

# **Does the Financial Burden of Having Children Explain Fertility Differentials Across Countries? Evidence from Satisfaction Data**

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## **Abstract**

Comparing the financial burden of having children across countries accompanies various types of measurement issues. The present study employs financial satisfaction to overcome the measurement issues and examines how the financial burden of having children differs across countries. The challenge in this approach lies in detecting the impact of having children on financial satisfaction. To address this challenge, we focus our attention on the peculiar movement of satisfaction in the financial domain of life, which is measured by standardizing financial satisfaction by overall life satisfaction, and perform regression analyses using World and European Integrated Values Survey. The results show that the negative impact of having an additional child on satisfaction becomes particularly greater in the financial domain as income increases and total fertility rate (TFR) decreases. The results also indicate that having children offers a sense of financial security to the elderly in high TFR countries while this is not the case in lower TFR countries. These results support the general idea that the heavier financial burden of having children is a major cause of fertility decline and provide policy implications to find a way out of extremely low fertility.

Keywords: Financial Burden of Children, Financial Satisfaction, Life Satisfaction, Fertility

JEL classification: C26, I31, J13

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## 1. Introduction

The heavy financial burden of having children is often considered to be a major cause of extremely low fertility. However, empirically investigating this relationship is not easy because measuring the financial burden is not straightforward. The present study challenges this issue by employing subjective well-being data for measuring financial burden.

In particular, the present study employs financial satisfaction as a measure of financial burden and examines the relationship between the financial burden of having children, specifically burden per child, and fertility behavior across countries. Studies in the past have examined the impact of having children on financial satisfaction but have not addressed its relationship to fertility differentials across countries. In addition, these previous studies paid little attention to the specification of regression equations, mainly because most of these studies were not primarily meant to detect the financial impact of having children. As a result, our best knowledge in this regard remains as “children may be a financial burden in rich countries, as opposed to other countries (Peiro 2006),” which is based on a general examination on the relationships between socioeconomic conditions and happiness/satisfaction in a limited sample of 15 countries without addressing the specification issue. This finding is insufficient from which to draw any definite conclusions.

The rest of the paper is organized as follows. The next section discusses the challenges in detecting the impact of having children on financial satisfaction. Section 3 describes the data set and presents the main results. Section 4 concludes.

## 2. Challenges in Detecting the Impact of Having Children on Financial Satisfaction

The difficulty in detecting the impact of having children on financial satisfaction arises from the endogeneity of the number of children. This problem has not been discussed in previous studies. To overcome this issue, we focus our attention on the peculiar movement in financial satisfaction. Following the domain-of-life approach (See Van Praag et al. 2003, Easterlin 2006 and references therein), we consider that overall life satisfaction is a composite of satisfaction levels in various domains of life, one of which is the financial domain. Then, by standardizing financial satisfaction by dividing by overall life satisfaction, we detect the peculiar movement of satisfaction in the financial domain in comparison to all domains. Acknowledging that having children affects various domains of life, we focus on the distinctive movement of satisfaction in the financial domain and use it to measure how people feel about having children particularly in the financial domain. This measure, we call the standardized financial satisfaction, assesses the severity of the impact of having children in the financial domain, and provides sufficient information for investigating the importance of the financial burden on fertility behavior in low fertility countries when comparing it to the one in higher fertility countries. Employing this

method, we can also eliminate unobservable individual characteristics, apply the instrumental variable (IV) method using the ideal number of children as an instrument for the actual number of children, and reduce the risk of omitted variable bias.

### 3. Regression Analyses

For examining the impact of having children on the standardized financial satisfaction across countries, we use World and European Integrated Values Survey 1981-2008, Wave 1-5 (WVS 2009, EVS 2011). The survey contains respondents' ratings of financial and overall life satisfaction, both of which range from 1 (dissatisfied) to 10 (satisfied), and their actual and ideal numbers of children. This survey is suitable for the present study since it contains data across various types of countries. The data set for which the data on individuals' demographic and socioeconomic factors are available contains 107,136 observations across 60 countries between 1989 and 2008.

Using this data set, we regress the standardized financial satisfaction, *SFS*, on the actual number of children, *CHILD*, controlling for the individual's demographic and socioeconomic factors. We apply the IV method using the ideal number of children, *IDEAL*, as the instrument for *CHILD*. Control variables are income class, age, age-squared, sex, marital status, education, employment status, country, and year. The details of these variables are presented in the same table as regression results. Then, countries are categorized by per capita GDP and total fertility rate (TFR) to compare how the coefficients of *CHILD* differ across development stages.

Table 1 presents the main results. Here, countries are grouped into high ( $TFR \geq 3.5$ ), middle ( $2.5 \leq TFR < 3.5$ ), low ( $1.5 \leq TFR < 2.5$ ), and very low ( $TFR < 1.5$ ) TFR countries (The data for TFR are taken from UN World Population Prospects, the 2012 Revision 2013). As long as the heavy burden in the financial domain is responsible for reducing the number of children, we can expect that the coefficient of *CHILD* becomes smaller as TFR decreases.

Consistent with the prediction, the results demonstrate that the coefficient of *CHILD* becomes smaller as TFR decreases. It is significantly positive at the 1% level in high TFR countries, not significantly different from zero in middle TFR countries, and significantly negative in low and very low TFR countries, respectively, at the 5% and 10% levels.

The validity of the instrument is supported. The first-stage *F*-statistic indicates that, in all equations, *IDEAL* has sufficient explanatory power in the first-stage regression. The over-identification test (Hansen 1982) points to the exogeneity and, thus, the validity of *IDEAL*. The Wu-Hausman test (Hausman 1978) advocates the use of the IV method over the OLS method to compare the results across TFR levels.

These results demonstrate that having an additional child has a distinctive positive impact on satisfaction in the financial domain in high TFR countries and a distinctive negative impact

Table 1: Regression Results (Dependent variable: *SFS*. Categorized by TFR)

Method	IV (instrument: <i>IDEAL</i> )			
	(2-1)	(2-2)	(2-3)	(2-4)
Category	high TFR	middle TFR	low TFR	very low TFR
<i>CHILD</i>	0.0468*** (0.0171)	-0.0101 (0.0143)	-0.0281** (0.0112)	-0.0363* (0.0189)
Income class	0.0286*** (0.00437)	0.0155*** (0.00223)	0.0191*** (0.00188)	0.0184*** (0.00198)
Age	-0.0114** (0.00461)	-0.00169 (0.00278)	-0.000414 (0.00204)	0.00165 (0.00247)
Age-squared	9.79e-05** (4.36e-05)	3.81e-05 (2.57e-05)	3.20e-05 (1.96e-05)	1.43e-05 (2.49e-05)
Sex (ref: male)				
female	-0.00332 (0.0182)	-0.0119 (0.00928)	-0.0145* (0.00818)	-0.0202** (0.00897)
Marital status (ref: married/living together as married)				
divorced/separated	0.0825 (0.0625)	0.0388* (0.0227)	0.0258 (0.0183)	0.0446** (0.0195)
widowed	-0.0347 (0.0395)	0.0199 (0.0223)	0.0836*** (0.0219)	0.0541*** (0.0172)
single/never married	0.103** (0.0405)	0.0536** (0.0240)	0.0404** (0.0196)	0.0300 (0.0257)
Education (ref: lower education)				
middle	0.139*** (0.0214)	-0.0101 (0.0131)	-0.00791 (0.0105)	-0.00310 (0.0110)
upper	0.114*** (0.0251)	-0.0394** (0.0185)	-0.0224* (0.0136)	-0.0137 (0.0145)
Employment status (ref: full time)				
part time	0.0216 (0.0308)	0.0470*** (0.0179)	0.0246 (0.0151)	-0.00851 (0.0140)
self employed	0.0845*** (0.0249)	0.00958 (0.0120)	0.0293** (0.0131)	0.0350 (0.0223)
retired	-0.00859 (0.0437)	0.0164 (0.0203)	-0.0113 (0.0166)	-0.0127 (0.0173)
housewife	-0.0162 (0.0255)	0.0212 (0.0145)	0.00749 (0.0138)	0.0273 (0.0183)
students	-0.0428 (0.0296)	0.0213 (0.0186)	-0.00183 (0.0204)	-0.0146 (0.0223)
unemployed	-0.0131 (0.0282)	0.0316* (0.0171)	0.0137 (0.0160)	-0.0147 (0.0169)
other	-0.0400 (0.0488)	-0.0215 (0.0315)	0.0172 (0.0295)	0.0270 (0.0308)
Observations	17,330	35,797	32,216	21,793
<i>R</i> -squared	0.038	0.043	0.018	0.015
First-stage <i>F</i> -statistic	1052.50	1202.77	1299.82	496.80

Note: All equations include year and country dummies. Heteroskedasticity-robust standard errors in parentheses. \*\*\*, \*\*, and \* respectively indicate the significance level at  $p < 0.01$ ,  $p < 0.05$ , and  $p < 0.10$ . The first-stage *F* statistic tests the relevance of the instrument. Income class is divided into ten categories.

in low and very low TFR countries. These results are consistent with the view and that the financial burden of having children is a major binding constraint for having children in low and very low TFR countries.

Other interesting results are presented in Figure 1. By regressing *SFS* separately for four parental age-class; young ( $15 \leq \text{age} < 30$ ), early-middle ( $30 \leq \text{age} < 45$ ), late-middle ( $45 \leq \text{age} < 60$ ), and old ( $\text{age} \geq 60$ ), it shows that the coefficients of *CHILD* are particularly large after midlife in

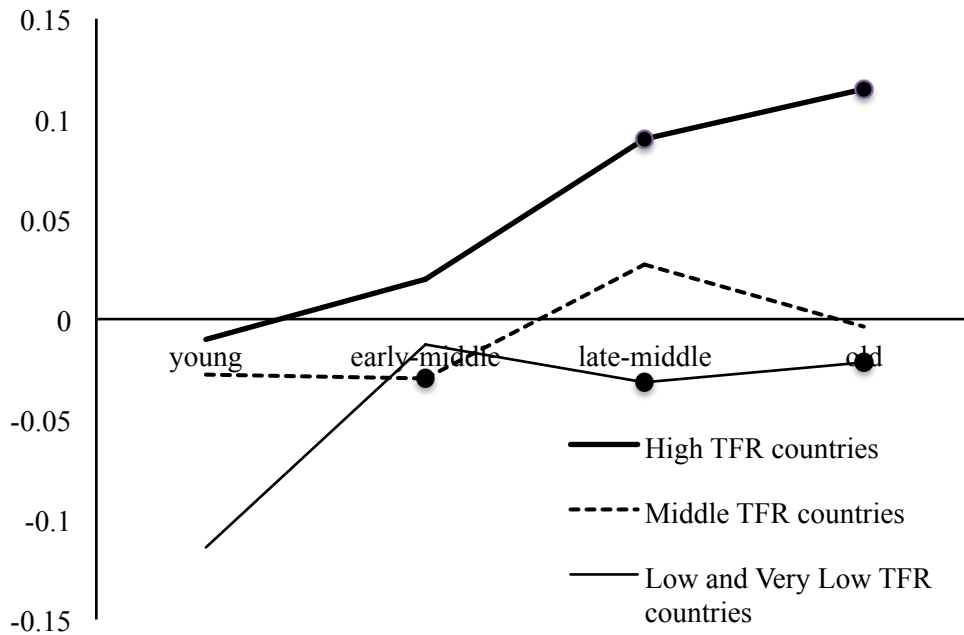


Figure 1: Impacts of CHILD Over Family Life Course (Dots: significant at least at 10%)

high TFR countries. This suggests that that having children offers a sense of financial security to the elderly in high TFR countries while this is not the case in lower TFR countries, pointing to the importance of old-age financial security for explaining the differences in fertility behavior across countries.

#### 4. Concluding Remarks

Using subjective measures of satisfaction, the present paper examines how the financial burden of having children differs across development stages. The results show that, with social and economic development, the negative impact of having an additional child on satisfaction becomes particularly greater in the financial domain, supporting the idea that the heavy financial burden of having children is a major cause of fertility decline. The results also point to the efficacy of subjective well-being measures for studying demographic and development issues, demonstrating that subjective well-being data can uncover relationships that conventional objective data alone cannot.

From a policy-making perspective, the findings in the present study point to the importance of public policies to ease the financial constraint of having children if low fertility is something socially undesirable. For example, under the pay-as-you-go pension system, linking pension contributions and benefits to the number of children is potentially a powerful option.

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