.0803 (0.122)	-0.732*** (0.152)
secondeduc	0.239 (0.212)	0.327 (0.289)	-0.0710 (0.127)	0.298** (0.145)	0.369** (0.153)	0.383*** (0.129)	0.105 (0.206)	0.202** (0.101)	0.225 (0.199)	0.517*** (0.198)	-0.0295 (0.186)
thirddeduc	0.390* (0.223)	0.809** (0.330)	0.364** (0.150)	0.174 (0.179)	0.422* (0.217)	0.473*** (0.154)	0.869** (0.370)	-0.0651 (0.180)	-0.129 (0.260)	0.991*** (0.375)	-0.00744 (0.173)
crime	-0.373* (0.216)	-0.833*** (0.307)	-0.239** (0.122)	-0.325** (0.141)	-0.326* (0.181)	-0.661** (0.325)	-0.381 (0.245)	0.0596 (0.121)	-0.485*** (0.186)	-0.380** (0.190)	-0.320* (0.167)
Constant	0.211 (0.320)	2.228*** (0.458)	0.0720 (0.142)	1.024*** (0.223)	0.509** (0.254)	-1.456*** (0.158)	0.576* (0.331)	-1.030*** (0.137)	2.409*** (0.346)	-0.661*** (0.182)	1.160*** (0.255)
Observations	879	770	1,891	1,791	1,297	1,524	842	2,187	1,643	1,387	1,368
Standard errors in parentheses											
*** p<0.01, ** p<0.05, * p<0.1											

Table 2. Marginal effects in probit estimations on satisfaction, married or cohabiting mothers, in W2 of the ECHP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Country	B	DK	E	F	D	GR	IRL	I	NL	PORT	UK
VARIABLES											
children14	0.00485 (0.0312)	-0.0384 (0.0302)	0.0558* (0.0305)	0.0550*** (0.0180)	0.0290 (0.0246)	0.0933** (0.0393)	0.0598** (0.0274)	0.0450* (0.0266)	-0.0131 (0.0176)	0.0104 (0.0282)	0.0781*** (0.0245)
children14sq	0.00212 (0.00813)	0.0158 (0.0110)	-0.00760 (0.0106)	-0.0111** (0.00471)	-0.00894 (0.00627)	-0.0241* (0.0142)	-0.0102* (0.00549)	-0.00550 (0.00861)	0.00293 (0.00536)	-0.00580 (0.00713)	-0.0171** (0.00706)
eqiinc	0.272*** (0.0834)	-0.280 (0.202)	0.105*** (0.0211)	1.205*** (0.321)	3.314*** (1.156)	0.153*** (0.0187)	7.354* (4.350)	13.97*** (1.715)	1.735** (0.724)	0.201*** (0.0381)	1.606 (2.220)
mainacti	0.0118 (0.0420)	0.0206 (0.0311)	-0.0635*** (0.0244)	-0.0842*** (0.0199)	-0.00381 (0.0279)	-0.00877 (0.0292)	0.0342 (0.0312)	0.132*** (0.0246)	-0.0344** (0.0140)	0.114*** (0.0321)	0.0525** (0.0266)
badhealth	-0.209*** (0.0434)	-0.0552 (0.0387)	-0.0533 (0.0331)	-0.0558** (0.0217)	-0.168*** (0.0348)	-0.00664 (0.0627)	-0.0725 (0.0468)	-0.118*** (0.0257)	-0.139*** (0.0257)	-0.0192 (0.0292)	-0.117*** (0.0266)
secondeduc	0.0428 (0.0371)	0.0283 (0.0246)	-0.0163 (0.0294)	0.0448** (0.0215)	0.0691** (0.0291)	0.0955*** (0.0320)	0.0151 (0.0296)	0.0498** (0.0248)	0.0185 (0.0166)	0.117*** (0.0417)	-0.00422 (0.0268)
thirdeduc	0.0708* (0.0402)	0.0655*** (0.0244)	0.0801** (0.0317)	0.0259 (0.0259)	0.0723** (0.0343)	0.118*** (0.0377)	0.102*** (0.0344)	-0.0161 (0.0447)	-0.0108 (0.0225)	0.205*** (0.0623)	-0.00106 (0.0247)
crime	-0.0728 (0.0447)	-0.0942** (0.0428)	-0.0556* (0.0288)	-0.0524** (0.0239)	-0.0637* (0.0373)	-0.158** (0.0720)	-0.0598 (0.0417)	0.0147 (0.0299)	-0.0444** (0.0190)	-0.0929** (0.0471)	-0.0484* (0.0268)
Observations	879	770	1,891	1,791	1,297	1,524	842	2,187	1,643	1,387	1,368
Standard errors in parentheses											
*** p<0.01, ** p<0.05, * p<0.1											

Table 3. Marginal effects in probit estimations on satisfaction, married or cohabiting mothers, in W2 of the ECHP from giving birth to 1., 2., or 3. child

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Country	B	DK	E	F	D	GR	IRL	I	NL	PORT	UK
VARIABLES											
firstbirth96	-0.229**	-0.0507	-0.00999	0.0628	0.0868	-0.0208	0.125**	0.0108	0.0691***	-0.0320	0.115***
	(0.104)	(0.0696)	(0.0671)	(0.0431)	(0.0681)	(0.0733)	(0.0520)	(0.0585)	(0.0212)	(0.101)	(0.0371)
secondbirth96	-0.100	-0.0215	0.139**	0.0940***	0.0885	0.00881	0.142***	0.0680	0.0647***	0.0420	0.000232
	(0.113)	(0.0662)	(0.0632)	(0.0364)	(0.0673)	(0.0807)	(0.0395)	(0.0671)	(0.0193)	(0.0819)	(0.0552)
thirdbirth96	0.0489	0.0131		0.159***	0.0503	-0.0341	0.000647	0.177*	0.0124	0.0111	-0.138
	(0.124)	(0.0829)		(0.0323)	(0.125)	(0.186)	(0.0673)	(0.101)	(0.0529)	(0.154)	(0.120)
eqiinc	0.255***	-0.308	0.0970***	1.203***	3.238***	0.146***	4.442	13.34***	1.970***	0.208***	-0.373
	(0.0794)	(0.198)	(0.0208)	(0.316)	(1.118)	(0.0184)	(3.683)	(1.666)	(0.629)	(0.0369)	(1.945)
mainacti	0.000505	0.0179	-0.0688***	-0.0852***	-0.00186	-0.0163	0.0224	0.128***	-0.0307**	0.117***	0.0236
	(0.0409)	(0.0310)	(0.0241)	(0.0191)	(0.0263)	(0.0291)	(0.0294)	(0.0245)	(0.0137)	(0.0321)	(0.0237)
badhealth	-0.217***	-0.0585	-0.0523	-0.0553**	-0.167***	-0.0245	-0.0734	-0.119***	-0.138***	-0.0191	-0.124***
	(0.0439)	(0.0394)	(0.0332)	(0.0215)	(0.0348)	(0.0617)	(0.0468)	(0.0257)	(0.0254)	(0.0291)	(0.0268)
secondeduc	0.0475	0.0252	-0.0151	0.0443**	0.0671**	0.100***	0.0222	0.0532**	0.0146	0.116***	-0.00675
	(0.0369)	(0.0248)	(0.0295)	(0.0213)	(0.0290)	(0.0319)	(0.0290)	(0.0247)	(0.0161)	(0.0417)	(0.0271)
thirddeduc	0.0856**	0.0643***	0.0806**	0.0197	0.0721**	0.131***	0.104***	-0.00749	-0.0201	0.201***	-0.00600
	(0.0395)	(0.0245)	(0.0320)	(0.0262)	(0.0343)	(0.0374)	(0.0333)	(0.0443)	(0.0230)	(0.0627)	(0.0248)
crime	-0.0736	-0.0889**	-0.0529*	-0.0559**	-0.0676*	-0.156**	-0.0626	0.0137	-0.0462**	-0.0928**	-0.0502*
	(0.0448)	(0.0414)	(0.0288)	(0.0240)	(0.0375)	(0.0721)	(0.0411)	(0.0299)	(0.0188)	(0.0471)	(0.0269)
Observations	879	770	1,879	1,791	1,297	1,524	842	2,187	1,643	1,387	1,368
Standard errors in parentheses											
*** p<0.01, ** p<0.05, * p<0.1											



Table 4. Marginal effects in probit estimations on satisfaction, married or cohabiting mothers, in W2 of the ECHP from giving birth to 1. Child, including age dummies.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Country	B	DK	E	F	D	GR	IRL	I	NL	PORT	UK
VARIABLES											
firstbirth96	-0.200*	-0.0542	-0.0169	0.0763*	0.0986	0.0206	0.129**	0.0377	0.0677***	-0.0224	0.120***
	(0.104)	(0.0719)	(0.0685)	(0.0405)	(0.0651)	(0.0762)	(0.0517)	(0.0587)	(0.0238)	(0.103)	(0.0351)
eqiinc	0.258***	-0.311	0.0939***	1.011***	3.273***	0.142***	4.413	12.86***	1.822***	0.211***	-0.293
	(0.0794)	(0.198)	(0.0207)	(0.315)	(1.119)	(0.0184)	(3.772)	(1.668)	(0.641)	(0.0372)	(1.982)
mainacti	0.00284	0.0186	-0.0740***	-0.0867***	-0.00216	-0.0222	0.0243	0.128***	-0.0338**	0.110***	0.0307
	(0.0413)	(0.0316)	(0.0241)	(0.0192)	(0.0264)	(0.0292)	(0.0297)	(0.0246)	(0.0137)	(0.0323)	(0.0240)
badhealth	-0.214***	-0.0585	-0.0556*	-0.0628***	-0.172***	-0.0400	-0.0723	-0.127***	-0.135***	-0.0269	-0.122***
	(0.0438)	(0.0400)	(0.0333)	(0.0220)	(0.0349)	(0.0616)	(0.0471)	(0.0258)	(0.0255)	(0.0301)	(0.0268)
secondeduc	0.0524	0.0227	-0.0147	0.0552***	0.0715**	0.123***	0.0239	0.0608**	0.0172	0.117***	0.000648
	(0.0369)	(0.0251)	(0.0294)	(0.0214)	(0.0292)	(0.0325)	(0.0294)	(0.0248)	(0.0165)	(0.0419)	(0.0269)
thirddeduc	0.0902**	0.0629**	0.0808**	0.0354	0.0725**	0.146***	0.107***	-0.0132	-0.0132	0.197***	-0.00250
	(0.0400)	(0.0254)	(0.0318)	(0.0255)	(0.0345)	(0.0376)	(0.0336)	(0.0445)	(0.0226)	(0.0637)	(0.0248)
crime	-0.0760*	-0.0877**	-0.0538*	-0.0493**	-0.0698*	-0.160**	-0.0652	0.0138	-0.0445**	-0.0922*	-0.0478*
	(0.0450)	(0.0418)	(0.0288)	(0.0238)	(0.0376)	(0.0717)	(0.0417)	(0.0300)	(0.0189)	(0.0473)	(0.0268)
agedum20to24	-0.0253	-0.00906	-0.0282	-0.0976**	0.0272	-0.120**	-0.0134	-0.137***	-0.00127	-0.0487	-0.0291
	(0.0644)	(0.0368)	(0.0492)	(0.0421)	(0.0524)	(0.0482)	(0.0603)	(0.0515)	(0.0299)	(0.0472)	(0.0409)
agedum25to29	-0.0543	0.0146	0.0125	-0.0518*	-0.0695*	-0.103***	-0.00743	-0.100***	0.0210	-0.0252	-0.0416
	(0.0445)	(0.0288)	(0.0301)	(0.0269)	(0.0372)	(0.0364)	(0.0392)	(0.0320)	(0.0167)	(0.0399)	(0.0301)
agedum30to34	-0.00941	-0.0123	0.0326	0.00690	-0.0270	-0.0568*	0.0223	-0.0287	0.0133	0.0730**	-0.0110
	(0.0359)	(0.0284)	(0.0265)	(0.0236)	(0.0295)	(0.0332)	(0.0305)	(0.0269)	(0.0154)	(0.0334)	(0.0257)
Observations	877	768	1,888	1,790	1,296	1,522	841	2,185	1,639	1,384	1,366
Standard errors in parentheses											
*** p<0.01, ** p<0.05, * p<0.1											

Table 5. Probit estimations on GLS (Global Level of Satisfaction) for married women, 20-40 years old, in the GSOEP in 1991, 2000 and 2009 from number of children in the family and covariates.

	1991		2000		2009	
	coefficient	t value	coefficient	t value	coefficient	t value
Number of children	-0,0471	-0,74	0,0090	0,21	0,0352	0,55
Share of children 0-7	0,0047	0,06	0,0493	0,91	0,1056	1,30
Age 31-40	-0,0689	-0,67	-0,0332	-0,41	0,0154	0,13
Educat. level	0,0587	0,92	0,0829	1,99	0,1328	2,48
Health	0,3277	14,8	0,3687	23,24	0,3488	15,42
Labor force	-0,2269	-2,28	-0,1954	-2,67	-0,0120	-0,11
Adjusted income	0,0000128	1,75	0,0000326	6,29	0,0000118	2,23
Constant	5,1552	21,18	4,1153	22,89	4,1660	17,22
No. of obs.	853		2103		1012	
Adj. R <sup>2</sup>	0,2231		0,2299		0,2134	

## Appendix

Table A1. Average value of satisfaction variable. Sample of married women having their first child in w3.

	4	2	11	6	10	8	9	3	12	57	Weighted
w1	4,5625	4,9474	2,6667	4,1892	3,1200	4,3333	3,4103	4,9091	4,0000	4,4545	4,0903
w2	4,1176	4,3684	1,6667	4,2703	3,7200	4,6667	3,5250	4,5909	3,7500	4,6667	4,0750
w3	4,0000	4,4444	3,3333	4,5676	3,4000	5,0000	3,7250	5,0909	4,0000	4,5417	4,2089
w4	4,3158	4,5263	3,6667	4,4324	3,9600	4,6667	3,8000	4,6365	4,0833	4,6800	4,2754
w5	4,4706	5,2105	2,3333	4,6486	3,0800	4,3333	3,9300	4,3182	4,0833	4,4348	4,2201
w6	4,3889	4,8421	2,3333	4,7838	3,2000	4,3333	3,7000	4,6364	4,0000	4,3182	4,1887
w7	4,2105	4,9474	3,3333	4,8108	3,8000	4,3333	3,6250	4,5909	3,9167	4,3684	4,2577
w8	4,2222	4,8947	4,3333	4,4865	3,0400	5,3333	3,5385	4,8636	3,6667	4,2273	4,1114
obs	143	151	24	296	200	24	318	176	96	198	1626

Table A 2. Average value of satisfaction variable. Sample of married women having their second child in w3.

											weighted
	4	2	11	6	10	8	9	3	12	57	
w1	4,3333	4,8000	4,0000	4,6279	3,5676	4,7778	3,5455	4,5641	3,9355	4,6333	4,2322
w2	4,4667	4,9500	5,0000	4,6512	3,4865	5,2000	3,4242	4,7179	3,8387	4,7500	4,2901
w3	4,5333	4,7778	5,0000	5,0233	3,5000	5,4000	3,5455	4,9231	3,8065	4,6364	4,3854
w4	4,8000	4,5263	4,0000	4,7907	3,3889	4,4444	3,6364	4,5385	3,5000	4,7619	4,1966
w5	4,6875	5,0000	3,6667	4,8837	3,5135	5,0000	3,6061	4,7949	3,7097	4,5000	4,3084
w6	4,5625	4,6500	3,6667	4,6512	3,2973	4,8000	3,5758	4,6923	3,7097	4,2857	4,1579
w7	4,5000	4,6500	3,8333	4,4884	3,5946	4,7778	3,1212	4,6667	3,7333	4,6000	4,1407
w8	4,6250	5,0000	3,6667	4,3953	3,5135	4,8889	3,4848	4,5897	3,6452	4,6296	4,1755
obs	124	157	48	344	288	75	264	312	246	187	2045

