The economic crisis and changes in work-family arrangements in six European countries[1]

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Abstract

Over the past decades, there has been a substantial increase in female labor force participation and the number of dual-earner and female-earner households has risen throughout western countries. However, the recent economic crisis has caused large losses in employment for both women and men, potentially yielding unexpected consequences for the evolution of work-family arrangements. This article carries out a comparative analysis of the relationship between the 2008/2009 economic crisis and work-family arrangements in Europe. Using multinomial logistic regression models data from six countries of European Union Statistics on Income and Living Conditions (EU-SILC, 2005/2012) the article fills a gap in the literature by addressing three issues: i) whether work-family arrangements have changed from before to after the beginning of the economic downturn in countries with different gender and welfare regimes (Germany, Greece, Spain, France, Sweden and the United Kingdom); ii) whether changes in work-family arrangements have occurred at different levels of the social strata; iii) whether couples have moved from dual-earner to male or female breadwinner. The results indicate changes in work-family arrangements in those countries worst hit by the economic crisis, Greece and Spain, where dual-earner and male-breadwinner households have decreased and no-earner and female-main-earner households have increased. Moreover, the results show that in these two countries all social strata – proxied through women's level of education – have been affected by the crisis. In contrast, only moderate changes in work-family arrangements among all women can be observed in countries less hit by the economic downturn. The findings for the two southern European countries are troubling, as the increases in no-earner and female-breadwinner households point to worsening economic conditions throughout the population and to a halt in the process that for several decades had been leading to more equality in the distribution of employment between genders.

Keywords: work-family arrangements, female employment, economic crisis, women's education, Europe.

Introduction

This article takes a comparative approach to assess the relationship between the recent economic crisis and the work-family arrangements of women with different levels of education in six European countries. Throughout the second half of the 20th century, women's economic and social standing in Western countries has largely improved. Indeed, never as much as today are women present in education (Breen et al., 2010), politics (Inter-parliamentary Union, 2014) and especially employment (Bettio et al., 2013; Eurostat, 2016). Women's increased presence in the work force has modified what are known as 'work-family arrangements', that is, the distribution of working hours between partners. Data for a variety of European countries representing different welfare (Esping-Andersen, 1999) and care regimes (Korpi, 2000; Lewis, 1992) show that, over the past twenty years, couples have moved away from the male-breadwinner model toward the one-and-a-half-earner model and the dual-earner model (Lewis, 2001; OECD, 2016). Despite the common shift toward a more equal participation in paid work between partners, work-family arrangements vary notably between European countries (Lewis et al., 2008; Hook, 2015). Indeed, research shows that while the dual-earner model is quite common in Scandinavian countries – the so-called "social democratic" welfare states (Esping-Andersen, 1999) – the one-and-a-half-earner model is predominant in liberal and conservatives countries, such as the UK and Germany (Lewis et al., 2008). In southern Europe, by contrast, work-family arrangements appear to be severely affected by social class so that families "polarize between the dual full-time and male-breadwinner families" (Hook, 2015, p.15). In particular, women with higher levels of education are more likely to be part of dual-earner households as compared to women with lower education, with important implications for inequalities *between* women, above those between women and men.

In this scenario, the global financial crisis and the subsequent sovereign debt crisis that hit Europe from 2008 might have had unexpected consequences for the ongoing transformations of work-family arrangements. On the one hand, growing levels of unemployment in typically male sectors such as manufacturing could have reduced men's ability of being full-time earners (Hoynes et al., 2012; Rubery, 2014). This reduction could translate into a growth of no-earner households or − in combination with an "added worker effect" (Lundberg, 1985; Prieto-Rodríguez and Rodríguez-Gutiérrez, 2003) − into a growth in female-breadwinner households. On the other hand, the cuts in the public sector due to austerity measures – regarding both services and jobs – might have shifted part of the negative consequences of the crisis on women's employment (Karamessini and Rubery, 2014). Considering that the countries hit the hardest by the crisis were also the ones where women were less employed to begin with (e.g. Greece and Spain), the recession might have had deleterious consequences on gender inequalities in employment. Furthermore, economic downturns affect

subjects at different levels of the social strata in different ways (De Lange et al., 2013; Hoynes et al., 2012; Matsaganis and Leventi, 2014). Therefore, the impact of the crisis on work-family arrangements might vary along the lines of class, income and education (Hook, 2015).

There are several reasons for which the pre-crisis growing shift toward greater gender equality in work-family arrangements is considered a positive outcome. At the macro level, scholars have emphasized the "economic case" for gender equality in employment, stressing that female and maternal employment are not just beneficial to the cause of gender equality per se, but also that having more women in the work force fosters economic growth (Smith et al., 2013). Moreover, scholars have underlined the tight link between the sub-replacement fertility rates that have characterized many European countries over the past decades and gender inequality in employment and wages (Esping-Andersen, 2009; McDonald, 2013). At the individual level, studies have shown that there is a tight relationship between female and maternal employment and household poverty (Barbieri and Bozzon, 2016; Troger and Verwiebe, 2015). Moreover, greater equality in employment translates into a more equal division of domestic work (Dotti Sani, 2014). On top, full-time employed mothers appear to be happier than homemakers (Berger, 2013) and maternal employment has positive spillovers for children's well-being (Cooklin et al., 2014). Thus, it is not surprising that the European Union has aimed at increasing female labor force participation (Council of the European Union, 2011).

Despite many cross-national studies on work-family arrangements within and between countries (Lewis, 2001; Lewis et al., 2008; Hook, 2015), the literature is lacking empirical evidence on the link between the economic crisis and work-family arrangements. Therefore, this article has two objectives: first, to carry out a comparative analysis on the relationship between the economic and sovereign debt crisis and work-family arrangements in different European countries; second, to investigate whether such relationship varied among households from different social strata, proxied through the woman's level of education. Multinomial logistic regression models on six countries belonging to different welfare and gender regimes (Esping-Andersen, 1999; Korpi, 2000) are applied on data from the European Union Statistics on Income and Living Conditions (EU-SILC, 2005/2012, for Germany, Greece, Spain, France, Sweden and the United Kingdom).

It is important to underline that the cross-sectional nature of the data and the research strategy adopted do not allow us to assess the causal relationship between the economic crisis and changes in work-family arrangements. Indeed, it is plausible that European welfare states' reaction to the crisis lead to changing divisions of labor between women and men. However, it is also possible that other events occuring during the years of the economic crisis, for example policy reforms, might have triggered changes in work-family arrangements that we cannot account for.

Beyond this aspect, the article offers important insights. First, the results indicate large differences in the evolution of work-family arrangements among countries hit differently by the economic and sovereign debt crisis: in countries where the economic downturn hit strongly − Greece and Spain – dual-earner households decreased. Instead, in countries where the crisis has been less harsh, dual-earner households remained stable or grew. Second, the article explores changes in work-family arrangements among women with different levels of education, an important aspect considering the relevance of women's education for work-family arrangements in different countries (Hook, 2015). The results show that differences in work-family arrangements between women with different levels of education have remained rather stable in the countries less hit by the economic crisis. In countries badly hit by the economic downturn, instead, the decrease in dual-earner households is observed at all levels of education and the chances of becoming a household with no earners is higher among couples where the woman is lower educated. Overall, the findings are troubling, as they indicate a slowdown in the achievement of a more gender equal society in countries that already had low levels of gender equality in employment to begin with.

Background

Work-family arrangements in European countries

Over the past decades, female and maternal labor force participation rates have grown a lot in Western countries in general and in the six countries considered in this article. Figure 1 below reports female and male employment from 1995 to 2014 in Germany, Greece, Spain, France, Sweden and the UK (Eurostat, 2016). As can be seen in the left hand side panel of the figure, up to 2008/09 (indicated by the grey shaded area) the percentage of employed women increased notably, especially in Greece and Spain. Indeed, female employment peaked in 2008 at 55.4% in Spain and 48.9% in 2009 in Greece. In 1995, female employment rates were lower than elsewhere, 31.7% and 38% respectively. Increases in female employment are evident also in France and Germany throughout the period while in the UK and Sweden – where female employment was notably higher already in 1995 – the growth has been less evident. Importantly, after the financial crisis, female employment decreased notably in Spain and Greece while it remained rather stable in France and the UK and even grew in Sweden and Germany. Male employment – plotted in the right hand side panel of figure 1 – is higher than female employment in all countries, in some cases considerably higher, and overall more stable over the years. An important point to make is that mothers and childless women differ in their labor market behavior. Indeed, mothers have lower chances of being employed than childless women and, when employed, they tend to work shorter hours (Boeckmann et al., 2015). However, official time series data on maternal employment rates do not go sufficiently

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back in time to offer a meaningful pre-post crisis comparison. In contrast, female and male employment rates include data from both childless women and men, mothers and fathers. Therefore, they offer a good starting point for the understanding of work-family arrangements in comparative perspective and over time.

[Figure 1 here]

Considering the differences in female and male employment in the six countries, cross-national differences in work-family arrangements are not surprising. In fact, work-family arrangements are generally understood as the combination of the employment statuses and working hours of the members of a couple that are used to assess the 'commitment' to the labor market of each partner. Being employed full-time, part-time, or not employed are the three categories that are mainly used to classify individual work commitment. By combining the partners' working efforts, previous studies have identified five typical arrangements. Three of these are the most common: 1) the dual-earner model, where both members of the couples are employed and work the same hours; 2) the one-and-a-half-earner model, where the man is employed full-time and the woman works part-time; and 3) the male-breadwinner model that sees the man working full-time and the women in full-time homemaking. Other two categories are less frequent and are sometimes associated with poorer economic conditions (Winslow-Bowe, 2006): 4) the female-breadwinner model, where the woman is the main earner; and 5) the situation where both partners are unemployed.

There is abundance of literature showing cross-national variation in work-family arrangements in Western countries (Hook, 2015; Lewis et al., 2008; Bettio and Plantenga, 2004; Esping-Andersen, 2009; Korpi, 2000; Crompton et al., 2007; Gornick and Meyers, 2009). Studies have shown that dual-earner households are the most common in northern European countries. Instead, the one-and a half-earner prevails in continental Europe, the UK and Ireland, while the male-breadwinner model is more diffuse in Mediterranean countries, where the dual-earner model is nonetheless rather diffuse. For example, Lewis and colleagues (2008) use data on 13 countries from the 2004 European Social Survey to show that the full-time dual earner model is truly present only in northern Europe (e.g. 55% of couples in Denmark and 59% in Finland), where policies are effective in allowing work-family reconciliation. In contrast, male breadwinning is still very widespread in southern Europe where it coexists with dual-earning, while female part-time of various lengths is used to reconcile work and family needs in continental countries. Hook (2015) uses cluster analysis on Luxembourg Income Study data and European Social Survey data to study work-family arrangements in 16 countries. The author finds that countries cluster in three groups based on what arrangement is more common: a group of Nordic countries where dual-earning is prevalent; a mixed group including some continental countries plus the UK, Ireland and Japan, where one-and-a half-

earning is most common; and finally a group comprising the Mediterranean countries plus the US and France, where households 'polarize' between dual-earning and male-breadwinning. Once women's education is included in the analyses, however, the clusters partially change. While the group of Nordic dual-earning countries remains unchanged, a strong stratification in employment arrangements by women's level of education emerges in a new group comprising the Mediterranean countries, the UK, Ireland and Austria. Instead, the one-and-a-half-model appears truly dominant in the group of continental countries plus Japan, regardless of education. Bettio and Plantenga (2004), focusing on care regimes rather explicitly on work-family arrangements, show that in southern Europe a much larger proportion of women is inactive due to care responsibilities compared to continental and northern countries, indicating that the male-breadwinner model is much more common in this area than elsewhere. Other studies focusing on the distribution of employment in European households have reached similar conclusions (Korpi, 2000; Gornick and Meyers, 2009; Esping-Andersen, 2009).

The explanations for cross-national variation in work-family arrangements are generally based on the countries' degree of familialism, a concept that over the years has received several refinements in the literature (Esping-Andersen, 1999; Leitner, 2003; Saraceno and Keck, 2008). Indeed, in de-familialist[2] contexts, such as Scandinavian countries, the employment of both partners is made possible thanks to extensive family support provided by the state in terms of, for example, childcare services for small children and parental leaves (Kleider, 2015; Lohmann and Zagel, 2016; Hook, 2015; Lewis et al., 2008; De Henau et al., 2010; Gornick et al., 1997, 1998; Korpi, 2000; Gornick and Meyers, 2009; Leitner, 2003). In contrast, in familialist contexts such as southern Europe and some continental countries, women are expected to take responsibility for childcare and elderly care, limiting female employment. Finally, in non-familialist countries − typically liberal countries such as the UK − a mix of market and private arrangements puts women in the position of secondary earners.

The relationship between a country's level of familialism and work-family arrangements is found to be mediated by the couple's class and, in particular, by the woman's level of education (Hook, 2015). Highly educated women, indeed, are more likely to be full-time employed (Thévenon, 2013; OECD, 2016) and to have a preference for employment vs. homemaking (Hakim, 2000). Moreover, employed women with higher education tend to have high earnings and are in a better position to outsource domestic work (Gupta, 2006) and purchase childcare (De Henau et al.,

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[2] De-familialism is used by Esping-Andersen (1999) with reference to the Scandinavian countries while Leitner (2003) uses the term optional familialism for this group of countries to indicate that the welfare state provides options to families so they can choose between family services and family subsidies. In contrast, Leitner (2003) uses the term de-familialism for liberal countries such as the UK.

2010), thus having to rely on state support less than lower educated women. As a result, scholars have underlined an important interaction between work-family arrangements, women's education and familialism: in countries with low de-familialization, lower educated women are less likely to be employed; in de-familialized countries, instead, education is less relevant (Hook, 2015).

It is an open question whether and how the 2008-09 economic downturn affected work-family arrangements in countries hit differently by the crisis, in particular considering that austerity measures could have impacted states' ability to de-familize care work. These issues as discussed in the next section where we also draw the hypotheses.

The economic crisis and changes in work-family arrangements: hypotheses

The recent financial and economic crisis had different repercussions across European states. While some countries, such as Germany and France, were only slightly hit, others such as Greece and Spain suffered to a much larger extent from the economic crisis first and from the severing debt crisis afterwards (Matsaganis and Leventi, 2014). Official data on growth and unemployment rates can help formulate hypotheses on changing work-family arrangements in cross-national perspective. Table 1 below shows the GDP growth in the six selected countries from 2005 to 2015. All countries experienced negative growth in 2009. However, negative growth characterized only Greece and Spain in the following years. Germany, Sweden, the UK and France experienced a drop in GDP in 2009 but began to grow again in 2010. In contrast, GPD growth remained negative in Spain and Greece until 2013, the years of what is now known as the "Great Recession" (Jenkins et al., 2013). Considering the worsening economic conditions for both women and men in countries worst hit by the economic crisis, we except greater changes in work-family arrangements in Greece and Spain compared to the other countries. To begin with, we anticipate declines in dual-earner couples (H1) and increases in no-earner couples (H2) in these two countries.

[Table 1 here]

Scholars have argued that women and men respond differently to economic downturns (Hoynes et al., 2012; Karamessini and Rubery, 2014). Therefore, changes in work-family arrangements could have occurred in different ways. Since manufacturing and constructions – two areas that are typically male dominated – were the first to take the hit of the crisis, a decrease in male employment could have led to an increase in female-breadwinner households. Moreover, added worker effects would predict greater labor force participation of women whose partners have been laid off or had their working hours reduced (Lundberg, 1985; Prieto-Rodríguez and Rodríguez-Gutiérrez, 2003). However, the subsequent austerity measures that were adopted targeted the public sector, both trough cuts in an area of employment that is female dominated but also in services that

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are typically used more by women than by men (Matsaganis and Leventi, 2014). Thus, women could either have been let go from their jobs, or had to leave their jobs due to cuts in services such as child or elderly care (Gonzales Gago and Segales Kirzner, 2014).

Thus, we test two alternative hypotheses to address the directions of the changes in work-family arrangement. If women's labor market positions have been more hit, then male-breadwinner households will become more prominent than dual-earner and female-breadwinner households (H3a). If, instead, men have been more hit by the economic consequences of the crisis, then we expect female-main-earner households to increase at the expenses of dual-earner and male-breadwinner households (H3b). Again, we expect the alternative outcomes to occur in the two countries worst hit by crisis: Spain and Greece.

It is more complicated to formulate hypotheses on changes in one-and-a-half-earner households. On the one hand, an increase in this type of couple could result either from women in dual-earner couples reducing their working hours or from women in male-breadwinning households who start working part-time. On the other hand, if men lose their jobs, then one-and-a-half-earner households become female-main-earner households. If men reduce their working hours, they become dual-part-time household. Based on these contrasting expectations, we take an explorative approach towards the evolution of one-and-a-half-earner households and refrain from making a definite hypothesis.

Finally, changes in (un)employment in response to the economic crisis depend on the education and skills of the worker. Typically, low skilled workers are the first to take the hit and to bear the worst consequences of the crisis. Official Eurostat data give important indications on differences in the unemployment rates of women and men with low (ISCED[3] 0-2), medium (ISCED 3-4) and high (ISCED 5-6) levels of education from 2005 to 2014 in the six countries (Eurostat, 2016). Overall, unemployment rates have increased in all countries except Germany. In Greece, losses in employment where large for all levels of education, although in relative terms the less educated were the most hit. For example, unemployment for low educated men went from 6.2% in 2005 to 27.4% in 2014 (+342%) and from 14.6% to 31% for low educated women (+111%). Increases in unemployment were impressive in Spain as well, with the most hit being low and medium educated men (+284% and + 243%). The unemployment increase in France was not nearly as severe, although the number of unemployed doubled among low educated men. Importantly, gender differences in unemployment rates are smaller in France than in Spain and Greece, over the period and between levels of education. In Sweden, increases in unemployment where confined to the lower educated, as unemployment rose from 13.1% to 18.6% among low educated men (+42%) and

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[3] ISCED 0-2: pre-primary education, primary education and lower secondary education. ISCED 3-4: upper secondary education and post-secondary non tertiary education; ISCED 5-6: first stage and second of tertiary education.

from 16.2% to 21.7% among low educated women (+34%). Unemployment among medium and high educated women and men slightly decreased over the considered period. Finally, in the UK unemployment grew more for women than for men, especially among the low educated (+72% for women vs. +28% for men) and the high educated (+39% for women vs. +10% for men). Losses for the medium educated were similar between women and men (+56% and +54% respectively). These figures point to the importance of human capital for being and staying in employment and to relevant cross-national differences in this respect. Thus, we anticipate that women's educational level will be decisive for changes in work-family arrangements in Greece and Spain. In particular, higher education should shield women against unemployment risks in the two crisis-struck countries. Therefore, we expect that the higher women's level of education, the smaller the impact of the crisis on dual-earning (H4a) and no-earning (H4b). Furthermore, we hypothesize that the higher women's level of education, the smaller the impact of the crisis on male-breadwinning (H4c) and the higher on female-breadwinning (H4d).

Methodology

Data and sample

The analyses are based on data from the European Union Statistics on Income and Living Conditions from 2005 to 2012 (EU-SILC, 2005/2012). The EU-SILC is a cross-national database covering a large number of European countries. Its aim is collecting timely data on income among European households and it allows studying poverty and social exclusion in diverse institutional settings and over time. The data are appropriate for the study as they contain information on the entire household, enabling us to reconstruct detailed work-family arrangements over time. As anticipated, we restrict the analysis to six countries: Germany (DE, *N 38,911*), Greece (EL, *N 18,863*), Spain (ES, *N 45,029*), France (FR, *N 36,347*), Sweden (SE, *N 24,963*) and the United Kingdom (UK, *N 23,497*). The six countries belong to different welfare and gender regimes (Esping-Andersen, 1999; Korpi, 2000), are characterized by different work-family arrangements (Lewis et al., 2008; Hook, 2015) and were affected differently by the 2008/2009 economic downturn (Jenkins et al., 2013; Matsaganis and Leventi, 2014). Therefore, they lend themselves well for international comparison. In each country, we select women living with a male partner and who may or may not have children[4]. Women are selected so that both partners are working age, that is, between 19 and 60 years old. Overall, we have a total of *187,610* women.

Dependent variable

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[4] Analyses conducted excluding childless couples yielded consistent findings. Result available from the author upon request.

The dependent variable is the work-family arrangement of the couple. Self-defined current economic status is used to define whether each partner is employed full-time, part-time or not employed. The distinction between part-time and full-time is based on the respondent's claim of being in full-time or part-time work and not on actual working hours. However, descriptive statistics show that self-defined part-time workers report on average 22 hours of employment per week vs. about 41 hours of full-time workers. The not employed category includes a variety of options including being unemployed, student, unfit to work or physically challenged, in early retirement, or full-filling domestic tasks or care responsibilities. By combining the employment statuses of the two partners we obtain a categorical dependent variable with five outcomes:

1) Dual-earners: partners are employed either both full-time or both part-time.
2) No-earner: neither partner employed.
3) Male-breadwinner: man employed, woman not employed.
4) Female-main-earner: woman employed, man not employed or employed part-time.
5) One-and-a-half-earner: man employed full-time, woman employed part-time[5].

Figure 2 shows the distribution of work-family arrangements in the six considered countries polling together the years from 2005 to 2012 (EU-SILC 2005/2012, own calculation). Sweden is the country with the greatest proportion of dual-earner households (about 0.52). Greece, France, the United Kingdom and Spain have about 0.40 of dual earners followed at a length by Germany (0.24), where the one-and-a-half-model prevails (0.38). This arrangement is also common in the UK (0.27), Sweden (0.25) and France (0.22), much less so in Greece (0.07) and Spain (0.11), where the male-breadwinner model is much more present (0.36 and 0.34 respectively). The male-breadwinner type is not uncommon in Germany either (0.25). Little variation is present among female-breadwinners, close to 0.07 in all six countries. No-earner households are few as well in all countries, but they are unsurprisingly more diffuse in the two countries hit badly be the crisis, Greece (0.08) and Spain (0.086), than elsewhere. Hence, as a whole, our data match well with previous cross-national classifications of work-family arrangements.

[Figure 2 here]

Independent variables

To test whether work-family arrangements have changed from before to after the economic crisis, we use a categorical time-variable with three outcomes: pre-crisis (years 2005, 2006, 2007), beginning of the crisis / global financial crisis (years 2008 and 2009), full crisis / recession (2010, 2011 and 2012). The pre-crisis category is the reference in the models. We then use the women's

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[5] No hypothesis refers to this outcome, but for completeness it is included in the dependent variable and the results are briefly discussed as well.

level of education to investigate whether changes in work-family arrangements have taken place at different levels of the social strata. Specifically, we contrast low education (ISCED <=2 as reference category) with medium (ISCED 3 and 4) and high education (ISCED 5 and 6). Finally, to test for country difference, country dummies are included using Germany as reference category.

Controls

All models control for women's age; the age of the partner; the couple's marital status (married as reference vs. not legally married); the partner's level of education – low (ISCED <=2 as reference category), medium (ISCED 3 and 4) and high (ISCED 5 and 6); the number of children in the household (no children as reference, vs. one child, two children, three or more); the age of the smallest child present (no children in the household as reference, 0 to 5 years old, 6 to 12 years old, 13 and older). Summary statistics for all the variables by country and overall are presented in Table 2.

Method

Since the dependent variable is nominal, multinomial logistic regression models are used (Long and Freese, 2014) on the pooled sampled of six countries. Several models have been estimated by adding in succession groups of variables. The first model includes only control variables. The second model adds women's level of education. Model three includes also the time variable while model four further adds the country dummies. Finally, to test the hypotheses, three-way interactions between women's level of education, the time variable and the country are used in model five. For space limitations, only the results for the fully interacted model are presented in Table A1 in the online appendix. To ensure the best possible comprehension of the results, rather than discuss the model coefficients, the average predicted probabilities of the five outcomes for each country by year and level of education have been estimated and are displayed in figure 4. Moreover, figure 5 reports average marginal effects by level of education and country which allow assessing whether the hypotheses are confirmed.

Results

Considerable developments in work-family arrangements over the considered period can be seen in figure 3, especially in some countries. While the proportion of dual-earner households peaked in 2008 and then began to decline in Greece and Spain, female-breadwinner households were on the rise, suggesting important losses of male employment, possibly due to the economic crisis and consistent with the official data discussed earlier. Instead, increases in dual-earners are observed in

the UK, Germany and Sweden over the entire period. We also observe a decline of the male-breadwinner model in all six countries, though more pronounced in Spain and Greece than elsewhere. Female-breadwinner and no-earner households have remained quite stable over the years in the UK, Germany and Sweden, but have increased in Greece and Spain. The one-and-a-half-earner model remained rather stable everywhere except in Germany.

[Figure 3 here]

These overall averages likely mask important within country differences. Therefore, the results from the multinomial logistic models presented below investigate whether households from different social background, proxied via women's education, are more exposed to changing work-family arrangements compared to others. Panels from a) to e) in Figure 4 show the average predicted probabilities for each outcome in each country conditioning on the year and the woman's level of education.

Starting from panel a), we can see that highly educated women in all countries are more likely to be in dual-earner households than medium or low educated ones. Moreover, while there has been an *increase* in the probabilities of being in a dual-earner couple for high educated women in Germany, France, Sweden and the UK, in the two countries most badly hit by the economic crisis, Greece and Spain, the probabilities have decreased after 2008/09, especially in Greece. This result indicates that the economic crisis had negative effects even among households at the higher end of the social strata. Moreover, while low and medium educated women increased or at worst maintained their chances of being dual-earners in Germany, France and Sweden, the probabilities of these groups decreased in Spain, Greece and the UK for the low educated.

Panel b) shows the chances of the opposite situation: being both unemployed. Of course and fortunately the overall probability of this happening are much lower compared to the previous outcome. In all countries, low educated women are the most likely to be in no-earner households. Moreover, after 2008/2009, the chances of being no-earner households among low educated women increased notably in Greece, Spain and the UK. Small increases are observed also in France and the Sweden, while the probability actually declined in Germany. Importantly, the chances of this outcome for medium and high educated women remained stable or even decreased in all countries *except* Spain and Greece, again indicating that the crisis led to negative economic outcomes across all levels of society.

Panel c) shows the predicted probabilities of being in a male-breadwinner household. The chances of being in a male-breadwinner household decrease with education in all countries: the lower the woman's level of education, the higher the chances of being in this work-family arrangement. As for changes over time, the results for France, Sweden and the United Kingdom

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show little if any variation, with small or no declines in male-breadwinning. The most evident decline is for low educated women in Sweden. Reductions among German women are more pronounced, especially for the medium educated. In Greece and Spain, where this work-family arrangement is overall more common than elsewhere, the probabilities of being in a male-breadwinner household have remained stable for high educated women, while they have fallen for low educated ones. The two countries diverge in the destinies of medium educated women, for whom no changes are observed in Greece, while their chances of being homemakers decreased from 2005/07 to 2008/09 and then increased somewhat again in Spain.

The predicted probabilities for being a female-main-earner are plotted in panel d). The likelihood of being in this outcome have changed very little in France and Sweden, while more action took place in the other four countries. In Germany, the probabilities for high educated women decreased, signaling improvements in men's employment situation, while those for low educated women somewhat increased. Instead, in Greece and Spain all women experienced a rise in this outcome. This result is evident also in the UK but mostly for low educated women. These findings suggest worsening labor market situations for all men in Greece and Spain and lower class men in the UK.

Lastly, panel e) shows the results for the one-and-a-half-model. Probabilities of this outcome are notably higher in Germany than elsewhere (note the differences in the y-axes), especially for the medium educated. Moreover, while the chances remained rather constant over the period in Spain, Greece, France and the UK, in Germany low and medium educated women are increasingly likely to be in one-and-a-half-earner household. To the contrary, chances of this outcome diminished in Sweden especially for medium and low educated women.

[Figure 4 here]

To link these results with the hypotheses, the panels in Figure 5 report average marginal effects calculated from the three-way interaction between level of education, year and country. The graph shows, for each outcome, the differences in probability between 2005/07 and 2008/09 and between 2005/07 and 2010/12 for all levels of education. H1 is confirmed: there have been significant reductions in the proportion of dual-earners at all levels of education in Greece and Spain but not elsewhere. Symmetrically, and confirming H2, we observe a significant increase in no-earner households in these two countries but not elsewhere, except for low educated women in the UK. As the competing hypotheses, there has been a significant increase in the proportion of households with female-main-earners and a significant decline in breadwinning in Greece. This finding brings support to hypothesis H3b as opposed to H3a and suggests that, in the two countries, men's employment has been the most to suffer from the crisis. Finally, for what regards educational differences, the hypotheses are only partially confirmed. Contrary to H4a and H4b, the results show

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that the negative effects of the economic downturn were spread to all three educational levels, so that women with low, medium and high levels of education were all less likely to be in dual-earner and more likely to be in no-earner couples after the crisis. High education seems to have had a protective effect from no-earning only in Spain. Moreover, lower educated women were the least likely to be in male-breadwinning households after the crisis, going against H4c. Instead, women with higher education were more likely to be female-main-earners after the crisis compared to less educated women in both countries, confirming H4d.

[Figure 5 here]

Discussion and conclusion

This article has contributed to the literature by investigating the changes that have occurred in work-family arrangements during the crucial years of the economic crisis and subsequent recession in six European countries: Germany, Greece, Spain, France, Sweden and the United Kingdom. Specifically, using eight years of EU-SILC data (from 2005 to 2012) the article addressed whether the crisis led to a decrease in the proportion of dual-earner households to the advantage of other household types and whether shifts in household work arrangements have taken place at different levels of the social strata.

Several results have emerged from the analyses. First of all, the findings have confirmed that large differences in work-family arrangements in Europe still exist, and that the male-breadwinner model in southern Europe is all but disappeared, especially at low levels of female education. Thus, despite changes in recent decades, many European couples are still task-specialized, reflecting different preferences regarding the division of labor between partners (Edlund and Öun, 2016). Second, the results indicate that dual-earner households have indeed decreased over the years in countries worst hit by the economic crisis, that is Greece and Spain, where no-earning households have instead increased. Third, the findings show that in these two countries all social groups – proxied by women's level of education – suffered from the economic consequences of the crisis. Indeed, reductions in dual-earning households can be observed not just among the low educated but also among the medium and high educated. This result, party in contrast with previous findings that show how lower social strata are the most vulnerable to economic downturns (Hoynes et al., 2012), sends the preoccupying message that nobody was spared from the devastating consequences of the crisis in Greece and, to a smaller extent, in Spain. As for other household types, the findings reveal increases in female-main-earner households in Greece and Spain at all levels of education but mostly among the high educated. In contrast, male-breadwinner households have decreased notably

among women with low levels of education especially in Greece and Spain but also in the other four countries.

These results suggest diverging paths for work-family arrangements among countries that suffered the economic crisis differently. In countries where the crisis was not especially harsh, dual-earners have increased and male-breadwinners have diminished at all levels of education. At the same time, no-earner households have remained stable at medium and high levels of education and only marginally increased among the less educated, typically the most vulnerable to economic fluctuations. This situation is likely what policy makers would consider a positive evolution in work-family arrangements. What happened in Greece and Spain is somewhat more troubling. Indeed, the fact that male-breadwinner households have been declining and that female-main-earners have been growing might seem a positive evolution for gender equality in work-family arrangements. Having more families with breadwinning women could balance off the predominance of the male-breadwinner model and this in principal could yield a more equal gender balance at the societal level. However, the extent to which such changes come with a decrease in dual-earner households and an increase in no-earner households suggests that the overall consequences of the economic crisis on work-family arrangements have been far but positive. To the contrary, it is likely that increases in male unemployment led to reductions in dual-earner and male-breadwinner households to the advantage of no-earner and likely poorer female-main-earner households. Although it is not possible to validate this interpretation with cross-sectional data, the growth of both male and female unemployment suggests that this might be the case.

There are two limitations to this study that need mentioning. First and foremost, the cross-sectional nature of the data impedes making causal statements about how the crisis affected moves from and to different household types. Ideally, retrospective data would be needed to address changes in employment at the couple level over the considered years. Unfortunately, such data is not readily available. The closest approximation could be the longitudinal component of the EU-SILC which, however, covers a maximum of four years per household, generally less, so it would only allow the observation of the changes in work-family arrangements from immediately before to immediately after the beginning of the crisis, for example from 2009 to 2012. Thus, for the present article we have chosen to privilege the study of a large observation window even if this means abstaining from making causal inferences. Second, due to the complexity of the dependent variable with five outcomes, we decided to focus on a limited number of countries, as presenting the results for a multinomial logit for a wider set of cases would have made the results extremely cumbersome to present and read. We acknowledge that a different set of countries might have yielded different

results but, at the same time, we believe that our selection covers a range of countries with different institutional characteristics which makes the cross-national comparison worthwhile and meaningful.

Future research will have to update the study of changing work-family arrangements in Europe as the effects of the crisis diminsh. For certain, the cross-national differences in work-family arrangements that had been steadily disappearing over the nineties and noughties are again well visible today, and the gap in female employment between de-familized and familized countries that had been slowly closing over the past decades has now evidently reopened. In particular, important reductions in dual earning have emerged especially in Greece and Spain. As the two countries slowly recover from the economic crisis, it remains to be seen what will happen to the distribution of employment within households in the upcoming years.

Disclaimer: This article is based on data from Eurostat, EU Statistics on Income and Living Conditions (2005/2015). The responsibility for all conclusions drawn from the data lies entirely with the author.

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Tables and figures

Table 1 Gross domestic product - expenditure approach. Growth rate compared to the same quarter of the previous year, seasonally adjusted.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
France	1.6	2.4	2.4	0.2	-2.9	2.0	2.1	0.2	0.6	0.6	1.3
Germany	0.7	3.7	3.3	1.1	-5.6	4.1	3.7	0.5	0.5	1.6	1.7
Greece	0.6	5.7	3.3	-0.3	-4.3	-5.5	-9.1	-7.3	-3.2	0.7	-0.2
Spain	3.7	4.2	3.8	1.1	-3.6	0.0	-1.0	-2.6	-1.7	1.4	3.2
Sweden	2.8	4.7	3.4	-0.6	-5.2	6.0	2.7	-0.3	1.2	2.3	4.2
UK	3.0	2.5	2.6	-0.6	-4.3	1.9	1.5	1.3	1.9	3.1	2.2

Data extracted on 24 Aug 2016 08:56 UTC (GMT) from OECD.Stat

Shaded cells indicate negative or no growth.

Table 2 Summary statistics by country and overall.

	Germany	Greece	Spain	France	Sweden	United Kingdom	Total
Work-family arrangements							
Dual-earner	.24	.41	.39	.43	.52	.41	.39
No-earner	.049	.081	.086	.06	.039	.064	.064
Male-breadwinner	.25	.36	.34	.2	.13	.18	.25
Female-main-earner	.084	.072	.075	.092	.07	.072	.079
One-and-a-half-earner	.38	.073	.11	.22	.25	.27	.22
Time							
2005/2007	.4	.37	.38	.37	.38	.44	.39
2008/2009	.25	.28	.26	.25	.27	.22	.25
2010/2012	.35	.35	.36	.38	.35	.34	.36
Age	43	42	42	41	41	41	42
Age of the partner	45	46	45	43	44	44	44
Marital status							
Not married	.13	.019	.1	.28	.35	.21	.18
Married	.87	.98	.9	.72	.65	.79	.82
Education							
Low	.08	.35	.47	.22	.083	.12	.23
Medium	.58	.41	.23	.44	.51	.49	.43
High	.34	.25	.31	.33	.41	.39	.34
Partner's education							
Low	.046	.37	.48	.2	.13	.14	.24
Medium	.5	.38	.23	.51	.58	.5	.44
High	.46	.25	.29	.29	.29	.37	.33
Age of the youngest child							
No children	.33	.18	.19	.28	.28	.34	.27
0-5	.2	.25	.25	.27	.26	.26	.25
6-12	.19	.21	.21	.2	.18	.18	.2
13+	.28	.36	.35	.25	.28	.22	.29

N° children							
None	.32	.18	.19	.28	.28	.34	.26
One	.28	.31	.31	.24	.24	.24	.27
Two	.3	.39	.4	.32	.34	.3	.34
Three +	.091	.12	.1	.16	.15	.12	.12
N	38,911	18,863	45,029	36,347	24,963	23,497	187,610

Figure 1 Female and male employment rates in six European countries. Eurostat (2016)

Figure 2 Distribution of work-family arrangements in six European countries. EU-SILC, 2005/2012, own calculation.
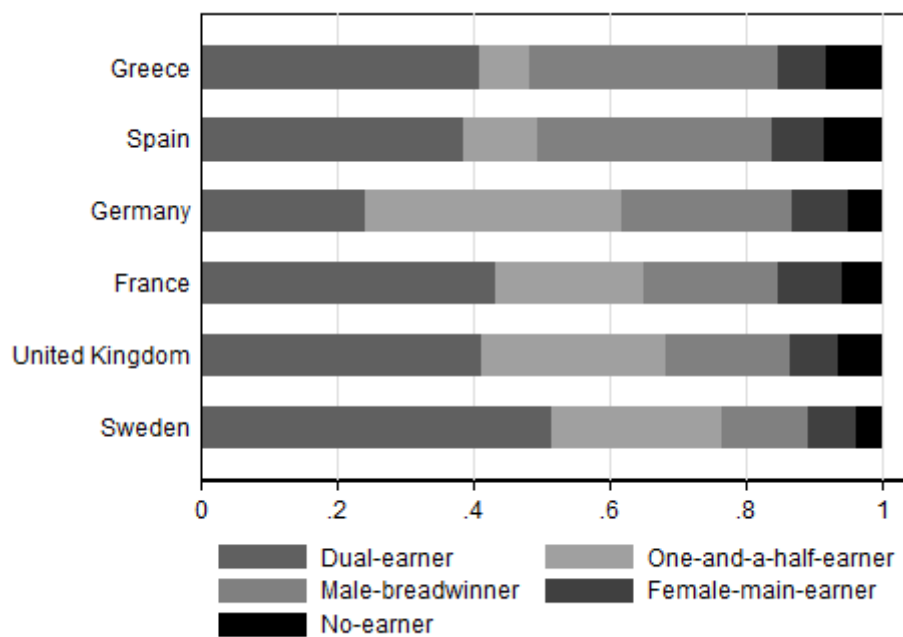
Figure 3 Distribution of work-family arrangements over time in six European countries. EU-SILC, 2005/2012, own calculation
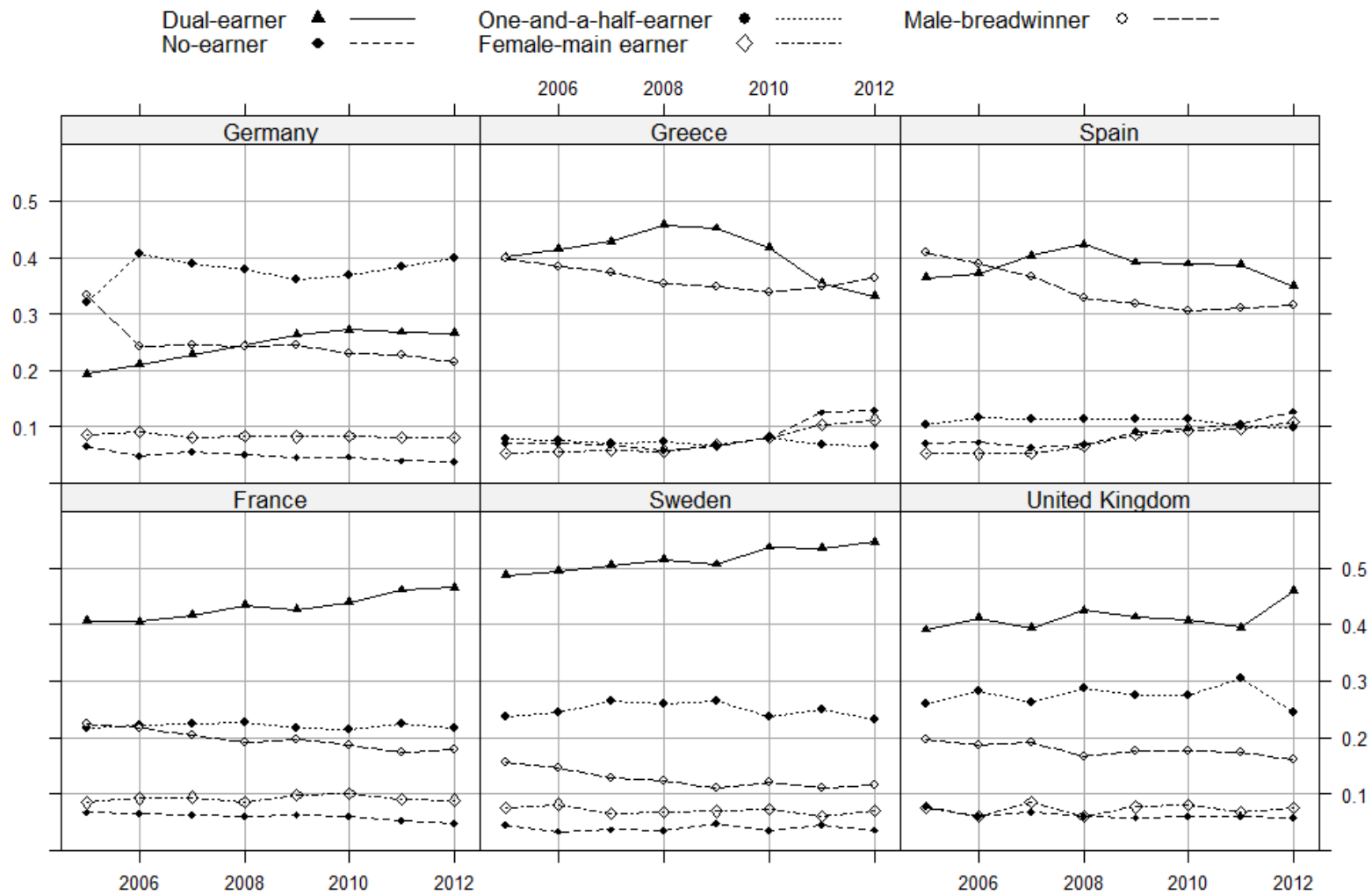
Figure 4 Work family arrangements by level of education over time in six European countries. Predicted probabilities with 95% confidence bounds. EU-SILC, 2005/2012, own calculation.
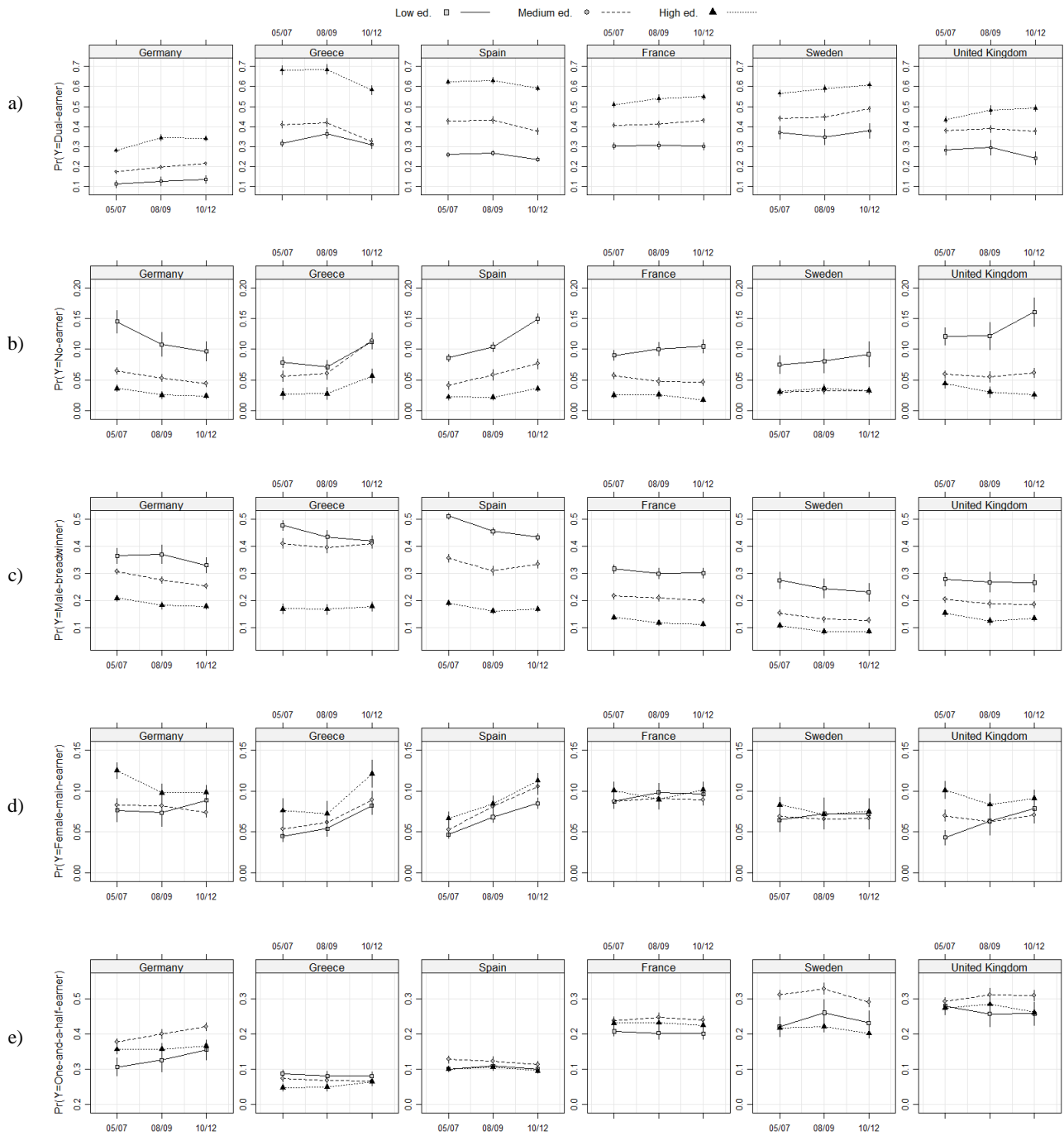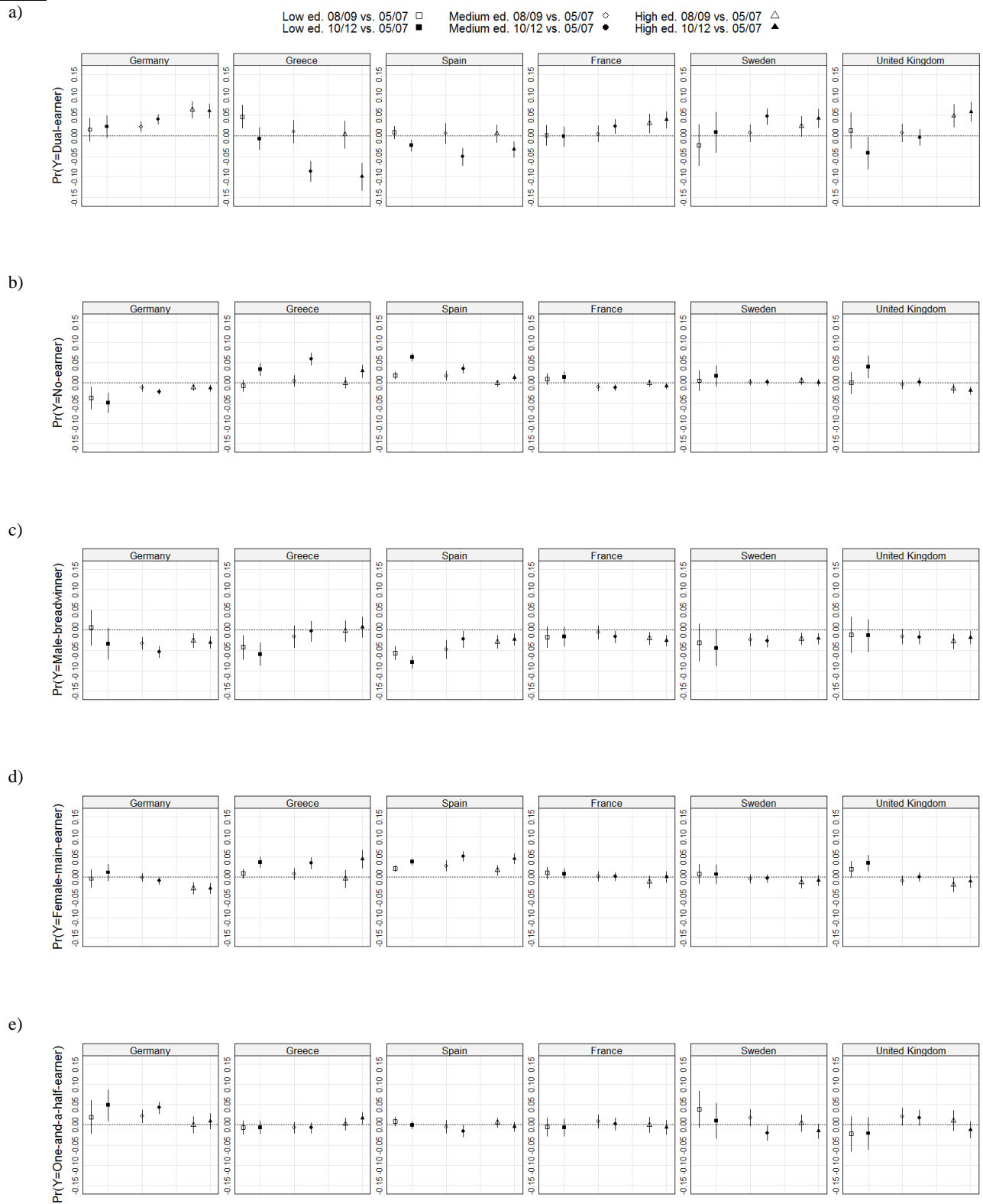
Figure 5 Marginal effects and 95% confidence intervals of education and time on five outcomes in six European countries. EU-SILC, 2005/2012, own calculation.

Table A1 Multinomial logistic regression models predicting work-family arrangements. Women age 19-60. Baseline category: dual-earner

	No-earner	One-and-a-half-earner	Female-main-earner	Male-breadwinner
Age	-0.000	0.015***	-0.011***	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
Age partner	0.055***	0.004*	0.054***	0.011***
	(0.002)	(0.002)	(0.002)	(0.002)
Marital status (Married r.c.)				
Not married	0.281***	-0.317***	0.229***	-0.210***
	(0.031)	(0.019)	(0.026)	(0.020)
Partner's level of education (Low ed. r.c.)				
Partner medium ed.	-0.566***	-0.049*	-0.403***	-0.153***
	(0.027)	(0.021)	(0.026)	(0.018)
Partner high ed.	-0.874***	-0.062**	-0.747***	-0.046*
	(0.034)	(0.023)	(0.029)	(0.020)
Age of the smallest child (No children r.c.)				
0-5	0.526**	1.197***	-0.143	0.793***
	(0.173)	(0.162)	(0.151)	(0.122)
6-12	-0.384*	1.036***	-0.441**	0.049
	(0.173)	(0.162)	(0.151)	(0.122)
13+	-0.421*	0.503**	-0.541***	-0.217
	(0.171)	(0.161)	(0.150)	(0.122)
Number of children (None r.c.)				
One	-0.012	-0.049	0.292	0.271*
	(0.171)	(0.162)	(0.150)	(0.122)
Two	-0.167	0.217	0.104	0.411***
	(0.173)	(0.162)	(0.151)	(0.122)
Three or more	0.491**	0.256	0.325*	0.872***
	(0.174)	(0.163)	(0.153)	(0.123)
Year (2005-2007 r.c.)				
2008-2009	-0.438*	-0.061	-0.182	-0.110
	(0.179)	(0.156)	(0.203)	(0.153)
2010/2012	-0.607***	-0.031	-0.051	-0.286*
	(0.166)	(0.142)	(0.181)	(0.141)
Level of education (Low ed. r.c.)				
Medium ed.	-1.276***	-0.227*	-0.394**	-0.616***
	(0.122)	(0.106)	(0.138)	(0.104)
High ed.	-2.350***	-0.804***	-0.458**	-1.523***
	(0.140)	(0.107)	(0.139)	(0.107)
Country (Germany r.c.)				
Greece	-1.693***	-2.349***	-1.614***	-0.802***
	(0.131)	(0.126)	(0.156)	(0.110)
Spain	-1.395***	-1.996***	-1.365***	-0.520***
	(0.119)	(0.109)	(0.140)	(0.103)
France	-1.503***	-1.436***	-0.885***	-1.182***
	(0.126)	(0.113)	(0.143)	(0.109)
Sweden	-1.906***	-1.578***	-1.398***	-1.533***
	(0.164)	(0.139)	(0.184)	(0.133)
UK	-1.139***	-1.052***	-1.523***	-1.231***
	(0.138)	(0.126)	(0.177)	(0.124)

Table A1 Continued Multinomial logistic regression models predicting work-family arrangements. Women age 19-60. Baseline category: dual-earner

	No-earner	One-and-a-half-earner	Female-main-earner	Male-breadwinner
2008-2009 × Medium ed.	0.109	-0.005	0.056	-0.127
	(0.198)	(0.163)	(0.215)	(0.161)
2008-2009 × High ed.	-0.135	-0.149	-0.282	-0.237
	(0.234)	(0.166)	(0.220)	(0.166)
2010/2012 × Medium ed.	-0.015	-0.075	-0.286	-0.129
	(0.183)	(0.149)	(0.193)	(0.148)
2010/2012 × High ed.	-0.015	-0.144	-0.399*	-0.077
	(0.212)	(0.151)	(0.195)	(0.153)
2008-2009 × Greece	0.198	-0.168	0.235	-0.134
	(0.210)	(0.198)	(0.241)	(0.170)
2008-2009 × Spain	0.608**	0.100	0.538*	-0.049
	(0.189)	(0.169)	(0.216)	(0.159)
2008-2009 × France	0.542**	0.023	0.301	0.043
	(0.202)	(0.177)	(0.224)	(0.170)
2008-2009 × Sweden	0.582*	0.292	0.365	0.056
	(0.262)	(0.216)	(0.289)	(0.211)
2008-2009 × UK	0.403	-0.076	0.527	0.017
	(0.234)	(0.210)	(0.286)	(0.206)
2010/2012 × Greece	1.004***	-0.038	0.703**	0.161
	(0.193)	(0.184)	(0.216)	(0.159)
2010/2012 × Spain	1.284***	0.108	0.775***	0.199
	(0.175)	(0.155)	(0.194)	(0.147)
2010/2012 × France	0.771***	-0.001	0.161	0.236
	(0.188)	(0.163)	(0.203)	(0.158)
2010/2012 × Sweden	0.794**	0.045	0.144	0.077
	(0.246)	(0.205)	(0.271)	(0.200)
2010/2012 × UK	1.072***	0.102	0.834**	0.392*
	(0.216)	(0.196)	(0.259)	(0.194)
Medium ed. × Greece	0.664***	-0.217	0.310	0.185
	(0.167)	(0.150)	(0.187)	(0.122)
Medium ed. × Spain	0.014	-0.057	0.006	-0.284*
	(0.155)	(0.124)	(0.166)	(0.114)
Medium ed. × France	0.501***	0.050	0.093	-0.087
	(0.147)	(0.122)	(0.158)	(0.119)
Medium ed. × Sweden	0.176	0.385**	0.268	-0.154
	(0.190)	(0.147)	(0.198)	(0.143)
Medium ed. × UK	0.230	-0.049	0.566**	-0.018
	(0.159)	(0.134)	(0.191)	(0.133)
High ed. × Greece	0.482*	-0.657***	0.218	-0.374**
	(0.238)	(0.176)	(0.198)	(0.135)
High ed. × Spain	0.080	-0.150	-0.077	-0.435***
	(0.184)	(0.125)	(0.163)	(0.117)
High ed. × France	0.531**	0.351**	0.063	0.123
	(0.188)	(0.125)	(0.163)	(0.125)
High ed. × Sweden	1.010***	0.311*	0.277	0.105
	(0.211)	(0.150)	(0.202)	(0.149)
High ed. × UK	0.880***	0.315*	0.873***	0.456**
	(0.184)	(0.137)	(0.194)	(0.139)

Table A1 Continued Multinomial logistic regression models predicting work-family arrangements. Women age 19-60. Baseline category: dual-earner

	No-earner	One-and-a-half-earner	Female-main-earner	Male-breadwinner
2008-2009 × Medium ed. × Greece	0.193	0.110	0.010	0.302
	(0.263)	(0.234)	(0.285)	(0.189)
2008-2009 × Medium ed. × Spain	0.065	-0.097	0.013	0.119
	(0.241)	(0.193)	(0.253)	(0.178)
2008-2009 × Medium ed. × France	-0.413	0.067	-0.158	0.155
	(0.239)	(0.192)	(0.248)	(0.187)
2008-2009 × Medium ed. × Sweden	-0.197	-0.186	-0.305	-0.004
	(0.302)	(0.228)	(0.311)	(0.228)
2008-2009 × Medium ed. × UK	-0.165	0.192	-0.542	0.121
	(0.270)	(0.224)	(0.312)	(0.223)
2008-2009 × High ed. × Greece	0.381	0.417	0.174	0.464*
	(0.366)	(0.266)	(0.303)	(0.207)
2008-2009 × High ed. × Spain	-0.062	0.150	0.154	0.217
	(0.295)	(0.193)	(0.251)	(0.182)
2008-2009 × High ed. × France	-0.024	0.126	-0.015	0.083
	(0.304)	(0.196)	(0.258)	(0.197)
2008-2009 × High ed. × Sweden	0.107	-0.105	-0.099	0.023
	(0.337)	(0.233)	(0.319)	(0.238)
2008-2009 × High ed. × UK	-0.321	0.214	-0.374	0.013
	(0.328)	(0.228)	(0.319)	(0.233)
2010/2012 × Medium ed. × Greece	0.605*	0.273	0.409	0.489**
	(0.236)	(0.219)	(0.254)	(0.177)
2010/2012 × Medium ed. × Spain	0.109	-0.014	0.409	0.274
	(0.220)	(0.177)	(0.226)	(0.164)
2010/2012 × Medium ed. × France	-0.417	0.058	0.139	0.037
	(0.220)	(0.175)	(0.224)	(0.172)
2010/2012 × Medium ed. × Sweden	-0.203	-0.120	0.052	0.034
	(0.284)	(0.215)	(0.291)	(0.216)
2010/2012 × Medium ed. × UK	-0.392	0.075	-0.476	-0.061
	(0.248)	(0.208)	(0.282)	(0.208)
2010/2012 × High ed. × Greece	0.533	0.682**	0.391	0.412*
	(0.317)	(0.244)	(0.266)	(0.193)
2010/2012 × High ed. × Spain	-0.115	0.065	0.270	0.086
	(0.259)	(0.176)	(0.223)	(0.167)
2010/2012 × High ed. × France	-0.598*	0.066	0.224	-0.164
	(0.282)	(0.179)	(0.231)	(0.181)
2010/2012 × High ed. × Sweden	-0.193	-0.025	0.131	-0.010
	(0.313)	(0.219)	(0.296)	(0.223)
2010/2012 × High ed. × UK	-1.129***	-0.109	-0.622*	-0.294
	(0.294)	(0.211)	(0.285)	(0.215)
Constant	-1.670***	-0.432***	-1.883***	0.358**
	(0.137)	(0.113)	(0.146)	(0.109)

N	187,610
Pseudo-R-squared.	.09961
Log-likelihood	-240,397
Chi-squared.	53,193

* p<0.05, ** p<0.01, *** p<0.001