Do Children Make Us Happier?

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Abstract

We investigate the effects of having children at home on individual happiness. Contrary to much of the literature, we find effects that are positive, large and increasing in the number of children. These effects, however, are contingent on the individual's characteristics. Children make married people happier, but people who are separated, living as a couple or have never married and are not living as a couple are less happy with children. We also analyze the role of factors such as gender, age, income and education.

Keywords: Happiness, children, British Household Panel Survey (BHPS).

1   Introduction

It is now several decades that economists and psychologists have been studying the determinants of human happiness by analyzing how a wealth of socioeconomic variables statistically correlate with answers to questions such as "How satisfied are you with your life?". The research program has been fruitful and we have learned a good deal. Here we address one particular aspect of this research program that has not received the careful attention that it deserves and may therefore lead to some unwarranted conclusions: the effects of having children on happiness.

Simply adding the number of children in the household to the list of explanatory variables in a "happiness equation" will typically show negative or

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null effects (Di Tella et al. 2003, Alesina et al. 2004 and Clark 2006 are some recent examples). This well-known result has prompted authors to conclude that having children make people less happy or at any rate do not make them any happier. Blanchflower (2008), in a recent survey of the literature, states that well-being is lower among those with children and includes this claim among a list of main findings of the happiness and life satisfaction equations. Another recent survey, by Clark et al. (2008a), is less pessimist and claims that "having children ... only slightly affect utility". Layard (2005), in his insightful discussion of what we can learn from this literature, does not include having children among his list of factors affecting happiness. The popular work of Gilbert (2006), finally, makes also the point that, our ideas on the subject notwithstanding, having children does not make us happier persons.

Researchers have made sense of this rather surprising empirical result by pointing out that raising children involves a lot of hard work for only a few occasional rewards. Listening to our child's first words is surely marvelous, but how many hours of diaper-changing and late-night crying must be endured in the process? An important piece of evidence in this direction was provided by Kahneman et al. (2004), who investigate the occurrence of positive and negative feelings (being happy, being frustrated, being depressed, etc.) during typical daily activities. The study was carried with a female-only sample and revealed that childcare ranks very low, 16th out of 19 daily activities, in terms of net positive feelings. Women seemed to enjoy shopping, cooking and watching TV more than taking care of their children.

Important as they are, we believe that results such as those in Kahneman et al. (2004) are far from closing the case. Surely children involve a lot of work and it is likely that the typical everyday experience with your children is rather negative. But when asked about the most important things in their lives most people would place their children near or even at the top of their list. An "hedometer" might not be able to capture the most rewarding aspects of having children, focusing instead in high-frequency discomforts such as asking teenagers to clean up their room. Measures of overall happiness, on the other hand, should reflect the low-frequency and more transcendent rewards of having children. A question such as "How satisfied are you with your life?" lead us to take a long-term perspective and consider our personal and professional achievements before answering. Having children can be expected to weight positively in the answer;

despite or maybe precisely because of the difficulty of raising them.

The point we make in this paper is that, if looked at carefully, the data reveals that children have a positive impact on happiness under some clearly defined circumstances. We show that personal characteristics - such as gender, marital status or income - matter a lot when evaluating the effects of children on happiness. This intuitive result has been largely unexplored in the literature, save some notable exceptions that we discuss in the following section.

Our empirical analysis is carried out using a large panel of British households covering the period from 1991 to 2005. The description of the data and discussion of the results is elaborated in section 3. Section 4, finally, offers some concluding remarks.

2 Literature review

Many papers have included the number of children present in the household as a potential determinant of happiness. A majority of these papers would find a negative or null effect of children on happiness (Di Tella et al. 2003, Alesina et al. 2004, Clark 2006). Since the effect of children on happiness is usually not the focus of these papers the subject is not given additional attention. Positive effects are obtained at least in some regressions in a certain number of papers (Clark and Oswald 2002, Frey and Stutzer 2006, Haller and Hadler 2006), but this is not linked to the specific characteristics of the individuals under consideration.

Our interest here is in papers that explore the idea that the effect of children on happiness will depend on individual characteristics such as gender, marital status or income. Few papers have investigated this possibility, but Frey and Stutzer (2000), Nomaguchi and Milkie (2003) and Kohler et al. (2005) are notable exceptions. Frey and Stutzer (2000), in a paper focused on the effects of democratic institutions on happiness, obtain the result that children have a near-zero effect on the happiness of married couples but a clear negative effect on single parents. They do not explore the issue any further, but the result illustrates the potential importance of marital status.

Nomaguchi and Milkie (2003) analyze the effects of having children on six variables measuring different aspects of well-being: social integration, self-esteem,

self-efficacy, hours of housework, marital conflict and depression. Hours of housework and marital conflict are found to increase for women but not for men. Self-efficacy is found to decrease for non married men and women, but not so for married persons. Social integration, finally, is found to increase for all considered subgroups. None of the measures that the authors considered is an overall happiness measure, but their results clearly show that individual characteristics matter in this context.

Kohler et al. (2005), finally, may be the closest paper to the present one. The authors analyze the effects of partnerships and having children on happiness in a Danish dataset of identical twins. By using the within-twins variation in the data the authors are able to control for all genetic inheritance and for much of the socioeconomic environment (parents, school, neighborhood) that could bias the estimates. Their results show that the first child increases happiness for women but not for men, and that the magnitude of the effect is considerable (half or more the size of the effect of being in a partnership). Additional children are found to lower female happiness (and do not affect men).

Kohler et al. (2005) also interact their dummy variable for being in a partnership with a dummy for having at least one child, and find this interaction term to be unimportant. This would imply that, contrary to gender, being in a partnership does not affect the happiness we obtain from our children. A final result from this paper shows that the positive effects of children on happiness, which had been obtained on a sample of individuals aged 25 to 45, tends to disappear when the regressions are carried out with individuals aged 50 to 70. As it turns out, these results will lend themselves for interesting comparisons with our own results.

3   Empirical study

3.1   Data

Our data comes from the British Household Panel Survey (BHPS). The BHPS follows up to 9,000 households and 15,000 individuals in the United Kingdom and data is collected on a yearly basis. We have at our disposition 15 years of data (1991-2005), but most of our regressions will use observations from 1996 onwards because the measure of happiness we focus on is not available before this

year. This still leaves about 112,000 individual observations of our endogenous variable and almost 89,000 observations to be used in a regression analysis with all additional controls.

The measure of happiness that we use as endogenous variable throughout most of the paper is the answer to the question: "how dissatisfied or satisfied are you with your life overall?". Answers come in a numerical scale ranging from 1 to 7 where 1 is described as "Not satisfied at all" and 7 as "Completely satisfied". The question is pretty standard in the literature although numerical scales tend to differ from survey to survey.

In addition, parts of the paper will consider other well-being measures. In the same 1 to 7 scale we have four other measures of satisfaction with particular aspects of life that may well be affected by the presence of children in the household. These are: "Satisfaction with partner or spouse", "Satisfaction with social life", "Satisfaction with amount of leisure time" and "Satisfaction with use of leisure time". Finally, we will also consider a well-being index that aggregates the answers to 12 different questions about stress and depression such as "Have you recently lost much sleep over worry?" or "Have you recently been able to face up to problems?". This so-called GHQ-12 index takes values between 0 and 12 according to the number of answers denoting the absence of stress and depression.

Table 1 gives some summary statistics for each one of the above mentioned measures of well-being. It is apparent that people tend to report values of well-being in the upper half of the admissible range. The majority of people, in other words, describe themselves as satisfied with their overall life and with diverse aspects of their life. Table 1 shows that the aspect of their life with which people are most satisfied with is typically their partner or spouse: a full 58.8% of respondents gave the maximum score of 7 for this question. It is noteworthy, however, that this question was not asked to individuals without a partner or spouse, unlike the rest of the well-being variables considered.

The distribution of answers for the questions about satisfaction with social life, amount of leisure time and use of leisure time are very similar to each other. For overall satisfaction with life we observe that the answers are somewhat less dispersed, with fewer people giving the highest or the lowest values. It appears

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that people can judge some particular aspect of their life as very bleak or really brilliant, but they are more cautious in saying the same about their whole life.

We do not report the distribution of the GHQ-12 index in Table 1 but we can mention that it is highly skewed: 51.8% of all observations take the maximum value of 12, corresponding to people who do not present any of the signs of stress or depression addressed by the relevant questions. There is, however, considerable variability among the remaining observations as evidenced by the value of the standard deviation (2.92).

Table 2 reports the correlations between all these indicators of well-being. The six measures we consider are all positively correlated but, perhaps surprisingly, not strongly so. It is thus not the case that a high satisfaction with social life goes necessarily hand in hand with a high satisfaction with your amount of leisure time (correlation of 0.54) or that a high satisfaction with your partner or spouse implies a high satisfaction with your life (correlation of 0.39). The moderate values taken by these correlation coefficients justify analyzing each well-being measure separately as we do towards the end of the paper.

The explanatory variable on which we will focus our attention will be the number of children living in the household. The BHPS records this information every year by classifying as children individuals aged less than 16 years old. It is noteworthy that this variable does not differentiate between natural children, step children and adopted children. Equally important is the fact that sons and daughters who have left the parental home or who are living with their parents but are 16 years old or more are not counted by this variable. Such a circumstance becomes increasingly likely for older parents, and we will explore the effects of excluding such parents from the analysis. As it stands, though, this variable will allow us to explore the happiness effect of having children at home; not of having become a mother or a father.

We use the number of children living in the household to create four mutually exclusive dummy variables denoting the cases where one, two, three and four or more children are present in the household. The excluded category is thus households with no children and the coefficient on these dummies can be interpreted as the happiness effect of having one, two, three and four or more children at home.

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Next to the variables measuring the number of children in the household our regression analysis will include a list of control variables whose effects on happiness have been shown to be important in the literature. These control variables are: the respondent's sex, age, health status, marital status, employment status, income, degree of participation in religious practices, education and region of residence.

Health status is assessed by the following question: "Please think back over the last 12 months about how your health has been. Compared to people of your own age, would you say that your health has on the whole been...". The available answers are: excellent, good, fair, poor and very poor. We construct dummies for excellent, good, fair and poor health; the excluded category being very poor health.

For marital status we use dummies for married people, people living as a couple, widowers, divorced and separated persons. The excluded category correspond to people who have never married and are not living as a couple. Income is measured by the log of total annual household income adjusted for household size and for inflation[1]. To take into account the employment status of the respondents we include a dummy variable taking the value of 1 when the respondent is unemployed.

Religious attitudes are captured by two dummies: the first one identifies highly religious people and takes the value of 1 when the respondent attends a religious service at least once a week. The second one identifies mildly religious people, those who attend a religious service at least once a year but less than once a week. The excluded category corresponds to people who attend religious services less than once a year. Education and region of residence, finally, are captured by the corresponding questions in the BHPS.

3.2   Results

3.2.1   Baseline results

We start by performing some baseline regressions with our main measure of happiness as the endogenous variable and the whole set of regressors previously

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[1] The equivalence scale is described in Taylor (2007). We adjust for inflation using the UK's CPI from the Office of National Statistics.

described. In these regressions we compare the results from two econometric procedures: a pooled OLS and a fixed effects estimation, both including time dummies. Results are reported in table 3.

Table 3 confirms the findings of the literature on the determinants of happiness. For both econometric methodologies we observe that health, marital and employment status have the largest effects on happiness. As expected, we find that healthy people, people who are married or living as a couple and highly religious people are happier. People who are divorced or separated and those who are unemployed are considerably less happy. Income has a positive, albeit relatively smaller effect on happiness and the relationship between age and happiness is U-shaped.

Although the pooled OLS and the fixed effects regression provide similar qualitative results, there are several differences worthy of notice. First, the size of most coefficients falls by about half once fixed effects are included. Second, most coefficients keep the same sign but there are a few exceptions. Widowhood, for instance, has a small positive effects in the pooled OLS regression but a large negative one in the fixed effects regressions.

A natural explanation for these differences is that the coefficients from the pooled OLS regressions may be biased due to unobserved person-specific factors that are correlated with the regressors. In other words, if people who are intrinsically happier tend to marry more often or be in better health the effects of these variables would be biased upwards. A fixed effects regression controls for unobserved person-specific factors and does not suffer from such bias. This would explain why most coefficients are smaller under fixed effects[2].

Fixed effects are usually considered necessary in this area since unobserved person-specific characteristics such as genetic background and family values can be expected to matter a lot for happiness. In the rest of the paper we will use

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[2]A second explanation for the differences may be hedonic adaptation. As shown most recently by Clark et al. (2008b) and Angeles (2009), individuals tend to "adapt" to many life events like changes in marital status or in health. In other words, the effect of such changes is high in the years immediately after it takes place, but tends to dissappears in the long run. In a panel with a relatively limited time dimension the effect of a given shock would be estimated using observations that take place shortly before and after the shock. This would explain why the coefficient on widowhood is large and negative under fixed effects: unlike the OLS coefficient, it is capturing the early years following the death of a spouse.

only fixed effects regressions and include the set of control variables from table 3.

We have left the discussion of the coefficients on the number of children for the end. As table 3 reveals, a pooled OLS regression estimates large negative effects of having one, two, three or (larger still) four or more children[3]. This result can be considered as the basis for much of the claims reported in the Introduction regarding the negative effect of having children. Results do change, however, when we consider a fixed effects regression. In this case the effects are much closer to zero and can actually be slightly positive: having three children is estimated to increase happiness by 0.059, although the confidence interval for this coefficient goes into negative numbers. These last results support the more moderate views reported in the Introduction that state that the effects of children on happiness is actually small and possibly zero.

Regressions such as those in table 3 make the implicit assumption that having a child at home affects equally everyone in the population: young and old, married and not married, rich and poor, men and women. It is not difficult so see that this assumption is highly inadequate; personal characteristics such as those just mentioned may have a huge impact on the experience of parenthood. Married individuals, by and large, want children; unmarried ones are much less likely to want them. Women may be more keen on children than men, at least if we are to believe popular views on the matter. Richer parents may be better suited to provide for their children, although they could have less time to dedicate to them. And so on, for many other potential partitions of the total population. The average effects reported in table 3 could obscure the picture by pooling together people who experience parenthood very differently due to their different circumstances. We will thus go forward by studying the relationship between having children at home and happiness among different groups in the population.

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[3]Through most of this paper we will be concerned with the size of the effect of children on happiness. We will consider that an effect is large if it is in the same league as the effects of marriage, unemployment and health. Taking the results from the second column of table 3 as a benchmark, the effect of marriage on happiness is 0.178 units, the effect of unemployment is -0.294 and the effect of increasing health status by one in the five-level scale is about 0.250. Thus, we regard an effect in the $0.200 - 0.300$ range as large.

3.2.2 Children and happiness

Of all the potential groupings, we believe that the sharpest differences can be found by considering individuals by their marital status. We follow this route in table 4, which reports the effects of having different number of children for six mutually exclusive marital status categories. Table 4, as all the remaining tables in this paper, does not report the coefficients of the control variables but these are always included in our regressions.

The first message from table 4 is that marital status matters and it matters in the direction that we would have expected. For married individuals, who constitute 49'000 observations out of a total of 89'000, children have a positive effect on happiness. Moreover, the effect increases with the number of children: married individuals with one child are practically at the same happiness level as those without one, the effect becomes more noticeable for individuals with two children and people with three or four and more children receive a large boost in their happiness scores, 0.197 and 0.184 respectively, similar in magnitude to the effect of getting married or improving your health. We also note that the coefficients on having two, three, and four or more children for married individuals are statistically significant.

The effect can be very different for individuals under other marital status. For individuals who are separated, living as a couple and for the never-married singles the effects of having children are large and negative (though not statistically significant)[4]. The fact that people living as a couple experience lower levels of happiness with children suggest that we are not observing uniquely the economic difficulties of raising children without a partner. What separates married individuals from those living as a couple is not the possibility of pooling resources together to support their children but possibly the willingness to have those children in the first place.

Another interesting result is obtained for the group of widowers, the only group besides married individuals with consistently positive and large coefficients (though only one coefficient is statistically significant at conventional levels). The size of the coefficients for widowed individuals is even larger than for

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[4]The group "never-married singles" was obtained by taking the persons described as "never married, not in a couple" and considering only the individuals who are catalogued as head of household. The reason is that many of the individuals who have never married, are not living as a couple and who are not heads of household will be actually grown-up children of the household head and the children living in the household will probably be their siblings.

married ones, suggesting that children play a particularly large role in the happiness of widowed persons; perhaps because they fill the important emotional gap created by the lost of a spouse.

To summarize, the results from table 4 tell us that children do indeed increase happiness for a very large fraction of the population, namely for married individuals, and that the effect can be large. Married individuals are arguably the most appropriate group to study the effects of having children on happiness, as the act of marriage can be interpreted as a signal of the partners' willingness to experience parenthood. In what follows we study married individuals in more detail by considering how they differ along diverse socioeconomic criteria[5].

The first criteria that may come to mind is gender: do men and women feel differently about having children? This question is addressed in columns two and three of table 5, where we report the results from regressions considering only married men and only married women. In line with conventional wisdom, we find that female happiness increases more than male happiness in the presence of children. The difference is small for individuals having one or two children but becomes quite sizeable for individuals with three and four or more children. For the case of three children, for instance, the size of the effect is 0.246 for women and 0.138 for men. It is noteworthy that Kohler et al. (2005) had also found that female happiness responds more than male happiness to the presence of children.

Table 5 also explores differences between younger and older individuals. Columns four and five separate married individuals into those who are less than 30 years of age and those who are 30 or more. Both groups retire satisfaction from having children but some interesting differences appear. In the younger group, people are equally happy having one, two or three children[6]. In the older group, the effect on happiness is clearly increasing with the number of children until the third child. Our interpretation for these results is that three may be the ideal number of children for British parents over the observed period.

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[5]We may note at this point that Kohler et al. (2005) found that the interaction between the dummy variables for "having at least one child" and "being in a partnership" had no effect on happiness. This may be explained by the fact that in their study a "partnership" may refer to an unmarried couple. As our results from table 4 make clear, married and unmarried couples experience parenthood markedly differently.

[6]The effect of having four or more children is much larger but one has to consider that having four or more children before the age of 30 is a rather rare occurrence.

When considering all married individuals together, three children was also the instance providing the largest increase in happiness. A young individual may well wish to reach this family size as well, but he or she knows that they still have several years to attain it. Thus, individuals who are less than 30 and have only one child would not feel relatively unhappy for not having completed their ideal family whereas this could be a disappointment for older persons.

An additional question that we may explore at this point is whether our results, which estimate the effects of having children at home on happiness, can also be interpreted as the effects of being a parent on happiness. Our data is not the most appropriate for measuring the later effect since older individuals will typically have children who no longer live with them, and would therefore be counted in the "no children at home" category. There is no definitive way to adjust our data to capture the effects of being a parent, but a useful approximation may be obtained by considering only individuals up to a certain age limit, which we draw at 50 years old. Most, though certainly not all, of the people with children who have left the parental home would be excluded from this group; so that having x children at home will usually mean being the parent of x children. We run this regression in column 6 of table 5 and find no marked quantitative changes with respect to the sample of all married individuals (column 1). If anything, the effects of children on happiness has become slightly larger than previously. We would thus advance that our results may apply as well to the effects of being a parent on happiness[7].

Table 6 continues with our investigation by considering differences in income and education. Regarding income, we separate married individuals into three groups: those with less than 50% of average income, those who have between 50% and 150% of average income and those with more than 150% of average income. Results are different for each of these three groups. In the poorest group the happiness effect is very similar for any number of children: about 0.200 (though not statistically significant). In the middle income group, which represents the gross of the population, we find the now familiar pattern of a positive happiness effect becoming stronger as the number of children rises. This group being much more numerous, the coefficients for two and three children are statistically significant. The results thus suggest that poor individuals may

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[7] A related result is obtained by Kohler et al. (2005), who find a positive effect of children on happiness when their sample includes individuals aged 25 to 45 but no effect with individuals aged 50 to 70.

content themselves with only one child given their limited resources but for what we could call "the middle class" a larger number of children is affordable and brings more happiness.

A somewhat surprising result comes from the richest of our three groups, those with more than 150% of average income, as children tend to lower the happiness of its members. While having one child is still associated with a small positive effect, two and more children produce large negative values (though none of the coefficients is statistically significant). One may speculate that richer individuals have preferences tilted towards career and financial success and away from child rearing.

The last three columns of table 6 analyze the effects of children on the happiness of married individuals with different levels of education. The BHPS has seven categories of educational attainment which reflect the British educational system. We collapse those seven categories into three: individuals with a full university education, individuals with a full high school education and individuals with less than a full high school education. The second group is the more numerous and its results most closely resemble those of the population at large. For this group happiness is increasing in the number of children in the household. The results for the other two groups are more difficult to interpret. For highly educated individuals we observe that having just one or two children produces a larger positive effect than for their less educated peers. For the least educated individuals the effects tend to be mild, and are estimated with a large degree of uncertainty (confidence intervals always include negative values).

Overall, tables 4 to 6 strongly sustain the central claims being made in this paper: first, that the effects of children on happiness depends to a large measure on the characteristics of the parents under consideration and second, that for large parts of the population having children can be expected to raise, not decrease, happiness.

We have found that married individuals in general, and married women in particular, are happier with children and get happier as the number of children in their household increases. We have found that the positive effect of children is present for married individuals of all ages. We have found that richer individuals are unhappy with many children and that highly educated ones seem to be happier than less educated ones with just one or two children.

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A surprising fact is that all these instances of positive association between having children and happiness coexist with the undoubtedly large and negative effects that having children has on narrower well-being measures. Child rearing is hard work and it would be naive to expect it to have no consequences on the parents' social life or use of leisure time. This is documented in table 7, where we report the effects of having children on the five additional well-being measures that we presented in the preceding section. The regressions use all individuals, but similar results are obtained when restricting the sample to married individuals.

Table 7 makes clear that children take their toll on their parents' satisfaction with social life, amount of leisure time and use of leisure time. The satisfaction with one's spouse is also negatively affected albeit to a much milder degree. The effects on the GHQ-12 index, while negative, are small and indicate that children are not necessarily a major source of stress for their parents. The coefficients in table 8 also reveal that most of the "damage" comes with the first child, and that subsequent children further reduce these satisfaction scores but at a rapidly decreasing rate. The exception to this last assertion is the GHQ-12 index, where negative effects are actually lower with two children than with only one.

There is thus no denying that children have negative consequences on several well-being measures. What we have also found is that despite all these negative sides, when considering their life as a whole married parents report themselves as happier than married non parents. The intangible rewards of parenthood must be quite substantial indeed.

4   Concluding remarks

This paper has presented econometric evidence supporting a positive effect of having children on individual happiness. This result differs from the general view that the literature has held on the matter. Previous research failed to identify these positive effects because it did not consider the key role of individual characteristics, marital status in particular. For the average person, having children has a small and possibly zero effect on life satisfaction. For the average married person, however, the effect is large, positive and increasing in the number of children. The positive experience of married individuals is countered

by the negative experiences of people who are separated, living as a couple or never-married singles.

Given our results, claims that children decrease happiness or do not affect it markedly seem to be misplaced. One is tempted to advance, on the contrary, that children make people happier under the "right conditions". We do not mean this as a moralistic defense of marriage. Instead, by right conditions we have in mind the time in life when people feel that they are ready, or at least willing, to enter parenthood. This time can come at very different moments for different persons, but a likely signal of its approach may well be the act of marriage.

A final remark is in place regarding the fact that we have measured the effects of having children at home, not the effect of being a parent. In our view, this makes our results all the more remarkable since the children who are at home necessarily imply some hard work for their parents. In other words, our results are not biased by individuals who, having suffered through all the phases of child rearing, can now relax and receive the attentions of their grown-up kids without any of the previous toil. By focusing on children living in the household and up to the age of 16 we know that every one of our individuals with children is having to cook for them, clean after them and pay for their essential and non essential needs. And it is on these individuals that a positive effect on happiness can be clearly detected.

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Table 1
Summary statistics

	Satisfaction with life overall (happiness)	*Satisfaction with partner or spouse*	*Satisfaction with social life*	*Satisfaction with amount of leisure time*	*Satisfaction with use of leisure time*	*GHQ-2*
Mean	5.03	6.16	4.68	4.55	4.63	10.11
Standard deviation	1.66	1.41	1.88	1.98	1.91	2.92
Frequency of value:						
7	15.0 %	58.8 %	16.9 %	20.3 %	17.7 %	--
6	32.3 %	22.8 %	22.7 %	17.4 %	20.9 %	--
5	29.0 %	9.1 %	26.1 %	22.2 %	24.9 %	--
4	7.2 %	2.4 %	8.8 %	9.1 %	8.9 %	--
3	6.0 %	2.3 %	9.3 %	12.4 %	10.8 %	--
2	2.2 %	1.1 %	4.1 %	5.9 %	4.7 %	--
1	8.2 %	3.5 %	12.1 %	12.7 %	12.1 %	--

Table 2
Correlation matrix

	Satisfaction with life overall (happiness)	*Satisfaction with partner or spouse*	*Satisfaction with social life*	*Satisfaction with amount of leisure time*	*Satisfaction with use of leisure time*	*GHQ-12*
Satisfaction with life overall (happiness)	1					
Satisfaction with partner or spouse	0.39	1				
Satisfaction with social life	0.55	0.30	1			
Satisfaction with amount of leisure time	0.43	0.24	0.53	1		
Satisfaction with use of leisure time	0.54	0.27	0.64	0.64	1	
GHQ-12	0.44	0.20	0.31	0.22	0.30	1

Table 3
Baseline results

	(1) *Pooled OLS*	(2) *Fixed effects*
	Dependent variable: Life satisfaction (happiness)	
Male	-0.045***	--
	(0.011)	
Age	-0.044***	-0.037*
	(0.002)	(0.020)
Age^2	0.0005***	0.0001
	(0.00002)	(0.00005)
Health: excellent	2.224***	1.028***
	(0.046)	(0.53)
Health: good	1.787***	0.879***
	(0.045)	(0.052)
Health: fair	1.157***	0.581***
	(0.047)	(0.051)
Health: poor	0.554***	0.290***
	(0.050)	(0.051)
Married	0.430***	0.178***
	(0.019)	(0.043)
Living in couple	0.328***	0.163***
	(0.021)	(0.035)
Widowed	0.016	-0.249***
	(0.031)	(0.079)
Divorced	-0.174***	-0.107*
	(0.030)	(0.060)
Separated	-0.456***	-0.330***
	(0.047)	(0.069)
Unemployed	-0.439***	-0.294***
	(0.037)	(0.040)
Religious: high	0.255***	0.114***
	(0.017)	(0.041)
Religious: mild	0.074***	0.018
	(0.013)	(0.020)
Log of Income	0.206***	0.067**
	(0.020)	(0.027)
One child	-0.210***	-0.027
	(0.017)	(0.024)
Two children	-0.183***	0.009
	(0.018)	(0.031)
Three children	-0.231***	0.059
	(0.029)	(0.049)
Four or more children	-0.390***	-0.007
	(0.058)	(0.094)
Fixed effects	no	Yes
Time dummies	yes	Yes
Observations	88928	88928
R^2	0.15	0.58

Note: robust standard errors in parenthesis. Control variables for education levels and region of residence have been included in all regressions but are not reported.
*, ** and *** denote statistical significance at 10%, 5% and 1% levels.

Table 4
Results by marital status

	Dependent variable: Life satisfaction (happiness)						
	(1) *All* *individuals*	*(2)* *Married*	*(3)* *Never* *married* *singles*	*(4)* *Widowed*	*(5)* *Living as a* *couple*	*(6)* *Separated*	*(7)* *Divorced*
One child	-0.027 (0.024)	0.017 (0.030)	-0.321 (0.315)	0.453* (0.270)	-0.090 (0.089)	-0.283 (0.465)	-0.061 (0.147)
Two children	0.009 (0.031)	0.074** (0.036)	-0.347 (0.440)	0.723 (0.528)	-0.155 (0.130)	-0.046 (0.534)	0.307 (0.212)
Three children	0.059 (0.049)	0.197*** (0.057)	-0.329 (0.573)	0.462 (0.725)	-0.026 (0.218)	-0.737 (0.728)	-0.001 (0.284)
Four or more children	-0.007 (0.094)	0.184* (0.105)	-0.490 (0.882)	0.704 (0.759)	-0.222 (0.409)	-0.870 (1.447)	0.742 (0.605)
Obs.	88928	49157	7184	6697	9471	1628	5199
R^2	0.58	0.59	0.63	0.62	0.64	0.73	0.66

Note: robust standard errors in parenthesis. All regressions include individuals fixed effects, time dummies and all control variables.
*, ** and *** denote statistical significance at 10%, 5% and 1% levels.

Table 5
Results for married individuals by sex and age

	Dependent variable: Life satisfaction (happiness)					
	(1) *Married individuals*	*(2)* *Married men*	*(3)* *Married women*	*(4)* *Married individuals, age less than 30*	*(5)* *Married individuals, age 30 or more*	*(6)* *Married individuals, age less than 50*
One child	0.017 (0.030)	0.0 (0.043)	0.034 (0.042)	0.118 (0.112)	0.024 (0.034)	0.034 (0.037)
Two children	0.074** (0.036)	0.061 (0.051)	0.083 (0.051)	0.108 (0.195)	0.093** (0.040)	0.112** (0.046)
Three children	0.197*** (0.057)	0.138* (0.079)	0.246** (0.082)	0.128 (0.294)	0.231*** (0.062)	0.247*** (0.068)
Four or more children	0.184* (0.105)	0.131 (0.151)	0.239 (0.147)	0.619 (0.557)	0.158 (0.114)	0.229** (0.115)
Obs.	49157	23914	25243	3181	45976	25369
R^2	0.60	0.60	0.59	0.69	0.60	0.60

Note: robust standard errors in parenthesis. All regressions include individuals fixed effects, time dummies and all control variables.
*, ** and *** denote statistical significance at 10%, 5% and 1% levels.

Table 6
Results for married individuals by income and education

	Dependent variable: Life satisfaction (happiness)						
	(1) Married individuals	*(2)* Married individuals, less than 50% of average income	*(3)* Married individuals, between 50% and 150% of average income	*(4)* Married individuals, more than 150% of average income	*(5)* Married individuals, full university education	*(6)* Married individuals, full schooling education	*(7)* Married individuals, less than full schooling education
One child	0.017 (0.030)	0.173 (0.168)	0.010 (0.041)	0.060 (0.063)	0.107* (0.060)	-0.006 (0.039)	0.020 (0.076)
Two children	0.073** (0.036)	0.182 (0.196)	0.088* (0.049)	-0.062 (0.090)	0.141* (0.076)	0.076 (0.046)	-0.009 (0.101)
Three children	0.197*** (0.057)	0.201 ((0.232)	0.229*** (0.076)	-0.332 (0.206)	0.070 (0.136)	0.194*** (0.071)	0.254 (0.155)
Four or more children	0.184* (0.105)	0.189 (0.318)	0.244 (0.150)	-0.164 (0.309)	0.210 (0.216)	0.228* (0.129)	0.087 (0.286)
Obs.	49157	8157	32089	8911	6293	26252	16612
R^2	0.59	0.72	0.63	0.66	0.58	0.58	0.62

Note: robust standard errors in parenthesis. All regressions include individuals fixed effects, time dummies and all control variables.
*, ** and *** denote statistical significance at 10%, 5% and 1% levels.

Table 7
Results for all individuals, different endogenous variables

Dependent variable:	*Satisfaction with life overall (happiness)*	*Satisfaction with partner or spouse*	*Satisfaction with social life*	*Satisfaction with amount of leisure time*	*Satisfaction with use of leisure time*	*GHQ-12*
One child	-0.026	-0.056**	-0.348***	-0.240***	-0.229***	-0.102***
	(0.024)	(0.023)	(0.028)	(0.030)	(0.029)	(0.035)
Two children	0.009	-0.107***	-0.419***	-0.349***	-0.281***	-0.059
	(0.031)	(0.030)	(0.035)	(0.037)	(0.036)	(0.042)
Three children	0.059	0.011	-0.465***	-0.414***	-0.281***	-0.099
	(0.049)	(0.049)	(0.057)	(0.059)	(0.058)	(0.068)
Four or more children	-0.007	-0.149	-0.668***	-0.597***	-0.352***	-0.063
	(0.094)	(0.099)	(0.105)	(0.102)	(0.103)	(0.130)
Obs.	88928	63938	89053	89096	89117	137481
R^2	0.59	0.61	0.58	0.58	0.58	0.51

Note: robust standard errors in parenthesis. All regressions include individuals fixed effects, time dummies and all control variables.
*, ** and *** denote statistical significance at 10%, 5% and 1% levels.