

On the Association between Parenthood, Number of Children and Expectations of Old-Age Welfare

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Extended abstract

Introduction

This paper seeks to explore the association between having children and expected subjective old-age welfare within a European context. Data for 31 countries from the European Social Survey is used to model the respondents' worry for expected old-age wellbeing and welfare. Having children, and the number of children, are the primary explanatory variables, but a broad set of controls including gender, age, educational level, household income and health as well as others are included. Four regional groupings are constructed from the original 31 countries to allow for a discussion of regional variations in the association. Results specific to those age cohorts that have completed fertility, respondents aged 40-60, and those who either have or do not have children at all receive special attention in the analysis. The results indicate that those respondents with higher number of children report that they are less worried about old-age welfare compared to those who have fewer children. In general, those without children had lower worry regarding their old-age than those with children, but this result is not strongly statistically significant and displays regional and country variations. In general, the ambition of this paper is to further address and explore the extent to which children could be considered a positive long-term net welfare contributor at the individual level, and thus whether having perceived old-age security benefits from children contributes to more positive fertility outcomes.

Background & Hypothesis

The European population is experiencing a profound demographic transition, which in various stages has been on-going since the early nineteenth century and continues up until today. The post-war period in particular stands out, as here fertility rates in Western Europe dropped and stayed below replacement level, starting from the early 1980s and gradually hereafter this pattern spread out across the continent. The demographic transition model accounts for the changes in fertility patterns that occur as societies transform from traditional fertility regimes, characterised by high birth and death rates, towards modern states with high life expectancy and low fertility. Departing from a pre-transition equilibrium of mortality and fertility, the initial stage in the demographic transition is rapid mortality decline, which in turn is followed by falling fertility and finally a stabilisation around a new lower equilibrium level. What drives fertility decline further is, however, more difficult to ascertain as it can both be viewed as grounded in a cultural and/or economic interpretation. This fertility decline can be hypothesised to not derive from a single uniform source, but rather from a multitude of factors that when combined produce the observed outcome of very low fertility rates. One venue of potential exploration in this regard is the impact of welfare setups on old-age social security and the role children and fertility play in this context.

Existing empirical studies on the effects of public pension schemes on fertility can be grouped into two categories: cross-country (Ehrlich and Zhong 1998; Boldrin, De Nardi and Jones (2015) and country-specific studies (Cigno and Rosati 1992; Billari and Galasso 2009). Cigno and Werding (2007) provide an overview of the impact of pension systems on fertility, which when placed into a contemporary context of fertility decline (Guinnane 2011) conclude that there is a negative link between the generosity of pension systems and fertility. The underlying intuition behind this is that parents used to utilise children, in part, as old-age insurance policies, which is less relevant in societies with well-developed pension systems. More advanced financial markets also allow for better inter-temporal savings, which in more traditional societies is mostly done through human capital investments in one's children (Galasso et al. 2009). The impact of both pension systems and capital market development on fertility was studied by Cigno and Rosati (1992), who concluded that both factors had a negative effect on fertility. Moreover, Hohm (1975) used data from 1960 to 1965 across 67 countries to show that public

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pension systems had an equally negative effect on fertility as other long-term factors, such as infant mortality, income per capita and educational level. More recently, Boldrin, De Nardi and Jones (2015) tried to estimate the effect of social security schemas on fertility decisions by combining and calibrating several theoretical models. Their findings showed that 50% of the fertility drop in the USA and Europe from the 1960s and onwards is explained by the growth in national public pension systems. The difference between European and American fertility is even better covered in this research, as up to 80% of the differences between the two is explained by diverging pension schemes. The authors show that increasing the social security setup by 10% of GDP results in a fertility reduction between 0.7 and 1.6 children.

Given the above, this paper will seek to explore in more detail the association between fertility and the perceived old-age welfare benefit of having children in a contemporary European setting by using micro level data. In general, it is difficult to analyze childbearing and retirement decisions in conjunction as these occurrences are very far apart from one another. Likewise, it is not easy to make tangible the expected future benefits from children and how they may affect parents' decisions to have them. This concern especially applies to the possible future economic or emotional support given to parents in old age by children. Although motivations to have a child can be addressed with surveys, they are unlikely to solve this specific problem. However, it is possible to reverse this question and ask whether people who currently have children feel more secure about their future old age situation than people who do not have children as well as try to take into account the surrounding mechanisms at play that influence such perceptions. Therefore, the following research hypothesis are put forward and answered in this paper:

H1: Having no children is positively associated with higher levels of worry about old-age welfare

H2: Among parents, number of children is negatively correlated with higher levels of worry about old-age welfare

Data and methods

To address the outlined hypotheses, this paper uses data from the European Social Survey (ESS) round 3. In this dataset, one of the questions is "*how worried are you that income in old age will not be adequate to cover later years*" (variable named 'wrinco' in the dataset), to which respondents were asked to indicate on a 1-10 scale how worried they were, 10 representing the most concern regarding old-age income and 1 the least. Responses to this question constitutes the dependent variable, which is fitted to multiple regression models. The main explanatory variable is the number of children reported by the respondent. This variable is entered in regression models in two ways. First, to test hypothesis 1, we use dichotomous coding only taking into account whether the respondent has any children or not. Second, to test hypothesis 2, using only observations of people with children the number of children is entered as a categorical variable distinguishing those with 1, 2, 3 or 4 and more children. The models are run for all age groups between 20 and 60 and then again, for age groups that have completed fertility, i.e. respondents aged 40-60 years.

The ESS covers a large number of European countries. To enable a discussion and insight into the differences between countries that represent different social security systems, we divide the survey countries into four major regions that roughly distinguish different welfare systems. The selected control variables include sex, age, marital and partnership status as well as educational, health and economic characteristics. As mentioned, regression modelling is used to estimate the association between the dependent variable and explanatory variables. The first set of models treats parenthood as a binary variable and includes all observations in the study sample. The second set focuses on the number of children and only includes those who have at least one child. Each set includes one model that covers all countries in the dataset and one model for each region separately. All models are run for the all age groups and then again for the narrower post-fertility age group of respondents aged 40-60.

Results and discussion

The results of the model analyses suggest that childless people report less worry for their expected old-age welfare than those with children. Since this analysis is limited in its ability to control for various qualitative differences between childless and parents, it is difficult to say why childless people are more likely to report less worry about old-age welfare. The result, however, indicates that the presence of children per se does not increase feeling of future individual security, but may even lower it. More elaborate data and analysis are needed to say something more specific about this association.

Amongst parents, it was found that a higher number of children reduces the perceived worry, which is in line with hypothesis II. In all studied regions, parents having four or more children associated with lower levels of reported old-age worry. It is important to note that we did not find a consistent effect in number of children. That is, the result cannot be generalized in a way that each additional child lowers the parent's worry about old-age welfare with a specific coefficient across all countries. The effect is only very clearly pronounced after child number two. In contrast, four or more children associate with less worry in all regions. While this is an important finding, we need to remember that families with four or more children are a small part of the overall number of respondents and thus quite a specific group in Europe today. This is probably the main reason why one should be careful when interpreting the results as evidence for the link between fertility and expected old-age security. When looking at all age-group and not only those with completed fertility, the model results show strong and significant association between children and expected old-age welfare from even one more child after the first.

The argument that old-age social security mechanisms negatively interplays with fertility provides an interesting reflection with regards to the model results in this paper. As seen in the below table, the countries, which more clearly exhibit the association between number of children and expected old-age security are those with more strongly established pension systems, notably countries in Western Europe. This is an interesting finding in the sense that people with more children are reporting more positive expectations about old-age welfare. One way to interpret is that people in bigger families see themselves as more cushioned against potential welfare problems in the future. On the other hand, it is not possible to rule out that higher number of children is correlated with current wealth that is not observed in our data, which in turn would also make people feel more secure about old-age income.

Literature referenced in Extended Abstract

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Selected regression model from paper showing an example of results

Table 3. Linear regression, only parents, age group 40-60

	All	East	West	South	North
Children (ref = 1)					
2	0.029 (0.064)	-0.008 (0.119)	0.004 (0.101)	0.147 (0.175)	-0.003 (0.171)
3	-0.204*** (0.079)	-0.151 (0.149)	-0.303** (0.124)	0.119 (0.220)	-0.084 (0.192)
4+	-0.300*** (0.099)	-0.239 (0.164)	-0.330** (0.161)	-0.286 (0.314)	-0.311 (0.239)
Male	-0.272*** (0.050)	-0.402*** (0.091)	-0.246*** (0.081)	-0.024 (0.136)	-0.594*** (0.119)
Age	0.068 (0.092)	0.554*** (0.170)	-0.061 (0.147)	-0.094 (0.254)	0.068 (0.221)
Age squared	-0.001 (0.001)	-0.005*** (0.002)	0.0003 (0.001)	0.001 (0.003)	-0.001 (0.002)
Never Married	0.024 (0.113)	0.091 (0.326)	-0.078 (0.165)	-0.022 (0.484)	0.360* (0.194)
Tertiary & post-sec. education	-0.332*** (0.057)	-0.208* (0.119)	-0.337*** (0.089)	-0.472*** (0.167)	-0.240* (0.125)
Without partner	0.062 (0.067)	0.164 (0.118)	-0.004 (0.106)	-0.001 (0.226)	0.074 (0.162)
Subjective HH income (ref = good)					
- Coping	1.122*** (0.064)	1.274*** (0.227)	1.184*** (0.096)	0.594*** (0.170)	1.248*** (0.140)
- Difficult	2.034*** (0.089)	2.420*** (0.238)	2.011*** (0.143)	1.358*** (0.235)	2.068*** (0.272)
- Very Difficult	2.740*** (0.136)	2.918*** (0.271)	2.940*** (0.240)	1.733*** (0.399)	3.787*** (0.475)
Unemployed past 3 months	0.472*** (0.055)	0.168* (0.096)	0.598*** (0.089)	0.449*** (0.145)	0.489*** (0.133)
Subj. Health (ref = very good)					
- Good	0.325*** (0.073)	0.459** (0.201)	0.355*** (0.109)	-0.145 (0.241)	0.552*** (0.141)
- Fair	0.555*** (0.082)	0.847*** (0.205)	0.507*** (0.126)	0.057 (0.253)	0.788*** (0.183)
- Bad	0.896*** (0.118)	1.027*** (0.240)	1.076*** (0.191)	0.017 (0.345)	0.544* (0.329)
- Very Bad	0.641*** (0.237)	0.302 (0.361)	0.941** (0.412)	0.125 (0.705)	1.474* (0.821)
Not saving for retirement	0.031 (0.057)	0.002 (0.098)	0.163* (0.095)	-0.531*** (0.143)	-0.052 (0.140)
Constant	3.122 (2.295)	-8.873** (4.247)	6.567* (3.646)	6.822 (6.312)	1.961 (5.491)
Observations	11,044	3,333	4,400	1,311	2,000
R ²	0.200	0.148	0.172	0.081	0.153
Adjusted R ²	0.197	0.142	0.167	0.067	0.144

*p<0.1; **p<0.05; ***p<0.01

Note: country dummy variables included but not shown. Reference category for the subjective household income variable is 'Comfortable' and for the subjective health variable 'Very good'. Standard errors in parentheses.

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