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Abstract

In this paper we examine the effect of economic uncertainty on transition to first birth in Greece, one of the countries of lowest-low fertility. Using longitudinal data from the EU-SILC survey for the period 2005–2011, we consider a sample of childless couples. We find that the economic uncertainty of couples negatively affects first childbearing in Greece, with an amplification of this effect during the recent economic recession. The positive effect on first birth of being an inactive woman is also intensified by the economic recession. Our findings could depend on the worsening of expectation about the labour market and on the shrinkage of the Greek welfare state during the economic recession.

Keywords Fertility, Economic Uncertainty, Economic Recession, Gender, Greece.

Résumé

Dans cet article, nous examinons l'effet de l'incertitude économique sur la transition vers le premier enfant en Grèce, l'un des pays à très basse fécondité. En utilisant les données longitudinales de l'enquête EU-SILC pour la période 2005-2011, nous considérons un échantillon de couples sans enfants. Nous observons un effet négatif de l'incertitude économique sur la première naissance. Cet effet augmente au cours de la récente crise économique. L'effet positif de l'inactivité des femmes sur la première naissance est aussi amplifié par la crise économique. Nos résultats pourraient dépendre de la détérioration des attentes par rapport au marché du travail et de la contraction des dépenses de l'état providence dans la période de crise.

Mots-clés Fécondité, Incertitude de l'Emploi, Inégalité de Genre, Récession Economique, Grèce.

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1. Introduction

During the past twenty years, the process of globalization has contributed to the deterioration of the socio-economic situation of young adults in modern societies (Buchholz et al., 2009). In the context of the European Union, Southern European countries have the highest rates of youth unemployment. Here, the uncertainty of young adults, combined with the poor institutional filters and with gender inequality, results in very low fertility, also defined lowest-low fertility (LLF), that conventionally corresponds to a Total Fertility Rate (TFR) below 1.3 children per woman (Billari, 2008; Balbo et al., 2013; Kohler et al., 2002; Goldstein et al., 2009). The phenomenon of LLF has emerged in Southern European countries since 1993 and has spread to four regions (Southern Europe, Eastern Europe, Central Europe and East Asia) and twenty-four countries (Goldstein et al. 2009).

In this study, we will focus on Greece, a country of the LLF area. Our first aim is to demonstrate the association between economic uncertainty of partners and first birth. In line with Kreyenfeld (2005) and Kreyenfeld et al. (2012), we will consider partners occupational status, type of contract and income. Moreover, when studying young couples, education is an indicator of interest as a proxy of potential income.

In Greece, during the period 2008-2012, the number of births decreased by 15.2% (Vrachnis et al., 2014). Moreover, the relation between economic uncertainty and first birth may have worsened during the recent economic recession that started in 2008 (Papadopoulos and Roumpakis, 2013a). Thus, the second aim of this study is to ascertain the effect of the economic crisis on first birth. We also intend to verify if the relation between economic uncertainty and first birth is modified by the recent economic recession.

At our knowledge, few studies have been focused on the association between economic uncertainty and fertility in Greece, especially in the context of the recent economic recession. Our analysis is based on longitudinal data from the EU-SILC survey (EU Statistics on Income and Living Conditions) for Greece. We select a sub-sample of childless people aged 16 to 49 living with a partner. We consider survey waves from 2005 to 2011, a period overlapping into the current economic crisis. Implicitly, we are assuming that the economic crisis can have an effect on fertility already in the short run, as witnessed by fertility trends (Eurostat; Pailhé, 2010).

With EU-SILC, we can benefit of the availability of information for both partners on the level of income, education, the occupational status, and, for employed partners, the type of contract (permanent or not). In our sample, including only couples, most of men are employed. We also observed that only men with a permanent contract experience transition to first birth. This is already a notable result, showing that for men being employed and having a permanent contract are preconditions for entering into union and into parenthood. At the level of our analysis, the consequence is that only the occupational status and the type of contract of the female partner will be taken into consideration.

Our study is structured as follows. First, in section 2, we present the theoretical and empirical background, together with our hypotheses. We will consider previous literature on how men's and women's economic uncertainty affects first birth. We will also look at economic uncertainty as an aggregate

phenomenon and focus on previous studies on economic recession and fertility. In section 3, we present our data, operationalization of concepts and the method that account for the panel structure of data. In section 4, we will present our results. Finally, in the conclusion we interpret the results and point out the limitations of our study.

2. Economic uncertainty and first birth

According to Kreyenfeld et al. (2012) "economic uncertainty may be understood as an individual risk factor, related to phases in the life course that are characterized by unemployment, part-time work, working on a term-limited contract, or difficulties entering the labor market in the first place". Uncertainty among young adults is a generalized process linked to globalization and social liberalism (Buchholz et al. 2009; McDonald, 2006). However, it does not affect states or regions in the same way, but it is related to "institutional filters" (Mills, Blossfeld, 2005). In Southern Europe uncertainty could be particularly strong as the dominant form of welfare state is a familistic one and characterized by poor institutional support for vulnerable social groups (unemployed, youth, etc.) who have to count on family support (Aasve et al. 2006). The consequences are late departure of young adults from the parental home, late entry into the labor market and low fertility (Billari 2008; Dalla Zuanna, 2001; Dalla Zuanna and Micheli, 2004; Mills and Blossfeld, 2005).

The relation between economic uncertainty and fertility may vary for the two sexes. Referring to several indicators of economic uncertainty in developed countries, Mills et al. (2005) find a negative relation between economic uncertainty of men and first birth, while more contradictory results have been found for women. Below we present results of some previous studies on the relation between first birth and economic uncertainty, measured with different indicators.

2.1. Partners' income and type of contract

Becker's economic theory has mainly focused on the effect of income on the number of children rather than on fertility by parity. An initial formulation of the theory maintains a positive relation between income and number of children (Becker, 1960). Later, the economist has stressed the quantity-quality tradeoff, theorizing a negative relation (Becker and Lewis, 1973). For women, it has been assumed that the relation is especially negative as high incomes imply high opportunity costs of rising children (Becker, 1981).

Focusing on the LLF area and first birth, Vignoli et al. (2012) find for Italy a strong positive effect of men's income on first birth. Because of persistence of gender stereotypes in this country, it may be more important for men to establish professionally before having a child. Róbert and Bukodi (2005) find for Hungary a negative relation between women's income and first birth, while no effect has been shown for men.

Having a permanent contract matters as well. Vignoli et al. (2012) show that, in Italy, the permanent contract of both partners lead to a higher probability to have a first child. However, for the same country, Barbieri (2011) shows that having a permanent contract is more important for women than for

men, and the result is confirmed by Pailhé and Solaz (2013) for France and Liefbroer (2005) for Netherlands. One explanation is that women with a fixed term contract may risk to lose their job after childbearing, so they prefer to find a stable job before having the first child (Pailhé and Solaz, 2013).

On the base of the previous literature, our *first hypothesis* is that women and men's low income negatively affects the likelihood of having a first child. We also assume that women's fixed contract negatively affects first birth. As anticipated above, in our sample, only men with a permanent contract have a first child. Because of the absence of variation of the variable for men, only the type of contract of women will be taken into account in our analysis.

2.2. Women's occupational status

In our study, we will focus on women's occupational status of active or inactive. The main reason is that most of men of our sample are employed. In other term, it appears that for men employment is a prerequisite to enter into union. Another reason to focus on women's occupational status is that it is a key variable for low fertility in Southern European countries (Billari, 2008; McDonald, 2000). According to McDonald (2000), in contexts where the partner is poorly involved in family work and where the State support to families is limited, working women can decide to reduce their fertility in order to be able to remain in the labour market. As a consequence, dual-earner couples may have a lower fertility than couples where women are unemployed or inactive. The McDonald's theory is confirmed by several studies showing that in Italy an unemployed woman is more likely to have a first child than a working woman (Santarelli, 2011; Vignoli et al., 2012). The same result is obtain by Cooke (2009) for Spain. Of course, a requirement for the positive association between the woman's inactivity and fertility is the permanent job of the partner (Pailhé and Solaz, 2012; Santarelli, 2011; Vignoli et al., 2012).

In this study, our *second hypothesis* is that inactive women have a higher propensity to the first child than working women.

2.3. Partners' education

Another interesting indicator related to economic uncertainty is education. As education may represent a potential income for young people and an insurance against economic recession, the theories presented above for income apply also to education. So the assumed effect on fertility could be positive or negative. Some studies show a negative effect of income on first birth, both for men and women (Blossfeld et al. 2005). Other findings show a positive effect for men. This is the result observed for Spanish men (Gutiérrez-Domènech, 2008). For Italy, a U-shaped relationship between education of men and fertility has been shown (Vignoli et al., 2012; Modena, Sabatini, 2012).

Concerning women's education, opportunity costs prevail on the (potential) income effects of education and, in several countries, a strong inverse relation with the timing at first birth has been found (Balbo et al. 2013; Pailhé and Solaz, 2012). As already stressed, the institutional context plays an important role. In their comparative study on France and Italy, Régnier-Loilier and Vignoli (2011) show that it is especially in Italy that women's high education constitutes an obstacle to childbearing, while in France family policies allow women to better reconcile fertility with their career expectations.

Education is not just proxy for income. It may represent partner preferences and life style. In particular, highly educated men are more willing to share housework and care tasks with the partner and more educated women can better negotiate the share (Coltrane, 2000; Davis, Greenstein, 2009). As a consequence, educationally homogamous couples may have a higher fertility than heterogamous couples (Van Bavel 2012).

In a country like Greece, we expect that opportunity cost are particularly high for women, while for men the positive effect of education on the first child could depend on both the potential income effect and the greater involvement of most educated. This is the *third hypothesis* of our study.

2.4. Economic recession

Economic uncertainty "may also be conceptualized as an aggregate phenomenon, reflecting general uncertainties felt by all people during, for example, an economic recession" (Sobotka et al., 2011). In this aggregate approach, we can identify different mechanisms of influence of economic recessions on fertility. *First*, economic recession increases unemployment and job instability, deteriorating the objective economic conditions of families and, through that, depressing fertility. Using aggregate data, it has been shown that economic recession and adverse economic contexts especially affects younger cohorts and first birth (Goldstein et al., 2013; Neels et al., 2013). Using individual data, Adsera (2011) also finds an effect of adverse economic conditions, showing that, since mid-1980 in national contexts characterized by high and lasting unemployment, women postpone their first and second births. *Second*, a period of economic recession can also worsen expectation about the future. This amplifies the effect of the objective economic uncertainty on fertility (Sobotka et al., 2011; Tausig and Fenwick, 1999). *Third*, the economic recession can make harder to reconcile work and family because of the shrinkage of the welfare state. This reinforces the traditional "male breadwinner" family model, as many women may choose inactivity and fulfillment through motherhood. Among working women, those who have a permanent position or a higher income are in a better position to reconcile work and family. Similarly, economic recession increases disparities in fertility between better- and lesser-educated women, since for the latter parenthood becomes more attractive than a low-wage work or unemployment (Sobotka et al., 2011).

At our knowledge, no previous study has focused on how economic recession amplifies the effects of individual economic uncertainty in Greece. In our *fourth hypothesis*, we assume that the effect on first birth of partners' income, women's type of contract and women's activity status are amplified by the recent economic recession. As to partners' education, we assume that women's education negative effect and men's education positive effect on first birth intensified with the economic recession.

2.5. The Greek context

In Greece the phenomenon of LLF manifested later (in 1998) than in Italy and Spain, and the TFR remained below 1.3 children per woman until 2003. As in other Southern European countries, we observe the postponement of marriage and fertility, while new forms of union and births out of wedlock remain exceptions. According to Eurostat, Greece is the only European country where the percentage of births out of wedlock remains below 10% in 2015.

Since 2003 the increase in fertility has ushered in a new trend. Greece's TFR increased from 1.3 children per woman in 2003 to 1.5 in 2008 (Eurostat). Regions of Greece in a more favorable economic position – as Crete – experienced an impressive increase in their fertility rates: the TFR for Crete increased from 1.4 and in 2000 to 1.8 children per woman in 2008. This trend was interrupted by the recent economic crisis and the Greek TFR dropped back to 1.3 in 2013. In the same year, in Crete, the TFR returned to 1.4 (Eurostat).

Meanwhile, youth and women's employment uncertainty led to the growth of social inequalities in Greek society. The youth unemployment rate (15- to 24-year-olds) reached a level of 58.3% in 2013 (Eurostat). Women (aged 20 to 64) unemployment rate increased from 11.5% in 2008 to 31.4% in 2013 (Eurostat), which was the highest in the EU. Also taking into account the high participation in illegal work and negative migration rates (-4% in 2011), Greece's demographic and socio-economic situation has become extremely difficult to sustain.

Women's unemployment is accompanied by particularly traditional gender norms. According to the 2008 European Value Survey, 27 percent of people in Greece strongly agree with the statement "A pre-school child is likely to suffer if his or her mother works" compared to 13 percent in France and 4.5 percent in Sweden.

3. Data, methods and variables

For the purposes of this paper, we used longitudinal data from the EU-SILC survey (EU Statistics on Income and Living Conditions). The EU-SILC survey was launched in 2003 as the continuation of the European Community Household Panel survey (ECHP, 1994–2000). The survey is the instrument used by the European Union to monitor progress on its Europe 2020 strategy, whose main objective is the reduction of poverty. To these ends, EU-SILC collects comparable and multidimensional micro-level data on income, poverty, social exclusion, housing, work, education and health. In Greece, the EU-SILC survey has been conducted since 2004, collecting longitudinal data on 3,500 households and 7,250 individuals per wave.

In this study, we focus on the period 2005–2011, including 39,554 individuals-years of the Greek EU-SILC. We select couples whose partners are childless and less than 50 years old. We assume that the risk of having a first child in Greece exists almost exclusively for couples, since in 2003 93% of births occur into marriage (Eurostat). For the sake of simplicity, we exclude women who live with children born from previous unions. As does Santarelli (2011), we exclude those living with adults, in addition to their spouses, because of the economic support they may be providing to the household. Our final sample consists of 1,572 couples-years and 823 couples. For the period of analysis, we observe 116 first births. In EU-SILC database new births are identified under the variable "Membership status" into the category "Newly born into the household since the last wave".

In order to study the effect of individual income, we first grouped men's and women's income into two categories, based on their median yearly income: €6,259 in the case of women and €11,419 in the case

of men. Subsequently, we created the new variable "couples' income", which includes four categories: (1) "High-Low" couples, where men's income is high (>€11,419) and women's is low (≤ €6,259); (2) "Low-High" couples where men's income is low (≤ €11,419) and women's is high (≤ €6,259); (3) "Low-Low" couples, where both partners have a low income and (4) "High-High" couples, where both partners have a high income.

"Women's Contract duration" contains two categories: (1) temporary position; (2) permanent position. We do not consider the variable "Men's contract duration" because of the very limited number of men working in temporary position in our sample and because no man in a temporary position experiences the arrival of the first child.

As to couple's education, we referred to the variable "Highest ISCED level attained" (International Standard Classification of Education). We first grouped individuals into three categories: (1) low educational level, designating pre-primary, primary (Demotiko) or lower secondary school (Gymnasio) education; (2) intermediate educational level, designating upper secondary (Lykeio) or non-tertiary education; and (3) high educational level, designating tertiary education (bachelor, master or doctorate). We then created a new variable to investigate a couple's education, with five categories: (1) couples where men's educational level is higher ("Men's higher"); (2) couples where women's educational level is higher ("Women's higher"); (3) homogamous couples with low education ("Low-Low"); (4) homogamous couples with medium education ("Medium-Medium") and, finally; (5) homogamous couples with high education ("High-High").

Women's and men's activity status was recoded into three categories: (1) "working"; (2) "unemployed"; (3) "not active". By combining these two variables, we created the new variable "couple's activity status" with two categories: (1) Couples where women are inactive; (2) Others.

In order to study how economic crisis affected fertility, we created the variable "Survey Years". This variable contains two categories: (1) 2005-2007; (2) 2008-2011.

Our control variables are the woman's age, marital status, region of residence and degree of urbanization. Age is recoded into five categories: (1) up to 24 years; (2) 25 to 29 years; (3) 30 to 34 years; (4) 35 to 39 years; (5) 40 to 49 years. The variable "union" is coded as the following: (1) union with a legal basis; (2) union without a legal basis (de facto partners living in the same household). As to the place of residence of the respondents, we used two variables: "Region" and "Degree of urbanization". Concerning the region of residence, in the SILC database, a NUTS 1 classification of territorial units is available. NUTS 1 corresponds to four "development areas" that aggregate Greece's thirteen regions (without necessarily constituting official administrative units): (1) Northern Greece (Anatoliki Makedonia, Thraki, Kentriki Makedonia, Dytiki Makedonia, Thessalia), (2) Central Greece (Ipeiros, Sterea Ellada, Dytiki Ellada, Peloponnisos), (3) Attiki, and (4) the Aegean Islands and Crete (Voreio Aigaiο, Notio Aigaiο, Kriti). As to the degree of urbanization, we have three categories corresponding to those proposed by the EU-SILC: (1) Sparsely populated area; (2) Intermediate area; (3) Densely populated area.

As to the estimation method, it is not advisable to use ordinary logistic regression with panel data because of the correlation of observations for the same person, which can cause biased standard errors. Thus, we used robust standard errors estimation that allows us to take into account for this correlation (Rabe-Hesketh and Skrondal 2008; Li et al., 2011).

4. Results

4.1. Descriptive analysis of our sample

In our sample composed of childless couples, 87% are in legal unions (Table A1), mostly married. In the majority of couples, both men and women have a low income (58%, Table A1). Couples' hypogamy is more frequent than hypergamy: women have a higher education than men in 20% of couples, while men have a higher education than women in 14% of couples (Table A1). This confirms the recent empirical evidence of a "reversal of gender inequality in education" in developed countries over recent years (Van Bavel, 2012).

In addition, almost all men and 76% of working women have a permanent contract (Table A1). This relatively high percentage of permanent contract shows that young adults who don't have a stable employment status are likely to avoid entering into a union and continue to live in the parental home (Aasve et al., 2006).

Table A1: Distribution of independent variables (% observations)

	%	Observations
Couple's Education		
Men's higher	13,73%	188
Women's higher	20,19%	277
Low- Low	17,79%	243
Medium- Medium	25,56%	350
High- High	22,73%	313
Couple's Activity Status		
Women not active	17,34%	215
Women active	82,66%	1025
Couple's Income		
Women's high- Men's Low	12,39%	123
Men's high- Women's Low	15,11%	150
Low- Low	57,91%	575
High- High	14,60%	145
Period of birth		
2005- 2007	31,50%	494
2008- 2011	68,50%	1048
Woman's Age		
Up to 24	5,77%	78
24-29	18,79%	254
30-34	22,56%	305
35-39	14,05%	190
40-49	38,83%	525
Marital Status		
Union on legal basis	86,95%	1266
Other union	13,05%	190
Area of residence		
Voreia Ellada (Northern Greece)	37,71%	549
Kentriki Ellada (Central Greece)	18,41%	268
Attiki	34,07%	496
Aigaio & Kriti (Aegean Islands & Crete)	9,82%	143
Degree of urbanisation		
Densely populated area	44,51%	648
Intermediate area	12,71%	185
Low populated area	42,79%	623
Woman's Contract Duration		
Temporary	23,78%	165
Permanent	76,22%	529

Source of data: EU-SILC Longitudinal UDB 2005–2011, Version 4, Marc 2014

4.2. The effect of economic uncertainty on childbearing

As expected, our results show that the economic crisis has affected couples' choice to have a first child. During the pre-crisis period 2005-2007 couples had an odds 2.27 times higher to have a first child (equal to 1/0.44) than during the crisis time 2008-2011 (Table A2, Model 1-2).

Highly educated couples are more likely to have a first child than hypergamous couples (Table A2, Models 1-3). Couples' income does not significantly affect first birth. However, the interaction between "Men's high income" and "period 2008-2011" is positive and statistically significant, indicating that during the economic recession couples where men's income is higher than the median are more likely to have the first child than partners where both partners have an income equal to the median or lower (Table A2, Model 1-3).

Our results also show the impact of women's activity status on the occurrence of first birth. Couples where woman is inactive are more likely to have a first child than couples where women are working or unemployed (Table A2, Model 1-2, we remind that in our sample almost all male partners have a permanent contract). Moreover, the interaction between the dummy "woman inactive" and the dummy "period 2008-2011" has a positive and statistically significant coefficient, indicating that the effect of the woman's inactivity on fertility increases during the economic recession (Table A2, Model 3).

When focusing only on working women, we observe a high and significant odds ratio of the interaction between the dummy "Women's permanent contract" and "Period of birth" (Table A2, Model 3). Again, this means that having a permanent contract is increasingly important during the recession.

4.3. Other results

Our multivariate analysis shows that women aged 30 to 34 are more likely to have their first child than younger women (Table A2, Models 2-4). This result clearly shows the Greeks' delay in family formation. Moreover, legal unions seems a prerequisite for family formation in Greece, as couples legally cohabiting are 4.6 times more likely to have a first child than other couples. We observe however a sharp decrease in this odds ratio moving from the second to the fourth model, the latter of which pertains to working women only (from 5.1 to 3.7). In other terms, if a legal union is a prerequisite for having a first child, this is less true for active women.

As to the area of residence, couples who reside in the Aegean Islands or Crete are more likely to have a first child than those on the mainland, and couples in Northern Greece are at greater odds than those in Athens and Central Greece (Ionian Islands, Sterea Ellada and Peloponnesus).

Table A2: Logit models for the transition to the first child in Greece. Robust Standard Errors.

	Model 1	Model 2	Model 3	Model 4 (only working women)
	OR	OR	OR	OR
<i>MAIN VARIABLES</i>				
Couple's education (Ref=Men's higher)				
Women's higher	3,89**	2,88	2,61	1,68
Low- Low	1,98	1,54	1,36	-
Medium- Medium	3,38**	2,35	2,32	1,74
High- High	5,18**	3,49*	2,94*	2,07
Couple's Activity Status (Ref=Others)				
Women not active	3,07***	2,96***	1,54	-
Couple's Income (Ref=Low- Low)				
Women's High-Men's Low	1,23	1,4	1,01	1,11
Men's High-Women's Low	1,1	1,16	0,35*	0,28
High- High	1,07	1,2	1,01	0,86
Period of birth (Ref: 2005- 2007)				
2008-2011	0,44***	0,44***	0,32*	0,15*
Woman's type of contract (Ref: temporary contract)				
Permanent Contract				0,88
<i>CONTROL VARIABLES</i>				
Woman's age (Ref= 30-34)				
Up to 24		0,79	0,87	0,58
24-29		0,57	0,51*	0,5
35-39		0,35**	0,35**	0,56
40-49		0,14***	0,14***	0,2**
Marital status (Ref= Other union)				
Union on legal basis		5,06***	4,96***	3,72**
Area of residence (Ref= Attiki)				
Voreia Ellada (Northern Greece)		1,88*	2,69**	2,18
Kentriki Ellada (Central Greece)		1	1,06	1,1
Aigaio & Kriti (Aegean Islands & Crete)		2,29*	5,84***	5,44**
Degree of urbanisation (Ref= Densely populated area)				
Intermediate area		1,45	1,6	1,65
Low populated area		1,19	1,2	1,73
<i>INTERACTIONS TERMS</i>				
Activity status in the couple*Period of birth				
Women not active *Period of birth			3,56*	-
Partners' income*Period of birth				
Women's income higher *Period of birth			2,21	0,83
Men's income higher *Period of birth			8,17***	4,86
Women and men high *Period of birth			1,88	1,22
Partners' region of residence*Period of birth				
Voreia Ellada *Period of birth			0,52	0,87
Kentriki Ellada *Period of birth			1,07	1,03
Aigaio & Kriti *Period of birth			0,14**	0,27
Woman's type of contract*Period of birth				
Woman's permanent contact* Period of birth				4,56*
No. of couples	864	855	855	501
Log Pseudolikelihood	-313.7	-289.2	-280.3	-168.5
<i>Notes: *** p<0,01 ; ** p<0,05 ; * p<0,10</i>				

Source of data: EU-SILC Longitudinal UDB 2005-2011, Version 4, March 2014

Finally, there is some evidence that couples residing in areas with an intermediate population density are more likely to have a first child than women living in sparsely populated villages and in cities. The phenomenon can be explained by the abandonment of the cities by people born in Athens and Thessaloniki who are in a favorable economic position (public sector workers and contractors) for neighboring municipalities^{2,3}.

5. Discussion and conclusion

The aim of this research was to explain how couples' economic uncertainty affects the likelihood of having a first child in Greece in a period of economic recession. In our *first hypothesis*, we stated that the economic uncertainty of men and women negatively affect the likelihood of having a first child. The hypothesis is supported by the result concerning the type of contract: women's with a permanent contract have a higher odds to have a first child than women with a temporary contract. Moreover, we have stressed above that most of men of our sample are employed and that only men with a permanent contract experience transition to first birth. Thus, in Greece, the type of contract affect partners' fertility choice, and especially men's fertility, for whom stability is a precondition to have a first child.

In support of our *second hypothesis*, we observed that couples where women are economically inactive are more likely to have a first child than couples where women are active. In other words, as previously shown for other Southern European countries, the male-breadwinner model in Greece is positively associated with the decision to have a first child (Vignoli et al., 2012; Santarelli, 2011; Pailhé and Solaz, 2012).

Couples where both partners have a high level of education are more likely to have a first child than the hypergamous couples. This result contradicts our *third hypothesis* and previous literature on the effect of women's education on fertility, but it confirms previous findings on the positive effect of men's education on fertility (Gutiérrez-Domènech, 2008). The positive effect of high educated homogenous couples may express an income effect, but it can also be related to a better understanding, shared goals, and a greater men's involvement in family work (Coltrane, 2000; Davis and Greenstein, 2009; Van Bavel, 2012).

Overall, the economic recession period had a strong negative effect on first birth as during the years 2008-2011 the likelihood to have a child decreased compared to the period 2005-2007. The economic recession also magnified the effect on first birth of couples' economic uncertainty and women's inactivity, supporting our *fourth hypothesis*. During the economic recession, wealthier couples are more likely to have a first birth than in the pre-crisis period. Similarly, couples where women are inactive or have a permanent contract increase their likelihood to have a first child during the period of

recession. These results could depend on the increasing opportunity costs of having a child for working women during this period, which was characterized by a shrinkage of the Greek welfare state (Papadopoulos and Roupakis, 2013b). In such a context couples with inactive women, couples whose partners are wealthier or have a permanent position could better balance the work and the family (the latter, for example, can use outsourcing strategies). The most penalized couples were those where women have a fixed term contract position, for whom having a first child could increase the risk of losing their job (Pailhé and Solaz, 2013).

Our study has some limitations. First, as we consider couples living independently of their parents, our sample only includes individuals who were able to leave the parental home. In a country like Greece, young people remain in the parental home for a long time, only leaving when favorable economic conditions are attained (Aasve et al., 2006). Second, there is a large black labor market in Greece and women who declare inactivity may in fact be involved in that market. Third, because of the small size of our sample, we are unable to disentangle the effect of the single year of the crisis. According to Pailhé (2010), demographic trends follow economic trends with a one or two years lag. Thus, the most important effect should have occurred starting from 2011, as also witnessed by the trends of the Greek TFR. Despite these limitations, this is one of the rare studies that investigates fertility in Greece and that takes into account the effects of the recent economic recession.

Since 2014, the TFR has showed an inversion of the negative trend and fertility is increasing again in Greece. Future studies on the post-crisis should determine which birth orders and partners' characteristics are mostly contributing to the recovery of fertility. However, the demographic situation remains dramatic and Greek fertility is still one of the lowest in Europe. It's the most appropriate time to remember that "the kingdom belongs to a child".

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² Also ELSTAT (Hellenic Statistical Authority) data show that the municipalities with a crude birth rate of more than 13‰ are in the vicinity of the two largest cities.

³ Comparing the 2001 and 2011 censuses, we see that Athens lost 11% of its population, while neighboring municipalities increased their population by between 13% and 35% (EL.STAT, 2014). The same phenomenon is observed also in Thessaloniki.

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