Do Rich Parents Enjoy Children Less?[1]

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Abstract

We investigate the role of individual labor income as moderator of the parental subjective well-being trajectories around the first childbirth. By analyzing the German Socioeconomic Panel Survey data, we find that high-income parents enjoy their first child less than low-income ones. In a low fertility country such as Germany, income seems therefore to matter negatively for parental subjective well-being after childbirth, though with important differences by gender. Among mothers, there is a positive and significant anticipation effect (i.e. increased subjective well-being) from becoming a parent, and this is higher for lower-income women. Conversely, during the years after the childbearing event, middle and high income women present a significant negative variation with respect to pre-child subjective well-being set-point, but only starting from the second year after childbirth. Among men, the anticipation effect is not present, whereas in the years following the childbirth there is an immediate strong decline in subjective well-being for fathers in the higher income groups. We discuss these findings in terms of preferences among different groups of parents and the differential costs of children – the latter closely related to difficulties in reconciling work and family.

Keywords

First child, subjective well-being, individual income, Germany

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Introduction

Does income matter for enjoying children? Or put differently, would rich parents enjoy children differently from poor parents? Income, especially individual labor income, is usually taken as the key indicator of female opportunity cost associated with childbearing, and the increase in women's earnings over recent decades is consequently interpreted as the driver of a general decline in fertility. Intuitively one would therefore expect that childbearing for high income parents is more burdensome, and that subjective well-being among these parents becomes lower. However, this argument stands in contrast to the literature considering the correlation between female labor force participation and fertility at the macro level, recently changed from being negative to positive in the most developed countries. The countries with high female labor force participation, and high rates of tertiary education, are, therefore, those where fertility is the highest, prime examples being the Anglo-Saxon and Nordic European countries. There is, in other words, no longer strong evidence that higher female earnings lead to lower fertility. This important feature, first shown at the macro level (e.g. Luci-Greulich and Thevenon 2014), seems to hold at the micro level for the most advanced countries (e.g. Andersson 2000; Berninger 2013; Hart 2015; Andersson et al. 2014; Tasiran 1995; Vikat 2004).

Acknowledging that the relationship between income and fertility is indeed changing across societies, we consider here a specific case, Germany, where fertility has been well below replacement level for more than forty years (Population Reference Bureau 2011) – and in the last years is stable around 1.5 children – and where the correlation between income and fertility has not changed, or at least, it has not turned positive as we can observe in the Nordic countries (Luci-Greulich and Thevenon 2014). This is certainly linked with its welfare state organization, classified as "Christian democratic or conservative" (Esping-Andersen 1990), offering a medium level of decommodification and permitting a high degree of social stratification. More specifically, Germany is a country where family policies have continued, until very recently, to favor the single-earner family model, with little effort to support maternal full-time employment (Kreyenfel and Andersson 2014). Child care for children under three years old is limited and until 2007 parental leave regulations offered parents a job-protected leave for an extended period, although with allowances not related with their wages. Moreover, the tax system is still designed so to discourage female labor participation.

In such a setting, we look at the relationship between income and fertility behavior at the micro level, by adopting the "lens" of subjective well-being (henceforth, SWB). We consider the effect of childbearing on SWB taking individual labor income as moderator of the relationship, both

for men and women. The integration of SWB is useful because it offers an indirect way to assess the role of income for fertility. Indeed, if fertility is declining, and the correlation remains negative, then can one also observe lower levels of subjective well-being associated with childbearing for the higher income groups compared to those with lower income? Recently there have been several studies focusing on the SWB trajectories surrounding childbearing (e.g. Clark et al. 2008; Myrskylä and Margolis 2014). However, none of these are making the link to the more traditional studies of fertility decline, where earnings are indeed taken as key driver. Our study closes consequently an important gap, whereby we consider directly how the SWB trajectory surrounding childbearing is moderated by income. We estimate SWB trajectories for different individual income groups and by gender of the parents. By doing this we are able to establish to what extent men and women associate childbearing to something positive (or negative), as they differ in their respective income level. This is important because over recent years there has been a tremendous postponement in the onset of parenthood, many delaying the event until they have completed their education, and reached a foothold in the labor market. In other words, many will wait to have children until they feel their economic situation is satisfactory before embarking on the monumental venture of childbearing.

Our focus is on the first child, the idea being that its SWB trajectory gives insights into the aspirations and the fulfillments of parents of different income groups. The importance of the onset of parenthood is twofold. On one hand, it captures the closely related aspects of very low fertility of postponement and childlessness. On the other hand, we cannot ignore the specific bidirectional nature of the relationship between SWB and fertility. If parental SWB is affected by the first child, and subsequent parental SWB predicts positively the birth of a second child (e.g., Le Moglie et al. 2015), analyzing income as moderator of parental SWB around the first childbirth informs us about the relationship between income and fertility itself and – from a substantive demographic point of view – the lack of progression from the first to the second child, which is the fundamental driver for very low fertility (Frejka 2008).

Background

Income and Fertility

From a theoretical perspective, the most prominent views of the post-transitional fertility are the Second Demographic Transition (SDT, hereafter) and the New Home Economics (NHE, hereafter). The first predicts lower fertility as women obtain higher education and higher wages, while for the second the picture is multifaceted. In the SDT's view, in modern societies, individuals consider family as less central, they have developed more liberal attitude towards demographic behaviors, and they have a stronger focus on their own self-realization (Van De Kaa 1987). In this perspective, the increase in female education and economic participation are among the indirect causes of fertility decline.

According to the NHE, individuals (or couples) maximize life-cycle utility by considering the number of children and the resources devoted to nurturing them in a context of allocation of scarce resources in terms of time and income. Children enter into the utility function as consumption goods, while time and income are the main arguments of the parental budget constraint. Thus, the direct costs of children are related to the reduction in the disposable income of parents following childbirth, while the indirect costs of children are related to the opportunity costs of the time devoted to childcare. It follows that any increase in the parents' income, or reduction in the costs of children, is expected to increase fertility (e.g., the seminal works by Becker 1960; Becker 1981; Becker and Lewis 1973; Cigno 1986; Cigno 1991). A general increase in women's earnings has, in other words, ambiguous effects on fertility: it increases the disposable income, but also the opportunity cost of children. Moreover, an increase in earnings through the income effect does not necessarily result in an increase in fertility in so far it results in more resources being devoted to each child, i.e. – in Becker's words – to "the quality" of children. Furthermore, the potential effect of an increase in income is made even more complicated through in-kind and in-time transfers. This issue lies at the core of the vast literature on female (or parental) labor supply with endogenous fertility. This literature suggests, that with an increase in earnings, the substitution tends to dominate its income effects, and as such the observed increase women's earnings over time, has been taken as the main driver for the steady and gradual decline in fertility in Western countries.

Concerning the empirical literature about the correlation between income and fertility – and not considering all those contributions that investigate this relationship by evaluating income support policies and their effects on fertility – scholars have mainly focused on the comparison between countries. In line with this view, the most recent literature suggests that the correlation

between income and fertility has recently changed from being negative to positive in most developed countries, at least at the macro level (similarly to the relationship between high development and fertility, Myrskylä et al. 2009 and 2011). As already said, countries with high female labor force participation, and high rates of tertiary education, are those with the highest fertility – prime example being the Anglo-Saxon and Nordic countries. There is, in other words, no longer such strong evidence for higher female earnings driving down fertility (e.g. Englehart et al. 2004a; Englehart et al. 2004b; Kogel 2004; Luci-Greulich and Thevenon 2014;). Another relevant insight from this literature is that the most developed countries, households are typically made up of dual earner couples - and in both Nordic and Anglo-Saxon countries this is now indeed the case. Esping-Andersen and Billari (2015) and Aassve et al. (2015) argue that this has important implications for the way one would assess the impact of earnings and income on fertility. For instance, for these societies the Becker framework loses its relevance, because there is no longer a clear specialization between husband and wife in terms of market work and home production, respectively. Instead, partners may equally contribute to the household income and home production, such as childcare, can be instead outsourced to external actors. In this perspective, policies supporting maternal employment either directly, via services for childcare and with the labor market organization, or indirectly, favoring gender equality in the family roles, potentially become critical for explaining variation in fertility.

Even if the empirical relationship between income and fertility in contemporary Western societies is far from clear (Silva and Dribe 2010), previous arguments appear to find some support also at the micro level for the most advanced countries. For example, Andersson et al. (2014) find that female income is somewhat positively associated with fertility in Denmark, while the relationship is the opposite in West Germany. Berninger (2013) shows that in Denmark women's income has a positive effect on first birth risk, but the effect in Finland is insignificant. Always for Denmark, Andersson et al. (2014) find a positive association for the first child, but only weak association for the second and third parity. Vikat (2004) reports very similar results for Finland, while Rønsen (2004) finds a negative effect for Norway and Finland.

Childbearing and Parents' Subjective Well-being

As Easterlin (2006) suggests, it may be useful to distinguish two extreme views that characterize the literature on SWB, one common in economics, the other stemming from psychology. According to the former, well-being typically depends on actual life circumstances, and where an increase in income implies an increase in SWB. In the psychologists' perspective, however, the effect of

objective conditions on well-being is mediated by the psychological process in which people adjust the ups and downs in their life circumstances. At the extreme of this view, a large fraction of variation in well-being is due to social or biological endowments, and while life events may change the level of well-being this change is only transitory. In the now-famous metaphor of Brickman and Campbell (1971), each individual is on a "hedonic treadmill" and having children – as well as other life events – will only have temporary effects on happiness. The existence of a hedonic treadmill implies that, if people continue to adapt to their life-course circumstances, improvements in income, for instance, would yield no real benefits and worsened conditions do not necessarily translate into a lower assessment of well-being. Thus, every individual is presumed to have a predefined happiness level that he or she returns to as time goes by (Csikszentmihalyi and Jeremy 2003; Kahneman et al 1999; Williams and Thompson 1993).

Also in the economic literature, the concepts of comparison and habituation date back over 50 years (Duesenberry 1949; Modigliani 1949; Pollack 1970) and the role played by aspirations, and their distance from the attainments, is widely acknowledged (Blanchflower and Oswald 2004; Easterlin 1995; Frey and Stutzer 2002; Proto and Rustichini 2015). In psychology, however, there is recognition that at least some life events may have lasting effects on SWB, family and social relationships being the first candidates (Myers 2000), giving rise to a revision of the set point hypothesis. Not only do changes in family-related domains seem more enduring than in domains related to the material standard of living (Argyle 2001; Diener et al. 1999; Veenhoven 1993), but a number of psychological studies (e.g. Sheldon and Lucas 2014) and demo-economic studies (Kohler et al. 2005; Margolis and Myrskylä 2011; Myrskylä and Margolis 2014; Zimmerman and Easterlin 2006) also consistently demonstrates that important life events indeed bring about long-lasting shifts in SWB.

The relationship of childbearing with SWB[2] has only recently received renewed attention and there is still little consensus concerning the effect of this life event on individuals' SWB, both in terms of the sign or the magnitude, or on the causal direction of the relationship. While some studies find a positive association between parenthood and happiness (Aassve et al. 2012; Kohler et al. 2005; Kotowska et al. 2010), other studies have shown that having children has either non-significant or negative effects on SWB (Clark and Oswald 2002; Clark et al. 2008; Frey and Stutzer 2000; McLanahan and Adams 1987; Nomaguchi and Milkie 2003). This inconsistency in findings

[2] In this paper, we mainly refer to life satisfaction, but we may cite papers where the focus is on 'happiness'. This is standard practice among social scientists (e.g. Easterlin 2010). Subjective well-being is in fact a broad category, which involves positive and negative feelings, expressions of happiness, and cognitive judgments about life satisfaction (Diener et al. 1999). These components of subjective well-being often correlate substantially and the terms signifying its various dimensions can be used interchangeably.

may result from the fact that the effect of children on SWB depends on characteristics that are not always considered in the studies or correctly accounted for in a longitudinal framework, such as the number and age of children (Clark et al. 2008; Kohler et al. 2005; Myrskylä and Margolis 2014), personality traits and the 'initial' pre-birth happiness level (Kohler et al. 2005; Myrskylä and Margolis 2014), the stage in the life course of the parents (Margolis and Myrskylä 2011) or the context (Aassve et al. 2012; Aassve et al. 2015).

Myrskylä and Margolis (2014) document how the happiness trajectory of parents differs greatly according to age at parenthood, socio-economic status, gender, parity, marital status and context. Consistently with previous literature using longitudinal designs (e.g. Clark et al. 2008), their results show a general temporary gain in happiness around the time of birth, with older parents and those with more socio-economic resources having the strongest happiness gains around the time of birth. The relatively greater happiness of older mothers suggests that women who postpone childbearing are more 'ready' and less stressed by having children (Gregory 2007), possibly because older mothers have more social capital and higher status at work, thus allowing greater financial flexibility and options for childcare, which can help ease the transition to parenthood. However, more pre-birth education and income may also imply higher opportunity costs of childbearing, and, therefore, the effect of parenthood on SWB may depend on the opportunities for parents to reduce the costs of children. And these are inevitably also linked to macro-characteristics of the country where couples reside, which may have an impact on their assessment of the happiness associated with childbearing.

In brief, in the more recent literature analyzing fertility and SWB, there is a consensus that certain groups of the population will perceive the cost of parenting in different ways depending on their socio-economic status, social support, gender and country of residence, more than preferences and attitudes, and that the joy or stress of parenting is greater for some groups than others (Aassve et al. 2012; Aassve 2015; Billari and Kohler 2009; Brewster and Rindfuss 2000; Kohler 2012; McDonald 2000; Myrskylä and Margolis 2014; Neyer and Andersson 2008; Umberson et al. 2010).

Data and Descriptives

We use the German Socio-Economic Panel survey (GSOEP), which is a representative longitudinal study of the German population, which started in 1984, and still continues. It fits the scope of our work very well, essentially for three reasons: first, the length of the study allows us to

follow individuals for a long interval. Second, the consistent size of the sample helps us to perform a better and more robust econometric analysis, avoiding all the weaknesses of small samples, especially when we try to disentangle the effect of the moderator (i.e., the income) on the parental trajectories of SWB; third, the GSOEP contains all the necessary information to construct the dependent variable, i.e., parental trajectories around the birth of the first child, the main income moderator, the individual earned income, and a wide set of controls.

For the dependent variable we use the answers to the question "How satisfied do you feel with your life today?" The question allows respondents to reply on a scale ranging from 0 – "completely dissatisfied" – to 10 – "completely satisfied", and the information is recorded annually. Information about the date of birth of the first child is directly derived from the biography data section of the GSOEP and is used – as it is illustrated in the next section – to model the trajectory of parental SWB around the birth event.

Our attention is limited to individuals – men and women – aged between 20 and 50 who experience the first parity transition during the observation window. Accordingly, those who had the first child before entering the sample are excluded from the analysis, as are those who are still childless when they exit the sample. The final sample consists of 4,972 individuals, observed on average for 15 years. Among these, 2,127 are men, observed on average for 16 years, and the other 2,845 are women, observed on average for 15 years. Table 1 provides descriptive statistics of the main estimation sample[3].

As a first descriptive analysis, we display the mean fertility levels (in term of number of children ever born) in the various years of the GSOEP panel survey, by level of individual labor income. As Figure 1 shows, the group of women with lower fertility is indeed those in the higher tertile of the individual labor income distribution. In order to show that in Germany the relationship between female labor income and the number of children is not a "U" curve, increasing at the very high level of incomes, Figure 1 also displays the number of children ever born per women for those in the 10th decile of the income distribution. The picture we obtain is consistent with previous findings for Germany, where the relationship between female earnings and fertility has been proved negative (Andersson et al. 2014).

[3] This sub-sample is the one employed for estimating the equation (2) and presented in the methodological section of this work.

Table 1 Descriptive statistics of GSOEP sample

Variable	Women				Men			
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
SWB (scale 0 to 10)	7.37	1.60	0	10	7.31	1.56	0	10
No partner in the HH (perc.)	0.68	0.47	0	1	0.71	0.45	0	1
Partner (perc.)	0.28	0.45	0	1	0.25	0.43	0	1
Spouse (perc.)	0.04	0.20	0	1	0.04	0.18	0	1
Unemployed (perc.)	0.35	0.48	0	1	0.03	0.16	0	1
Employed (perc.)	0.60	0.49	0	1	0.93	0.25	0	1
Immigrant (perc.)	0.15	0.36	0	1	0.17	0.37	0	1
Years of education	12.43	2.63	7	18	12.34	2.77	7	18
Health status (scale 1 to 5)	2.23	0.79	1	5	2.21	0.77	1	5
Individual labor net income (ln euro)	775.80	911	0	10,000	2366.24	1,398	0	40,000
Equivalent labor income (ln euro)	7.22	1	-1	12	7.40	1	-1	12
HH income share	0.42	0.41	0	1	0.79	0.27	0	1
Owner of the dwelling (perc.)	0.26	0.44	0	1	0.26	0.44	0	1
Housework share	0.77	0.24	0	1	0.31	0.30	0	1
Age	29.47	5.06	20	50	32.30	5.51	20	50

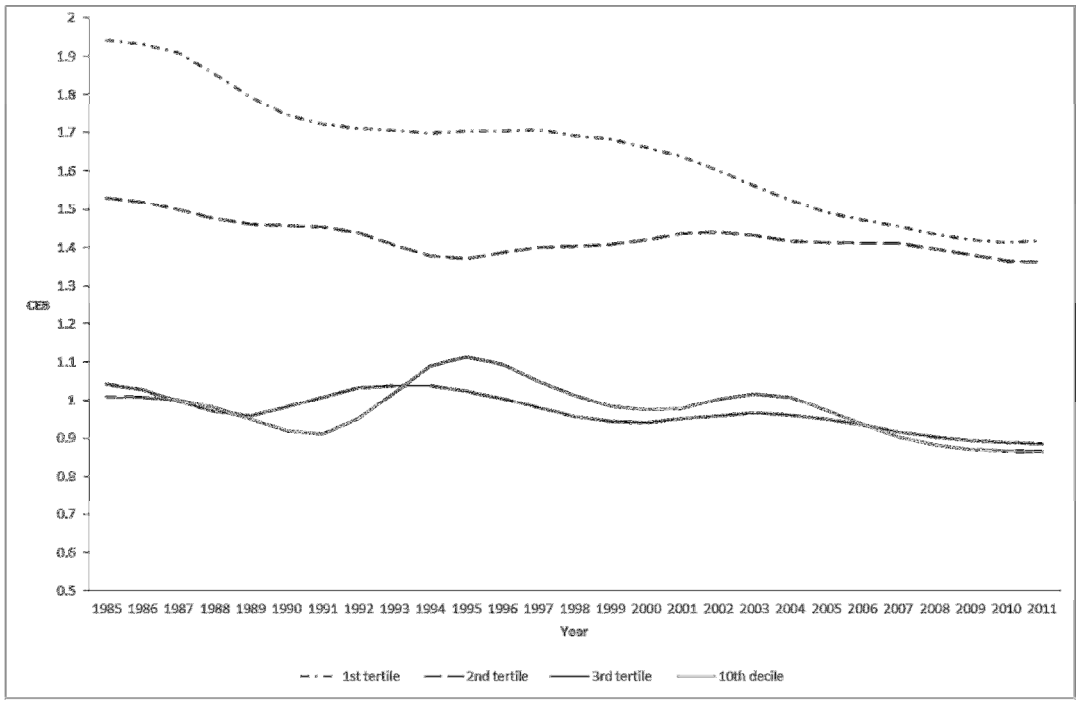


Figure 1 Number of children per woman (CEB, average number of children ever born, per woman), by tertile of individual labor income from 1985 to 2012, with GSOEP data. Three-term moving average.

Methodology

In order to analyze the effect of the birth of the first child on the parental trajectories of SWB, we employ the approach pioneered by Clark et al. (2008) and slightly modified by Myrskylä and Margolis (2014)[4]. More specifically, we run a set of fixed-effect regressions in which we use dummy variables recording the position in time of an individual with respect to the birth of the first child. In this way we are able to capture the variation induced on individual SWB by the birth event in each of the years taken into account to construct the parental trajectories, i.e. from three years before the birth to five years after. Like the above-mentioned studies, our analysis also assumes the cardinality of SWB[5] and compares individuals who experience the birth of their first child during the observation period, leaving out those who do not.

The equation below shows the model employed to estimate the more general specification:

$$SWB_{it}=\beta_0+\beta_1 B2_{it}+\beta_2 B1_{it}+\beta_3 C_{it}+\beta_4 A1_{it}+\beta_5 A2_{it}+\beta_6 A3_{it}+\beta_7 A4_{it}+\beta_8 A5_{it}+\theta' X_{it}+\alpha_i+\epsilon_{it} \quad (1)$$

The SWB of individual i at time t is regressed on a set of dummy variables modelling his/her individual trajectory around the birth of the first child, a set of controls, X_{it}, an individual fixed effect, α_i, and an error term, ϵ_{it}.

Since we follow individuals yearly from three years before the birth up to five years after, each trajectory dummy provides us with the exact position of the observation within this interval, allowing for estimation of the trajectory of individual parental SWB around the birth event. For example, the dummy B2 is equal to one, if the observation of individual i at time t is between one and two years before the birth event, and 0 otherwise. In the same way, the dummy B1 will be equal to one if the observation is taken in the year before the birth, and the dummy C is equal to one when the observation corresponds to the year of birth of the first child. Similarly, all the remaining trajectory dummies, from A1 to A5, are equal to one when the observation of individual i at time t falls within one of the years between that immediately after the birth and five years after that. Given the dummies being mutually exclusive, we use the value SWB takes at three years before the birth as the reference point of the individual parental trajectory of SWB. Thus, we exclude the trajectory

[4] Myrskylä and Margolis (2014) put into a single equation the two equations employed by Clark et al. (2008) to separately estimate the effects of having a child on the individual level of SWB before and after the birth. We employ a very similar model to that used by Myrskylä and Margolis (2014), the only differences being in the number and the length of the lags and leads on which the parental trajectory is built.

[5] Ferrer-i-Carbonell and Frijters (2004) show that treating life satisfaction as ordinal versus cardinal makes little difference.

dummy reaching this value, which is B3. In other words, we are implicitly assuming that the general treadmill of this trajectory corresponds to the value of individual SWB at three years before the birth of the first child, and ultimately that this event does not affect the level of individual SWB as recorded three years before.

With the aim of estimating the parental trajectories of SWB around the birth of the first child taking into account the role of income in shaping them, we look at the individual earned labour income[6]. Individual labor income is a good proxy for the opportunity cost that each parent faces when reducing the time he/she spends in the labor market. It incorporates the intrinsic value of both the present position of the individual in the labor market and the previous investment in human capital he/she has made in terms of years of education. As already mentioned, our working hypothesis is that childbearing affects parental SWB differently by different levels of income. To test this hypothesis, we first assign a dummy variable to each individual representing the tertile of income distribution to which the person belongs, if the average of the income earned in the three years before the childbirth are considered. We use the average of the incomes of the three years before the event – instead of that recorded year by year – with the aim of avoiding possible endogenous effect between the income and the event of the birth of a child. Besides, the tertiles are calculated separately for each wave on the income distribution related to women and to men and over the population aged 20-50. Then, in order to disentangle the parental trajectory of SWB for each level of income, and to determine the role of the latter as moderator of the effect of having the first child on individual SWB, we add the interactions of this set of variables[7] with the trajectory dummies to model (1). The equation estimated is the following:

$$\begin{aligned}\mathrm{SWB}_{it} = {} & \beta_0 + \beta_1 \mathrm{B2}_{it} + \beta_2 \mathrm{B1}_{it} + \beta_3 \mathrm{C}_{it} + \beta_4 \mathrm{A1}_{it} + \beta_5 \mathrm{A2}_{it} + \beta_6 \mathrm{A3}_{it} + \beta_7 \mathrm{A4}_{it} + \\ & \beta_8 \mathrm{A5}_{it} + \beta_9 \text{2nd tertile}_{it} + \beta_{10} \text{3rd tertile}_{it} + \beta_{11}(\mathrm{B2}_{it} * \text{2nd tertile}_{it}) + 2(\mathrm{B1}_{it} * \text{2nd tertile}_{it}) + \\ & \beta_{13}(\mathrm{C}_{it} * \text{2nd tertile}_{it}) + \beta_{14}(\mathrm{A1}_{it} * \text{2nd tertile}_{it}) + \beta_{15}(\mathrm{A2}_{it} * \text{2nd tertile}_{it}) + \beta_{16}(\mathrm{A3}_{it} * \\ & \text{2nd tertile}_{it}) + \beta_{17}(\mathrm{A4}_{it} * \text{2nd tertile}_{it}) + \beta_{18}(\mathrm{A5}_{it} * \text{2nd tertile}_{it}) + \beta_{19}(\mathrm{B2}_{it} * \text{3rd tertile}_{it}) + \\ & \beta_{20}(\mathrm{B1}_{it} * \text{3rd tertile}_{it}) + \beta_{21}(\mathrm{C}_{it} * \text{3rd tertile}_{it}) + \beta_{22}(\mathrm{A1}_{it} * \text{3rd tertile}_{it}) + \beta_{23}(\mathrm{A2}_{it} * \\ & \text{3rd tertile}_{it}) + \beta_{24}(\mathrm{A3}_{it} * \text{3rd tertile}_{it}) + \beta_{25}(\mathrm{A4}_{it} * \text{3rd tertile}_{it}) + \beta_{26}(\mathrm{A5}_{it} * \text{3rd tertile}_{it}) + \\ & \theta' \mathrm{X}_{it} + \alpha_i + \epsilon_{it} \qquad (2)\end{aligned}$$

[6] We use disposable income, i.e. labor net income, as it results after deduction of taxes, social security, and unemployment as well as health insurance. Besides, we assign a value of 0 to the income received by unemployed people while we leave the value for inactive individuals missing.

[7] The lowest tertile is taken as reference group.

According to this functional form, the coefficients from β_1 to β_8 provide us with the individual trajectory of SWB around the childbirth for people belonging to the first tertile of labour income distribution. The trajectories for those in the second and third tertile are obtained simply by summing to β_1 and β_8 the coefficients of the interaction term referring to the same point of the trajectory. For instance, the value of the trajectory at T+3 for who belongs to the second tertile is given by $\beta_6 + \beta_{16}$, or rather the value of the trajectory at T-2 for the individuals in the third tertile is equal to $\beta_1 + \beta_{11}$. As all the individual-fixed heterogeneity (observable or not) is absorbed by the individual term α_i, the control strategy X_{it} includes all those observable time-varying factors which could still generate heterogeneity in the individual trajectories of parental SWB, affecting both the level of SWB at each point of the trajectory and the probability itself of having the first child in a given year.

The control variables exploited can be classified in three main groups. The first group includes: the age group the individual belongs to, his/her marital status (having a spouse/husband, having a partner or not in the household) and a self-assessment of his/her health condition (on a 5-point scale). In this way, we can control for personal characteristics, in terms of health and reproductive ability and of partnership, both crucial for having a child. The second group of variables is intended to capture the potential conflict between family and career, both in the labor market and in the bargaining process between partners. These variables are: years of education, labor force status (employed, unemployed, not working) and the share of total housework done by the individual. In the last group of control variables, we consider additional information on the overall economic situation of the household, such as ownership of the dwelling (owner or not), as a proxy of the household's wealth, and the share of the household income represented by the individual's income. It is worth to underline that the direct effect of income on SWB – largely recognized by the literature – is here taken into account in two different ways, according to the model estimated. In model (1) we add the equivalent income[8] among the control variables. In model (2) a set of variables representing the tertiles of the income distribution are included in the estimation, together with those representing the interaction with the trajectory dummy variables. In addition, we control for both multiple births and whether the individual experiences another parity transition after the first one. In this latter case we add a set of dummy variables to control for the entire trajectory of the new parity transition, as we do for the first child[9]. In order to take into account spatial and year fixed effects we also add a control for the individual's region of residence

[8] See Appendix for the details on the method here adopted for calculating equivalent income.

[9] Unlike those for the first child, the trajectory dummies for other parities are not mutually exclusive.

and year dummy variables. Finally, the above equation is estimated separately for men and women, and the standard errors account for heteroscedasticity and serial correlation. Two robustness tests of the estimates are illustrated in the Appendix of this work: the first one shows that our results hold with an equivalent income measure, i.e. taking into account the total household income and the household composition. The second test consists in using the individual labor income recorded at T-3 in order to avoid possible endogeneity between the childbirth event and the level of income eventually induced by the presence of specific anticipation effects.

Results

Our test of the role played by gender and income in shaping SWB trajectories around the birth of the first child can be summarized in a two-steps analysis. The first step is the test of the set-point hypothesis and it is performed by estimating the SWB trajectories, separately for women and men, adopting as reference their SWB three year before the birth of the first child (Table 2, Figure 2, grey dotted lines titled "General"). As a second step, the set-point hypothesis is tested by estimating the same trajectories for different groups of parents, defined according to their individual income and by gender (Table 3 and Figure 2, lines per the first, second and thirs tertile). In addition to that, in Appendix we also check the robustness of the results produced by this second step with respect to the use of two different measures of income.

Regarding the first step, our analysis confirms that the SWB of women increases quite substantially in the year before the event, which is a clear anticipation effect, while the increase in the SWB of men is much lower and not statistically significant (Table 2 and Figure 2). The same is true for the year of the birth, in which women experience a statistically significant increase in SWB while men do not (Table 2 and Figure 2). In the years following the event, the SWB decreases but in a different way by gender, with women not being significantly different from the treadmill, whereas men stay well below the treadmill level up to the fifth year after the event (Table 2 and Figure 2).

Concerning the second step of the analysis, Table 3 presents the estimates of the coefficients of equation (2) by gender. Looking at the specification with controls in column (2), it can be noticed that coefficients for women in the second tertile are statistically different from those of first one from the year of the birth up to T+2. Women in the third tertile are different from those of the first in the year of the birth and four years since that. Concerning men, the coefficients for those in the second tertile are statistically different from those of first one in the year of the birth and in T+4 and

T+5. Men in the third tertile show coefficients different from those of the first one in the year of the birth, in T+2 and five years since the event. As explained in the methodological section, in order to construct the individual trajectories of SWB for the second and the third tertile of the income distribution their coefficients for each point of the trajectory showed in Table 3 have to be summed up with those for the first tertile. Figure 2 also shows graphically the results of such calculations, providing the individual trajectories of SWB around the birth of the first child distinguished by tertile of individual labour income and by the gender. Women in the first tertile of the distribution show a positive increase in SWB in the year of the childbirth and in the year immediately preceding the event. Women in the second tertile there is also a negative effect from T+2 to T+5, which is always statistically significant. For women whose individual income is in the top tertile of the distribution, the effect of childbirth on the SWB is positive from two years before the event up to the year of the childbirth, while it becomes negative at T+3, T+4 and T+5. Considering the treadmill for men, the negative effect after the childbirth is never significant if they are in the first tertile.. On the contrary, men in the second and third tertile experience a decline in SWB which is significant from T+1 to T+5.

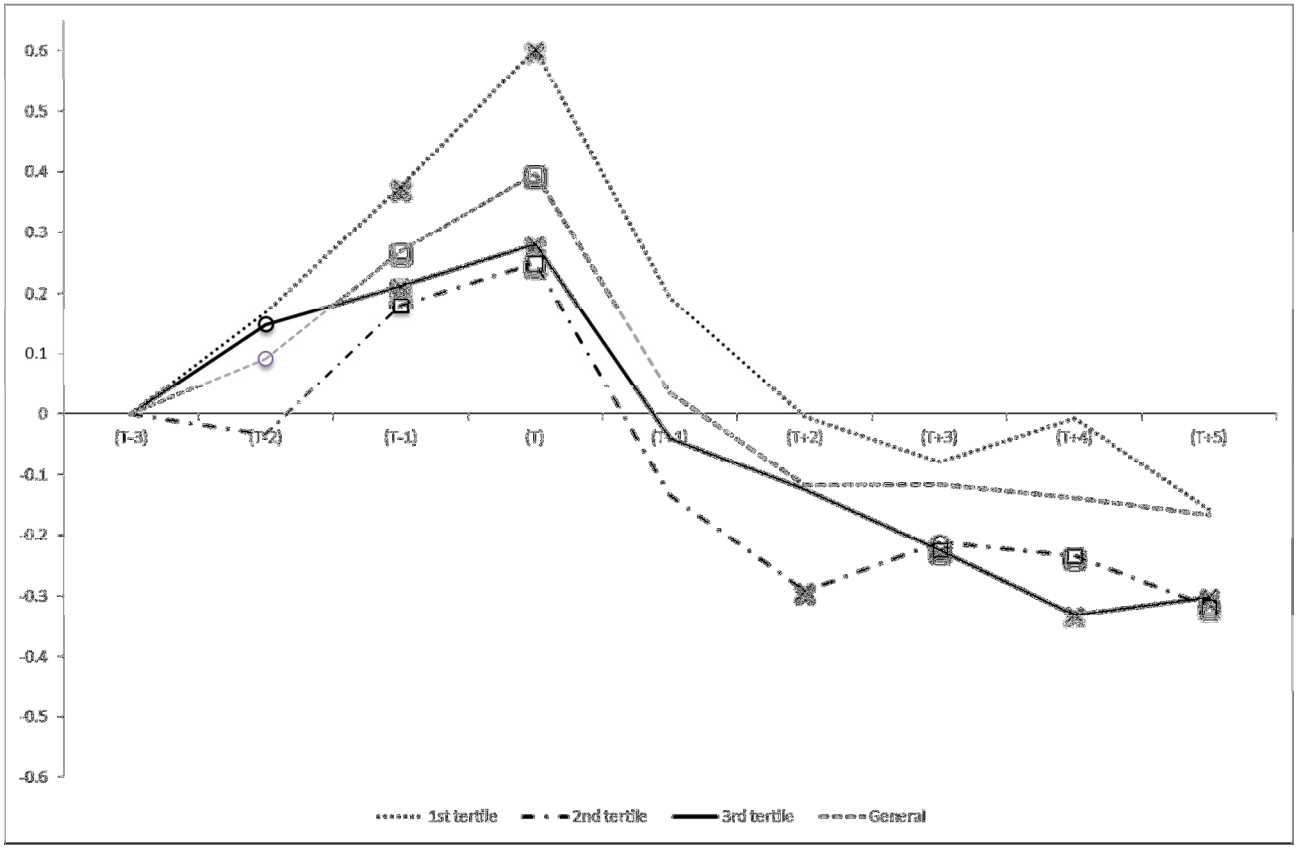
From the comparison among the income groups of women and men three interesting results emerge. The first one is the existence, regardless the level of income, of a positive anticipation effect for women but not for men; the second is that such anticipation effect is higher for women in the first tertile, with respect to both those in the second and third tertile of the income distribution; the third is the negative effect that emerges after the childbirth for both women and men belonging to the upper part of the income distribution.

Table 2 Trajectories of SWB by gender. Fixed-effect estimates

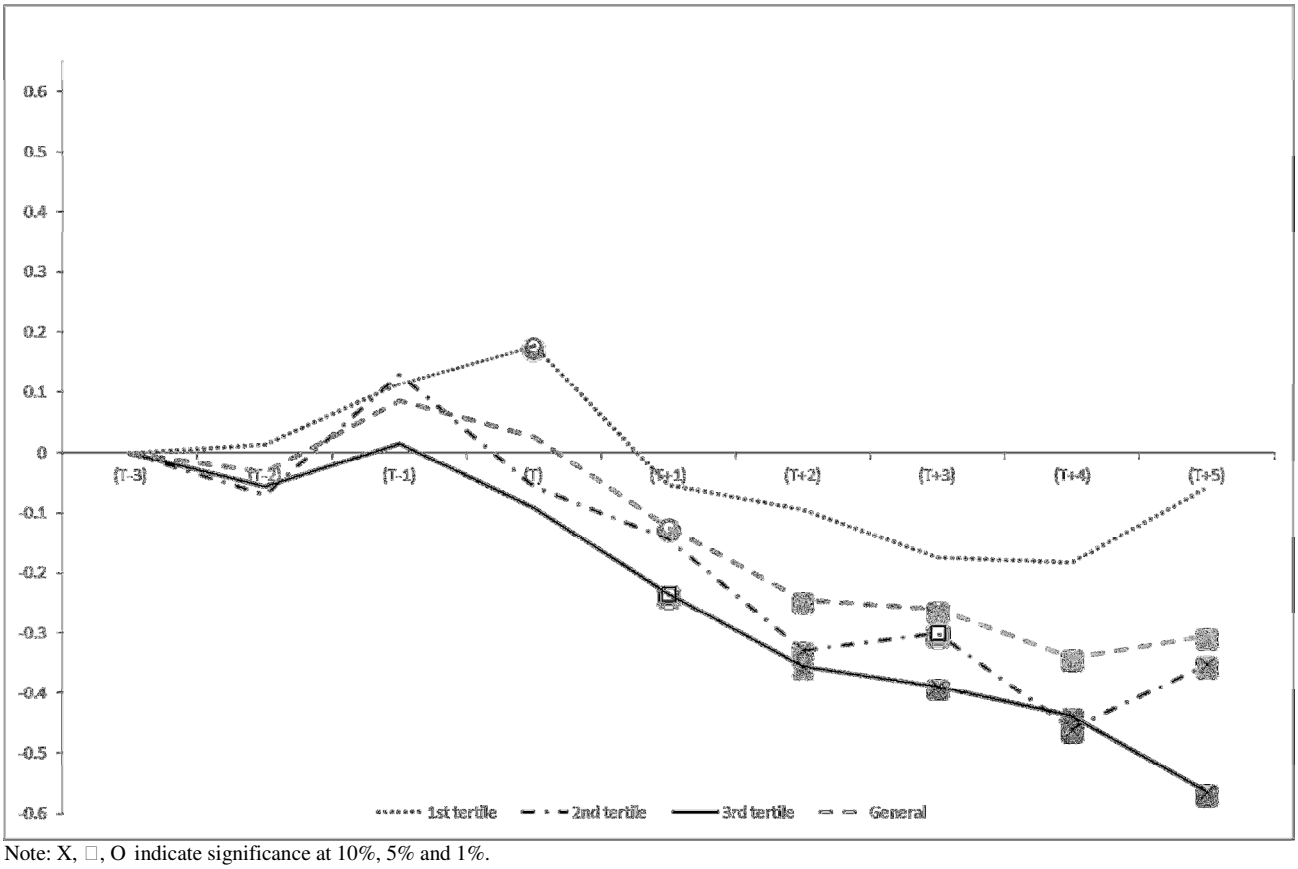
	Women						Men					
	(1)			(2)			(3)			(4)		
	Coeff		s.e.	Coeff		s.e.	Coeff		s.e.	Coeff		s.e.
(T-2) (Ref. Category SWB at T-3)	0.052		0.043	0.092	*	0.051	-0.010		0.044	-0.033		0.052
(T-1)	0.286	***	0.043	0.268	***	0.055	0.109	**	0.044	0.085		0.057
(C)	0.402	***	0.044	0.396	***	0.069	0.089	**	0.045	0.026		0.064
(T+1)	0.003		0.046	0.035		0.071	-0.080	*	0.045	-0.123	*	0.069
(T+2)	-0.128	***	0.046	-0.120		0.074	-0.184	***	0.049	-0.245	***	0.076
(T+3)	-0.156	***	0.048	-0.120		0.079	-0.217	***	0.048	-0.260	***	0.081
(T+4)	-0.187	***	0.049	-0.140		0.085	-0.260	***	0.050	-0.341	***	0.089
(T+5)	-0.182	***	0.05	-0.170	*	0.092	-0.272	***	0.050	-0.305	***	0.095
Other births (T-3)				0.333	***	0.066				0.183	***	0.069
Other births (T-2)				0.268	***	0.072				0.100		0.074
Other births (T-1)				0.136	*	0.080				0.139	*	0.082
Other births (C)				0.250	**	0.088				0.105		0.092
Other births (T+1)				0.148		0.112				0.006		0.122
Other births (T+2)				0.533	**	0.230				0.073		0.258
Other births (T+3)				0.115	*	0.062				0.103		0.065
Other births (T+4)				0.030		0.058				0.085		0.057
Other births (T+5)				0.051		0.054				-0.016		0.055
Marital Status (Ref. Category: No Partner)												
Partner				-0.090	*	0.052				-0.062		0.051
Spouse				-0.290	**	0.125				-0.474	***	0.137
Employment status (Ref. Category: Unemployed)												
Not working				-0.360	***	0.088				-0.694	***	0.145
Employed				0.049		0.039				-0.032		0.122
Years of Education				0.059	**	0.025				0.050	**	0.020
Health status				-0.370	***	0.022				-0.396	***	0.024
Equivalent income				0.022		0.019				0.041	*	0.021
Share of the household's income				0.029		0.056				0.119		0.078
Owner of the dwelling				0.011		0.046				0.071		0.052
Percentage of housework				-0.010		0.071				-0.167	***	0.064
Age group (Ref. Category: 20-30 y.o.)												
30-40				-0.060		0.045				0.014		0.049
40-50				0.034		0.129				0.080		0.095
Year and regional dummy	NO			YES			NO			YES		
Observations	18985			12580			15017			10461		
R-squared	0.028			0.081			0.014			0.088		
Number of people	2845			2468			2127			1940		

*p < .05; **p < .01; ***p < .001

Women



Men



Note: X, □, O indicate significance at 10%, 5% and 1%.

Fig. 2 Women and men's SWB trajectories from 3 years before up to 5 years after the birth of the first child. Fixed-effect estimates

Table 3 Trajectories of SWB by gender and tertile of individual income
Fixed-effect estimates. Dependent variable: SWB

	Women						Men					
	(1)			(2)			(3)			(4)		
	Coeff		*s.e*	Coeff		*s.e*	Coeff		*s.e*	Coeff		*s.e*
(T-2) *(Ref. Category SWB at T-3)*	0.123		0.102	0.169		0.110	-0.006		0.084	0.013		0.089
(T-1)	0.407	***	0.105	0.375	***	0.112	0.175	**	0.077	0.113		0.089
(C)	0.679	***	0.106	0.602	***	0.123	0.148	*	0.084	0.176	*	0.102
(T+1)	0.304	***	0.108	0.193		0.126	0.028		0.085	-0.054		0.108
(T+2)	0.123		0.107	-0.005		0.125	-0.027		0.096	-0.095		0.123
(T+3)	0.068		0.112	-0.079		0.134	-0.092		0.096	-0.174		0.127
(T+4)	0.095		0.112	-0.007		0.139	-0.106		0.099	-0.183		0.137
(T+5)	-0.046		0.119	-0.158		0.148	-0.066		0.097	-0.058		0.142
Second tertile of income distr. *(Ref. Category: first tertile)*	0.333	*	0.184	0.196		0.225	0.212		0.162	0.111		0.173
Third tertile of income distr.	0.290		0.241	0.198		0.268	0.514	**	0.226	0.497	**	0.233
Second tertile of income distr.*(T-2) *(Ref. Category SWB at T-3*second tertile)*	-0.185		0.124	-0.202		0.137	-0.038		0.120	-0.083		0.137
Second tertile of income distr.*(T-1)	-0.235	*	0.128	-0.195		0.138	-0.016		0.116	0.015		0.134
Second tertile of income distr.*(C)	-0.433	***	0.128	-0.353	**	0.145	-0.133		0.119	-0.233	*	0.136
Second tertile of income distr.*(T+1)	-0.512	***	0.131	-0.327	**	0.147	-0.133		0.120	-0.090		0.141
Second tertile of income distr.*(T+2)	-0.431	***	0.131	-0.287	**	0.145	-0.273	**	0.132	-0.233		0.152
Second tertile of income distr.*(T+3)	-0.371	***	0.137	-0.133		0.152	-0.114		0.130	-0.126		0.150
Second tertile of income distr.*(T+4)	-0.340	**	0.141	-0.228		0.158	-0.291	**	0.138	-0.277	*	0.156
Second tertile of income distr.*(T+5)	-0.290	*	0.150	-0.160		0.162	-0.280	**	0.139	-0.295	*	0.162
Third tertile of income distr.*(T-2) *(Ref. Category SWB at T-3*third tertile)*	-0.034		0.124	-0.021		0.134	0.036		0.106	-0.070		0.119
Third tertile of income distr.*(T-1)	-0.145		0.127	-0.163		0.134	-0.141		0.110	-0.098		0.125
Third tertile of income distr.*(C)	-0.364	**	0.130	-0.322	**	0.142	-0.136		0.111	-0.268	**	0.129
Third tertile of income distr.*(T+1)	-0.299	**	0.134	-0.233		0.146	-0.196	*	0.112	-0.181		0.134
Third tertile of income distr.*(T+2)	-0.195		0.131	-0.120		0.144	-0.200		0.124	-0.261	*	0.148
Third tertile of income distr.*(T+3)	-0.195		0.139	-0.146		0.152	-0.224	*	0.127	-0.216		0.151
Third tertile of income distr.*(T+4)	-0.366	***	0.141	-0.323	**	0.158	-0.263	**	0.129	-0.255		0.157
Third tertile of income distr.*(T+5)	-0.181		0.146	-0.144		0.158	-0.420	***	0.130	-0.507	***	0.161
Other births (T-3)				0.061		0.056				-0.024		0.057
Other births (T-2)				0.035		0.059				0.064		0.058
Other births (T-1)				0.099		0.063				0.087		0.068
Other births (C)				0.330	***	0.066				0.165	**	0.072
Other births (T+1)				0.239	***	0.074				0.102		0.075
Other births (T+2)				0.157	*	0.081				0.138	*	0.084
Other births (T+3)				0.260	***	0.091				0.045		0.095
Other births (T+4)				0.159		0.115				0.000		0.122
Other births (T+5)				0.604	**	0.286				0.183		0.235
Marital Status (*Ref. Category: No Partner*)												
Partner				-0.094	*	0.053				-0.076		0.053
Spouse				-0.199		0.131				-0.512	***	0.133
Labor Force Status (Ref. Category: Unemployed)												
Employed				0.107	***	0.038				0.140		0.119
Not working				-0.208	**	0.089				-0.607	***	0.147
Years of Education				0.059	**	0.025				0.037	*	0.021
Health status				-0.362	***	0.023				-0.386	***	0.026
Share of the household's income				-0.065		0.049				0.047		0.077
Owner of the dwelling				0.032		0.047				0.074		0.055
Percentage of housework				-0.001		0.073				-0.173	**	0.067
Age group (Ref. Category: 20-30 y.o.)												
30-40				-0.024		0.047				0.003		0.051
40-50				0.067		0.137				0.092		0.098
Year and regional dummy	NO			YES			NO			YES		
Observations	13713			12038			12208			9835		
R-squared	0.031			0.079			0.019			0.090		
Number of groups	1846			2186			1608			1725		

*p < .05; **p < .01; ***p < .001

Discussion

In this paper we have investigated the empirical relationship between fertility and income adopting the "lens" of SWB, i.e. considering income as moderator of the parental SWB trajectories estimated by gender in Germany.

Our study shows important differences according to the gender of parents: women diverge positively from their SWB set-point in the year immediately before the childbirth, revealing a clear anticipation effect. Moreover, the differences by level of income are substantial, with the anticipation effect for low income mothers being about twice as large as what is the case for women in the middle and high income groups. For men we do not see any significant anticipation effect, the positive effect with respect to the set-point being present only in the year of the birth, generally much lower compared to women and with no differences by income. As for the period following the childbearing event, we do find the standard decline consistent with many other recent studies. The differences across gender and income groups are, however, again noticeable. Among women, the decline of SWB after the birth appears significant only by income levels. Only for middle and higher income mothers, the SWB falls significantly below the set-point level (i.e. the level of SWB reported three years before the childbearing event), and only starting from two years after the birth. For men, the effect is more dramatic and significant again also by income level. However, the effect is particularly strong for high income fathers, as for this category the SWB falls below the original set-point level immediately in the year after the birth of the child and continues following in the years after. For the low-income parents (and here the gender does not make any difference) the validity of the set-point hypothesis seems instead proved, since their SWB in the years after the birth of their first child is not significantly below the pre-birth level. In short, this study adds to the existing literature the crucial finding that – at least in the context considered – income matters negatively for enjoying children.

The interpretation of our results cannot abstract from the fact that data about subjective well-being convey information on the costs and benefits related with specific life events beyond the strict monetary equivalent. The non-exclusive monetary content of SWB is well-known and it is the reason why events, such as unemployment and poverty, were first investigated adopting this framework (Clark and Oswald 1994; Van Praag et al. 1980). Differently from the economic neoclassical approach, however, the SWB construct allows a better comprehension of the psychological consequences of life events, even if they have primarily an economic facet. The non-exclusive monetary content of the SWB is also at the basis of the Easterlin paradox. Put differently, since SWB is positively associated with income at any point in time, while over time it does not increase, despite an increase in income, a non-monetary explanation gains credibility (Blanchflower

and Oswald 2004; Di Tella et al. 2010; Easterlin 1974; Oswald 1997; Stevenson and Wolfers 2008). As said in the literature review, the main factors that may explain the Easterlin paradox are social comparison and contextual environment, as well as habituation, attitudes and aspirations. Here, these factors can be similarly used to interpret our results. The evidence of the non-monetary consequences of the birth of the first child for mothers and fathers with different level of income is indeed our contribution to the literature on the relationship between income and fertility. Adopting the Beckerian framework we should have tested if mothers and fathers, with different incomes, had different preferences for childbearing, assuming that the number of children they actually have maximizes their utility. Alternately, we should have quantified – for given preferences –the strict monetary consequences of childbearing. On the contrary, the SWB estimation in the years before and after the child birth gives broad information which incorporates aspirations and adaptation processes experienced by different income levels parents. This approach has, however, the limitation of the impossibility to disentangle the role played by each of these factors or that of the parental preferences, on which we can only speculate.

On one hand, for lower income parents a child may impose a lower loss in forgone earnings and the net increase in SWB may be stronger – assuming that a child brings about positive feeling of well-being for the parent –. On the other hand, low income parents may have more limited dimensions or sources of well-being than the high income ones. Assuming that the latters care more about their careers, and more generally have a broader set of SWB dimensions, then the new presence of a child, may be less dominating in their lives. Thus, the low income parents may give a stronger weight to parenthood compared to the high income ones, and therefore the opportunity costs argument loses relevance.

Accordingly, our results can be attributed either to differences in preferences among groups of parents or to the difficulties – not exclusively monetary – in reconciling work and family after the childbirth. High income individuals would care more about their careers, or have a broader set of sources of SWB dimensions, in so far having different preferences in comparison with low income parents. This can be a plausible explanation for the differences we find in SWB anticipation and adaptation, especially for women. In particular, women in the lowest tertile of the income distribution, and lower level of education, may consider maternity as a crucial goal of their self-realization, while the same may be not true for those in the upper part of the income distribution or high level of education.

The difficulties in reconciling work and family can play a more important role in reducing parental SWB after the childbirth for high income parents – as it emerges from our study – if these include a non-monetary component. In fact, high income level parents should easier face the

difficulties of the work and family conciliation, if these are limited to find and pay for childcare. But reconciliation may be difficult also because parents, and especially women, with high income may have done a higher investment in human capital, in comparison with women with lower income and less years of education. As a consequence, the drop in the SWB experimented by high income women following the childbirth can be imputable, for instance, to the foreseen limitations to their career opportunities. Or, in strict psychological terms, the loss in SWB may be due to the intrinsic difficulties in playing the double role of mother and worker. Both these explanations seem to be supported by the fact that the anticipation effect on SWB is higher for women in the lower income tertile. The difference in SWB in the year before the childbirth among women by income (and similarly by education) may be therefore due to the awareness – for those mothers with better jobs and more ambitions – of probable difficulties they expect to experience in reconciling between motherhood and career.

Our findings give further support to the idea that in a country like Germany the relationship between income and fertility remains negative. One should also keep in mind that the specificities of Germany's family policies, which are known to favor the one-earner family model and certainly not the reconciliation between parenthood and working– at least up to the 2007 reform of parental leave allowances proportioned to wages (Kreyenfel and Andersson 2014). In this respect, our study also gives indirect support to those studies showing quite different signs and intensity of the SWB-fertility relationship by countries and institutional framework, which can indeed facilitate or impede parents' opportunities to combine work and family life, and, therefore, to enjoy having children.

Appendix: Robustness Checks

The robustness of the regression results are here discussed, in order to give evidence that the choice of a different income measure produces estimates consistent with those obtained in the main analysis. In particular, we estimate model (2) by adopting two alternative definitions and measures of income: the equivalent income and the individual income registered three year before the childbearing.

Equivalent income is calculated by dividing the sum of incomes from labor of the members of the household by the appropriate coefficient of the equivalence scale, as defined by OECD with reference to the composition of each household[10]. As in the main text, the tertile in the distribution is assigned to all the individuals, separately for each wave and according to the income average among the values recorded in the three years before childbirth. Equivalent income is a good proxy for the resources available to the individual, considering either the labor income of the other members of the household or its composition. Moreover, equivalent income is not directly related with the individual direct effort in the labor market.

Looking at the trajectories for women in the first tertile of the equivalent income, a positive and statistically significant difference with respect to the treadmill is detectable at T (the time of the childbirth) and T-1, similarly to women in the second tertile (Figure 3), who experience also a weakly negative effect at T+5. Women with an equivalent income in the third tertile of the distribution show a positive and significant variation with respect to the treadmill in the year of the child's birth, while in T+2, T+3, T+4 and T+5 the variation is negative and statistically significant (at 10 and one percent levels). Consistently with the results obtained using the individual labor income, also with the equivalent income the size of the positive anticipation effect for poor women is greater than for the rich ones. Moreover, as like as for the individual labor income, the negative effect after the birth is stronger for the latters than for the formers, even if in this case it is detectable only at the top of income distribution within women.

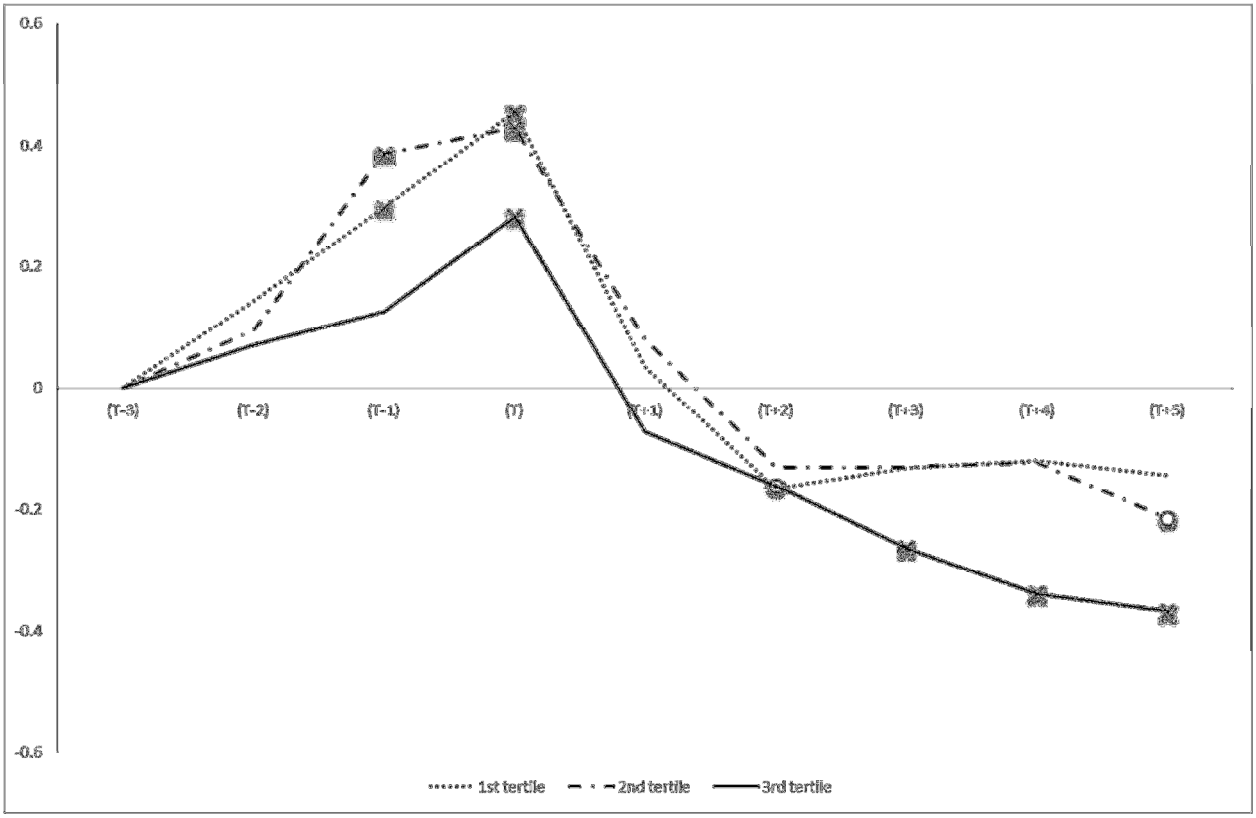
Independently from the equivalent income tertile, men seem to experience a negative and statistically significant difference with respect to the treadmill at T+2, T+3 and T+4 (Figure 3). For men in the second and third tertile of equivalent income, the effect is negative and significant also at T+5. In particular, this means that for men the role played by the equivalent income as moderator for the variations of the individual trajectories of SWB around the birth of the first child with respect to the treadmill is more limited than for the individual labor income.

[10] Differently from what we have done for individual income, in this case we impute the income of both unemployed and inactive people as if it would be equal to 0.

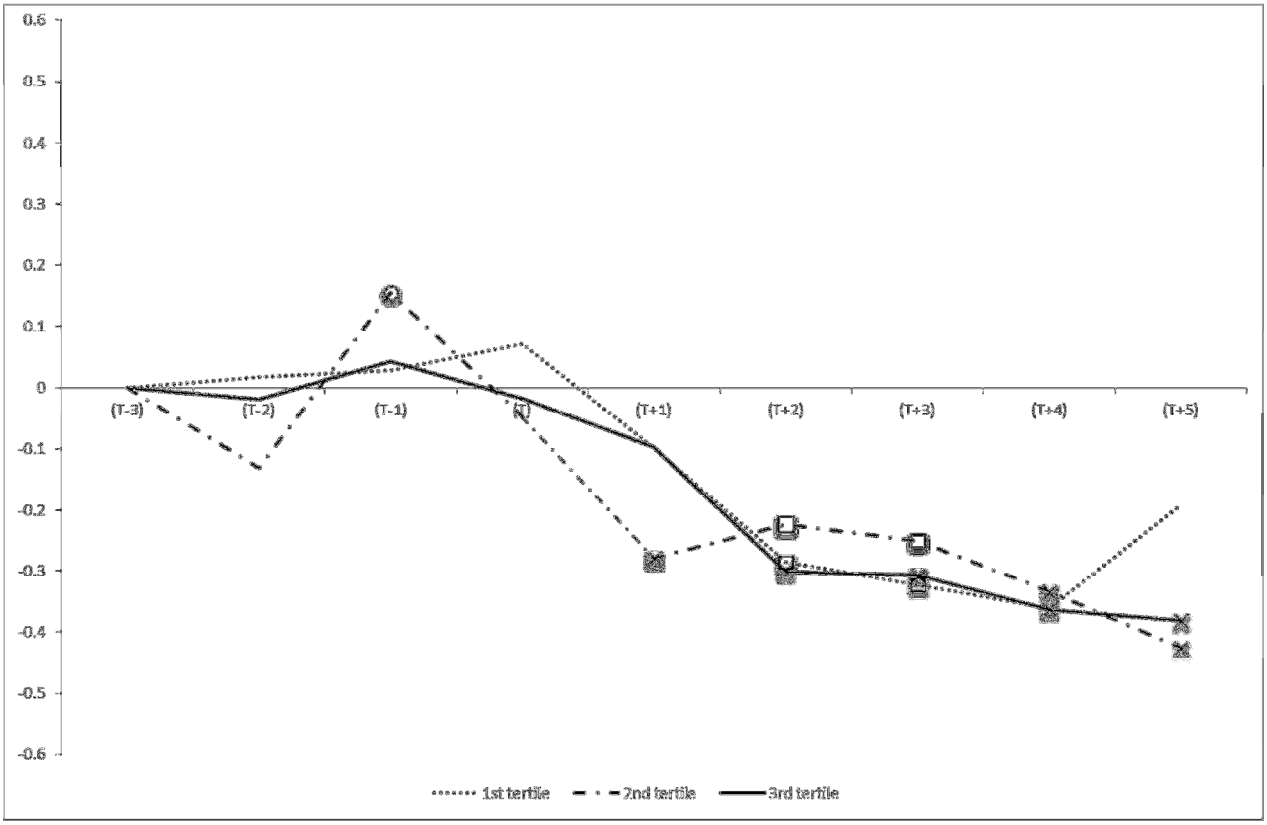
As a second check, we estimate model (2) using individual income as recorded three years before the childbearing event. The aim for this check is to reduce feasible endogeneity between the income and the event of the birth of a child. Nonetheless, in the main analysis we use the average of the incomes of the three years before the event for accounting for possible endogenous effect between the income and the event of the birth of a child in the times after that. In fact, there is still the possibility of the existence of an anticipation effect of the event on the income of the individuals in the years before the birth which could eventually induce endogeneity on our estimates. Thus, in order to test the robustness of our result with respect to this issue we substitute the average of the incomes of the three years before the event with the individual income recorded at three years from that, possibly less affected by anticipation effects.

The results for this check are presented in Figure 4 and are consistent with those obtained by the main analysis. Women in the first tertile are still in general the ones who most enjoy the childbirth in the years before and in the year of the birth, as well as women in the last tertile are still those who enjoy less the event, especially in the years after that, and the same is true for men, with the lowest-income individual showing now also a positive anticipation effect in the year before the birth.

Women



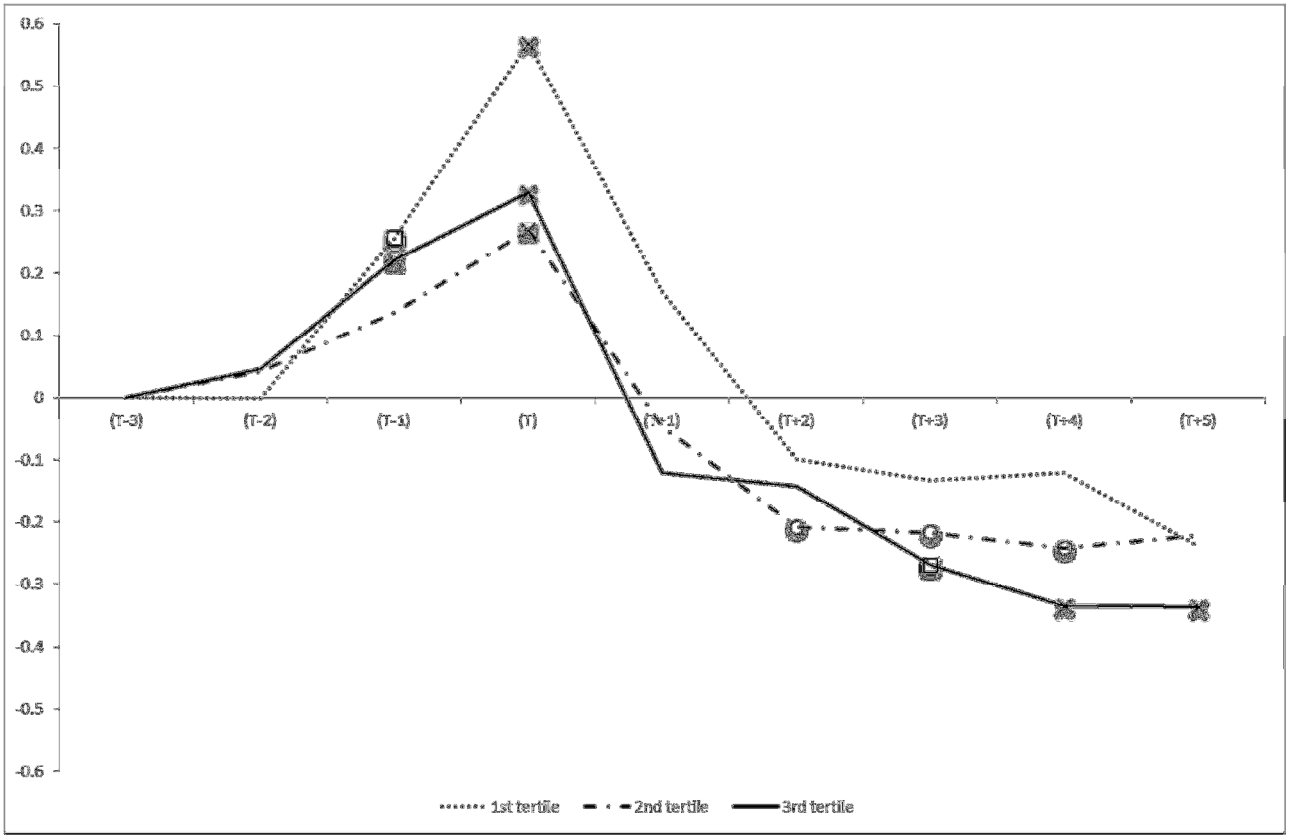
Men



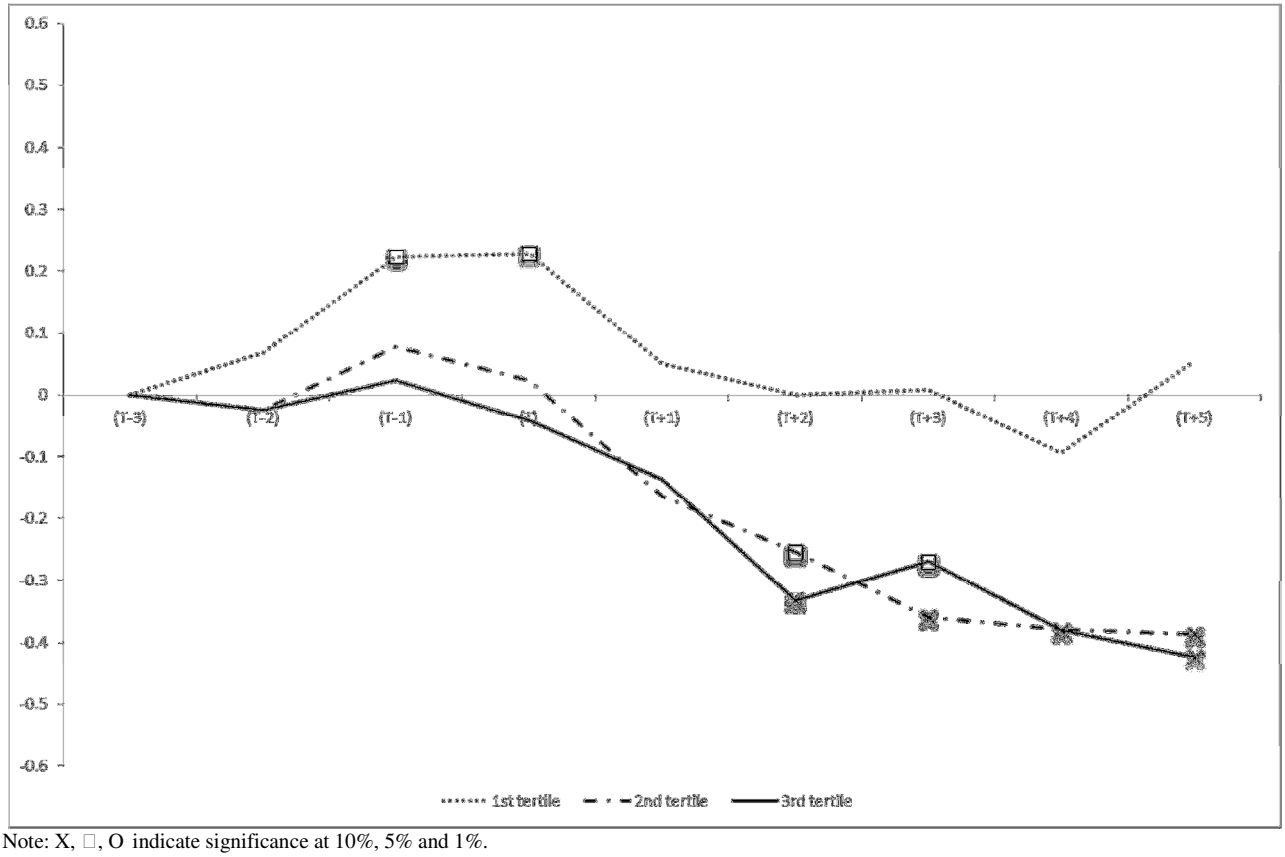
Note: X, □, O indicate significance at 10%, 5% and 1%.

Figure 3 Women and men's SWB trajectories from 3 years before up to 5 years after the birth of the first child distinguished by individual income tertile as recorded at T-3 from the birth. Fixed-effect model

Women



Men



Note: X, □, O indicate significance at 10%, 5% and 1%.

Figure 4 Women and men's SWB trajectories from 3 years before up to 5 years after the birth of the first child distinguished by equivalent income tertile. Fixed-effect model.

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