Does parenthood increase happiness? Evidence for Poland.

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Abstract

In the recent decade demographers turned their attention to investigating the effects of children on self-rated happiness or life satisfaction. The underlying idea of this strand of research is to find out whether it pays off to individuals to become parents in terms of their subjective well-being, given the costs of having children. This paper follows this line of research and studies the impacts of childbearing on individual-level happiness in Poland; a country which experienced a rapid decline in fertility despite particularly strong attachment of young Poles to family values. To this end, we applied methods for panel data analysis which allowed us to control for endogeneity of subjective well-being and parenthood. Our results reveal a significantly positive effect of the first child on the subjective well-being of mothers. For men, this impact is weaker and most likely temporary since it weakens with an increase in child's age. Importantly, neither for men nor for women does the positive impact of parenthood rise with an increase in parity. This may explain persistence of low fertility in this country.

CONTENTS

I.   INTRODUCTION

Why do some people decide to have fewer children than the others and what are the motives behind having children later in life? Demographers have been struggling to answer these questions as fertility in Europe has declined below the replacement levels and couples have been postponing their childbearing decisions to even later stages in life. These questions gained an additional interest after clear cross-country differences in fertility levels became visible, with some countries displaying birth rates close to replacement levels and others exhibiting very low fertility. The majority of explanations of these phenomena refer to an increase in the opportunity costs of children. It was argued that having children early in life as well as having larger number of children may substantially affect women's wages as well as jeopardize their employment prospects (Gustafsson 2001; Hotz et al. 1997; Taniguchi 1999). The opportunity costs of children were claimed to be particularly high in countries with low support to working parents (Rindfuss et al. 2003; Engelhardt et al. 2004) and rigid labour markets (Ahn and Mira 2002; Adsera 2005). Additionally, the proponents of the Second Demographic Theory indicated that indirect costs of children might have increased as women became more interested in pursuing professional careers (Van de Kaa 1988; Lesthaeghe 1995).

Given these arguments on the rising costs of children a question has emerged whether it pays off to individuals to have children at all. This turned the attention of demographers to investigating the effects of children on subjective well-being of individuals (e.g. Kohler et al 2005; Billari and Kohler 2009; Aassve et al 2009; Margolis and Myrskyla 2011). Does the entry to parenthood increase individual happiness? Is one child sufficient to satisfy parents' emotional needs or does an increase in family size beyond parity one bring further gains in terms of happiness and satisfaction with life? These and similar questions have been asked in order to better understand the macro-level fertility levels.

Following this newly emerging line of research on the impact of parenthood on subjective well-being, in this paper we investigate the effects of children on self-rated happiness among the Poles. Poland is an interesting case study for this research purpose as it has displayed a very low fertility (with Total Fertility Rate below 1.4) for over one decade despite the extraordinarily strong attachment of its citizens to family values. Persistently low fertility in Poland has been widely explained by high opportunity costs of children, resulting from strong tensions between work and family tied up with strong unemployment pressure and high instability of employment contracts (Kotowska 1999; Kotowska et al. 2008; Mynarska 2011). Indeed, a glance at macro-level indicators confirms that among the EU member states Poland of the 2000s displayed one of the strongest incompatibilities between work and care (Matysiak forthcoming: 85), relatively high unemployment levels among the youth and high temporary employment rate (Baranowska

and Gebel 2010). Given these unfavorable conditions for family formation coupled with strong attachment of the Poles to family values it is interesting to verify whether parenthood brings parents any gains in terms of well-being.

The paper starts with theoretical considerations that lie behind the idea of investigating the effects of parenthood on subjective well-being. In the following section we review available empirical studies on this topic and move on to describing the context of Poland in which fertility decisions are made. Subsequently, we present our data and analytical strategy and describe our empirical findings. The paper closes with a short summary of our major results and suggestions for further research.

II.   THEORETICAL AND EMPIRICAL BACKGROUND

Demographic theories trying to explain childbearing decisions usually refer to benefits and costs of having children. Various benefits from having children were enumerated in the literature. In the field of economics originally three types of benefits, or in economic terms - utilities, were recognized: a work or income utility, assuming that children provide labour in a family business or a farm, a security utility, given that children may serve as an insurance and social protection to their parents in the old age, and consumer utility, referring purely to emotional benefits (Leibenstein 1957). Similar approach was adopted in psychological literature. The proponents of the Value-of-Children theory argued namely that people decide to have children since parenthood is associated with a range of positive values. Apart from the economic and security benefits they enumerated a whole variety of other values, such as an increase in parents' social status, strengthening of their social ties, ability to enjoy novelty and a sense of achievement in their lives (Hoffmann and Hoffmann 1973). Positive aspects of parenthood were also underlined in evolutionary theories, which posit that humans have evolved a predisposition towards nurturing (Foster 2000; Rodgers et al. 2001). From this perspective, parents can enjoy taking care and fostering intellectual and physical development of children. Finally, it is to be noted that benefits from children depend on parity and country-specific context. The study by Bulatao (1981) showed that parents value their first child mainly because of the emotional benefits. The decision to have the second or third child is driven by a need to satisfy other needs, i.e. the desire to ensure a companion for the first child or to achieve a certain sex composition of children. The values attached to higher order births are often economic. These differences in the values attached to children by parity were also used by Bulatao (1981) to explain fertility differences across countries varying in the levels of economic development as well as in the advancement of social security systems.

Despite the fact that children bring certain benefits to their parents they also incur costs. First of all, raising children requires financial expenditures. Second, it imposes indirect costs, particularly on the parent who withdraws from employment to provide care. These costs include not only the income lost during the non-participation period, but also non-accumulation and depreciation of human capital as well as lost promotion opportunities (Becker 1993; Even 1987; Joesch 1994; Ranson 1998). Furthermore, parenthood may also result in emotional distress (McLanahan and Adams 1987) as it leads to an increase in time conflict and poses additional strain on parents (Pailhe and Solaz 2009), imposes greater financial responsibilities (Zimmerman and Easterlin 2006; Stanca 2009), reduces time spent on leisure (Sanchez and Thomson 1997) and may even negatively affect the quality of the relationship between parents (Lavee et al. 1996). The costs of children are likely to be higher for parents with larger family size as well as for parents with small children. Infants or toddlers require more intense care than school-age children. Besides, the early years of rapid child's development are a critical period, and the awareness of this fact might additionally raise the stress experienced by young parents (Gordon and Gluzman 2007). Finally, the costs of children vary depending on the country-specific context. It has been widely argued that opportunity costs are higher in countries with rigid working hours and strong insider-outsider divide, as well as in countries that lack safety nets and public support to working parents (Adsera 2005; Esping-Andersen 1999; Rindfuss et al 2003; Muszyńska 2007).

Taking together the benefits and costs of children a question emerges what is the net gain for parents from having children. Do children increase couples' well-being? Are persons who have a child more happy or satisfied with life than those who do not despite the costs they need to bear? And how does the happiness of parents depend on the parity? Does it change linearly with each child or does the effect of children on parents' well-being depend on the parity? Answering these questions could help us in understanding the current fertility levels in Europe.

REVIEW OF EMPIRICAL RESEARCH

Although investigating the effect of children on parents' subjective well-being seems to be a natural first step to understand current fertility levels in Europe, the empirical evidence on this topic is very scarce. One of the reasons for this state of affairs is related to the measurement of well-being. Large-scale surveys usually implement a single item on happiness or life satisfaction and one may doubt whether an answer to such a question provides a reliable assessment of the subjective well-being. This issue has been extensively studied, however, and recent studies confirm the relevance of measuring self-rated happiness by means of direct single-item survey questions (Stutzer and Frey 2010; Easterlin 2004). However, studying the

effects of parenthood on happiness requires sophisticated analytical methods. The difficulty lies in arising selection problems as some of the unobserved individual characteristics such as extraversion or neuroticism may have impact on self-rated happiness and simultaneously affect decisions about family formation (Costa and McCrae 1980; Tavares 2010). Hence, systematic differences in personality of parents and non-parents may lead to endogeneity bias in any cross-sectional estimates.

To our best knowledge, so far there have been only few articles that demonstrated the effects of parenthood on well-being net of selection effects, and the evidence is very mixed. Clark et al. (2008) used fixed-effects models on data from German Socio-Economic Panel to show that an arrival of a child increases happiness of a mother but causes no significant effect on the life satisfaction of a father . Interestingly, these effects also vary over the age of the child: by the time the child is 2–3 years old, the impact of having a child turns negative for both sexes and remains so thereafter. Kohler et al. (2005) used fixed-effects models on Danish siblings data to show a diverging impact of childrearing depending on gender and parity. The authors revealed that the first-born child had a large positive effect on the well-being of young females. However, second child decreases happiness, and three or more additional children almost completely level off the positive effect resulting from having the first child. For men, an increase in happiness resulting from the first child is weaker than for women, but males do not experience so strong declines in happiness with additional children as females do. Finally, Angeles (2009a; 2009b) using data from British Household Panel Study found no statistically significant effect of children on life satisfaction of married individuals.

Some attempts have also been made in the literature to assess the role of the country context for mediating the effect of children on parents' well-being. These studies aimed at testing the hypothesis that gains in happiness brought by children are stronger in countries where the opportunity costs of childbearing are lower. Among the most recent contributions, Margolis and Myrskyla (2011) found that the context plays an important role in explaining the happiness- fertility association. This association among young persons was established to be negative, but its magnitude was weakest in countries with high public support for families. A contradictory finding was established by Aassve et al. (2009), however, who found the relationship to be positive, but recognized no clear-cut pattern across countries. Nonetheless, these two studies are based on cross-sectional data and hence they provide us with information on associations rather the causal effects as individual differences in biological or social endowments are not taken into account.

The potential usefulness of the research on the effect of children on happiness and the scarce evidence obtained so far call for further investigations on the topic. We take this challenge in this paper by studying the impact of parenthood on subjective well-being in Poland, a country

characterized by high opportunity costs of childbearing but at the same time strong attachment to family.

POLISH CONTEXT

Various surveys have constantly pointed out that family and children take an important position in the value system of the Poles. For instance, the data from the International Population Policy Acceptance Study (IPPAS) clearly show that Poles, together with Lithuanians and Hungarians, set exceptionally high priority on marriage, strongly oppose de-institutionalisation of the family, and relatively often express a belief that children, family, and home ensure happiness and self-fulfilment (Pongracz and Spèder 2008; Stankuniene and Maslauskaite 2008). These findings are further corroborated by the data from the European Value Study, which showed that in 1999 family was viewed as an important life sphere for 91% of Polish respondents, whereas in other countries these percentages were substantially lower: on average 79% in post-socialist region, 83% in Western non-Catholic countries and 87% in Western Catholic ones (Giza-Poleszczuk and Poleszczuk 2004: 207).

Despite this strong attachment of the Poles to family and children fertility decline in Poland was by no means smaller than in any other post-socialist country. Over 14 years of the economic transformation, the period TFR dropped from 2.09 in 1989 to its minimum of 1.22 in 2003, placing Poland among the lowest-low fertility countries. The decline in period fertility was partly driven by postponement of births and partly by a fall in fertility quantum (Sobotka et al. 2005). Second and higher order fertility rates decreased most strongly. Nonetheless, Poland experienced also a decline in first order fertility and a pronounced increase in childlessness: whereas among women born in 1960 only 10% were childless, among the 1970 cohort it was already 15%, which was the highest level among the Central and Eastern European countries (Frejka 2008). Only since the mid-2000s has Poland been experiencing a slight improvement in fertility with period TFR increasing to 1.39 by 2009. Despite this upward trend the country remained one of the lowest fertility countries in the EU.

This dramatic decline in fertility and persistence of childbearing rates at very low levels have been often explained in the literature by the changes in the conditions of labour force participation, withdrawal of the state from the public support for working parents and consequently a strong increase in the opportunity costs of parenting (Kotowska and Sztanderska 2007; Kotowska et al. 2008; Frejka 2008). As a result, Poland belongs to the group of countries characterised by the strongest incompatibilities between women's employment and childrearing (Matysiak forthcoming: 85). Public provision of childcare is the worst there in the whole EU. In the 2000s the coverage rate in crèches amounted to 24 places per 1000 children aged 3 or less. The situation in kindergartens was better – around 600 places per 1000 children in pre-school

age – but still Poland takes the last position in that respect among the EU member states. Poor childcare provision is compensated by long – up to three years - parental leaves. These leaves are unpaid, however, except for mothers in the very poor financial situation. Polish women rarely take advantage of full provisions, instead returning to work (Matysiak and Vignoli 2010). Furthermore, fathers' involvement in care has hardly been facilitated by public policies - until 2010 there were no statutory paternity leaves and only 2.5% of fathers made use of parental leaves (Matysiak 2007). High opportunity costs of childbearing in Poland were further exacerbated by strong unemployment pressure, reflected in high unemployment rates of the youth and high instability of employment contracts, as well as by scarcity of part-time jobs and a high degree of rigidity in working hours (Kotowska et al. 2008).

Taking into account the high indirect costs of childbearing, one may ask whether it pays off to the Poles in terms of their subjective well-being to become parents as well as to extend their family size beyond parity one. It is likely that the high costs of children exceed the benefits and despite the strong attachment to family values, the Poles abandon the idea to have large families. Instead they decide for one child only, which may be sufficient for satisfying their emotional needs. We address these hypotheses with regard to persons in reproductive age in the following sections of this paper.

III.   DATA AND METHODS

DATA

The data used in this study come from Social Diagnosis, which is a national representative longitudinal survey established by the Council of Social Monitoring in 2000. The subsequent waves took place in 2003, 2005, 2007 and 2009. It represents a unique source of panel micro-data in Poland, which covers information from a variety of areas, such as household income and living conditions, education and labor market participation as well as health and subjective well-being of household members. Altogether, in all five waves, 38,731 face-to-face interviews have been conducted with household members aged 16 or more (Czapiński and Panek 2009). To the best of our knowledge, it is probably the largest and most comprehensive panel survey carried out in Central and Eastern Europe that includes questions on happiness (Randall and Hanousek 2002). For our analysis we selected persons who entered the survey at the age 18-35, i.e. in the childbearing and childrearing age. This gave us a sample of 6513 female and 5870 male observations.

Table 1 Distribution of variable measuring subjective well-being in Social Diagnosis 2003-2009, men and women aged 18-35 at first interview

	women		men	
Response	Number of observations	Percentage of pooled sample	Number of observations	Percentage of pooled sample
not at all happy	95	1.46	93	1.59
somewhat happy	1,114	17.12	1,131	19.29
quite happy	4,614	70.91	4,083	69.65
very happy	684	10.51	555	9.47
Total	6,507	100	5,862	100

Source: own calculations on pooled data from Social Diagnosis 2003-2009.

Table 2 Descriptive statistics on pooled sample data, men and women aged 18-35 at first interview.

	women		men	
Variable	Mean	S.E.	Mean	S.E.
age	27.3	6.4	27.13	6.30
satisfaction with health	4.46	1.09	4.65	1.10
satisfaction with income	4.36	1.23	4.32	1.27
Variable	Proportion	S.E.	Proportion	S.E.
Educational attainment				
in education	0.34	0.47	0.31	0.46
low	0.38	0.49	0.52	0.50
medium	0.42	0.49	0.36	0.48
high	0.20	0.40	0.12	0.32
Employment status				
employed	0.51	0.50	0.62	0.49
unemployed	0.11	0.31	0.12	0.32
inactive	0.38	0.49	0.26	0.44
Marital status				
single	0.52	0.50	0.63	0.48
with an employed partner	0.40	0.49	0.23	0.42
with a non-employed partner	0.03	0.18	0.12	0.32
divorced / widowed	0.03	0.17	0.01	0.10
Number of children				
no children	0.56	0.50	0.69	0.46
one	0.19	0.39	0.14	0.35
two	0.17	0.38	0.13	0.33
three and more	0.07	0.26	0.04	0.19

Source: authors' estimates based on Social Diagnosis 2003-2009.

Our dependent variable, i.e. the level of happiness, is derived from a single-item question: "Taking all things together, would you say you are very happy, quite happy, somewhat happy or not at all happy?", with responses coded on a four point scale. In the context of this study this measure has an advantage of brevity. It was adapted from the World Value Survey, a similar question is also included in other large cross-national or country-specific surveys. Table 1 presents the distribution of this variable in the samples of men and women selected for our analyses.

Our key explanatory variables were the number of children of the respondent and age of the youngest child. Our sample covers 217 transitions to first birth, 178 transitions to second birth and 91 transitions to third or higher order child. Additionally, we included specifications where we accounted for the age of the youngest child. Our results are standardized for a set of observed person-specific characteristics, such as: respondent's age and age square, educational attainment (including participation in education), self-rated health, self-rated material standard of living, marital status and labor market status of respondent and his or her partner.

ECONOMETRIC SPECIFICATION

We modeled respondent's self-rated happiness at any point in time t as a function of our key explanatory variables (children) at time t, a set of the observed individual-level characteristics measured in the survey at time t (obs_characteristics), as well as unobserved individual time-invariant traits u_i . Additionally, respondent's subjective well-being was subject to random error ε_{it}, which may capture random, idiosyncratic influences such as good weather on the day of interview or an exceptionally good mood of the respondent. Hence, the model can be written in the following way:

$$(1) \qquad happiness_{it} = \beta_0 + \beta_1 \times children_t + \beta_2 \times obs\_characteristics_{it} + u_i + \varepsilon_{it}$$

The most common approach to controlling for individual-specific time-invariant unobserved characteristics with panel data at hand is to estimate fixed-effects models. Fixed-effects estimates are based on the variation of respondent's characteristics across time by contrast to random-effects models that also use variation across individuals. Fixed-effects estimates are hence less efficient than random-effects estimates, but remove the potential bias resulting from selection of "intrinsically (un)happy" individuals into the group of parents by allowing for a correlation between the person-specific unobserved time-invariant characteristics and the regressors. The disadvantage of the fixed-effects approach is that they can easily be implemented in the linear regression framework, but accommodating them to models with dependent variables measured on an ordinal scale is more problematic. In some situations, if the scale of the dependent ordinal variable is relatively long and approximates interval data, linear

regression may yield similar results as ordered probit or logit regression (Ferrer-i-Carbonnell and Frijters 2004). However, in our case the dependent variable has only four categories and so using the linear specification, which requires the cardinality assumption , is questionable since it might severely bias our estimates (for the discussion on the topic see Baetschmann et al. 2011; Riedl and Geishecker 2010). The most simple alternative approach to this problem is to recode the ordinal dependent variable into a binary indicator and subsequently apply the conditional logit estimator proposed by Chamberlain (1980). Dichotomization has two certain drawbacks, however. First, it requires an arbitrary assumption, i.e. a choice of a threshold above which the dependent binary variable takes the value one. Second, it implies a loss of a great deal of information.

In this paper we employed two other solutions that allowed us to account for unobserved characteristics of individuals. The first approach was to use a "Blow-Up and Cluster" (BUC) estimator developed by Baetschmann et al. (2011). This estimator extends the idea of dichotomisation proposed by Chamberlain (1980). More specifically, it dichotomizes the dependent variable in all possible cut-off points and performs a joint estimation of the resulting fixed-effects logits. It was selected for the purpose of this study as it was shown to provide robust estimates on panel data with a small number of waves (see Baetschmann et al. (2011) for evidence). Our second approach was to estimate a correlated random-effects model, which draws on approach proposed by Mundlak (1978). This method decomposes the unobserved time-constant individual effect u_i into a random effect η_i which is uncorrelated with the explanatory variables and the mean values of the time-varying regressors that are expected to be correlated with the individual random effects (Mundlak 1978). Referring to our research problem the unobserved time-constant individual effect is specified as:

$$(2) \qquad u_i = \gamma_1 \times \overline{obs\_characteristics_i} + \gamma_2 \times \overline{children} + \eta_i$$

The distribution of η_i is assumed to be normal with a mean equal to zero and a constant variance, conditional on the mean individual characteristics over time. The γ_1 and γ_2 are meant to pick up the correlation between the covariates and the person-specific time-invariant unobserved characteristics. The specified correlated random-effects model not only accounts for selection effects, but it also has certain advantages over fixed-effects models. First, it produces more efficient estimates. Second, it was shown to perform better in the panel data set-up with relatively few waves. While fixed-effects models estimated on data with small number of waves may lead to incidental parameters problem, correlated random-effects models avoid this kind of pitfall (Chamberlain 1980).

IV.   EMPIRICAL RESULTS

We estimated our models separately for men and women in order to take into account the possibility that costs of and benefits from children may be different for mothers and for fathers. The results of the correlated random effects model and the model using BUC estimator are presented in Tables 3a and 3b. The correlated random effects model yields in some cases more significant estimates than the BUC model which is consistent with the fact that estimates from random-effects models are more efficient than those from fixed-effects models.

Table 3a The determinants of happiness among women.

	correlated RE model		BUC estimator	
	coef.	s.e.	coef.	s.e.
age	0.069 **	0.034	0.162	0.153
age squared	-0.001 **	0.001	-0.002	0.002
education (low = ref.)				
in education	0.022	0.096	0.079	0.205
medium	0.215 **	0.099	0.300	0.223
high	0.250	0.174	0.276	0.377
satisfaction with health	0.235 ***	0.029	0.442 ***	0.063
satisfaction with income	0.422 ***	0.028	0.815 ***	0.065
labour market status (employed = ref.)				
unemployed	-0.170 +	0.096	-0.237	0.202
inactive	-0.121	0.083	-0.193	0.178
partner and his labour market status (single = ref.)				
with an employed spouse	0.108	0.144	0.016	0.272
with a non-employed spouse	-0.030	0.184	-0.082	0.378
divorced / widowed	-0.630 **	0.260	-1.219 **	0.520
children (no children = ref.)				
one	0.374 **	0.157	0.617 +	0.342
two	0.337 +	0.204	0.542	0.485
three or more	0.449	0.301	0.473	0.649
(youngest) child over 1 year old	-0.121	0.080	-0.131	0.236
LL	-4505.922		-536.386	
N	6513		2379	

Source: authors' estimates based on Social Diagnosis, Significance levels: + p<.1, ** p<.05, *** p<.01.

Table 3b The determinants of happiness among men

	correlated RE model		BUC estimator		
	coef.	s.e.	coef.		s.e.
age	-0.038	0.037	-0.267	+	0.038
age squared	0.001	0.001	0.007	**	0.001
education (low = ref.)					
in education	0.028	0.110	0.201		0.028
medium	0.115	0.112	0.209		0.115
high	0.234	0.228	0.337		0.234
satisfaction with health	0.163 ***	0.030	0.300	***	0.163
satisfaction with income	0.438 ***	0.028	0.749	***	0.438
labour market status (employed = ref.)					
unemployed	-0.342 ***	0.098	-0.584	***	0.342
inactive	-0.046	0.105	-0.123		0.046
partner and his labour market status (single = ref.)					
with an employed partner	0.059	0.164	-0.089		0.059
with a non-employed partner	0.061	0.182	0.173		0.061
divorced / widowed	0.078	0.415	0.148		0.078
children (no children = ref.)					
one	0.514 **	0.203	0.682		0.514
two	0.399	0.247	0.284		0.399
three or more	0.444	0.359	0.021		0.444
(youngest) child over 1 year old	-0.364 ***	0.095	-0.723	+	0.364
LL	-4497.630		-538.648		
N	5870		1986		

Source: authors' estimates based on Social Diagnosis, Significance levels: + p<.05, ** p<.01, *** p<.001.

The effects of most of our control variables are similar to the effects observed in other studies on subjective well-being. The self-rated happiness seems to vary across age and education, although these influences turn out to be insignificant in the fixed-effects model with BUC approach. Both models reveal significant effect of self-rated satisfaction with the state of own health and financial situation of one's household. Both for men and women, entry into unemployment means a significant decline in subjective well-being (although for women this effect appears insignificant in the model using the BUC estimator). Neither the fact of marrying nor the employment situation of the spouse influence self-rated happiness. Losing a partner due to divorce or widowhood lowers the subjective well-being of women, however, with no impact on men.

Parenthood turns out to be an important determinant of happiness for women, but not so much for men. Its effect clearly depends on parity. Both model specifications show that the

arrival of the first child causes an increase in well-being of new mothers. The effects of second or higher order births are already more ambiguous. The correlated random-effects model suggests that women with two children are also significantly more happy that the childless, however the birth of the second child does not increase the subjective well-being of women compared to one-child mothers. The effect of the third or higher order birth in this model is already insignificant although it is large and positive. So are the effects of the second or higher order children in the BUC model. These results suggest that increasing the family size beyond parity one does not further affect the subjective well-being of mothers. Furthermore, we find no effect of the child's age on women's subjective well-being.

For men, the effects of children on subjective well-being are much weaker which is consistent with available empirical research for other countries. More specifically, the first child raises men's subjective well-being only in the correlated random-effects model, but the same model suggests that the increase in fathers' happiness is temporary and falls substantially as the child becomes one year or older. When measured by means of a fixed-effects model with BUC approach, the effects of the number of children as well as age of the youngest child appear strong but the standard errors of these estimates are very large and the overall effect turns out insignificant.

In order to better illustrate the magnitude of the impact of childbearing on happiness, we present the marginal effects of this variable on Figures 1a and 1b. The marginal effects were estimated based on the correlated random-effects model, because only this model allows for a meaningful interpretation of the results[1]. They show a change in the probability of describing oneself as "very happy" after a change in the number of children or age of the youngest child. Four situations were considered: 1) a parent of one child, aged less than one year, 2) a parent of one child, aged more than one year, 3) a parent of two children with the youngest aged less than one year, and 4) a parent of three children with the youngest aged less than one year. The marginal effects were estimated for a reference person aged 27, who completed upper secondary education, is satisfied with health and quite satisfied with his/her living standards, employed, with a working partner, and with no children.

Focusing on women, we can see that an arrival of the first child substantially increases happiness: the probability of indicating being very happy jumps by 9.1 percentage points (Figure 1a). As the first child ages, the marginal effect of having this child on happiness decreases, although the model estimates presented in Table 3a suggest this decline is insignificant. Interestingly, the second child does not bring an additional significant increase in happiness.

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[1] Marginal effects show a change in the dependent variable after a change in one (or more) of the explanatory variables. In the model with fixed effects we estimate a joint probability of indicating happiness higher than a given threshold, for all threshold taken altogether. Hence, it is difficult to provide a meaningful measure of marginal effects based on this model.

Figure 1a. Marginal effects of an arrival of a child of specific parity on indicating being 'very happy' among women.
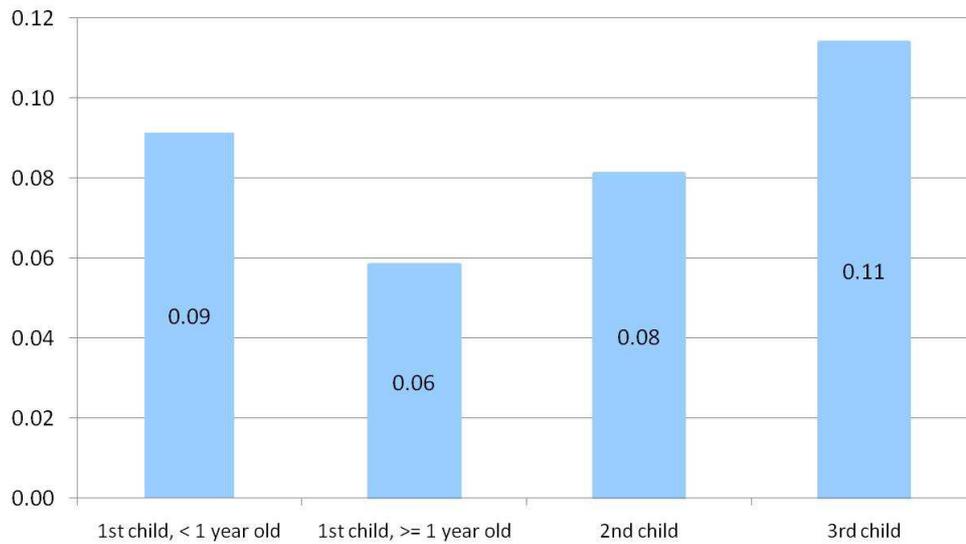
Source: authors' estimates based on Social Diagnosis. The reference category are childless women.

Figure 1b. Marginal effects of an arrival of a child of specific parity on indicating being 'very happy' among men.
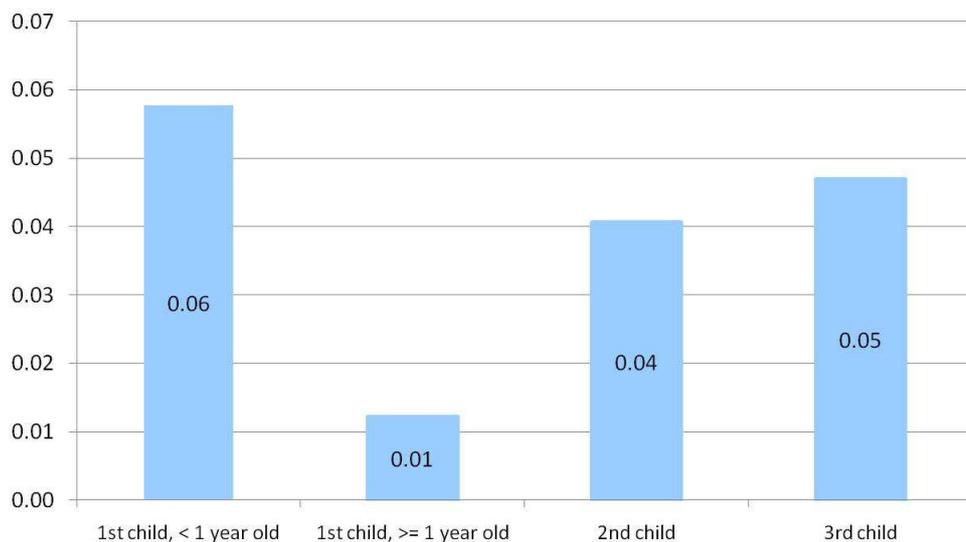
Source: authors' estimates based on Social Diagnosis. The reference category are childless men

Women who give birth to the second child are significantly more likely to be very happy than the childless (by 8.1 percentage points), but they do not differ much in that respect from one-child mothers. Caution is needed, however, while interpreting the predicted probabilities of being very happy for women with two children as the BUC model demonstrated the estimates of the gains in happiness for these women to be less robust (see table 3a). While the increase in happiness among women who enter motherhood is evident, the results on the benefits from having the second child are less clear. The effect of an arrival of the third and subsequent child seems to be even less robust. The gain in happiness after the third child seems positive rather than negative, but the standard errors of this estimate are substantial.

A similar pattern of influence of parenthood on happiness can be observed among men, only that the general gain in happiness derived from parenthood is even smaller than for women and according to the BUC model insignificant. After an arrival of the first child, the probability of indicating being very happy rises by 5.8 percentage points (Figure 1b). As the child grows up, its effect on happiness declines - the probability that a father with one child older than 1 year of age describes himself as very happy is only 1 percentage point higher than for childless men. The arrival of a second and third child causes an increase of happiness of about 4.1 and 4.7 percentage points, respectively, compared to childless men. Hence, similarly as it was in the case of women, our results show that entry to fatherhood increases happiness (although the magnitude of this effect is far weaker), but higher order births seem to evoke negligible effects on self-rated happiness among men.

V.   CONCLUSIONS

In this paper we presented empirical findings on the effects of parenthood on self-rated happiness among people in reproductive age in Poland. We used methods that allow to remove bias which results from selection of "intrinsically (un)happy" individuals into parenthood. Our results reveal a significantly positive effect of the first child on the subjective well-being of mothers. For men, this impact is weaker, somewhat less clear-cut and most likely temporary (it weakens with an increase in child's age). However, neither for men nor for women does the positive impact of parenthood rise with an increase in parity. In other words, entry to parenthood leads to gains in happiness but extending family size beyond parity one does not bring any further significant pay-off in terms of happiness. At this point it should be noted, however, that our estimates of the effects of second and higher order births compared to childless were positive but also displayed high standard errors. This may result from a low number of panel waves we had at our disposal as well as a low number of transitions to second

and higher order birth. Hence, the effect of increasing the family size beyond parity one requires a more in-depth investigation in the future research, possibly using a longer panel data.

This finding might explain the persistence of low fertility in Poland in the recent decade. Despite the strong attachment of Poles to family values, the net effect of having a child on the individual well-being seems strong and positive only in case of first birth. There are at least two possible and nonexclusive explanations for this pattern. First, given theoretical findings of Bulatao (1980), the first child might suffice for satisfying the emotional needs of parents, and the additional benefits from higher order births might be lower as compared to those brought by the first child. Second, every subsequent child might bring the same benefits to parents, but the costs of rearing children might be increasing with parity in a disproportional way. That might be particularly the case in such country as Poland where the opportunity costs of childbearing are very high. Further comparative research on the impact of parenthood on subjective well-being in countries that vary in opportunity costs of children is required, however, in order to corroborate our conclusion. Finally, it is desirable to look more closely into the benefits children bring to parents separately from their costs in order to better understand the role of these two factors for fertility decisions.

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