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Presence of children and inequality in the household: employment, housework and earnings in European heterosexual couples

Ph.D. candidate: Giulia Maria Dotti Sani

Advisor: Professor Paolo Barbieri

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1.1 Introduction

Equality between women and men is one of the fundamental values of the European Union. Article 23 of its Charter of Fundamental Rights, in fact, states that "Equality between men and women must be ensured in all areas, including employment, work and pay". Furthermore, the council of the EU recognizes that "[...] gender equality policies are vital to economic growth, prosperity and competitiveness" (Council of the European Union 2011, p. 3).

One of the Lisbon 2020 objectives regards precisely gender equality and implies having 75% of women in the workforce throughout the European Union by then. Furthermore, in the framework of the European Pact for Gender Equality (2011-2020), the Council of Europe urges member states to adopt additional measures such as flexible working arrangements, provision of parental leave and child care services in order to reach the proposed objective.

Although the Lisbon target may not be in the reach of all member states by 2020, over the last 50 years women's participation in the workforce has greatly increased in most European countries. For instance, according to OECD figures, female labor force participation in Italy has grown from 29% in 1970 to 52% in 2011. In the same time span, it went from 48 to 72% in Germany and from 51 to 77% in Norway. By contrast, men's employment in the same countries has remained stable or even decreased (OECD 2009).

Scholars argue that women's increased participation in the educational system has largely contributed to their entrance and success in the labor market. According to human capital theory (Becker 1993), in fact, human capital gives individuals an advantage in the labor market as it implies higher skills and productivity. Currently, women are competing in many fields of schooling and, on average, now reach higher levels of education than men: in the EU27 area in 2001 there where 137 women vs. 100 men who graduated from the highest levels of education (ISCED 5 and 6). By 2010, the figure reached 150 (Eurostat 2012c).

Despite women's improved educational attainment, gender segregation by field is still widely present in European states: while women are over represented in low-paid sectors such as health care and services, men represent over 60% of graduates in fields such as engineering (European Commission 2011). Segregation in education translates into segregation in the work force, which is responsible for part of the gender gap in earnings that is still large in many European countries. In 2010, in fact, the unadjusted gender pay gap[1] was around 16% in the EU27 area, ranging from 4% in Slovenia to 25% in Austria (Eurostat 2012b).

Gender inequality, however, is not only present in the work place. In a recent article regarding the different contributions to paid and unpaid work between women and men over time, Jennifer Hook (2010, p. 1480) has suggested that "Inequality in household labor is linked to inequalities in the labor market and vice versa". In fact, large disparities in the allocation of time to unpaid work can be noticed in all European countries. Even though the gender gap in time devoted to housework has decreased over time, mainly due to decreases in women's time, rather than to increases in men's time (Gershuny 2000, Hook 2010, Sayer 2010), women do more than half of the domestic work in all European member states (Knudsen and Waerness 2008).

All in all, the gender gap in female labor market participation, in earnings and in time to domestic chores is slowly narrowing. Life course research has shown, however, that while women and men are becoming more equal, mothers and fathers are not. Parenthood, in fact, has a different effect on work effort for women and men. Looking at the differences in employment by parenthood status for individuals aged 25 to 49 in 2009 (Eurostat 2012b,

[1]The unadjusted gender pay gap is defined as the relative difference, in percentage, between the average gross hourly earnings of women and men.

p. 35), we find that, compared to not having any children in the household, having a child under 12 is associated with a reduction in employment rates of 11 percentage points for women and an increase of 8.5 percentage points for men in the EU27 area. Scholars have argued that the inequality in access, continuity and productivity in the labor market results in the 'motherhood penalty', i.e. the loss of income that derives from being a mother vs. a childless woman or a father (Budig and England 2001, Lundberg and Rose 2002, Avellar and Smock 2003, Koslowski 2011). Having children, in fact, can lead to loss in job experience and in wages for women who exit the labor market, but also to a reduced productivity or to the trade-off between higher wages and a mother-friendly job for those women who choose to accommodate their work life around their family life (Budig and England 2001).

The division of unpaid work is also shaped by the presence of children. Not only has cross-sectional comparative research shown that mothers perform more housework than fathers, childless men and women (Craig and Mullan 2010, Dribe and Stanfors 2011): recent longitudinal studies in fact have brought support to the notion that women and men *shift* into traditional divisions of tasks when they become parents (Kühhirt 2011, Schober 2013). In other words, even couples who divided domestic chores equally before having children tend to specialize in different tasks after becoming parents. In particular women tend to pick up the bulk of domestic chores.

The findings reported up to now hold true throughout western, not just European, countries. In other words, there is no modern society where equality in gender roles has been established. There are, however, large differences between countries, for mothers and fathers as well as for childless men and women. As we have seen previously, female labor force participation and the gender gap in earnings vary notably by country (Eurostat 2012b). Women in northern European countries in fact are more likely to be in the labor market, even when they have children. On the contrary, the gender pay gap is more pronounced in these countries, suggesting a higher job segregation compared to countries such as Italy, where the gender gap in earnings is very low (5%, Eurostat). Housework effort also varies along geographical borders. Couples in northern Europe, in fact, share housework more evenly. Knudsen and Waerness (2008) show that in Finland, Denmark and Sweden women do around 66% of domestic chores, while they perform a much higher share in southern European countries such as Spain (78%), Portugal (80%), and Cyprus (81%). Such large gender disparities between countries suggest that different historical developments and contextual features can be important in determining women and men's choices and behavior.

The achievement of gender equality is an important goal in the general human rights framework, but reaching gender equality is also instrumental, as it would be "vital for the EU's growth, employment and social cohesion objectives." (European Commission 2011, p. 4). Furthermore, recently researchers have been pointing towards an additional reason to boost gender equality: the intuition that the decline in total fertility rates that has characterized many European states in recent decades may be reversed by improving women's condition in society. However, whether policies fostering gender equality in work and earnings with the aim of achieving higher fertility should be developed is object of an ongoing debate (Billari et al. 2006). According to the gender equality argument (Oláh 2011), women have reached nearly the same opportunities as men in education and employment but they still face the majority of domestic tasks when they become mothers. Lowering their fertility would be their strategy to cope with the increasing demands from the labor market, and with the lack of support from their partner and from the state. The author argues that if the disparities between women and men in the private and in the public sphere were reduced, and policies to render men and women more equal were enforced, fertility levels would be higher. Such a perspective is upheld by other scholars – e.g. McDonald (2006) – and would seem to find support in the higher levels of gender equality and of fertility rates of northern European countries. The opposers of this position, however, argue first of all that low fertility is a false problem that rests on a number of period-specific assumptions regarding the 'correct' age structure of a population. Furthermore, they argue that addressing low fertility rates by promoting pro-natalist policies disguised as gender equality policies could actually be detrimental for gender equality itself (Neyer 2011, Van de Kaa 2006).

One of the obstacles to this debate is the inconclusiveness of empirical research on the relation between gender equality and fertility. While some authors find a positive relation between some within household equality and child-births (Oláh 2003), others find that high levels of gender equality are not related to fertility in any way (Duvander and Andersson 2006). In terms of the division of housework, in a study on American couples, Torr and Short (2004, p. 19) find that "at the individual level the relationship between women's share of housework and fertility is U-shaped. In a setting with reasonably high gender equity in individual institutions, both a greater and lesser burden in the family sphere, as indicated by the division of housework, are associated with an increased probability of a second birth". In Germany, Cooke (2004) also finds a positive relation between fathers' greater relative child-care time and second births. In Australia, by contrast, Craig and Siminski (2011) find no evidence that housework sharing or the amount of housework or child care performed by men has any effect on the probability of having a second child. In terms of paid work, instead, in a study comparing Italy and Spain, Cooke (2009) finds that women's hours of employment reduce the likelihood of a second birth in both countries. Furthermore, while in Spain the use of private child care increases the likelihood of having a second child, in Italy it is fathers' greater child care share that increases the likelihood.

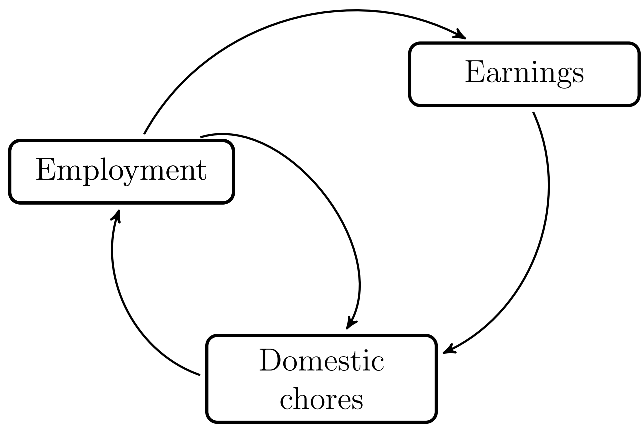
The achievement of broader human rights and the enhancement of fertility rates are two examples of why gender equality may be desirable. There is another issue, however, that I would like to address. According to the Economic Theory of the Family (Becker 1981), the male breadwinner-female homemaker model, which implied full task specialization, was the optimal strategy to maximize the household's utility function: with one household member in paid work and the other one taking care of domestic work the needs of the household's members would be fullfilled. However, the development of partner specific skills which arises with specialization is most successful in long term relationships. In case of partnership dissolution, in fact, each partner is left with a set of non-interchangeable abilities that can be more or less *portable*, i.e. which can be used again in another relationship. In this sense, the skills acquired in paid work are generally portable, while homemaking skills tend to be relationship specific. Thus, if a specialized couple dissolves, the homemaker may not be equipped to survive on its own out of the partnership. It follows that the development of a specific skill set can be potentially damaging in contexts where divorce is becoming increasingly common and where individuals' well being strongly depends on economic resources. To the contrary, the development of parallel skill sets within couples renders individuals equally equipped to survive within or without that specific partnership. However, the relationship between economic (in)dependence and partnership (in)stability may also be reversed: without economic dependence, the barrier to divorce or breakup becomes easier to overcome. Thus, scholars have pointed out that symmetric economic roles within the household might actually trigger partnership dissolution (Becker 1981). However, demographers have pointed to the fact that it is the cultural changes in values concerning self-realization and autonomy which are behind the increasing divorce rates (Van De Kaa 1987) and that therefore even couples that divide labor in a traditional way may be at risk of partnership dissolution. Furthermore, in times of economic instability women's resources become more valuable to the entire household, which brings men to have more to loose in case of divorce (Oppenheimer 1997). From this perspective, an increase in within-household gender equality could mean reducing the risks of divorce.

This dissertation contributes to the debate on gender equality by asking to what extent women and men's behavior differs in European heterosexual partnerships, and by asking whether the presence of children in the household is related to the degree of within-couple gender equality. To operationalize gender equality, I consider three areas: employment, housework and earning capacity. Why focus on these three areas when there are a variety of potential within-couple (in)equalities (i.e. happiness, health, life satisfaction etc.)? The reason to do so is that these areas form the skeleton of within-couple specialization and are intrinsically linked. As discussed in the previous paragraphs, inequality in housework and in paid work are two faces of the same coin and represent the core of within-couple specialization. The male breadwinner-female homemaker model is the clearest example of this. Participation in the labor market, in turn, is the key to earnings, which can be related to the housework-employment loop, as figure 1.1 shows[2]. Earnings, in fact, can ease the housework-employment association because they can: a) translate into better bargaining skills to achieve a more equal division of chores; and/or b) allow outsourcing domestic chores to a larger extent. Hence, by considering the three areas we obtain a more accurate and complete picture of the degree of within-couple specialization and the extent to which it is (un)equal. Having clarified why I consider these three areas, it becomes evident that these inequalities can only be addressed by taking couples in their entirety as unit of analysis. Looking at differences between women and men in general, in fact, would obscure the dynamics at the couple-level that are integrant part of the cycle of inequality.

In broad terms, my research strategy takes the following form. I first investigate the different behavior of partnered women and men in these three areas in different institutional circumstances, and analyze if and how individual and household characteristics are related to within-household gender

[2]The figure has a purely descriptive purpose and the arrows do not in any way imply causal links.

Figure 1.1 – Cycle of within-couple inequality in employment, domestic chores and earnings



equality; then, I verify to what extent the presence of children is associated with less gender equality in women and men's participation in the work force, division of domestic chores, and relative earnings capacity; further, I consider how individuals embedded in different contextual and institutional circumstances – in particular referring to welfare regimes, but not only – behave differently in the three areas and whether the contextual traits have a mediating effect on the relation between individual characteristics and women and men's behavior in paid work, unpaid work and relative earning capacity in the presence of children or in the event of a childbirth.

The thesis is organized as follows. Since the dissertation has a comparative approach, I devote the following paragraphs to a discussion of welfare and gender regimes that are referred to extensively in the literature review and in the empirical chapters. Then I review the main findings in the literature regarding gender differences in paid work, domestic chores and earnings, and their relation with parenthood. From these I draw my hypotheses. In chapter two, I introduce the data and the methods, although a discussion of these is also included in each empirical chapter. Chapters three to five report the analyses and the findings: in chapter three I analyze the relation between paid work and parenthood in four European countries; in chapter four, multi-level models are applied to 23 European states to investigate to what extent the presence of children is associated with the division of domestic chores within couples, and whether the association varies by country; in chapter five, I use multi-level models first and fixed effects panel models afterwards using data from 26 European countries to test, firstly, the association between parenthood and relative earnings of couples, and secondly the 'effect' of child birth on the earnings' balance of couples. Finally, in chapter six I draw some concluding remarks on my findings.

1.2 Context counts: welfare regimes and gender regimes

Comparative social studies emphasize the association between individual behavior and contextual characteristics, with particular attention to the country of residence. It is argued, in fact, that cross-country differences in people's behavior may be shaped by the different contextual circumstances individuals are embedded in. For the scope of this thesis, it is important to consider if and how different European states contribute to shaping the within-household gender equality in roles. Specifically, the extent to which countries intervene on the division of paid and unpaid labor within households and on the relative earnings capacity of the household members.

The welfare regime typology (Esping-Andersen 1990) is a suitable starting point, as it focuses on the effectiveness of states in granting social rights of citizenship and reducing class inequalities. Such approach, however, has the secondary effect of masking within-class differences, among which gender differences (O'Connor 1993, Orloff 1993). To obviate to this, other scholars have attempted to explicitly introduce gender-equality in the dimensions along to which cluster countries. Korpi (2000) in particular makes a first attempt to build a "typology for the analysis of inequalities with respect to gender as well as class" (Korpi 2000, p. 172).

In the following paragraphs I briefly introduce the main concepts underlying Esping-Andersen's capitalist welfare regime typology and Korpi's ideal typical model of gendered welfare state institutions. Then I present some country-level data to provide some empirical evidence of how the countries fit together in the different regimes. In the last section I explain how I selected the countries to compare in the analyses.

1.2.1 The worlds of welfare capitalism: state, market and family

In the framework of the welfare regime typology (Esping-Andersen 1990, 1999), with the development of hegemonic markets individuals' survival and welfare becomes dependent on their performance in the labor market. The notion of welfare state, in the proposition of T.H. Marshall (1950), was based on the idea of social citizenship involving social rights, that, ultimately, would have the aim of de-commodifying individuals from the market, that is of allowing individuals to survive even when out of the labor market.

Other than being a de-commodification system, the welfare state is also a stratification system. In fact, the extent and the modes of state intervention have important implications for the formation and/or reinforcement of differences between social classes. For instance, a system based on transfers that are means tested translates into a clear-cut division between the welfare state recipients, who share a condition of 'relative equality of poverty' (Esping-Andersen 1990, p. 27), and the remaining citizens who base their welfare on the market, with varying degrees of success. On the contrary, universalistic transfers tend to have equalizing effects.

Finally, the welfare state has different ways of relating with the 'private sphere', i.e. of addressing the needs of care and assistance within households. This issue is especially important for our case because it explicitly involves gender differences.

Esping-Andersen identifies three clusters of welfare states. Although his typology is not perfectly 'pure', in the sense that countries in either regime incorporate some traits of the other regimes to a certain extent, the author argues that the world is neatly formed by separate regime-clusters (p. 29, 1990).

In the 'liberal' welfare states, de-commodification is minimized: assistance is low, on a means tested basis and associated with social stigma. Furthermore, states belonging to the liberal cluster are highly stratified. The Anglo-saxon countries, archetypes of which are the United States, Canada and Australia, belong to this cluster.

Countries such as Austria, France, Germany and Italy are characterized by a 'conservative' and corporatist welfare state. Such welfare states, on the one hand, do not rely on the market as dispenser of welfare because they provide it themselves. On the other hand, their emphasis is on the preservation of status differentials, which rendered the conservative welfare state far from redistributive. Maurizio Ferrera in 1996 argued that Mediterranean European countries were different from continental countries under a large number of characteristics and could be grouped all together in an additional, separate group. The author in particular is concerned with altered distributive practices, such as the Italian political clientelism. Before him, Leibfried (1992) had also suggested a distinct group for the Mediterranean countries, mainly because of the extremely residual and strongly familistic nature of their welfare state. Esping-Andersen takes these arguments into account in his 1999 book, the Social Foundations of Postindustrial Economies, and tests whether a fourth 'Mediterranean' regime (Italy, Portugal, and Spain) should be added to his original three clusters. He argues that the issue of extended familialism could indeed be the grounds for a distinction between the latter and the conservative group. His results show substantial similarities between the two groups, but also some differences which in sum leave unanswered the question of whether the Mediterranean cluster should be considered separate in absolute terms. Ultimately, the solution seems to largely rest on the indicators that are used for the clustering.

The third, 'social democratic' regime-type pursued a "welfare state that would promote an equality of the highest standards" (Esping-Andersen 1990, p. 27). This meant not only that benefits and services were guaranteed to all citizens on a universalistic basis, but also that these were of such a high quality that even the wealthiest would rather use the public service rather than opt for market services. As a result, citizens of this cluster are, on the one hand, highly de-commodified, and on the other hand face less social class inequalities compared to citizens of the liberal or the conservative cluster.

The cost of keeping such high standards of services and transfers translates into the need of full employment: this in fact guarantees a high income revenue and reduces the number of those who rely completely on state provision. This feature of the social democratic regime-type has an interesting by-product: by promoting full-employment, it promotes female labor force participation. Furthermore, as the state takes responsibility for family welfare by caring for children, elderly and other people in need, it effectively de-familizes women's work. In contrast, the liberal regime took no position on female labor force participation by leaving the matter to market self-regulation, while the conservative welfare regime explicitly discouraged women from being employed and adopted a subsidiary approach to family welfare.

Thus, the welfare state may play a very important part in equalizing roles within households. Consider the social democratic regime-type: by de-familizing the care needs of frail family members, it allows all household members, regardless of gender, to participate in the work force; in practical terms, a reservoir of non-employed women who would otherwise be in full-time unpaid labor, may be employed. Then, because of the large public sector, necessary to fulfill said family services, the state is capable of absorbing the female labor force. Thus, in terms of labor force participation, the social democratic regime type would seem to foster within-household equality. The liberal welfare state would also reach a similar result although through a different path: the modest intervention of the state in providing family-services leaves space to the market self-regulation. Private services emerge as a result and de-familization may follow: household members are free to join the work force. Their access to private services, however, is conditional on their working performance, which is by no means protected by the welfare state as it is in the social democratic countries. The conservative welfare regime, instead, explicitly fosters the conservation of the traditional family by discouraging women from being employed (Esping-Andersen 1990, p. 27). The within-household gender inequality that derives from this can have serious repercussions as social insurance does not include non-employed women, leaving them ill-protected in case of marriage failure.

The extent to which women participate in the labor market is one aspect of gender inequality that is addressed in the capitalist welfare state typology. As I will discuss in the following paragraph, however, some scholars have suggested that other aspects of gender inequality in this framework are not fully addressed. For instance, the degree to which the state enables/encourages men to take active part in unpaid work, or the extent to which it provides maternity leave and child care services, can make large difference in the within-household division of paid and unpaid work, and ultimately, in the position of each individual in the stratification system.

1.2.2 The gendered side of welfare regimes

Some scholars have criticized the welfare state typology because it does not *explicitly* take into account gender (among others: Lewis (1992), Lewis (1997), O'Connor (1993) and Orloff (1993)). Their argument rests on the idea that welfare states are systems of stratification not only in terms of class differences but also in terms of gender differences. Therefore, they foster the study of welfare states in terms of measures that do not address just the “typical worker-citizens” (Orloff 1993, p. 308) - such as pensions or unemployment benefits - but that apply to gender-specific constraints, such as maternity leave and child care availability.

It must be recognized that the welfare state typology did take into account gender by considering whether female labor force participation were an objective of the welfare state or not. However, in the construction of the typology there is no empirical attempt to include policy measures that are tailored to gender specific needs.

Korpi (2000) responds to this argument by performing an analysis that integrates both class and gender as different dimensions of inequality. The author distinguishes between three ideal typical models of gendered welfare state institutions by building a typology along two dimensions. The first dimension involves the extent to which states support policies that enable families to be dual-earners. In this type of families, both partners are in the work force and care obligations are partially out-sourced to the market and partly absorbed in a more gender-equal division of unpaid work in the household. Elements of this dimension are public day care services for children between 0 and 2 years of age, the extent and duration of paid maternity leave, the generosity of paid paternity leave and public help to the elderly.

The second dimension, instead, is built on policies that give general support to the nuclear family, which is described as single earner or one earner and a half, typically with a male earner that may or may not be aided by a part time female earner. The indicators used to build such dimension are availability of cash child allowances to minor children, the extent of family tax benefits and public day care services for children older than 3 years of age. The three clusters of countries that emerge along the two dimension, as we will see, reflect the one's from Esping-Andersen's typology to a notable extent.

To reach the proposed aim of comprehending class and gender within a single framework, the typology is then blended with one based on social insurance characteristics. The result is what Korpi refers to as an ‘institutional typology of welfare states’ under which countries are clustered as follows:

- The basic security/market-oriented institutional combination includes Canada, the United States, Japan, Australia, New Zealand, the United Kingdom and Switzerland;

- The encompassing/dual-earner constellation comprehends Finland, Denmark, Norway, and Sweden;

- The state corporatist/family support combination includes continental European countries with the exception of Switzerland;

The similarity with the capitalist welfare regime typology depicted previously is striking, but one difference emerges in the case of France. In Esping-Andersen's typology, in fact, France belongs to the conservative welfare regime along with Germany and the southern European countries. According to Korpi's results, instead, Germany and France do not belong to the same cluster. In fact "Germany clearly has a general family support model, while in France this model is combined with a weak version of the dual-earner support model" (Korpi 2000, p. 161).

In a way, the results suggested by Korpi can be considered a litmus test of the welfare regime typology: even when considering a different, additional set of measures, the three clusters of countries clearly emerge. Therefore, in what follows I refer to the welfare regime typology to draw hypotheses on the way individuals behave in different contexts.

1.2.3 Regimes, policies and individual behavior

In the previous sections I have introduced two frameworks to select and compare countries: Esping-Andersen's capitalist welfare regime typology and Korpi's institutional typology of welfare states. The reason to do this is that, throughout the dissertation, I argue that women and men, mothers and fathers residing in different countries have different levels of within-couple equality and that this stems not only from different characteristics of the individuals but also from structural differences in the surrounding context. States, in fact, can actively foster gender equality or they can actively pursue the maintenance of the *status quo*. Before moving to the selection of countries to study, it can be useful to dwell upon some of the policies that have emerged in the previous sections and see whether they can relieve within-couple inequality and why.

The most obvious consideration regards parenthood and the extent to which the welfare state provides support to families with children. A first aspect to consider is the *immediate time demands* posed by the presence of children in the household: somebody has to take care of the baby. Traditionally, mothers have been considered the best candidates for taking care of children (Hays 1996), but the state can give indications on who should provide care and especially for how long small children should be looked after by a parent. The availability of child care, for example, provides a good indication of when mothers can stop looking directly after their children: if the state provides universalistic availability of child care for small children (under two years of age), this means that parents, including mothers, are free from child care and available for employment. If the state provides universalistic availability of child care for older children (three years or older) then it is more difficult for parents of children under three to be in the work force. Given the persistence of the male breadwinner model, in the vast majority of cases it is the mother who stays home with the child. A similar argument can be made regarding public spending on family related benefits, to the extent that they can be used to purchase available formal child care. Table 1.1 shows the values on a set of policy indicators of ten European countries. As expected, countries belonging to the social democratic regime display the highest levels of child care enrolment among the youngest children, while countries belonging to the conservative regime, such as Austria and Germany display the lowest values. Public spending on family benefits instead is much lower in southern European countries than elsewhere. This highlights one of the peculiar characteristics of the *familistic* welfare regime: it does not support individuals by supporting families, rather it relies on families to support individuals. In the two southern European countries it is also interesting to compare the enrolment rates of children under two years old with those of children three years and above. The latter in fact are above 97% in both countries, while the former are much lower: 37% in Spain and 20% in Italy: this indicates that there is a large difference in the opportunities for mothers to be in employment conditional on the age of their children.

Another interesting figure is the neutrality of the tax-benefit system, since different taxing systems can benefit dual-earner families, thus encouraging the female partner's labor force participation, while others may have the opposite effect. The last column of table 1.1 shows that in most cases, single earner household pay higher average payments to the government[3] compared to dual earner households. Ireland and the social democracies in particular seem to favor dual earner household. In Germany and to a smaller extent in France, instead, the single earner household is taxed less than a household with the same income but with two earners.

[3]In per cent of gross household earnings, couples with two children age 6 and 11 with income equal to 133% of average worker earnings, 2008.

Table 1.1 – Public policies for families and children in ten European countries

	Public spending on family benefits (% of GDP)	Child care enrolment rates for 0-2 year olds	Enrolment rates for 3-5 year olds	Neutrality tax benefit system (% gain of equal earnings†)
Austria	3.05	12.13	77.62	28.97
Germany	2.78	17.76	92.69	-5.15
Finland	2.70	28.33	74.23	36.83
France	3.68	42.00	99.89	-1.75
Ireland	2.59	30.78	56.40	57.15
Italy	1.38	29.24	97.44	27.04
Norway	2.91	51.33	94.49	20.90
Spain	1.60	37.45	98.53	32.51
Sweden	3.07	46.66	91.10	33.31
United Kingdom	3.56	40.79	92.68	20.75

† Difference in net transfers to government: single and equal dual-earner couples.
Source: OECD family data base (OECD 2012). All presented data as as of 2007 or 2008.

All these elements could be called upon to explain how the social democracies and to some extent the liberal welfare states favor gender equality in the household.

A second aspect regards not the immediate time demands but the *long lasting legacy* that parenthood can have on women and men's behavior. This legacy can be seen in terms of two complementary processes:

i) The more time women spend being full-time mothers, the more human capital relevant to home production they develop and the more human capital relevant to employment they loose.

ii) The more time women spend being full-time mothers, the less their partners develop human capital relevant to home production and the more their partners develop human capital relevant to employment.

Thus, the arrival a child can create a disequilibrium in abilities that leads to specialization within the couple that is obviously very far from equality[4].

[4]Indeed, specialization may not produce equality, but it may produce *equity*. In other words, being a full-time homemaker could reflect the aspirations of many women and thus could be a fair solution for many couples (Hakim 2000). As I have discussed in the introduction, however, equity is a marvelous solution within a solid, "till death do us part" partnership. In countries with growing couple instability, however, equality in labor market participation, earnings and homemaking skills could be a good safety net from a

The duration and compensation of maternity, paternity and parental leaves can be very important in determining the extent to which this cycle is initiated. For example, a maternity leave with a long duration, a low replacement rate, and not backed up by a father-specific leave, is likely to initiate the cycle described above, leading perhaps to equity but not to equality; on the contrary, leave schemes that imply mother and fathers' participation to the same extent – at least in principle – could more easily lead to within-household equality.

Table 1.2 provides the duration and compensation rates of three types of leaves in a set of European countries belonging to different welfare regimes. What can be striking at a first glance is that there are no weeks of maternity leave in Sweden and Norway. This is because the two countries replaced maternity leave with the parental leave in 1974 and in 1977 respectively. Although, in Norway, three weeks before and six weeks after the birth are reserved for the mother, that fact that maternity leave has been replaced in favor of a gender equal parental leave gives a strong signal in favor of equality in roles within the household. Furthermore, a three week paternal quota was established in 1993 and was extended to ten weeks in 2008. Additionally, the parental leaves provided in Norway and Sweden are not the longest, but are the better compensated. To the contrary, parental weeks in continental and southern European countries are much longer, but are less paid. In countries where a minority of children age two or younger are in child care, this long and scarcely compensated parental leave could be the strategy applied by employed women to take care of their young children, at the cost, however, of employment-related human capital devaluation.

Having provided a panorama of policies which could be connected to greater or lesser within-couple gender equality, I shall discuss in detail in each empirical chapter whether the welfare state manages to *equalize* (or not) individuals beyond their personal characteristics. It must be noted that I do not explicitly tap any of the country-level characteristics that may be associated with the outcomes I study; rather, I select countries belonging to different welfare regimes (Esping-Andersen 1990, Ferrera 1996, Esping-Andersen 1999, Korpi 2000) and presenting diverging characteristics in areas that may be related with the outcomes of interest. In other words, rather

number of risks in case of union dissolution. This applies, for instance, to divorced mothers who would be economically better off if they were in the labor market, but is also relevant for divorced fathers who so often see themselves denied custody of their children because their status of primary breadwinners has earned them the status of secondary care givers.

Table 1.2 – Length and coverage of maternity, parental and child care leave in ten European countries

Type of leave	Maternity weeks	Maternity pay†	Parental weeks	Parental pay†	Child care weeks	Child care pay†
Austria	16	100	104	17.9	0	0
Germany	14	100	156	22.3	0	0
Finland	25.8	70	31.6	70	156	12.8
France	16	100	156	25.8	0	0
Ireland	26	80	28	0	0	0
Italy	21.7	82	44	30	0	0
Norway	0	0	56	100	104	9.8
Spain	16	100	156	0	0	0
Sweden	0	0	68.6	65.1	78	12.7
United Kingdom	39	14.5	26	0	0	0

† Cash benefits paid during leave as a percent of female wages in manufacturing.
Source: Gauthier (2010) Data base. All presented data as as of 2010.

than including policy indicators in the models, I prefer comparing the results between countries belonging to different regimes. The ratio behind this choice is the following: on the one hand, specific indicators can be useful tools to interpret differences in behavior. For example: compulsory, full-paid, paternity leave could have a direct effect of equalizing domestic chores for households where fathers take the leave; and it may have an indirect effect by signaling to other fathers that it is ok to take the leave. On the other hand, the indirect effect can be downright impossible to ascertain, because our indicator may be one of the many in a multitude of contextual features that *could* be related to the outcome. At the end of the day, our macro-level indicator can only serve, at best, as a guide in the interpretation of the results. Thus, instead of focusing on specific indicators, I take countries in their entirety and use Esping-Andersen's capitalist welfare regime typology and Korpi's institutional typology of welfare states as conceptual frameworks to interpret the results, keeping in mind the policies discussed in this section.

1.2.4 Sample selection: rationale

The choice of countries to compare is crucial in cross-national research. Esping-Andersen's capitalist welfare regime typology and Korpi's institutional typology of welfare states are useful theoretical frameworks to interpret the findings but they also serve as guidelines for the selection of the countries to compare. In the course of the dissertation, I shall focus on a variety of European states. When possible, and as will be detailed in sections 2.2 and 2.3, I will use a quasi-universe of European countries and will rely on the theoretical background of the welfare regimes only to interpret the results. In one case, however, as detailed in section 2.1, I run models for which the use of a high number of countries would have rendered the presentation and the interpretation of the results extremely cumbersome. Therefore, in such occasion I limit the analysis to four European countries: Germany, Italy, Norway and the United Kingdom. Since the selected countries belong to different welfare regimes (Esping-Andersen 1990, Ferrera 1996, Esping-Andersen 1999, Korpi 2000) their comparison might provide some additional, albeit indirect, confirmation of my hypotheses on cross-country differences.

Note that I chose the UK as it is the only country belonging to the liberal welfare cluster in Europe. The choice for Italy and Norway among the other southern and nordic countries was a pure convenience choice based on the higher number of observations available for such countries in the data-sets. As far as Germany is concerned, I preferred it over France, the two largest countries of the area, because while they both belong to Esping-Andersen's continental welfare cluster, Korpi finds France to be in between the general family support model and the dual-earner support model.

I now move to a review of the empirical findings regarding the relationship between parenthood and gender differences in paid work, between presence of children and division of domestic chores, and between relative earnings and childbirth.

1.3 Individual and contextual determinants of employment and parenthood

The first domain of within-household equality I consider is parents' labor market participation. Considering that being in paid work is a buffer against poverty and that the labor market is the primary source of resources, which are necessary in mostly non-decommodified countries, whether both partners have a job can be considered a measure of within-household equality. As described in the introduction, however, the presence of children in the household reduces the likelihood of maternal – but not paternal – employment, suggesting the existence (or persistence) of within household inequalities in the division of labor. Thus, this chapter analyzes how women and men differ in the probability of being employed *and* having children, and how individual, household and contextual characteristics relate to the work-parenthood combination by gender. In other words, I ask what circumstances favor being in paid employment and at the same time having children for women and men.

A rich literature has developed on what individual and household traits are associated with being in paid employment. There is also extensive work on the determinants of fertility. And indeed there is a growing body of literature on the relation *between* being in paid work and having children – in particular for women – and on the causal direction of the relationship. Furthermore, recent comparative work has shed light on the relation between country characteristics, work performance and parenthood decisions. Building on this work – which I review in the following paragraphs – I focus on three traits that have been found to be strongly linked to employment *or* parenthood decisions at the individual and household level: a) the educational level of the respondent; b) the relative educational level of the partners; c) the economic resources of the partners. As far as contextual traits are concerned, I compare four European countries pertaining to different welfare regimes to assess how institutional arrangements are associated with work-parenthood combinations and whether they mediate the impact of individual and household circumstances.

1.3.1 Individual and household traits

Educational attainment

Educational attainment is a crucial determinant of individual outcomes and its association with occupational status, on one hand, and childbearing decisions, on the other hand, has been vastly studied. In the following paragraphs I review these two lines of research one at a time and then draw hypotheses on the relation between being employed and, contemporaneously, having children.

Education has been found to be positively associated with being employed because the higher a person's educational attainment, the higher the returns from the labor market both in economic and in psychological terms. As a *pull factor*, higher education leads to higher wages (Becker 1991, Shavit and Müller 1998), which make labor force participation attractive. Further, higher educated persons have more to loose from exiting the labor market, not only in terms of foregone wages, but also because of depreciation of human capital which increases with education (Michael 1974). Non pecuniary aspects of employment must be considered as well, namely the greater satisfaction that better educated people get from their jobs. These have been referred to in the literature as consumption benefits (Duncan 1976), more general fulfillment from being employed (Lesthaeghe and Johan 1988) or "alternative sources of self esteem" (McQuillan et al. 2008). The positive association between education and employment is gender neutral, in the sense that both women and men are more likely to be employed if they have achieved higher education.

How educational attainment influences the choice of having a first and additional children is less straightforward. Especially for women, the substitution effect away from fertility (Becker et al. 1994) vastly rests on the idea that better educated women face greater costs in child rearing and therefore links education to fertility *via* labor market participation. In other words, it is not being better educated that reduces the chances of having children, rather the additional work effort that is associated with higher education.

Another work-related explanation is the so called *tempo effect* (McDonald and Moyle 2010), according to which higher educated women enter the marriage market later compared to their lower educated peers – as a result of longer time in education and in the search for a stable position in the labor market – and therefore have children later in life. Indeed, research has shown that higher education leads to the postponement of the transition to the first childbirth (Baizan and Martin-Garcia 2006, Bratti and Tatsiramos 2008), which can also translate in higher risks of remaining childless (Gustafsson 2001, Martin-Garcia 2009). There has also been some evidence pointing in an opposite direction, suggesting that higher educated women delay their first childbirth but 'catch up' with less educated women in successive years (Rondinelli et al. 2006). Men face smaller opportunity costs in having children. This mainly happens because the costs of children, in terms of foregone work hours, lost opportunities in the labor market, depreciated human capital and so on and so forth are largely paid by the mother, rather than equally shared between partners. This inequality in opportunity costs may be traced back to different contextual characteristics. Consider for example the differences between availability of maternity vs. paternity leave in most countries: as they are, they signal that it is the mother that *should* take the leave. Even if the leaves were equally generous for mothers and fathers, the gender wage gap would make it more costly for men than for women to stay at home with the baby. Therefore the substitution effect and, to a smaller degree, the tempo effect, are likely to be less consequential for men than for women.

Educational attainment, however, can affect childbearing plans also independently from labor market participation. In historical perspective, higher educated women belonging to the élites have been the first to fully adopt birth control behaviors, forerunners in a diffusion process that brought fertility from its relatively high pre-industrial levels to the relatively lower ones of the first half of the twentieth century (Knodel and van de Walle 1979, Hajnal 1982). The additional reduction in fertility rates that characterized the second half of the twentieth century, often referred to as the second demographic transition (Van De Kaa 1987), has also been partially attributed to a more informed use of contraception by better educated women (Michael 1974, Klijzing 2000, Traeen et al. 2002). There has also been some evidence suggesting that higher education is associated with lower valuing of children vs. other objectives and higher odds of being voluntarily child free (Houseknecht 1987, Myers 1997), although the development of "intensive parenting" (Hays 1996) ideologies that involves primarily better educated parents could suggest that *being childless* is not the optimal outcome.

The delay in having the first child faced by highly educated women, instead, may contribute to the formation of interests which then compete with child bearing and rearing (Presser 2005, McQuillan et al. 2008). Further, it has been suggested that the better bargaining skills of highly educated women might allow them to more effectively voice their needs and desires in terms of ideal number of children to their partners (Blood and Wolfe 1960, Brines 1993, Shelton and John 1996), especially in terms of downsizing fertility plans that may be overly cumbersome for the woman.

What can be said on the association between educational level and the probability of being employed and having children at the same time? On the one hand, better educated women and men have greater probabilities of being employed; on the other hand, education is known to postpone the transition to childbirth, especially for women. Therefore, I expect mothers with higher education to be present in the labor market to a greater extent than less educated mothers; at the same time however, better educated women are also more likely to be employed childless than less educated women. On the contrary, I expect to find no association between education and being an employed father or an employed childless man. I summarize the hypotheses as follows:

Hypothesis 1a: For women, being highly educated is expected to be positively associated with the probability of being employed and having children.

Hypothesis 1b: No association between education, employment and parenthood is expected for men.

Thus, if education is associated with the outcome for women, but not for men, then we can legitimately speak of gender-inequality in the probability of being employed and having children conditional on level of education. The reported findings are not country-specific but are consistent across western countries. Therefore, I expect the hypothesized associations to emerge in all the countries under analysis. However, the institutional setting is likely to mediate the association between education and the outcome, thus I do expect cross-national differences in the magnitude of the associations. More detail on the macro-micro mechanism in section 1.3.2.

Relative education of the partners

Partners' relative educational level and the educational homogamy of couples have been vastly studied, in particular given the increase in marital selection in several western countries (Kalmijn 1991, 1994, Blossfeld and Drobnič 2001, Blossfeld and Timm 2003, Schwartz and Mare 2005). Marital selection is associated with the concentration (or lack) of human capital in the household (Mare 1991), and is therefore an important determinant of the overall well being of the household and of its members. In particular, educational attainment of the partners has been considered an important predictor of their labor force participation and of their childbearing decisions. In the following paragraphs I review the main findings that have emerged from these fields of work.

According to the Economic Theory of the Family, the husband's level of education would negatively effect the wife's labor market performance because of larger gains from specialization (Becker 1965, 1991, Bernasco et al. 1998). However, the gains from specialization have been declining, partially as a result of better education of women (Oppenheimer 1994, Gray 1997) and partially thanks to changes in the production of household goods. Lam (1988) in fact, already in the late eighties showed that when goods are purchased in the market rather than produced at home then the gains from positive assortative mating on productivity traits (i.e. having higher labor market productivity) are greater. Less tangible, but nonetheless important, is the amount of social capital that can be transmitted between similar spouses. Specifically, women married to a highly educated partner may be exposed to a broader social network and may receive higher level of understanding of work demands in different career phases (Benham 1974, Bernasco 1994, Bernardi 1999, Dribe and Nystedt 2011). It is also the case that highly educated men have more gender equal attitudes when it comes to housework and women's labor force participation and career (Presser 1994, Kravdal 2007). Thus, for highly educated women, having a highly educated partner could translate into higher chances of being employed.

As for men, there is no empirical evidence suggesting that their partners' level of education is associated with their labor market participation. Indeed, men's position in the labor market reflects their traditional, unchanged role of providers, that is not influenced by their partners' educational level. In fact, men generally fulfill the role of breadwinner in the case of marital hypogamy, which is still the dominant model in 'more gender-traditional societal regimes' (Blossfeld 2009, p. 521), as well as in the case of marital homogamy or hypergamy.

Childbearing decisions are also related to the educational level of the partners. First of all, higher educated men tend to participate more in homemaking and child care and might therefore be more motivated towards parenting (Hyde et al. 1993, Craig 2007). It has been indeed found, in Scandinavian countries especially, that women are more likely to transit to second birth when their husband is actively taking part in domestic chores (Esping-Andersen 2007, 2009) and that educational homogamy lowers the odds of reproductive failure (Huber and Fieder 2011).

So, how can relative education of the partners relate to the probability of being employed and having children? We have seen, first of all, that better educated women benefit from having highly educated partners in terms of understanding and emotional support. Second, educated husbands participate more in homemaking and especially in child care (Berardo et al. 1987, Brayfield 1992, Brines 1994, Haddad 1994, Hardesty and Bokemeier 1989, Kamo 1988, Presser 1994, South and Spitze 1994). Third, the bargaining processes that take place among higher educated couples could yield positive outcomes in terms of employment and motherhood. On the one hand, in fact, better educated women have higher bargaining skills and better human resources to more effectively pull off a "voice or exit strategy" (Hirschman 1970), if they do not obtain help from their partner. On the other hand, the highly educated male partner is likely to be more open to discussion and to the bargaining process because of the higher egalitarian attitudes that characterize better educated men. For all these reasons, I would expect a positive association between a woman's probability of being employed and having children and being part of a highly educated homogamous couple. To the contrary, and for the same reasons that applied in the case of education, the relative education of the partners is not likely to be consequential for men's probability of being employed and having children.

Hypothesis 2a: For women, being part of a highly educated homogamous couple is associated with higher chances of being employed and having children.

Hypothesis 2b: No association between relative education and employment-fatherhood combination is expected for men.

The institutional setting is bound to have a large impact on the way the relative educational level relates to the outcomes. I shall dwell on this in section 1.3.2.

Partners' economic resources

Economic resources are obviously an important determinant of the well being of a household and can have important repercussions on the decisions of the members to be employed or not, whether to have children and how many have. So how is women and men's behavior in employment and parenting related to their partner's earned income?

For what concerns the association between income and employment, in a simple labor supply and demand framework the greater the household resources the lower the need for any member of the household to be in paid work (Becker 1991). Therefore, women whose partners' have high income are more likely to be out of the labor market. Men are likely to be slightly less sensitive to the economic argument, as their role of breadwinners has such a longstanding tradition that men work regardless of their economic background.

For what concerns reproductive behavior, however, the argument is more complex. Research has shown that, for men, unemployment, fixed term contracts and in general a fragile position in the labor market strongly reduces the risk of forming a stable couple and likewise, of becoming a parent (Oppenheimer 1988, 2003, Ahn and Mira 2002, De la Rica and Iza 2005, González and Jurado-Guerrero 2006, Salvini and Ferro 2007). This would suggest that income is necessary to reach higher order fertility because children are normal goods and as such have costs. It follows that high income families can afford the cost of an additional child, and are therefore better off when it comes to realizing their desired parity. However, authors have stressed the presence of a substitution effect (Becker and Lewis 1974, Becker et al. 1994), in that the income elasticity of the *quality* of children is larger than the income elasticity of the *quantity* of children. Higher levels of income, therefore, instead of translating into a higher number of offspring, are more likely to result into a higher expenditure towards a smaller number of children. In the light of this, it is plausible that mothers partnered to men with high earnings can rely on their partner's resources and thus will not be in the work force; women partnered to men with low earned income instead, may need to be in the work force regardless the presence of children. At middle levels of the male partner's earned income, instead, women with children may be pulled in the labor market in order to supply greater resources to the household.

Men who are partnered to women with high earnings, instead, are less likely of having a high number of children, because of the large opportunity costs faced by employed women in having children, in particular those working in well compensated jobs. Therefore, I expect men who are partnered to high earning women to have a lower probability of having children and being employed.

Hypothesis 3a: For women, the probability of being employed with two or more children is expected to be highest at medium rather than high or low levels of the partner's relative earned income.

Hypothesis 3b: Men whose partners have higher earned income are less likely to be employed and at the same time have a high number of children.

1.3.2 Contextual circumstances

As anticipated in the previous paragraphs, individual and household characteristics are expected to be of a certain importance in determining the outcome, in particular for women. However, the institutional environment individuals are embedded in is also important in shaping people's behavior. The capitalist welfare regime typology presented in section 1.2 is an excellent starting point for a discussion on the association between contextual traits and within-household gender equality. This is especially true in the case of work related behavior and parenthood, because female labor force participation is an explicit objective of the social democratic welfare states, but not of the conservative nor of the liberal. Thus, not only will there be large differences in the number of women and mothers who take part in the labor market in different countries, but contextual traits are also likely to mediate the relation between individual characteristics and work-parenthood combinations. Specifically, social democratic welfare states are likely to stand out in terms of within-household equality. In other words, the probability of being in paid employment and having children should be similar for women and men. On the one hand, in fact, such countries explicitly address maternal labor force participation with policies concerning paid maternity leaves and child care services (Gauthier 1998, Korpi 2000). On the other hand, they also address paternal involvement via paternity and child care leaves that are meant to equalize parents' effort towards their children (McDonald 2006). As a result, in social democracies mothers are much more likely to be found in paid work as compared to mothers in any other country. In conservative and southern European countries, in particular, given the lack of public and private support to mothers, the share of employed women with children is likely to be rather small. In liberal countries, instead, an intermediate situation is likely to be found: given the residual nature of the welfare state, the labor market is the main source of welfare for all individuals, including mothers. Notably, cross-country differences for fathers are not expected. In fact, men's participation in the work force is not jeopardized by paternity (Bernhardt 1993). On the contrary, studies have shown that fathers are more likely to be employed and to have higher earnings than childless men (Kaufman and Uhlenberg 2000).

A second point regards the strength of the association between the outcome and the individual and household traits for women and men in different contexts. Although the direction of the associations at the individual and household level is expected to be the same across countries, the magnitude of the relation is likely to be contingent on contextual features. For example, empirical research has shown that the extent to which educational homogamy influences the wife's position in the labor market depends largely on which gender and welfare regime a country belongs to (Bernardi 1999, Bernasco et al. 1998, Blossfeld and Drobnič 2001). In my case, given the large public support to employed mothers in social democratic regimes, individual and household traits are likely to have a smaller impact on the probability women have of being employed and being a parent. Thus, in countries where the equalizing effect of the welfare state is large (Esping-Andersen 1990, 1999) individual differences are not expected to fully account for different individual outcomes. On the contrary, in contexts where state intervention is minimal, such as in liberal welfare states, or targeted, as in conservative and Mediterranean countries, the importance of individual and household resources are expected to be larger. The following hypothesis summarizes this idea.

Hypothesis 4: In countries belonging to the social-democratic welfare regime, institutional characteristics are expected to mediate the impact of individual characteristics for both women and men. In countries belonging to the liberal and conservative welfare regime, instead, individual and household characteristics are likely to have a stronger association with the outcome for both women and men.

1.4 Presence of children and the division of domestic chores in comparative research

The second empirical chapter analyzes the different relative time on domestic chores spent by partners. In particular, the scope is to highlight whether the presence of children is associated with a more unequal division of housework in couples living in different institutional settings. Therefore, in this section I review the main findings in the literature on the division of domestic chores within households in western countries. In the first paragraph I present a line of research, dating back to the second half of the twentieth century, that has focused mainly on individual and household traits to explain the allocation of time to housework. Among these, the presence of children in the household. The second, more recent thread instead focuses on how contextual characteristics can shape individuals' behavior in the division of domestic work. I review the main findings of both in the following paragraphs and develop the hypotheses accordingly.

1.4.1 Micro-level perspectives

Since the 1960s, when research on the allocation of time to domestic chores began, three theoretical perspectives have emerged to explain what individual traits are associated with the division of household tasks between partners. I draw from these theories to develop four testable hypotheses on the association between individual-level traits and division of domestic chores between partners in European countries.

My first hypothesis is tied to the gendered effect of parenthood on the division of chores. The presence of children has been found to increase the time on housework (Shelton and John 1996). The responsibility for such domestic chores, however, is not gender neutral: parenthood in fact is found to increase the domestic work load especially for women and to strengthen a traditional division of labor. This finding has emerged both in cross-sectional (Craig and Mullan 2010, Dribe and Stanfors 2011), and in longitudinal studies (Kühhirt 2011, Schober 2013). While the former case could be the result of a selection effect, in that couples with a traditional division of labor may simply be more likely to have more children, the latter results indicate that even couples who shared chores more equally before having children tend to change their habits when they become parents. In other words, the authors find that the event of having a child is associated in a strong way with the shift towards a gendered division of chores. This might be the case because of the gendered meaning of parenthood *per se*. On one hand, as Lorber (1986) suggests, women see domestic chores as a form of love and devotion, rather than work; on the other hand, the cultural norms concerning the importance of being a good parent might override the importance of perfectly dividing chores with one's partner (Craig and Mullan 2011). In other words, mothers may have a hard time bargaining over who has to clean the house when the consequences of a dirty home influence her children and not just herself and her spouse. My first individual level hypothesis therefore states that:

Hypothesis 1: The presence of children in the household is associated with a higher share of women's housework.

Given that I am concerned with cross-national differences, it is useful to consider how the gendered effect of parenthood could vary by context. As I will discuss in paragraph 1.4.2, there has been much research on whether and which contextual traits are associated with a more or less equal division of chores within households. To investigate this issue, my next hypothesis regards the mediating effect of the welfare regime on the division of domestic chores in the presence of children. In previous sections I have discussed the larger gender-equalizing effort that takes place in the social democratic welfare states, in particular in terms of increasing female labor force participation and of sustaining paternal involvement with children. On the contrary, continental welfare states place a larger emphasis on the preservation of the traditional family, with the complementary roles of male breadwinner and female homemaker. Thus, it is likely that the outcome in terms of gender specialization in the presence of children will vary by context. In particular:

Hypothesis 1a: The association between the presence of children and the higher share of women's housework shall be weakest in the social democratic welfare regime and strongest in countries belonging to the continental, liberal and Mediterranean welfare regime.

Having highlighted my main hypotheses, I move to the historical explanations for the time spent on domestic chores by partners. The time availability perspective (Hiller 1984) explains the division of household labor as the result of a rational process, where household tasks are allocated according to the available time of both partners. The main indicators which have been used to measure time constraints are the employment status and the work schedule of the partners, and the presence and number of children in the household. Indeed, research has shown that husbands do more domestic chores if their wives are employed outside the home (Davis and Greenstein 2004). Among others Ross (1987), Presser (1994) and Geist (2005) find that both partners devote more time to domestic chores the more hours they spend at home. Gough and Killewald (2011) show that during unemployment both husbands and wives increase their hours of housework, but women's increase is twice men's. On the basis of this, the second hypothesis is:

Hypothesis 2: The greater the time constraints women and men face, the smaller the share of housework they perform.

The second perspective regarding the division of household labor is the relative resources perspective, according to which the division of domestic chores is determined by the level of relative resources each partner brings to the relationship (Blood and Wolfe 1960). Research has in fact found that the smaller the wage gap between husband and wife, the more household tasks are equally divided (Blair and Lichter 1991, Greenstein 2000) while men's relative higher income leads women to do more housework (Geist 2005). On the contrary, some studies find that economically dependent husbands do less rather than more housework (Brines 1994, Greenstein 2000, Hook 2006). Scholars have interpreted this as a means of neutralizing gender-deviant behavior. Gupta (2007), however, shows that in the United States women's time on housework is related to their own earnings rather than to their partners'. Resources have also been operationalized through educational level. Overall, more educated women dedicate less time to household tasks and suffer a smaller task segregation. Also, husbands perform more housework when their wives' education is equal to their own or exceeds it (Blair and Lichter 1991, Greenstein 2000). Furthermore, the higher the husband's educational level, the more likely is his participation to household tasks (Berardo et al. 1987, Haddad 1994, South and Spitze 1994). Therefore, I hypothesize that:

Hypothesis 3: Higher relative resources are associated with a lower share of housework for both women and men.

Researchers who have deviated from the socioeconomic perspectives have framed the problem in social constructionist terms, introducing the symbolic content of household labor (Ferree 1990, Brines 1994). This view goes under the name of social construction of gender or the gender ideology and argues that gender is a social construction which is created and recreated through the interaction with others. Consequently, gender would determine the division of housework as a result of how men and women display their social roles and "produce gender" (Connell 1985, West and Zimmerman 1987, Hochschild 1989). The underlying idea is that a more or less traditional gender ideology will contribute to shape the division of chores. In fact, traditional women are more likely to consider 'fair' an unequal division of chores because it matches with the normative standards they embrace (Lavee and Katz 2002) and men with more traditional gender ideologies do less housework than those who are more modern (Huber and Spitze 1983, Brayfield 1992). Instead, non-traditional women are more sensitive to the unequal share of domestic labor (Braun et al. 2008). It therefore follows that:

Hypothesis 4: Women and men who favor equality in gender roles are expected to share housework more evenly.

1.4.2 Macro-level perspectives

Recent research has attempted pinpointing the contextual traits that are related to the division of domestic chores between women and men. According to this line of research, the fact that working, resourceful and gender egalitarian women reduce their share of housework results in an equalization process that goes beyond the individual-level bargaining within the household. This shift from individual to contextual-level happens, in Hook's (2006) words, because: "as women's labor force participation affects more men, the bar is set higher when men make social comparisons, creating an across-the-board change in how men "do gender" [...] In contexts where women are more involved in the public sphere, men are more involved in the private sphere, not necessarily because of household bargaining or other household-level processes, but because of societal shifts in gendered behavior" (Hook, 2006, p. 643). To the contrary, women might feel social pressure to perform more than their share of housework when they live in 'traditional' contexts (Geist, 2005). Likewise, normative standards may encourage men not to share household chores in order to live up to the male breadwinner model, even if they have non-traditional attitudes (Coleman 1991). This happens because, as Bianchi et al. (2000) argue, women and men internalize society's prevailing gender ideologies and assume gender specific beliefs, attitudes and behaviors. I test the equalization process with two macro-level traits that have been used in previous literature on the division of housework, namely the presence of women in the workforce and the Gender Empowerment Measure. Previous research has shown that in countries where women are more empowered, the division of chores is more equal (Batalova and Cohen 2002, Fuwa 2004). Knudsen and Waerness (2008), however, find no direct effect of the GEM on the division of domestic chores. The results for female labor force participation are also not straightforward. Hook (2006), in fact, finds that men perform more housework in countries where women are overall present in the labor market. In a successive study, the author also shows that the presence of married women in the work force increases the time that men but not women spend on cooking and on housework (Hook 2010). Treas and Tai (2012) also show that housework is shared more evenly in countries that have a high legacy of maternal employment. This could suggest that female labor force participation has an equalizing effect on the division of housework. Fuwa (2004), however, directly tests this hypothesis and finds no effect of female labor force participation on the division of chores. Following this work, I develop my last hypothesis.

Hypothesis 5: Greater presence of women in the labor market in particular and in the public sphere in general are expected to be associated with a more equal division of domestic chores between partners.

1.5 Relative earnings, presence of children and childbirth in cross-national comparison

As seen from the findings illustrated in the previous sections, mothers seem to have smaller chances of being in the work force compared to childless women and fathers, and they also appear to be performing more housework than the latter groups. For women who are or were active in the labor market at some point in their life prior to childbirth, reduced labor market participation and increased effort in unpaid work could be associated with a reduction of their earnings. This, in the first place, may have consequences for the overall well being of the household, but in the second place could contribute to the degree of within-couple gender (in)equality.

Surprisingly, while previous research has put much effort in studying the wage gap between women and men and the general 'motherhood penalty', i.e. the difference in earnings between mothers, childless women and also fathers and men, less is known on what happens within the household over time, especially when children are born (Stier and Mandel 2009, Raley et al. 2006, Winslow-Bowe 2006). In the following paragraphs I review the findings related to these issues and from these derive my hypotheses.

1.5.1 The gender wage gap and the 'absolute' motherhood penalty

In contemporary western countries, the average gross hourly earnings of women are lower than those of men (Eurostat 2012b, Hersch and Stratton 2002). Authors maintain that the wage gap is driven by two main factors: a) occupational segregation and b) gendered wages within the same occupations (Aisenbrey and Brückner 2007). Different explanations have emerged to account for the two factors.

According to micro-economic theory (Becker 1985), the candidates to explain different levels of earnings are characteristics tied to human capital, such as education and experience in the labor market. Labor market performance, type of occupation and hours usually worked are also typical predictors of earnings. Bardasi and Gornick (2008) for example, study the wage differential between part-time and full-time work in Canada, Germany, Italy, Sweden, the UK, and the US. With the exception of Sweden, the authors find a large part-time wage penalty for all women.

The wage gender gap would therefore emerge mainly from occupational segregation, which is mostly a result of women's choices. In other words, as women anticipate greater investment in family life, they invest less in employment-related human capital and look for jobs that can more easily be accommodated around family needs, and that are generally less paid. Another explanation stemming from the *supply side* is provided within the socialization approach, according to which the labor market decisions of women and men are not driven by rational choice but are the outcome of gendered socialization, i.e. the process that leads individuals to interiorize what is considered appropriate and desirable for each gender within a society (Marini and Fan 1997). The two approaches have in common the notion that *choices and expectations* are behind the decisions tied to labor market behavior.

Alternative explanations are the *crowding* and the *cultural devaluation of women's work* (Kilbourne et al. 1994, Petersen and Saporta 2004). The first argues that women are discriminated against and excluded from male occupations. As a consequence, female jobs are overcrowded and this artificial supply lowers the wages of such occupations (Bergmann 1986, Siltanen 1994). The second position instead hypothesizes a general cultural devaluation of predominantly female jobs that leads both men and women to earn less compared to those working in typical male occupations (Kilbourne et al. 1994).

Another perspective focuses on the *demand side* and on the structural differences of the labor markets that women and men find. Aisenbrey and Brückner (2007, p. 7) in fact suggest that: "Arguing from the demand side, equally qualified men and women are evaluated and/or treated differently in the labor market and therefore their economic rewards differ". According to this perspective, it would be these disparaged structural features of the labor market that determine a horizontally gendered wage.

The question that many scholars have attempted to answer is whether the gender wage gap is driven mainly by occupational segregation or by downright gender-based discriminations in wages. If the latter were predominant, then women's recent achievements in education (Blossfeld and Drobnič 2001) would not be sufficient to eliminate the gender gap in wages. Furthermore, if this were the case, occupational choice would also be insufficient to the cause of gender equality in wages. In other words, if wages are gendered within jobs, even women working in the highest occupations and not on the 'mommy track' would be disadvantaged in comparison with their male counterparts.

Research has shown that outcomes in this respect vary notably by country. Petersen et al. (1997, 2003), for instance, show that in Norway and in Sweden there is only a marginal difference between the wages of women and men working in the same firm and in the same position. On the contrary, Aisenbrey and Brückner (2007) reporting the results found by Hinz and Gartner (2005) who study the situation in Germany, highlight a strong gender discrimination. In fact, they show that even when controlling for human capital, men out-earn their female colleagues who work in the same occupation and firm.

Above the gender wage gap, comes the motherhood penalty. Women who have children, in fact, earn less than their childless counterparts (Budig and England 2001, Avellar and Smock 2003). As the gender wage gap, the motherhood penalty is resilient to individual traits: scholars have in fact shown that when individual characteristic are controlled, the gap is reduced, but does not disappear (Blau et al. 1998, Hersch and Stratton 2002, Sigle-Rushton and Waldfogel 2007, Esping-Andersen 2009).

There are several reasons why the presence of children could lead to a reduction in earnings. Budig and England (2001) specify four 'causal' and one endogenous pathways to wage inequality:

> Mothers may earn less than other women because having children causes them to (1) lose job experience, (2) be less productive at work, (3) trade off higher wages for mother-friendly jobs, or (4) be discriminated against by employers. Or [...] women with lower earning potential may have children at relatively higher rates. (Budig and England 2001, p. 204).

The motherhood penalty is counterbalanced by a fatherhood premium (Harkness and Waldfogel 1999, Lundberg and Rose 2002, Whitehouse 2002, Koslowski 2011), i.e. fathers have higher earnings than childless men, both in Europe (Koslowski 2011) and in the US (Lundberg and Rose 2002). This is generally accounted for by the fact that fathers increase their work supply to access higher earnings, in line with Becker's specialization theory. Another possible mechanism, however, could be the selection of highly productive men into marriage first and fatherhood afterwards (Gray 1997). In both cases men abide to the so-called 'good provider' model of fatherhood, which implies maximizing the effort in the labor market in order to maximize the financial resources for the family and – perhaps – to allow mothers to stay at home with their children (Kaufman and Uhlenberg 2000). An interesting alternative mechanism is proposed by Koslowski (2011) who suggests that men who abide to the alternative fathering model, i.e. the 'involved father' model might reduce, instead of increase, their hours of work in order to spend more time with their children. As a result, the earning balance of the household may not be affected in the expected manner, although there are no empirical pieces of evidence for this alternative mechanism.

If the birth of a child implies changes in earnings that go in opposite directions for women and men, it is likely to trigger gender inequalities within the household, which I address in the following section.

1.5.2 The 'relative' motherhood penalty

What determines couples' earning contributions? Stier and Mandel (2009) suggest that spouses' endowments such as human capital, time devoted to paid work, type and field of occupation and also the way the partners plan their career determines the balance of earnings in the household. Wive's dependency from their husbands is found to increase with their age and with the presence and number of children (Bianchi et al. 1999). On the contrary, women increase their relative share of income when they are employed and when they have high levels of education relative to their partners' (Winslow-Bowe 2006, Bardasi and Gornick 2008). In absence of gendered discrimination of wages, therefore, the more similar the partners' endowments, the more equal their earnings. However, even if there has been an increase in educational homogamy in European countries in recent years (Blossfeld and Timm 2003), women generally are younger than their partners. Therefore, they have had less time to accumulate the work experience that is crucial for earnings and they begin the partnership with a disadvantage (Gershuny and Kan 2009, Stier and Mandel 2009). Another argument is suggested by Winslow-Bowe (2006), who maintains that at lower levels of household income partners are more likely to be earning similar amounts, to the point that economic vulnerability of the household could be a determinant for female members to achieve the status of primary breadwinner (Winslow-Bowe 2006).

On the basis of these findings, I formulate a first set of hypotheses:

Hypothesis 1: On average, women earn a smaller share of income than their partners.

Hypothesis 2a: Being employed and hours of employment are associated with a higher share of women's earned income.

Hypothesis 2b: Having a partner who is employed and the partner's hours of employment are associated with a lower share of women's earned income.

Hypothesis 3: Women who are more educated than their partners have a higher share of earned income.

Hypothesis 4: Women are more likely to have a higher relative earned income when the household is economically vulnerable.

In the previous section we have seen that, generally speaking, mothers forego earnings compared to childless women while the opposite holds true for men. In other words, the 'family gap' (Waldfogel 1998, p. 137) is not gender neutral. Therefore, we may hypothesize two alternative processes: a) women with smaller earnings select into having children to a greater extent, therefore mothers' have a smaller share of earned income than non mothers and the relationship is not causal; b) the arrival of a child reduces women's earnings relative to their partners'. From a cross-sectional perspective it is not possible to verify whether the association is pure or not, but using longitudinal data, instead, I may test if having a child changes the relative earnings balance of couples. To this end, I formulate my fifth hypothesis:

Hypothesis 5: The birth of a child decreases women's share of earned income.

What about cross-national differences? The question about earnings and about the effect of childbirth on relative earnings in different institutional arrangements is quite intriguing, because countries belonging to different welfare regimes present quite different characteristics in terms of female labor force participation, gender gap in earnings and fertility rates that could be related to the way earnings are balanced within households. In the social democratic welfare regimes, in fact, the higher rates of female labor force participation could suggest a more equal balance of earnings within couples. However, the large availability of family friendly jobs; a gender wage gap that is higher or similar to the one found in countries that are less advanced in terms of gender equality (such as Italy, Spain and Latvia); and the overall high fertility rates could imply that more women – and especially mothers – are in low paid jobs and thus face a larger 'relative motherhood penalty'. In southern European states, instead, a smaller portion of the female population is in paid work (Eurostat 2012b). So, on average, men are likely to be earning more than women and, on the whole, within household earnings are likely to be gendered. Given the small number of employed women, the fact that the wage gap is smaller in southern European countries than elsewhere does not change the main picture. However, since fewer women are in the work force to begin with, the effect of childbirth is likely to be small, resulting in a 'floor effect'. Thus my last hypotheses are that:

Hypothesis 5a: Women's share of earned income is highest in social democratic regimes.

Hypothesis 5b: The decrease of earned income associated with childbirth is weakest in context with low levels of female labor force participation.

2

Chapter Two
Data and methods

To investigate how women and men, mothers and fathers, differ in paid work, unpaid work and earning capacity, I use a variety of dependent variables and of data analysis techniques. The following paragraphs illustrate the data and methods used in each empirical chapter.

2.1 Employment and parenthood: modeling the joint state

The first empirical chapter focuses on the compatibility of employment and parenthood, which I operationalize as the probability women and men in different institutional settings have of being employed and having children at the same time. For the analysis I use data from the EU-SILC 2005 and 2007 data-base. The EU-SILC (European Community Statistics on Income and Living Conditions) is a collection of longitudinal and cross-sectional surveys that started in 2004 and involves a large number of European countries. Its main focus is on income, poverty and social exclusion and it has two features that render it a suitable source of information for this analysis. Firstly, data are collected at the household level, allowing to verify to what extent not only individual but also household variables are related to the outcome of interest. Secondly, it is one of the few micro data-sets that collects very detailed information on income, again at the individual and at the household level.

To estimate the probability of being employed and having children, I build a limited dependent variable where different combinations of employment and parenthood constitute the response categories (i.e. working[1] and having two or more children, working and having one child, not working and having two or more children, not working and having one child, working childless). Then, using multinomial logistic regression models I estimate the probability of experiencing a certain outcome separately for women and men and by country. Tests for the Independence of Irrelevant Alternatives were performed for all the models and are reported in the Appendix.

The logic of the model is that individual i chooses between M alternatives, indexed $j = 1, 2, \ldots, M$, to each of which i has attached a certain utility U_{ij}, $j = 1, 2, \ldots, M$. Individual i chooses alternative j if this gives the highest utility, i.e. if $U_{ij} = max\{U_{i1}, \ldots, U_{iM}\}$. Since the utility levels are unknown, U_{ij} is assumed to be equal to $\mu_{ij} + \epsilon_{ij}$, where μ_{ij} is a non stochastic function of observables and some unknown parameters and ϵ_{ij} is the unobservable error term. In this case, $\mu_{ij} = x_i^{'}\beta_j$ where x_i is a K-dimensional vector that contains individual i characteristics and β_j is a vector of coefficients for each alternative.

In the model, μ_{i1} is set to zero and we may write:

$$P\{y_i = j\} = \frac{exp\{x_i^{'}\beta_j\}}{1 + exp\{x_i^{'}\beta_2\} + \ldots exp\{x_i^{'}\beta_M\}},\ j = 1, 2, \ldots M \tag{2.1}$$

where $\beta_1 = 0$. The alternative-specific coefficients are a number of relevant socio-demographic individual and household characteristics: age, age squared, marital status (cohabitating vs. married), education of the respondent (lower education - reference category, medium education, higher education), educational level of the partner (lower education - reference category, medium education, higher education), the partner's relative level of earned income, the household's relative level of economic resources and the year of the survey[2]. I run two sets of models, one including own level of education and the education of the partner separately and one with a variable measuring relative level of education which accounts for five possible combinations of educational attainment of the partners.

[1]Throughout the dissertation, *working* is used as a synonym of *being employed*, while domestic work is always referred to as such or as unpaid work.

[2]The variables are detailed in section 3.2.2.

The outcome of the multinomial logit is not immediately interpretable in terms of raw coefficients. Not only because they come in the form of log-odds, but especially because the coefficients for each alternative outcome are to be interpreted with respect to the baseline category, which in my case is working and having two or more children since it has the highest number of cases. To render the results more straightforward, I calculate and report predicted probabilities for the outcomes of interest and display them graphically. I prefer probabilities over relative risks and marginal effects as I find them more easily and directly interpretable[3].

The choice of the multinomial logit, above and beyond its lengthy interpretation, can be arguable. First of all, the model rests on the heave assumption of the independence of irrelevant alternatives. Since the response categories of the dependent variable have common components, it might be argued that they are close substitutes, and the fact that the number of children is sequential adds on to the potential violation if the IIA assumption. However, the Small-Hsiao tests reported in the appendix indicate that the models I run do not violate the IIA assumption. Notwithstanding, the results from the IIA tests are not necessarily the only element to consider when choosing a model, since researchers have pointed out that "even in well-specified models, IIA tests often reject the assumption when the alternatives seem distinct and often fail to reject IIA when the alternatives can reasonably be viewed as close substitutes" (Cheng and Long 2007, p. 583). Indeed, McFadden's (1974) early advice was to use the multinomial logit model when the response categories can plausibly be assumed to be distinct and weighed independently in the eyes of each decision maker. In my case, one could argue that women, for example, have a preference for working and that therefore the choice of the number of children will be made conditional on the fact that they are working. Based on this idea, a valid alternative could be the nested logit model. There are two reasons for which I opt for the multinomial logit instead of the nested logit. The first is that the issue of sequentiality of the number of children would not be solved within the nested logit framework. The second is that, even if the IIA test is not necessarily proof of independence of the alternatives, it does not disproof the model either. Given this point, I am reluctant in imposing a structure to the decision making process. One the one hand, it may be that women decide the number

[3]Predicted probabilities are calculated using the margins command in Stata 12. For details on the computation see Long and Freese (2005).

of children they have conditional on their working status. On the other hand, their preferences may have completely different patterns, and two alternatives that appear similar may instead be very dissimilar. For example, in Norway, there may be very little difference between working and having one child or working and having two or more children. In Italy, on the contrary, the first situation may be desirable while *not working* with two children may be more desirable than *working* with two children. All in all, given that: *a*) I am interested in comparing the outcomes of women and men, not in the structure of the decision making process; *b*) that the tests results show that the IIA assumption is never violated, and *c*) that the alternative model, the nested logit, would not solve the issue of sequentiality of the number of children, I opt for the multinomial logit.

2.2 Modeling relative time on domestic chores: a multi-level strategy

To investigate the division of chores I use data from the fifth wave of the European Social Survey (2010, ESS hereafter), which is the most up-to-date data set containing information on the amount of time individuals and their partners devote to domestic chores. In order to capture the relative amount of housework each partner performs, the dependent variable is a ratio between the time the respondent reports spending on housework, and the sum of the time the respondent reports spending on housework plus the time the partner spends on housework, as reported by the respondent.

The same variable has been used in previous studies (e.g. Knudsen and Waerness (2008)), but I adopt a technique of analysis that is seldom used in empirical studies. In fact, many studies use linear models, e.g. OLS, when analyzing variables that take the form of proportions. While not incorrect in themselves[4], these approaches have the disadvantage of producing unrealistic predicted values, i.e. that exceed the 0-1 range of the proportion. Therefore, as suggested by Hox (2010) and by McDowell and Cox (2004), I use a generalized linear model, with the binomial family and the logit link[5]. This way,

[4] As a robustness check, I also ran the OLS model and the results were not substantially different.

[5] The generalized linear model is defined by: the outcome variable that has mean μ and variance σ^2; a linear additive equation producing a latent predictor η of the outcome variable; a link function that links the predicted values to the expected values of the

when calculating predictions I obtain values within the actual range of the proportion.

For the analysis, I select individuals who are between 20 and 65 years old, living with a partner, and residing in 23 European countries. The relatively high number of countries allows using multi-level models, with individuals nested in countries. I select all the European countries in the data set: Belgium (BE), Bulgaria (BG), Switzerland (CH), Cyprus (CY), Czech Republic (CZ), Germany (DE), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), Great Britain (GB), Greece (GR), Croatia (HR), Hungary (HU), Ireland (IE), the Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Sweden (SE), Slovenia (SI), Slovakia (SK).

To investigate the within-household inequality in the allocation of time to chores and test the hypotheses, I have to verify: *a*) to what extent couples share housework in Europe, *b*) how individual and contextual traits affect this division, and *c*) whether the presence of children is associated with a more traditional division of chores in different contexts. I use random intercepts models to verify point *a*) and *b*), while random intercepts, random slopes models to test whether the association between the presence of children and the division of chores changes by country.

The random intercepts model with only individual level predictors takes the following form:

$$y_i = \alpha_{ji} + X_i\beta + \epsilon_i \tag{2.2}$$

where α_{ji} is the only coefficient allowed to vary between groups. In other words, for each country a different intercept is estimated, while $X_i\beta$ is a vector of coefficients that are constrained to be the same for all groups, and that contains all the individual and household-level predictors. For this analysis I include: age (centered at the grand mean), marital status (married vs. not legally married), number of household members, total time spent on housework by the partners, employment status (employed vs. not employed), hours of employment per week, employment status of the partner (employed vs. not employed), economic and educational resources, attitudes towards

outcome variable for $\eta : \eta = f(\mu)$. In this case, I apply a logistic regression model that is specified by having a binomial probability distribution (μ) with mean μ and by using logit function given by $\eta = \text{logit}(\mu)$ as link function, i.e. $\eta = \ln(\mu/(1\text{-}\mu))$. In the multilevel framework, the simplest model would be given by $y_i = \text{logistic}(\alpha_{ji})$. To be noted, the GLM does not apply a transformation to the outcome variable; rather, it applies the inverse logistic transformation to the expected values.

gender roles and, finally, presence of children[6].

I run a second set of random intercepts and random slopes models, where I allow one coefficient, indicating the presence of children, to vary between groups:

$$y_i = \alpha_{ji} + X_i\beta + \text{Kids}_{ji}\beta + \epsilon_i \tag{2.3}$$

This allows assessing whether there are between country differences in the association between presence of children and division of chores.

In a last set of models I return to random intercepts and include country-level predictors, as follows:

$$y_i = \alpha_{ji} + X_i\beta + Z_j\gamma + \epsilon_i \tag{2.4}$$

where the level-two predictors, Z_j, are a measure of female labor force participation and the GEM, the Gender Empowerment Measure.

Given the very large differences between women and men in the time devoted to domestic work in all countries, I run separate models by gender in order to directly observe how individual and household level traits are associated differently with the share of housework women and men report. The alternative solution – i.e. running a pooled model for both women and men and including a dummy variable for gender with all the interaction terms – would be much less straightforward to interpret.

Since the raw coefficients are little informative, for the individual-level regressors I calculate predictions of interest holding all the other variables at the sample means and report them in the text and in tables in chapter four. For the estimates of the macro-level variables, instead, I prefer a graphical representation.

Tests for influential data should be performed when running analyses on small samples. In multi-level models a potential source of bias are *influential cases at the higher level*, which in this case is the country level. I use Cook's distance to test whether cases at the higher level influence the estimates. Cook's distance in fact provides a summary of "the influence a higher level unit exerts on all parameter estimates simultaneously" (Nieuwenhuis et al. 2012, p. 40). The results, reported in figure B.1 in the Appendix, indicate that none of the higher level cases influence the estimates.

[6] Variables are detailed in section 4.2.

2.3 Relative earnings within-couples at childbirth: is it a problem of selection?

In the last empirical chapter I focus on the equality of couples' earnings in European countries in the presence of children and in the event of a childbirth. The research strategy moves in two steps. First, I use multi-level models on a large number of European countries to assess, from a cross-sectional point of view, the within-household earnings division and the extent to which it is associated with a number of individual and household characteristics, including the presence of children. Second, I run fixed effects panel models on single countries and on groups of countries to test whether the birth of a child affects the earning balance within couples in contexts with different institutional arrangements.

2.3.1 Relative earnings in cross-sectional perspective

In the first analysis, using data derived from the EU-SILC most recent longitudinal database, the 2008 release, which covers the years 2005-2008, I assess the relative earned income of couples through a dependent variable that is the proportion of the female partner's earned income relative to the sum of the female's and the male's earned income. The variable is constrained between 0 and 1, and therefore, as in the previous chapter, I use a generalized linear model, with the binomial family and the logit link (Hox 2010, McDowell and Cox 2004). The analysis is conducted using two-level random intercepts models (α_{ji}) with individuals nested in countries and with individual and household level predictors (X_i):

$$y_i = \alpha_{ji} + X_i\beta + \epsilon_i \tag{2.5}$$

The individual level covariates (X_i) include: age in classes (18-29 as reference category, 30-34, 35-39, 40-45), hours of paid work per week. The household predictors are: relative education of the partners (both partners are low educated r.c., both partners have a medium level of education, both partners have a high level of education, respondent is more educated than the partner, respondent is less educated than the partner); age of the partner; partner's hours spent in paid work per week; household income and wealth expressed in country specific quartiles; number of children age $\leq$ 18 in the household[7].

As far as the sample is concerned, I consider women aged 18 to 45, living with a partner and residing in the 26 European countries available in the EU-SILC 2008 longitudinal file: Austria (AT), Belgium (BE), Bulgaria (BG), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), Greece (GR), Hungary (HU), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), the Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovenia (SI), Slovakia (SK) and the United Kingdom (UK). After excluding women whose smallest child is older than 18, and those who report zero earned income throughout the observation window, the total N adds up to 93023.

2.3.2 Relative earnings in longitudinal perspective

For this part of the analysis I use models based on panel data which, in the EU-SILC, contain repeated observations for the same individuals. Models based on panel data allow more complexity compared to models based on cross-sectional data. In panel data, the observations within groups represent individuals at different points in time and the *order* of the observations must be kept into account.

The dependent variable I use in the analysis is, once again, a proportion, i.e. how much the female partner earns with respect to the sum of her earned income and her partner's earned income. In order to test the last hypothesis, i.e. whether there is a causal effect of a childbirth on the proportion, I use a fixed effect model (FE) that allows for permanent unobserved heterogeneity. In this instance it is particularly important because individual unobserved characteristics might affect both the explanatory and the dependent variable. For example, women who have children might be less career-oriented and therefore have a lower earnings ratio compared to childless women.

Consider the following equation:

$$y_{it} = z_i\alpha + x_{it}\beta + u_i + \epsilon_{it} \tag{2.6}$$

Where z_i are observable time-invariant factors, x_{it} are observable time-varying factors, u_i is an individual, unobservable error term (that can be thought of as 'ability', or 'propensity', which is assumed to be constant over

[7]Variables are detailed in section 5.2.1.

time), and ϵ_{it} is another unobserved error term (such as luck) that is not constant over time within the individual.

When estimating a fixed effects model, we obtain estimates of the observed time-varying factors, while controlling for the observed time invariant characteristics *and* for the unobserved individual traits of the individual. The changes in the time varying covariates are used to account for the changes in the dependent variable. In practical terms, a fixed effects model allows estimating the effect of the time varying variables of interest within the same individual, which in turn takes care of the unobserved heterogeneity issue (Wooldridge 2010). The drawback is that, as an individual-level intercept absorbs all the unobserved and observed time-invariant individual characteristics, these cannot be immediately singled out or distinguished by the person specific u_i. An alternative to the fixed effects model would have been to run the random effects model, which would justify extending the results to the out of sample population. Hausman tests were run to verify whether the fixed or random effects model were more appropriate: the large and significant Hausman statistic - reported in table C.2 in the Appendix - indicates that only the fixed effects model is consistent.

The models I estimate include a number of time-varying characteristics among which two variables that allow tapping whether the birth of a child affects the relative earnings of a couple. The first variable is a dummy variable that I call 'newborn', indicating the presence of a child aged 0-1 in the household (proxy of childbirth), without considering the order of birth of the child. The second variable instead has three categories indicating whether the newborn is the first, the second, or third or above child.

The first model is a pooled one, including all the 26 countries available from the 2008 EU-SILC longitudinal file and takes the following form:

$$y_{it} = z_i\alpha + x_{it}\beta + \gamma_1\text{Newborn}_{it} + u_i + \epsilon_{it} \tag{2.7}$$

where y_{it} is the proportion of a woman's (i) earnings to the total of the woman's plus the man's earnings at time t, and X_{it} is a vector of time varying characteristics assumed to affect the ratio. These include: age; age of the partner; hours of paid work per week; partner's hours spent in paid work per week; household economic resources (income and wealth) expressed in country specific quartiles; number of other children ≤ 18 in the household excluding the newborn[8].

[8]Details for the variables are provided in section 5.3.1.

$Newborn_{it}$ indicates whether a women i has a child age 0-1 at time t and is used to measure childbirth. The error term is composed by u_i, the time invariant unobserved individual characteristics, and a transitory component ϵ_{it}. The parameter of interest is γ_1 which is the marginal effect of the birth of a child on the relative earnings for women in all countries. I then run an identical model where instead of the 'Newborn' variable I include the 'Order of birth' variable.

In fixed effects models, all time-invariant characteristics are controlled for, even if they are not directly estimated. In order to get an idea of the differences between welfare regimes, I run a second model as follows:

$$y_{it} = z_i\alpha + x_{it}\beta + \gamma_1 \text{Newborn}_{it} + \gamma_2 \text{Newborn}_{it} * \text{WelfareRegime}_i + u_i + \epsilon_{it} \quad (2.8)$$

where the parameters of interest are now γ_1 which indicates the effect of childbirth in the reference group and γ_2 which is a vector of 5 coefficients indicating the marginal effect of childbirth in each other group of countries. Since the welfare regimes are interacted with a time-varying covariate, I now get a measure of welfare regime difference on that specific covariate. I then run models separately by welfare regime considering the order of birth variable. This allows: *a*) obtaining group-specific estimates of this variable and *b*) considering group-specific effects of the other covariates. Finally, I test the robustness of the results by running the models separately for six countries.

The sample is the same as in the previous analysis and includes women aged 18 to 45 who live with a partner and reside in the 26 European countries available in the EU-SILC 2008 longitudinal file: Austria (AT), Belgium (BE), Bulgaria (BG), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), Greece (GR), Hungary (HU), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), the Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovenia (SI), Slovakia (SK) and the United Kingdom (UK). The total N adds up to 93023.

3

Chapter Three
The incompatibility of employment and parenthood

3.1 Introduction

In the first empirical chapter, I look at the compatibility of work and parenthood and investigate the probabilities of women and men of being employed and of having children in different institutional circumstances and conditioning on different individual and household characteristics.

The decisions of working and becoming a mother are very closely intertwined. Too such an extent, that "childbearing and female work-force can be viewed as the outcome of a simultaneous decision process which takes into account of the basic antagonism between the two activities" (Bernhardt 1993, p. 31). As women entered the labor market over the last century - massively in some countries, on their toe-tips in others - fertility rates were on the decline: a negative correlation that enhanced the idea of incompatibility between the roles of mother and worker.

Work and fatherhood, to the contrary, have historically developed as compatible and complementary activities. The employment rates of fathers and childless men, in fact, are roughly the same in most western countries. Some authors have also found that fathers devote more effort to paid work and have higher earnings than childless men (Harkness and Waldfogel 1999, Lundberg and Rose 2002, Whitehouse 2002, Koslowski 2011). Female and maternal employment rates, instead, differ both within and between European countries. In most northern European countries, childless women and mothers participate to the labor market roughly to the same extent. In Sweden, for example, the female employment rate is of 80%, while the maternal employment rate is around 82%. The figures for Denmark are 79% and 76% respectively: slightly lower, but still similar between them. In southern European states, the situation is quite different. Beyond the very low overall female labor force participation rates, mothers participate much less to the labor market compared to childless women. In Italy, 61% of non-mothers are in the work force, compared to 50% of mothers. The figures of another southern European country, Greece, are around 64% and 52%[1].

Further, the extent to which age and number of children 'interfere' with working plans depends heavily on country context. European Labor Force Survey (2008/09) data show that employment is higher for women who have a child between three and five years old compared to those who have a child age zero to three (OECD average: 62% and 51%). The overall average, however, masks important country differences, as the figures for Sweden are of 81% and 72% respectively but are both around 51% in Italy. The number of children is also associated with reduced labor force participation for women but with varying degrees of intensity between countries: while women who have three or more children participate in the labor market by 15 percentage points less than mothers of only one child in the Netherlands (from 65% to 80%), in Italy the figure is doubled (from 31% to 60%).

The extent to which mothers can combine work and responsibility for children is important for a number of reasons. Mothers' employment is essential not only to guarantee their own economic independence, but also to sustain their family: dual earner households are in fact found to be more protected against the risks of poverty (Barbieri et al. 2012). Furthermore, women and also mothers are an important part of the workforce and their participation in the labor market – especially in the service sector – has become essential for the economy. For what concerns reproductive choices, the problem is twofold: on one hand, women appear to have less children than they wish (World Value Survey, as in D'Addio and D'Ercole 2005). On the other hand, in many western countries the fertility rates are close to or below the substitution rate: if this trend is to continue, future labor supply is at risk (McDonald and Moyle 2010).

The relationship between working and having children and the 'causal

[1] European Labor Force Survey, 2008/09.

direction' of said relationship has been vastly studied (among others: Stycos and Weller (1967), Kamerman and Kahn (1991), Sundstrom and Stafford (1991), Bernhardt (1993), Rindfuss et al. (1996), Bettio (1998), Rindfuss et al. (2003)). There is also a vast literature regarding what individual, household and contextual characteristics can influence the two *separate* decisions of working and having an additional child (Blood and Wolfe 1960, Michael 1974, Duncan 1976, Houseknecht 1987, Lesthaeghe and Johan 1988, Becker 1991, Shelton and John 1996, Myers 1997, Shavit and Müller 1998, Klijzing 2000, Gustafsson 2001, Traeen et al. 2002, Brines 1993, Presser 2005, Baizan and Martin-Garcia 2006, Bratti and Tatsiramos 2008, McQuillan et al. 2008, Martin-Garcia 2009).

Although far from reaching any definitive answer (Mason 1974, Ni Bhrolchain 1980, Cramer 1980, Sweet 1981), it has been suggested that female labor force participation and participation plans may inhibit fertility over the long run (Waite and Stolzenberg 1976, Hout 1978, Smith-Lovin and Tickamyer 1978), while fertility may influence labor force participation in the short run, as employed women exit and re-enter the labor market according to their family status (among others: Ellingsæer and Rønsen (1996), Rosenfeld (1996), Rindfuss et al. (1999)).

In this chapter of the dissertation, instead, I explicitly tap the interrelatedness of work and parenthood. In other words, I consider to what extent women and men participate or not in the labor market, and have or do not have children. In this way, I aim at tapping gender differences in the behavior of women and men, mothers and fathers, in the first life-domain I consider, i.e. paid work.

Secondly, I investigate if and how personal and household characteristics affect the chances of working and having two or more children, in international comparison. To achieve this, having reviewed what are the most important characteristics found in the literature predicting labor force participation *or* childbearing, I test whether and how they account for the joint decision of working *and at the same time* having children. I do so by running multinomial logistic models where the outcomes represent a number of combinations of work and parenthood.

The main advantage of modeling working and having children jointly lies in *not* having to make any assumptions about the casual ordering of the decision. The causal relation between work and parenthood has been studied extensively in previous research, as I have mentioned above, and requires a longitudinal approach to be properly addressed. Here, instead, the aim is to look *a posteriori* at households with and without children and examine what characteristics are associated with partners and/or parents being in paid work or not. This can be very useful in the light of the large cross-national differences in women and mothers's participation in the work force.

In other words, the question I ask is: why are fathers (almost) always employed all around Europe and why are mothers so often not employed? I attempt to answer by breaking the question in two sub-questions: 1) Are there baseline differences between countries that are determined by contextual features (e.g. culture, welfare state provision, labor market characteristics) that all women and men are subject to, regardless their individual and household characteristics? 2) Are there individual and household characteristics that enable women to work and have children regardless of contextual features? If so, which are they?

As I will show in the results, the advantage of the joint approach is that it gives an idea of how different individual and household traits are related to *work and parenthood combinations*. As tables 3.1 and 3.2 show, we can think of work and parenthood as different *states* in which an individual is at a certain point of her life course. Each state can be associated with certain individual and household characteristics. The most obvious example is education: being highly educated is strongly associated with being employed. However, being highly educated is also negatively associated with having children, in particular with having many children. The advantage of the joint model is that is gives us some hints on what is the association between a certain characteristic, in this case education, and the joint state.

Table 3.1 – Alternative state framework - Women

	In employment	Being a parent	Joint state: being a parent in employment
Education	+	− / Null	+
Highly educated partnership	+	+	+
Partner's earned income	−	+ / −	Non-Linear

Table 3.2 – Alternative state framework - Men

	In employment	Being a parent	Joint state: being a parent in employment
Education	+	− / Null	Null
Highly educated partnership	Null	+	Null
Partner's earned income	Null	+ / −	Non-Linear

Thus, the hypotheses have been formulated as follows:

Hypothesis 1a: For women, being highly educated is expected to be positively associated with the probability of being employed and having children.

Hypothesis 1b: No association between education, employment and parenthood is expected for men.

Hypothesis 2a: For women, being part of a highly educated homogamous couple is associated with higher chances of being employed and having children.

Hypothesis 2b: No association between relative education and employment-fatherhood combination is expected for men.

Hypothesis 3a: For women, the probability of being employed with two or more children is expected to be highest at medium rather than high or low levels of the partner's relative earned income.

Hypothesis 3b: Men whose partners have higher earned income are less likely to be employed and have a high number of children.

Hypothesis 4: In countries belonging to the social-democratic welfare regime, institutional characteristics are expected to mediate the impact of individual characteristics for both women and men. In countries belonging to the liberal and conservative welfare regime, instead, individual and household characteristics are likely to have a stronger association with the outcome for both women and men.

The analyses are performed using EU-SILC 2005 and 2007 data. I select women and men who are married or cohabitating residing respectively in Germany, Italy, Norway and the United Kingdom. I do not explore directly the macro-level traits that might be associated with the outcome, but the comparison of countries with different welfare arrangements should shed some additional light on whether institutional characteristics can facilitate the combination of work and parenthood. Furthermore, the international comparison allows investigating if countries have a moderating effect on the relationship between the outcome and the individual and household level characteristics.

3.2 Data, sample and measures

3.2.1 Dependent variable

To capture the association between individual and household traits and the *joint state* of working and having children, I build a dependent variable that includes different combinations of paid work and presence of children. The variable from which working status is derived goes by the name of "Self-defined current economic status". All women and men who report being in some form of employment (employees and self employed) are coded as being in paid work. All the remaining (i.e. women on full-time parental leave[2], the unemployed, the housewives, full-time students etc.) are coded as being out of paid work. Parenthood is operationalized through the presence and number of children in the household.

[2]Unfortunately the variable does not distinguish women who are in maternity leave or full time parental leave from the rest. In the EU-SILC data, in fact, women on maternity leave are coded as being in paid work while women on full time parental leave are coded as out of paid work. Although I would have welcomed more detailed information on these mothers' working status, I do not believe the results to be affected. In fact, maternity leaves in many European countries tend to be short, concentrated around childbirth and very often are paid at a very high replacement rate. Additionally, these women can be assimilated to the employed because *de facto* they are or they would not be entitled to maternity leave. On the contrary, full-time parental leave can be much longer and is generally not paid, which is why these women are considered out of employment.

I distinguish between five outcomes[3]:

- Working and having two or more children
- Working and having one child
- Not working and having two or more children
- Not working and having one child
- Working and having no children

I set the threshold to two children because a) given the replacement rate of 2.1 children per couple, having two children can be seen as having successfully reproduced and b) the desired number of children still seems to be (at least) around 2 (D'Addio and D'Ercole 2005). Distinguishing between multiple child statuses rather than focusing on the dichotomy having vs. not having children can give us some additional insights on the work-parenthood interrelation. Studying mothers who have *any number* of children, in fact, can be of little use in countries where the number of childless women at the end of their fertile years is rather low, but where the number of single children is getting higher. The problem in fact may lie not in having one child, but in having two or more, since taking care of more than one child requires more time and effort. This could have both an immediate effect in changing women's labor force participation plans, but it may also have a long lasting legacy in reducing a mother's employability. In other words, distinguishing between multiple-child statuses could show us if there is a threshold effect in the work-motherhood relation in different institutional settings.

3.2.2 Independent variables

The models I run include a number of variables[4] that allow verifying the hypotheses formulated in section 1.3. In a first set of models I include: age,

[3]The residual category, i.e. not working and not having children, was excluded because of a small number of cases (3.25% of the sample in Germany, 3.26% in Italy, 4.99% in Norway and 2.51% in the UK) and because these individuals are not of immediate and substantive interest. Arguably, the non-employed father category has few cases as well, as shown in table 3.4. However, the substantive interest in the comparison between women in men justifies keeping the five categories, a choice that is further validated by the Small-Hsiao IIA tests reported in the Appendix.

[4]Unfortunately, the EU-SILC file lacks a number of variables that could be used as additional controls, such as use of child care, presence of grandparents or other means to alleviate the incompatibility between work and motherhood. The data also lack information on individual values such as religiosity or the importance of work in one's life.

age squared, marital status (cohabitating vs. married) and education of the respondent (lower education - reference category, medium education, higher education), educational level of the partner (lower education - reference category, medium education, higher education[5]), year of the survey.

I also include two measures of economic resources. The first is built using the partner's labor and transfer income[6] and is a four category variable indicating the partner's position relative to the country's income distribution expressed in quartiles. The ratio, therefore, is to verify the association between the probability a women has of, for example, being employed and having two children, and her partner's labor earnings and transfers. The second measure instead captures the household's relative level of non-earned income[7].

In a second set of models I include a relative education variable which accounts for five possible combinations of educational attainment of the partners: both partners are low educated (reference category), both partners are

[5]The education variable used in this chapter, for both individuals and their partners, has been recoded from the original ISCED code as follows: pre-primary education (ISCED 0), primary education (ISCED 1) and lower secondary education (ISCED 2) have been recoded as low levels of education; (upper) secondary education (ISCED 3) and post-secondary non tertiary education (ISCED 4) are recoded as medium levels of education while first stage of tertiary education (not leading directly to an advanced research qualification, ISCED 5) and second stage of tertiary education (leading to an advanced research qualification, ISCED 6) is coded as high level of education.

[6]As detailed in the EU-SILC manual I built personal income by summing: employee cash or near cash income (PY010G/N); non-cash employee income (PY020G/N); employers' social insurance contributions (PY030G/N); cash benefits or losses from self-employment (including royalties)(PY050G/N); value of goods produced for own consumption (PY070G/N); unemployment benefits (PY090G/N); old-age benefits (PY100G/N); survivor' benefits (PY110G/N), sickness benefits (PY120G/N); disability benefits (PY130G/N) and education-related allowances (PY140G/N).

[7]Income components at the household level are: imputed rent (HY030G/N); income from rental of a property or land (HY040G/N); social exclusion not elsewhere classified (HY060G/N); housing allowances (HY070G/N); regular inter-household cash transfers received (HY080G/N); interests, dividends, profit from capital investments in unincorporated business (HY090G/N); income received by people aged under 16 (HY110G/N) *minus* employer's social insurance contributions (PY030G/N); interest paid on mortgage (HY100G/N); regular taxes on wealth (HY120G/N); regular inter-household cash transfer paid (HY130G/N); tax on income and social insurance contributions (HY140G/N). I exclude family/children related allowances (HY050G) from the computation to eliminate the endogeneity that would arise from having presence of children on the left hand side of the equation and family allowances on the right side (a similar approach is found in Del Boca et al. (2009)).

medium educated; both partners are high educated; the respondent is less educated than the partner, and the respondent is more educated than the partner. This variable is a semi-compound measure of relative education which has been found to be more reliable and less ambiguous than difference measures (Eeckhaut et al. 2011). Descriptive statistics by country and gender, weighted using the personal base weight provided in the EU-SILC database, and sample sizes are reported in tables[8] 3.3, 3.4 and 3.5.

3.2.3 Method and sample

I apply multinomial logistic models, as introduced in section 2.1, to a sample of respondents from the EU-SILC 2005 and 2007 database. My sample is restricted to household where the oldest child, if present, is younger than 18, thus excluding households with older children. I select couples based on the age of the female partner that cannot exceed 45 years of age. This leads to rather large sample sizes in all four countries: 5517 couples in Germany; 9001 in Italy; 2984 in Norway, and 3931 couples in the UK.

3.3 Results

3.3.1 Descriptive statistics

As can be seen from figure 3.1, there seems to be a certain degree of country variability in the distribution of work and parenthood combinations. Norway displays the greatest amount of women who work and have two or more children (55%), followed by the UK with 36%, Germany with 32% and Italy with only 27%. There are less cross-country differences, instead, in the percentage of working mothers of single children, with the lowest figure being 13% in Norway and the highest 18% in Italy. Italian women instead appear to be the most likely to be out of paid work and mothers of two or

[8] The amount of missing data is minimal. The variable with the highest percentage of missing is education, with 3.77% of missing values. Thus, no imputation treatment was necessary. However, one of the income components variables (i.e. value of goods produced for own consumption) presented a large number of missing values in the 2005 wave, i.e. about 50%. The response to this variable in fact was rendered compulsory only in 2007. Given that the values are on average very low in all countries in 2007, the missing values in 2005 are set to zero, as it is plausible that respondents did not report this amount because it was very low rather than very high.

more children (28%), followed by Germany (25%), the UK (17%) and Norway (12%). Perhaps reflecting the low fertility rates of the country, Italy also has the highest percentage of non employed mothers of single children (13%). The UK, instead, is the country with the highest rate of childless working women (24%).

The situation for men presents less cross-national variation. Working and having two or more children is the most common combination. Norway has the highest percentage, with 64% of men in this category, followed by Germany (54%), Italy (50%) and the UK (49%). Italy instead has the largest proportion of men working and having one child (29%), reflecting once again the low fertility rates of the country. It is followed by Germany (23%), the UK (20%) and Norway (16%). In all four countries, only around 5% of men are non working fathers, while being a childless worker is most common in the UK (24%), followed by Norway (15%), Italy and Germany (14% and 15% respectively).

The within-country gender differences are more clearly displayed in figure 3.1, that shows the distributions of work and parenthood in each country. The largest difference[9] between genders emerges in the first category, i.e. working and having two or more children. In all countries, men are more likely than women to be in this group, although the gender difference is smallest in Norway, reflecting the higher maternal labor force participation rates of this Scandinavian country. To the contrary, the larger gender difference that emerges in this category in Germany and Italy is consistent with the up-keeping of the traditional family and its division of labor. This is also reflected in the fact that in these two countries, women are much more likely than men to be non working parents.

To get a more accurate description of the relation between individual characteristics, country of residence and outcome, in the following section I discuss the results of the multinomial logistic regression models.

3.3.2 Multivariate analyses

To investigate how personal and household characteristics favor one outcome over the other in different contexts, the results from a number of multi-

[9] Differences between genders in the outcome have been tested using paired t-tests. Gender differences within countries are statistically significant ($p<0.001$) in all comparisons with the exception of being childless workers, where there is no statistically significant difference between genders.

Table 3.3 – Descriptive statistics - Women

	DE	IT	NO	UK
Dependent variable				
Working, two or more children	.327	.271	.554	.367
Working, one child	.168	.187	.139	.161
Not working, two or more children	.258	.277	.119	.173
Not working, one child	.095	.127	.0335	.0605
Working childless	.152	.138	.154	.239
Mean age in years	37.2	36.8	35.8	35.3
In employment %	.64	.59	.84	.76
Own level of education %				
Low ed.	.0576	.372	.102	.0778
Medium ed.	.587	.49	.484	.561
High ed.	.355	.138	.414	.361
Partner's level of education %				
Partner low ed.	.0576	.428	.102	.099
Partner medium ed.	.493	.451	.556	.56
Partner high ed.	.466	.121	.342	.341
Partner's earned income level %				
<25	.225	.238	.194	.232
25-50	.259	.252	.26	.262
50-75	.256	.254	.274	.256
>75	.26	.256	.273	.249
N	5517	9001	2984	3931

Descriptives are weighted using the proposed personal base weight.

Table 3.4 – Descriptive statistics - Men

	DE	IT	NO	UK
Dependent variable				
Working, two or more children	.545	.504	.645	.498
Working, one child	.236	.293	.165	.204
Not working, two or more children	.0399	.0443	.0275	.0425
Not working, one child	.0274	.0208	.00771	.017
Working childless	.152	.138	.154	.239
In employment	.93	.93	.96	.94
Mean age in years	40.3	40.3	38.7	38
Own level of education %				
Low ed.	.0415	.428	.102	.099
Medium ed.	.493	.451	.556	.56
High ed.	.466	.121	.342	.341
Partner's level of education %				
Partner low ed.	.0576	.372	.102	.0778
Partner medium ed.	.587	.49	.484	.561
Partner high ed.	.355	.138	.414	.361
Partner's earned income level %				
<25	.247	.272	.2	.23
25-50	.248	.215	.253	.247
50-75	.255	.255	.273	.262
>75	.25	.259	.274	.261
N	5517	9001	2984	3931

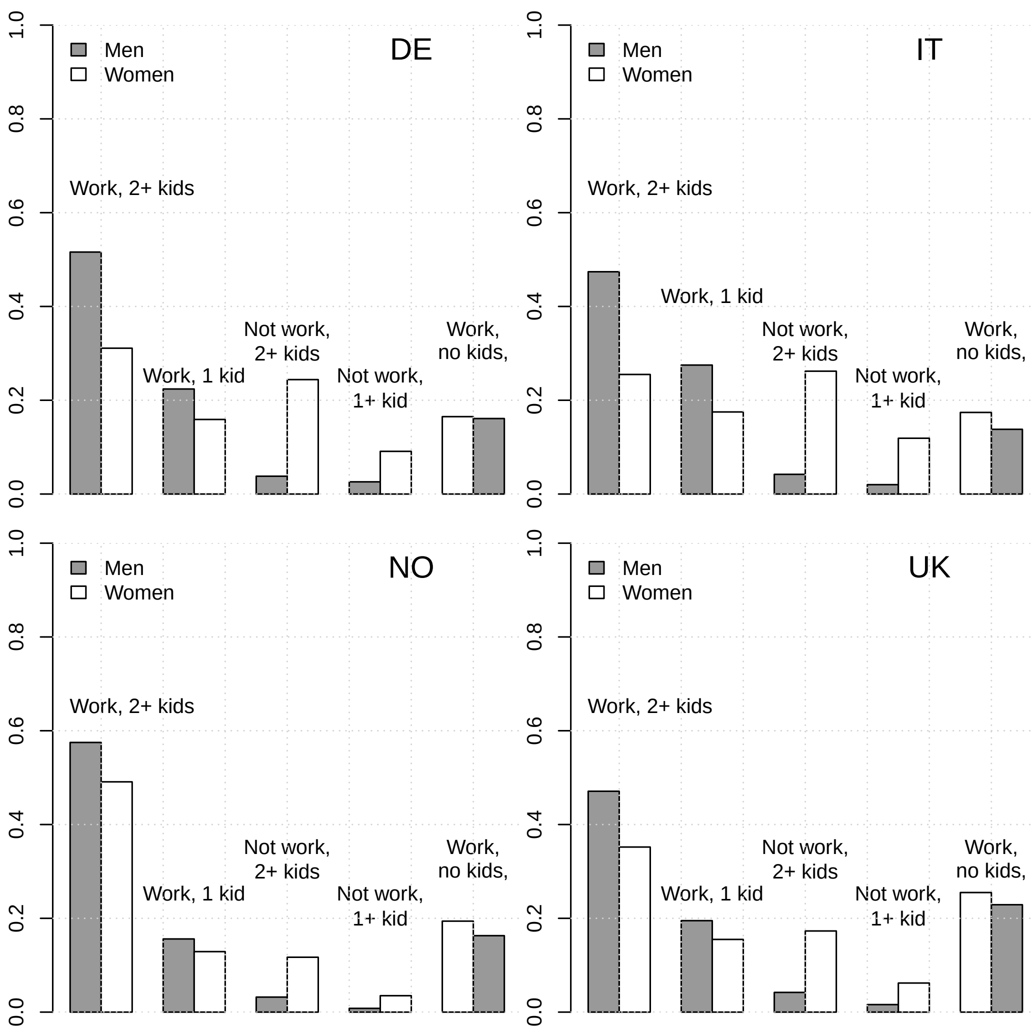
Descriptives are weighted using the proposed personal base weight.

Table 3.5 – Descriptive statistics - couple

	DE	IT	NO	UK
Married %	.886	.933	.722	.746
Relative education of the partners %				
Both low ed.	.0145	.251	.0211	.0379
Both medium ed.	.347	.278	.327	.396
Both high ed.	.237	.0622	.236	.216
Woman higher ed.	.14	.239	.241	.193
Man higher ed.	.262	.17	.175	.156
Household income level %				
<25	.26	.65	.277	.258
25-50	.256	.117	.278	.26
50-75	.252	.118	.26	.244
>75	.232	.115	.184	.239
Number of children in the household				
No children	.15	.13	.15	.23
One child	.26	.31	.17	.22
Two or more	.58	.54	.67	.54
2005 (%)	.499	.528	.536	.531
N	5517	9001	2984	3931

Descriptives are weighted using the proposed personal base weight.

Figure 3.1 – Gender differences in the distribution of work and parenthood combinations in four countries - Mean values



nomial regression models are reported in tables from A.3 to A.10[10] in the appendix. To grasp a better understanding of the results, I calculate and report predicted probabilities for three outcomes, which are, for women: being employed and having two or more children; not being employed and having two or more children; being employed without children. I choose these types as they represent three ideal-types of women: the working-mother, the mother, and the worker. I apply the same principle to men and report the probabilities of being employed and having two or more children; not being employed and having two or more children; being employed without children. In figures 3.2, 3.4 and 3.6 I plot the predicted probabilities for women in each country conditional on level of education, partners' relative level of education and partner's level of earned income. Figures 3.3, 3.5, 3.7 instead report the predicted probabilities for men conditional on level of education, partners' relative level of education and partner's level of earned income. In all cases, the predicted probabilities are calculated holding the other variables in the models to their sample means. Thus, for example, the predicted probabilities in figure 3.2 are adjusted for age and age squared, marital status, household wealth, partner's earned income, partner's level of education and year of the survey.

Education

As can be seen from the panels of figure 3.2, for women education is positively associated with working and having two or more children. In all four countries, in fact, medium and higher educated women have a higher chance of working and having two or more children than low educated ones. Furthermore being highly educated is positively associated with being a childless worker in all countries, although the association is strongest in Italy. The result in this country could be driven by the prolonged stay in education first and the search for a stable working position afterwards, leading to a larger share of working childless women who are delaying the entry in parenthood. Lower educated women, instead, have a higher chance of being non-working mothers of two children. Again, the relation is strongest in Italy, where the difference between a low and a high educated mother reaches almost 30 percentage points, followed but Germany and the UK, where the difference is around 20 percentage points.

[10] Tests for the Independence of Irrelevant Alternatives (IIA) assumption were performed for each model. Results for the tests are reported in the appendix.

In all countries, thus, being better educated protects from being out of the labor market, and does not enhance the probability of having children. As hypothesized, however, in Norway the impact of education on the various outcomes is the smallest, suggesting that the importance of the individual trait is mediated by the equalizing effect of the contextual characteristics. Here in fact, the vast majority of women are working mothers of two or more children, and education is only slightly related to the outcome. The probabilities of working without children are low throughout the educational spectrum while the probabilities of being non-working mothers of two children are the lowest of all countries and are slightly more reduced for higher educated women.

As can be seen in figure 3.3, education is not associated with differences in men's outcome. Different levels of education do not alter the probability of working with two or more children, that is the most common outcome in all four countries. Neither being a non working father nor being working without children are associated with educational attainment.

Before moving to other individual traits, it is important to point out that in Germany, Italy and the UK, education has a stronger association with women's outcomes than with men's. The association, instead, is rather weak for both genders in Norway. This could imply that the smaller overall gender differences in the probability of experiencing a specific outcome found in Norway can be attributed to the greater efficacy of the institutional features in mediating the association between individual traits and outcome.

Relative education of the partners

How is the educational level of the partner related to the probability of experiencing each outcome? Better bargaining skills and more egalitarian gender attitudes that come with higher education would suggest that women in highly educated partnerships are better equipped to be working mothers of two or more children. Further, partners with equal levels of education are likely to share similar preferences and have higher levels of reciprocal understanding. Thus, do highly educated women have higher chances of being working mothers of two children when their partners are also highly educated? Figure 3.4 reports the predicted probabilities for women by the couple's relative level of education.

There are a few points to dwell upon. The first is that, as in the case of education, in Norway the association between the individual trait and the

Figure 3.2 – Predicted probabilities with 95% confidence intervals for three outcomes by education – Women

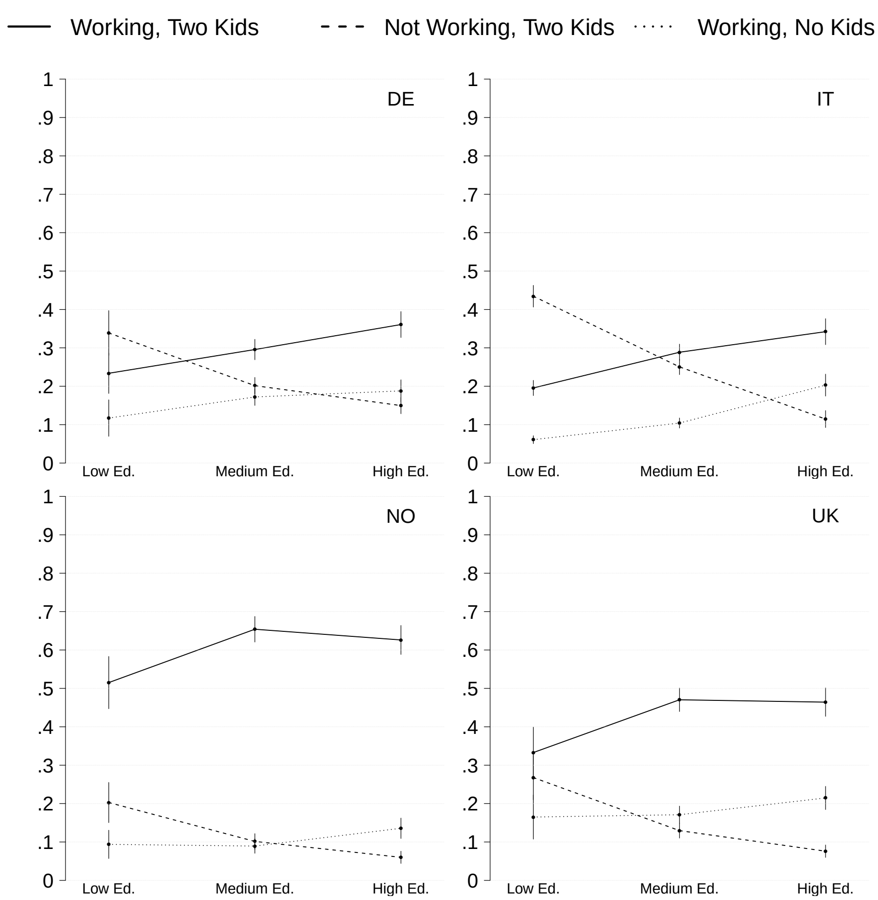
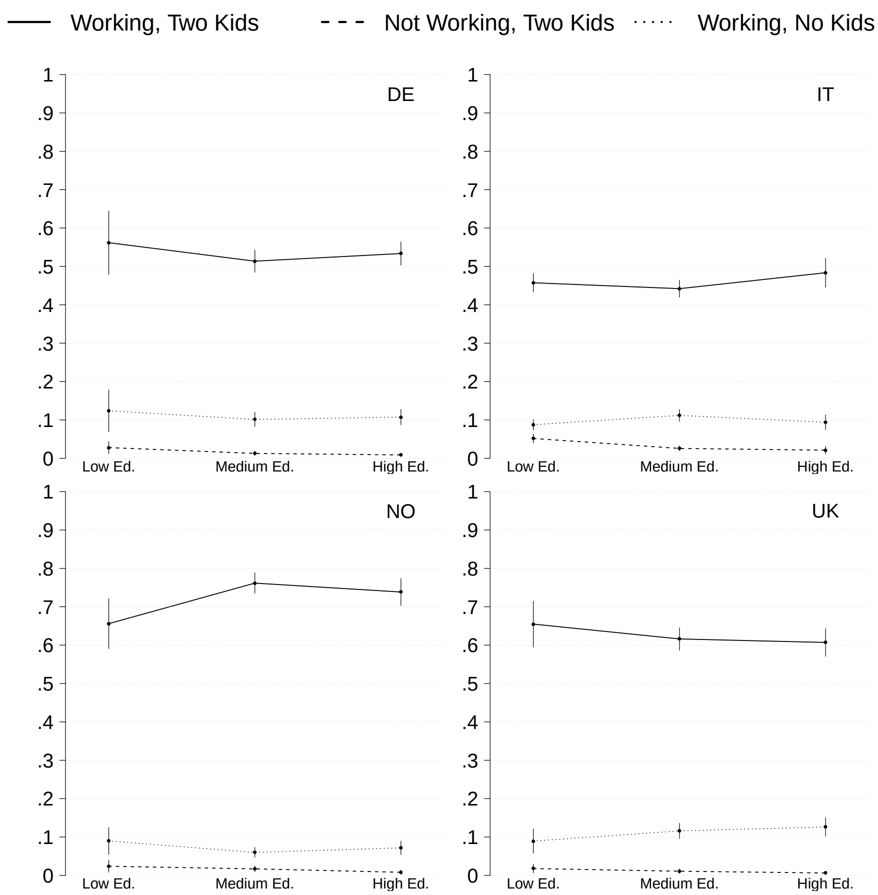


Figure 3.3 – Predicted probabilities with 95% confidence intervals for three outcomes by education – Men



outcome is smaller compared to the other countries, confirming the equalizing effect of the Scandinavian country. Furthermore, in all countries, women in couples where both members are highly educated do not have significantly higher chances of working and having two or more children than women in other types of couples, with the exception of Italy.

For this outcome in particular, highly educated couples and couples where the woman is hypergamous do differ significantly in any of the four countries. Thus, regardless of the context, it is the woman's level of education rather than the combination of the partners' education, that matters most. However, in all four countries, women in highly educated partnerships are much more likely to experience this outcome rather than being non working mothers or childless workers.

As for men, in all four countries, relative education of the partners does not imply major differences in the probability of experiencing a specific outcome. This suggests that, as in the case of education, the contextual characteristics have an equalizing effect and weaken the association between individual characteristics and the outcome.

Labor income and transfers

Finally, what is the relation between earned income of the partner and work-parenthood combinations? Results for women are reported in figure 3.6. The first point to be made is that in all four countries there is an association between the earned income of the male partner and the woman's work-motherhood outcome. Even in the social democracy, the economic well being of the household is related to the work-motherhood combination.

Three trends emerge by eyeballing figure 3.6. First, the probability of working without having children is negatively associated with the male partner's earned income: women are more likely to be working childless at lower rather than at higher levels of their partner's economic resources. Second, the higher the partner's earned income, the higher the probability of having two or more children and not working. Third, the probability of working and having two or more children is rather flat across the partner's earned income distribution, with the exception of the UK where the probabilities of working and having two or more children are higher at the center of the distribution.

The way the different combinations of work and motherhood are placed along the partner's income distribution meshes well with three arguments of economic theory: the cost of children, the value of the additional wage, and

Figure 3.4 – Predicted probabilities with 95% confidence intervals for three outcomes by relative education - Women

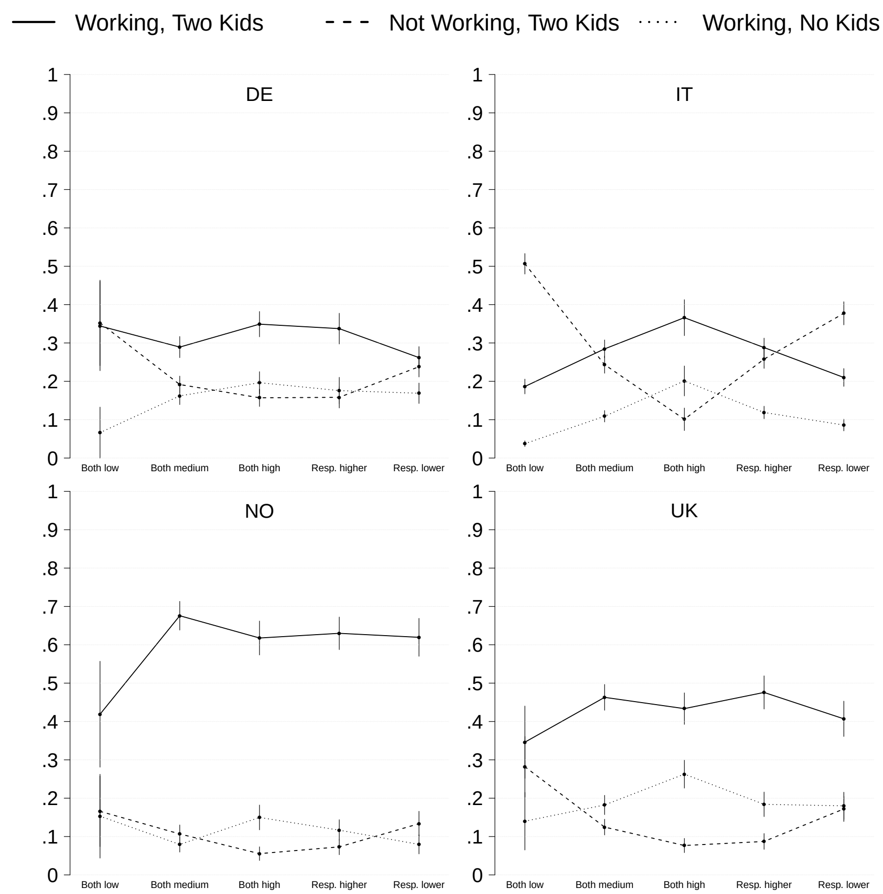
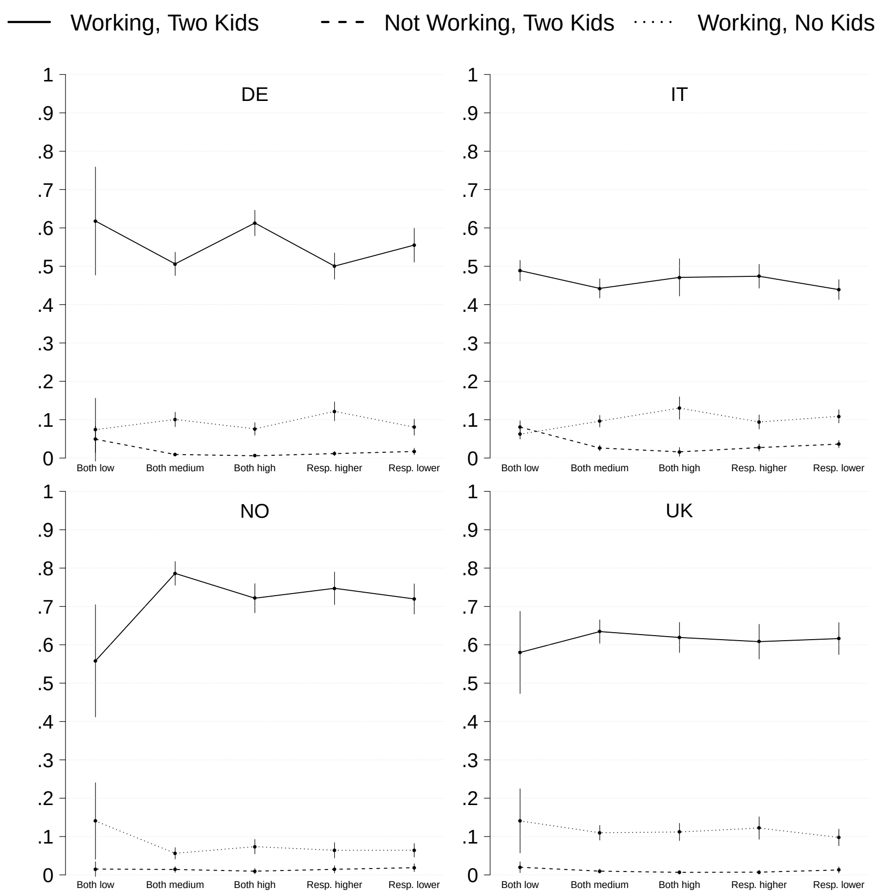


Figure 3.5 – Predicted probabilities with 95% confidence intervals for three outcomes by relative education - Men



the opportunity costs of working and having children.

If the partner has low levels of earned income, in fact, the economic requirements for having children may not be met, while the value of having an additional earned income (i.e. of the woman being in paid labor) is greater. Additionally, the opportunity costs for having children are higher for working women. Thus, it is not surprising that the probability of working without children is highest at lower levels of the partner's earned income in all four countries. At higher levels of the partner's earned income, instead, the value of having an additional earner is lower, the cost of children can be easily faced and the needs of care can be addressed by the non working mothers. Hence, the higher chances of being a non working mother of two children at the highest levels of the partner's income. These results entail large inequalities in the work-motherhood relation: in fact, not only being a 'stay-at-home-mom' depends largely on the partner's position in the income distribution; also, the high probability of being working childless in the lower part of the distribution suggests that the partner's earned income can impose a strong restriction on work and childbearing decisions.

Above the general story, there are some country specificities. The first is that in Norway, whatever the position of the partner in the income distribution, the most probable outcome is working and having two or more children. In Germany, instead, at higher levels of the partner's income the most probable outcome is not working and having two or more children. In Italy and in the UK, by contrast, at the highest level of the partner's earned income women are just as likely to be working with two or more children or to be not working with two or more children.

Figure 3.7 shows the results for men. The individual trait seems to make a larger difference for men than for women. In all countries, the probability of working and having two or more children is lower at higher levels of women's earned income, while the probability of working without children is higher at higher levels of women's earned income. The magnitude of these associations is stronger in Germany and the UK, and weaker in Italy and Norway. The probability of not working and having children, however, is very low in all countries, and does not change with the woman's earned income.

It is noteworthy that, at high levels of the partner's earned income, there is an inversion of tendency between the probabilities of working and having children and of working and not having children. This issue will be addressed with more detail in the conclusion of the chapter, but I want to stress how this clearly points to the fact that the opportunity costs for women (i.e. the

Figure 3.6 – Predicted probabilities with 95% confidence intervals for three outcomes by quartiles of the male partner's earned income – Women

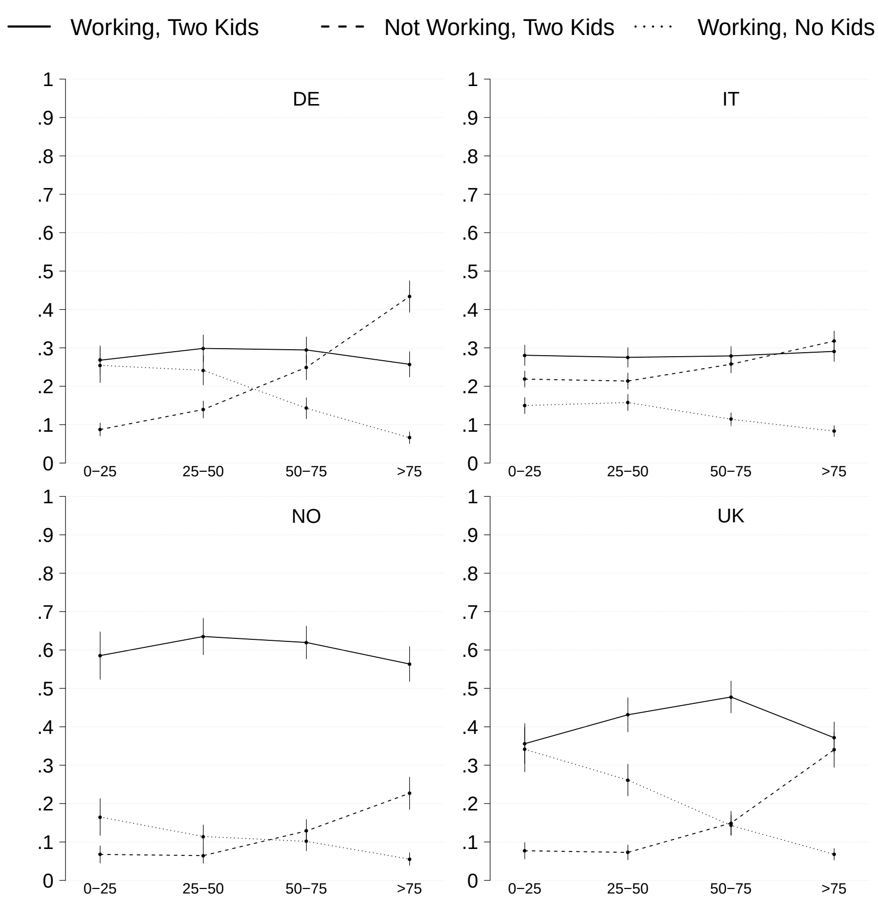
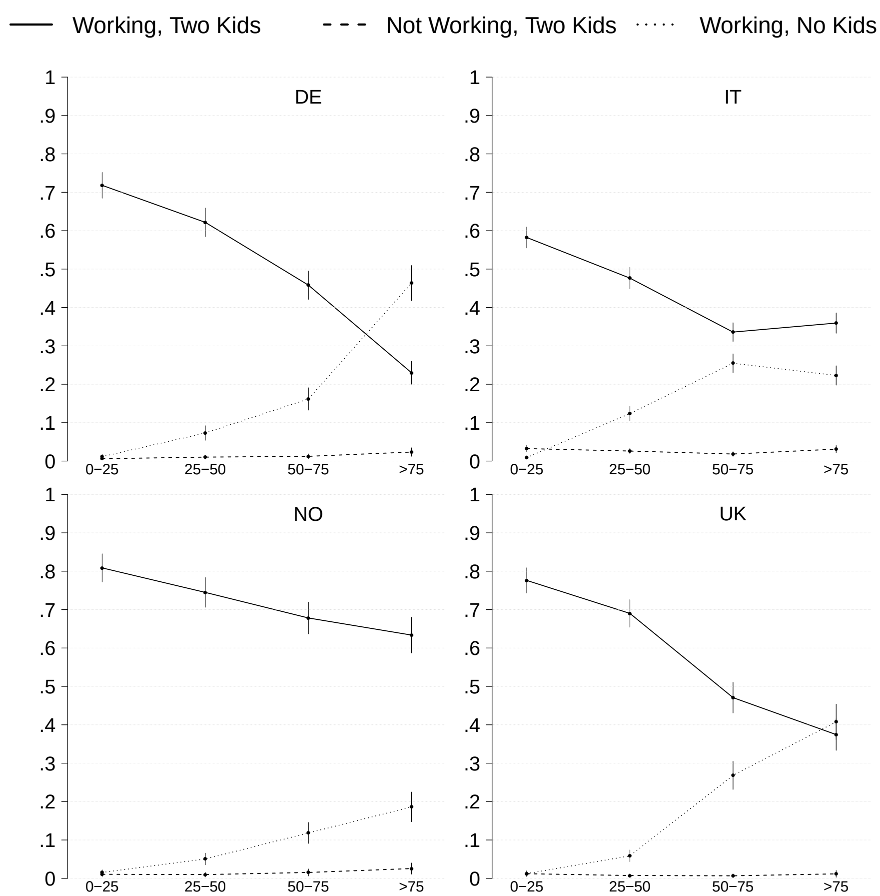


Figure 3.7 – Predicted probabilities with 95% confidence intervals for three outcomes by quartiles of the female partner's earned income – Men



female partner) to have children is strongly conditional on their own earned income. That is, at higher levels of their partner's income, men are less likely to have children. This may happen because their high-income partners choose to not have children.

3.4 Discussion

In this chapter I have investigated to what extent women and men combine work and parenthood in four European countries – Germany, Italy, Norway, and the United Kingdom – and I have analyzed how individual and household characteristics are related to different combinations of work status and parenthood status for both women and men.

As far as gender differences in work-parenthood combinations are concerned, my results show that albeit not to the same extent in all countries, being a working parent of two children is a fairly common combination for both women and men. Thus, work and motherhood – though not compatible as work and fatherhood – are less incompatible than could be expected. In all countries, however, individual characteristics seem to be more consequential to the outcome for women than for men. Recall that, for example, better educated women are more likely to be working and having two or more children compared to less educated ones, and, in general, they are more likely to be in paid work, regardless of the presence of children. The educational level of the male partner, instead, does not appear to be consequential to women's outcome. Furthermore, the female partner's earned income is much more consequential to men's outcome than the opposite; in other words, men are less likely to be fathers of two or more children when their partner has a high level of earned income, indicating that these women are less likely to have children in the household. To the contrary, women's probabilities of having children – in particular if they are not employed – are higher when their partner earns a high amount.

This brings support to the idea that women are still the main providers of care in the European context and that their (in)availability to look after children conditional on their working status can be negatively related to the household's reproductive choices.

As I have remarked at the beginning of this section, work and motherhood are less incompatible than could be expected. There are, however, large country differences in the degree of (in)compatibility between work and motherhood, supporting the notion that contextual traits, which in these analyses are accounted for by comparing countries belonging to different welfare regimes, are related to the possibility of combining work and motherhood. In particular, the results have highlighted that women and men differ less in their chances of working and having children in Norway, the social democratic country. Most importantly, the association between individual characteristics and the outcome is much weaker for both women and men in Norway than in any other country. For example, while men coupled to women with very high earnings could be expected to have higher chances of being childless – because of the greater opportunity costs faced by women with high earnings in having children – the association between women's earned income and the man's probability of experiencing a specific outcome is weakest in the northern European country.

A possible, but certainly not the only, interpretation of this finding lies in the nature of the social-democratic welfare state. In particular, policies aiming at full-employment, availability of child care services and the efforts to involve fathers in homemaking tasks – all of which are present in social-democratic countries although not included in the present analysis – may be important elements in determining mothers' involvement in paid work. These interventions, in fact, have two equalizing effects: on the one hand, they reduce class inequalities by providing universalistic services that all individuals can benefit from; on the other hand, they reduce gender differences by promoting female labor force participation and by encouraging men's role in the home. As a result, individual characteristics are less consequential to the outcome and there is more equality in work and parenthood behavior between women and men.

Following the same line of reasoning, if Norway emerges as the most gender equal state in this analysis, the liberal welfare state, here represented by the UK, is the next in line. In fact, its residual nature yields a similar – though not as equalizing – result. Said otherwise, all individuals, regardless of gender and parenthood, are encouraged to be in paid work. This happens because the market, and not the state, is the primary source of welfare. It follows that women and men, mothers and fathers, in principle, should not differ much in their working effort. The results support this idea, as women and men are not too different in their chances of working and being parents in this country. However, the equalizing effect stops here: individual characteristics, such as education and household income, are very strongly associated with the outcome. This entails the presence of large class differences that are particularly acute for women, but that are not absent for men either.

Table 3.6 – Summary: equalization in the outcome by gender and class in each country

	Equality in outcome by:	
	Gender	Other individual & household traits
Norway	YES	YES
UK	YES	NO
Italy	NO	Only for men
Germany	NO	Only for men

The behavior of women and men in the southern and continental countries, instead, could reflect the intention of these welfare states to maintain the traditional division of labor within families, as mothers in Germany and Italy are definitely not as likely as fathers to be in paid work. To this, we must add that women's individual characteristics matter more than men's in shaping their outcome. Thus, Germany and Italy would seem to be the countries where within household gender inequality in work and parenthood peaks. First of all, because women and men have very different probabilities of being in paid work and having children; and second of all, because men's probabilities are higher regardless of individual and household characteristics, while women's chances of being working and having children strongly depend on their educational level and on their partner's level of earned income, especially in the case of Germany.

I summarize my interpretation of the findings in table 3.6. Since I do not include macro-level indicators of welfare states, many factors above and beyond the welfare state can be called upon to interpret the results. Using Esping-Andersen's framework, however, I believe it is plausible that the greater equality in gender roles is achieved via a greater general equalizing effort of the social-democratic welfare state. In other words, as this regime fosters equality between people at the highest levels, it may also foster gender equality.

The liberal welfare state, by not intervening towards equality in general, results in a partial equalization of gender roles at the lowest standards, so to speak, as it goes hand in hand with strong inequalities on other individual and household traits. Said differently, men and women have similar chances of reaching the outcome, but they are both hindered (or favored) by their personal characteristics. In the continental and southern European welfare states, instead, not only men have much higher chances than women of reaching a certain outcome, but they are also not affected by their personal characteristics. Thus, these welfare states operate in a targeted way by giving equal opportunities to all men to work and have children, while conditioning the outcome on personal characteristics in the case of women.

4

Chapter Four
Presence of children and the relative time on domestic chores

4.1 Introduction

The previous chapter brought support to the notion that in most contexts mothers are less likely than fathers to be in paid work, regardless of individual and household characteristics. It also showed that the institutional setting can have important repercussions on the level of intra-household gender equality. The object of this chapter, instead, is partners' relative contribution to *unpaid work*, in particular among parents, in different European countries.

It is widely recognized that housework is still a 'woman's thing'. Although studies for several western countries have shown that, over the last 60 years, women have reduced the time they devote to domestic chores, men have increased it, and the gender gap in housework has become narrower (Gershuny 2000, Hook 2010, Sayer 2010), women still perform the majority of domestic work. Furthermore, the gender gap for women with children is even larger: several longitudinal studies have in fact shown that the birth of a child leads parents to shift into a more unequal allocation of time to chores.

As individualization processes advance in contemporary societies, the persistence of the unequal division of housework between partners is puzzling (Rohler and Huinink 2010). Nonetheless, scholars have argued that the allocation of household tasks has been studied for too short a period of time to expect revolutionary changes, and that eventually the unequal division of chores will become something of the past (Sullivan 2011).

The division of domestic chores between partners has been the object of much comparative research (among many others: Geist (2005), Breen and Cooke (2005), Treas and Drobnič (2010), Bühlmann et al. (2010), Hook (2010), Lippe et al. (2011)). Many authors have focused on how much time women and men spend on housework (see Hook (2006, 2010), Lippe et al. (2011)) and on the gender specialization in domestic chores (see for example Batalova and Cohen (2002), Yodanis (2005), Tai and Treas (2012)). Other scholars have concentrated on the amount of time spent on domestic chores within couples by comparing those few countries for which the appropriate comparable data are collected at the national level (e.g. Evertsson and Nermo (2004), Lewin-Epstein et al. (2006)). A smaller number of articles has researched the relative time on housework each partner performs across a large number of countries (Fuwa and Cohen 2007, Knudsen and Waerness 2008, Voicu et al. 2009).

With this chapter I contribute to the latter line of research, which has already provided important results, and update it using the recently released European Social Survey Round 5 (2010). In this wave of the survey, information on the amount of time both partners dedicated to domestic chores is collected, allowing to build a measure of relative time on housework.

The objective of the contribution is, therefore, to study if and to what extent partners share the burden of domestic chores in different contexts, and in particular whether there are differences between the amount of relative time women and men spend on housework given the presence of children in different institutional settings.

4.2 Data, sample and measures

For the purpose of this analysis, I use data from the fifth wave of the European Social Survey (2010, ESS hereafter). The ESS is a biennial survey that involves over 30 nations and has been carried out since 2002/2003. Its core questionnaire aims at capturing Europeans' attitudes and values on a vast number of topics. In each survey, the core questionnaire is integrated with a different rotating module. The fifth wave rotating module is titled: "Family, Work and Well-Being", and is an improved repetition of the second wave rotating module. In this wave of the survey, the respondents were asked to report how much time they spend on housework and how much time their partner spends on housework, thus allowing me to build a measure of relative time on housework. Two limitations are to be highlighted. First, there has been some evidence that time use reported through direct questions – as opposed to data collected through diaries – tends to be biased: respondents over estimate the time devoted to frequent activities and underestimate the time devoted to infrequent ones (Juster and Stafford 1991, Marini and Shelton 1993, Niemi 1993). A second problem is that the partner is not interviewed, and the respondent is asked to report how much time the partner spends on housework. Previous cross-national studies have used these measures of time, problematic as they may be (e.g. Knudsen and Waerness (2008)). Conscious of these limitations, I interpret the findings as a result of the individuals' *perception* of time used, rather than actual time used, by their partners and themselves. This limitation gives the opportunity of exploring a further issue: whether there are relevant gender differences in the reports of one's own and one's partner's use of time.

As far as the sample is concerned, I select individuals who are between 20 and 65 years old, living with a partner, and residing in: Belgium (BE), Bulgaria (BG), Switzerland (CH), Cyprus (CY), Czech Republic (CZ), Germany (DE), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), Great Britain (GB), Greece (GR), Croatia (HR), Hungary (HU), Ireland (IE), the Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Sweden (SE), Slovenia (SI), Slovakia (SK).

I run the models separately for men (N 8658) and women (N 9998) as the literature has shown that there are very large gender differences in the time allocated to domestic chores, both in absolute and in relative terms. Running models separately allows me to immediately see, firstly, if genders differ in their account of housework, and secondly whether individual and household level traits are associated differently with the share of housework women and men report.

4.2.1 Dependent variable

In the ESS questionnaire, housework is defined as 'things done around the home such as cooking, washing, cleaning, care of clothes, shopping, maintenance of property, but not including child care[1] or leisure activities' and is measured in hours per week[2]. The respondent is asked to report how much time she/he spends on housework every week and how much time her/his partner spends on housework every week. As noted in the introduction, the limitation of this measure lies in the fact that only one household member is interviewed and reports the time for himself/herself as well as for the partner. As a robustness check, I compared, within each country, the mean values for the absolute time women and men report spending on housework per week with the mean values for the absolute time women and men report their partners spend on housework. Results are reported in figures 4.1 and 4.2. As can be seen, with the exception of men reporting how much time their partners spend on housework in Portugal, the reported time of the partner and own reported time appear rather consistent in all countries[3].

[1]The ESS housework measure excludes child care time and with very good reason. Unfortunately, the data do not include a separate measure for child care. Hopefully this will be remedied in future waves, but for the time being relative child care time in comparative perspective cannot be studied using ESS data.

[2]The variable is top-coded to 84 hours per week.

[3]As an additional control, figures from B.2 to B.7 in the appendix, instead, show the distribution of the absolute time on housework as reported by women and men vs. the absolute time on housework spent by men as reported by women and the absolute time on housework spent by women according to men's reports.

Figure 4.1 – Men's average own time on housework vs. women's reports of their partner's time on housework

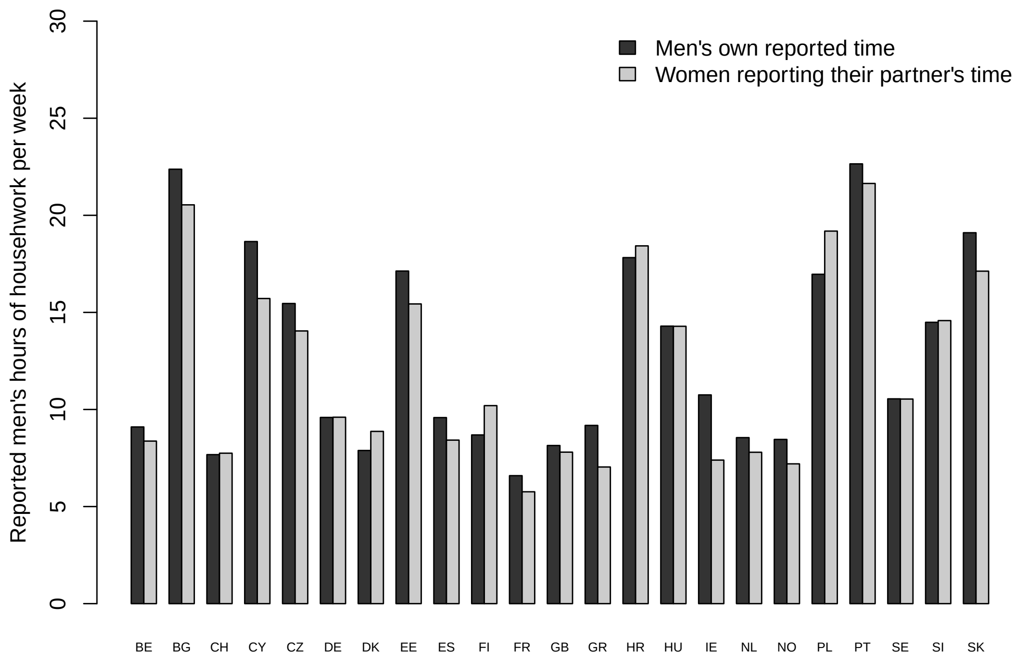
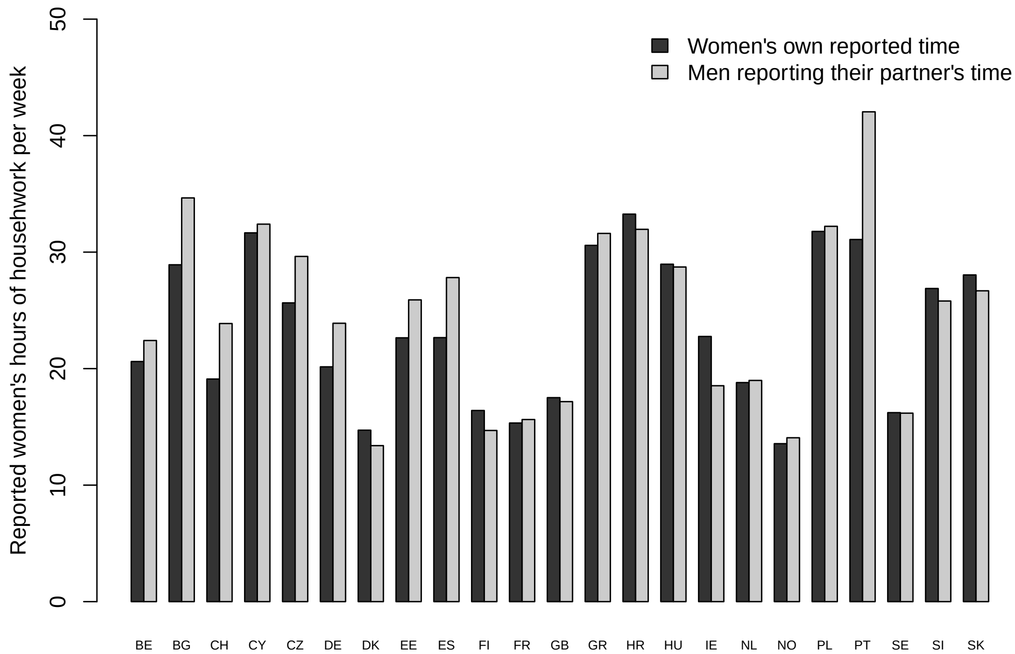


Figure 4.2 – Women's average own time on housework vs. men's reports of their partner's time on housework



To capture the relative amount of time each partner spends on housework, similarly to Knudsen and Waerness (2008), I build a dependent variable that measures the amount of time the respondent reports spending on domestic chores relative to the total reported time partners spend on such activities per week. The dependent variable ranges from 0 to 1, where 0 stands for the partner doing all the housework, and 1 stands for the respondent doing all the housework. In some applications found in previous literature, the dependent variable is gender specific: for instance, Fuwa and Cohen (2007) code 1 when the wife does all the housework, and -1 when the husband does all the housework. In my case, the variable is gender neutral because I run models separately for women and men.

4.2.2 Independent variables

As the dependent variable involves activities of two household members, I include a set of household-level predictors along with a number of individual-level covariates. The baseline model includes age (centered at the grand mean), marital status (married vs. not legally married), number of household members, and total time spent on housework by the partners. This variable controls for the fact that the amount of housework may influence the allocation of time to chores between partners.

Presence of children in the household is used to verify my first hypothesis, i.e. that women report a higher share of relative time on housework if there are children in the household. I use a dummy variable which takes value 1 when at least one child age 18 or younger is present in the household. The gendered effect of parenthood on the relative time spent on chores is best captured by the presence of small children in the household. Unfortunately, not all countries included the information on the age of other household members; on the contrary, respondents in all countries report whether there is at least one child age 18 or younger in the household. Thus, I chose to maximize the number of level-two units even if it means reducing the detail of the micro-level indicators. To test for hypothesis 1.a, i.e. that the association between the presence of children and the higher share of women's housework shall be weakest in the social democratic welfare regime and strongest in countries belonging to the continental, liberal and Mediterranean welfare regimes, I run a random intercepts and random slope model allowing the coefficient for this variable to be country-specific[4].

I then add the so-called time constraints variables. For this purpose I use employment status (employed vs. non-employed), hours spent in paid work per week, employment status of the partner (employed vs. non-employed). Next, I include two variables that account for two types of relative resources of the partners: economic resources and educational resources. The first are included using a predictor that accounts for how large a proportion of the household income the respondent provides. Respondents were asked whether they earn none of the household income (reference category), a very small

[4]This is the only variable allowed to vary between countries because one of the objectives of the dissertation is to investigate between-country differences in the association between the presence of children and an unequal allocation of time to domestic chores within couples. The remaining variables are constrained to be equal across countries for two reasons: first, because the cross-national difference concerning the remaining individual-level traits are not among the issues considered in this analysis; and second, because previous studies on European countries have not highlighted country-specific idiosyncrasies in the association between individual characteristics and the allocation of time to housework. Notwithstanding, I ran models allowing random-slopes on all the individual-level variables and the results, reported in tables B.3 and B.4, are consistent with the random-intercepts model.

part, under a half, about half, over a half, a very large part, or all. To measure relative educational resources[5] I build a semi-compound variable that includes five combinations of the respondents and the partners' level of education. Compound measures of relative education are found to be more reliable and less ambiguous than difference measures (Eeckhaut et al. 2011). The variable is the result of a recode of the original ISCED codes and, ideally, should include nine categories, i.e. all combinations of low, medium and high education of the partners. The number of observations per each country, however, is too small to allow such a fine grained distinction, so I settle for a five category variable: both partners are low educated (reference category); both partners are medium educated; both partners are high educated; partner is more educated than the respondent and partner is less educated than the respondent.

To verify hypothesis 4 (i.e. women and men who favor equality in gender roles are expected to share housework more evenly), I include a variable that taps attitudes towards gender roles. Respondents were asked whether 'women should be prepared to cut down on paid work for the sake of the family'. The responses range from 1 (Agree strongly) to 5 (Disagree strongly). After testing for possible non-linear effects, which were not found, the variable was included as continuous[6].

Finally, hypothesis 5 stated that a greater presence of women in the labor market in particular and in the public sphere in general are expected to be associated with a more equal division of time on domestic chores between

[5]Since the models include a measure of individual gender equality, I use relative education as a proxy of relative power. However, it may also operate via values, as better educated women and men have more gender egalitarian attitudes and thus share housework more evenly

[6]An index based on more than one item, such as those often used in the literature (e.g. Batalova and Cohen (2002), Bühlmann et al. (2010)), would have been more appropriate and reliable. Unfortunately, the fifth wave of the ESS lacks these items, and this is the only variable capturing the respondents' attitudes towards women's roles. While recognizing this limitation, I maintain that the variable should be included in the model, as in similar cases other studies have settled with one item when indices were not feasible (e.g. Breen and Cooke (2005)). Furthermore, the item seems to be measuring gender equality. In fact, it is positively associated with education as the mean values for women are: 2.67 for the low educated, 2.9 for the medium educated and 3.26 for the high educated. The mean values for low, medium and high educated men are, respectively: 2.75, 2.92, and 3.25 (see table B.1 in Appendix B for country-specific values). Additionally, the gender ideology item is negatively correlated with age for both women (corr: -0.03, $p<0.000$) and men (corr: -0.06, $p<0.000$).

partners. To test for this hypothesis regarding macro-level characteristics, I include two predictors: a measure of female labor force participation and the Gender Empowerment Measure. Female labor force participation (FLFP) is included using the country-specific employment rate of women age 15-64, in 2010. The measure is derived from the Eurostat (2012a) database and ranges from 0 to 1. The Gender Empowerment Measure (GEM) (range 0-1) is a measure of agency, developed by the UNDP and rather than capture disparities between men and women, like the Gender Inequality Index, the GEM takes into account women's political and economic participation as well as their power over economic resources (UNDP 2007). Table 4.1 reports the descriptive statistics for the overall sample, while 4.2 reports the means and standard deviations of the dependent variable by gender and country[7].

4.2.3 Method

The hierarchical structure of the data calls for the use of multi-level models, which control for clustering within groups/levels (Hox 2010). As in many applications in comparative social sciences, I use two-level models with individuals nested in countries. Given that the dependent variable is a proportion and ranges from 0 to 1, rather than modeling the outcome as continuous, I follow the approach suggested by Hox (2010) and by McDowell and Cox (2004) and use a generalized linear model with a logit link and the binomial family. While this approach has the advantage of producing predicted values between 0 and 1, the raw coefficients are not interpretable as the response proportions. Rather, they are "terms of the underlying variate defined by the logit transformation" Hox (2010, p. 115). To grasp a better understanding of the magnitude of the coefficients I calculate predictions of the outcome and display results graphically.

4.3 Results

In all countries, women are responsible for most of the domestic workload. As can be seen in table 4.1, which reports grand means and standard deviations for the overall sample, women on average perform about 70% of

[7]As far as missing observations are concerned, no imputation technique had to be adopted since the dependent variable had about 7% of missing observations while all the independent variables had percentages of missing values well below 5%.

the domestic work load. Table 4.2 instead shows the dependent variable by country and gender and allows more detail for the relative time spent on chores in different contexts. The most unequal allocation of time on chores is found in Greece, where women perform 84% of the domestic work. Women in Cyprus and Ireland follow with 78% and 75%. Sweden and Finland are the countries where women do the smallest share of housework, i.e. less than 63%. As expected, even in the most equal countries, women perform more than half of domestic chores.

In table 4.3 I present four sets of models[8], which were run separately by gender. Model one includes time constraints, model two adds relative resources and model three includes value orientation on gender roles. In model four I finally include presence of children in the household. I introduce the presence of children in the last model in order to control for all the other characteristics as well.

Before moving to the main hypotheses concerning presence of children in context, I briefly discuss the association between the other covariates and the outcome. The results for first control variable, age, are not surprising: age is significantly associated with a higher share of relative time on housework for women and a lower share for men, probably indicating that older cohorts display a more traditional division of housework. Alternatively, it could mean that women do relatively more and men relatively less housework when they become older. Due to the cross-sectional nature of the data it is difficult to tell which of the two is more likely. The lack of longitudinal data on time use has limited research in this directions so it is difficult to rely on previous empirical studies. For example, longitudinal empirical research has shown that in Europe the division of chores within-households tends to become more unequal over time, especially when children are born (Kühhirt 2011, Schober 2013), while evidence from the US indicates the opposite (Lam et al. 2012).

Married vs. cohabiting couples do not show any statistically significant difference, but the coefficients go in the expected direction, as married women report performing a higher share of housework vs. women who cohabit, while the opposite is found in men's reports. Literature has explained this

[8]Measures of Cook's distance to detect influential data at the second level were calculated for the full model and reported in figure B.1 in the appendix. The plots show that in all cases Cook's distance is below the cut-off point of 4/23 = .17 as indicated by Nieuwenhuis et al. (2012) and that therefore no level-two observation is significantly influencing the estimated parameters.

as the result of a selection of women and men with traditional attitudes into marriage (Batalova and Cohen 2002).

Furthermore, the number of household members is associated with a higher share of housework reported by women and a lower share of housework reported by men. Interestingly, the coefficient for women becomes nonsignificant when including the presence of children in the household: this indicates that it is children, and not other adults, that lead to a higher share of housework for women.

Moving to time constraints, I find that my hypothesis is confirmed: being in paid employment, hours in employment and having a non-employed partner are significantly and negatively associated with the share of housework that each partner performs. Employed women in fact are responsible for about 63% of the housework while the figure for non-employed women is 70%. The association for men has just about the same magnitude, as a non-employed man does 37% of the chores vs. the 29% for an employed man.

Model two verifies the relative resources hypothesis. As far as relative income is concerned, the results show that, for women, each increase in the proportion of household income, up to over a half of the total, is associated with a reduction in the proportion of housework. Above this threshold, the association is still negative, but decreases in magnitude. To get a better idea of the magnitude of the association, I calculate predicted values of share of housework for both men and women at different levels of relative income and report them in table 4.4. The predictions are calculated by setting all the individual-level variables to their grand mean. The women who perform the least housework, i.e. 61%, are those who earn over half of the total household income, while the ones who earn the entire amount perform just as much housework as those who earn under a half (66%). This non-linear result would seem to confirm the findings in previous literature according to which women who earn a large portion of household income compensate for the deviant behavior by performing a larger share of housework. However, literature has also shown that women tend to be more sensitive to their own earnings than to their partners' earnings. As I cannot control for this, I interpret this finding with caution. Men, also, do not respond to relative earnings in a linear way, as there is a significant reduction in their share of housework only when they are contributing completely or almost completely to the household income. In fact, only men who earn all or almost all the household income, and who perform respectively 24% and 27% of the domestic chores, differ significantly from those who are completely out earned and who perform

Table 4.1 – Descriptive statistics

	Women		Men	
	Mean	SD	Mean	SD
Individual and household-level indicators				
Proportion of housework performed	0.71	0.20	0.31	0.20
Hours of housework per week	21	17	10	15
Partner's hours of housework per week	10	16	23	20
Household total hours of housework per week	32	29	34	30
Age	45	12	46	11
Married	0.81	0.39	0.81	0.40
Number of household members	3.12	1.14	3.11	1.11
Employed	0.60	0.49	0.78	0.42
Hours in paid work per week	32.72	15.49	42.80	13.91
Partner employed	0.77	0.42	0.66	0.47
Household income	3.18	1.37	4.97	1.35
Value orientation: "Women should be prepared to cut down on paid work for the sake of the family" Range: 1 "agree strongly" - 5 "disagree strongly"	2.91	1.18	2.95	1.13
Presence of children	0.59	0.49	0.60	0.49
Both partners low educated	0.15	0.36	0.15	0.36
Both partners medium educated	0.28	0.45	0.29	0.45
Both partners high educated	0.18	0.39	0.19	0.39
Partner more educated	0.19	0.39	0.17	0.37
Partners less educated	0.20	0.40	0.20	0.40
Country-level indicators - range 0-1				
Female Labor Force Participation	.60		.07	
Gender Empowerment Measure	.72		.11	

Table 4.2 – Reported relative time on housework by women and men in 23 countries (%)

	Women		Men	
	Mean	SD	Mean	SD
Belgium	.722	.189	.296	.201
Bulgaria	.688	.213	.324	.198
Switzerland	.735	.194	.267	.197
Cyprus	.786	.225	.288	.259
Czech Republic	.704	.18	.306	.187
Germany	.728	.188	.282	.192
Denmark	.643	.18	.373	.183
Estonia	.635	.179	.378	.167
Spain	.728	.218	.261	.235
Finland	.628	.184	.382	.169
France	.725	.204	.306	.208
Great Britain	.731	.209	.325	.204
Greece	.849	.199	.209	.234
Croatia	.723	.212	.314	.216
Hungary	.719	.194	.3	.198
Ireland	.756	.194	.362	.215
The Netherlands	.728	.194	.314	.196
Norway	.669	.181	.374	.17
Poland	.672	.205	.327	.177
Portugal	.74	.25	.297	.217
Sweden	.629	.169	.418	.171
Slovenia	.703	.183	.339	.205
Slovakia	.662	.182	.375	.208

Table 4.3 – Multi-level regression models for housework sharing: dependent variable proportion of domestic chores performed by each partner (unstandardized regression coefficients, standard errors in parentheses)

	Model one		Model two		Model three		Model four	
	Women	Men	Women	Men	Women	Men	Women	Men
Constant	1.478***	0.275*	1.842***	0.212	2.006***	-0.032	2.066***	-0.068
	(0.115)	(0.116)	(0.139)	(0.201)	(0.146)	(0.210)	(0.149)	(0.214)
Age	0.007**	-0.010***	0.007**	-0.008***	0.007**	-0.008***	0.007**	-0.009***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Married	0.101	-0.097	0.083	-0.088	0.085	-0.082	0.072	-0.076
	(0.063)	(0.064)	(0.063)	(0.064)	(0.063)	(0.064)	(0.064)	(0.065)
N household members	0.108***	-0.089***	0.092***	-0.088***	0.090***	-0.086***	0.046	-0.065*
	(0.020)	(0.022)	(0.020)	(0.022)	(0.020)	(0.022)	(0.030)	(0.033)
Hours of housework	-0.010***	0.004***	-0.010***	0.004***	-0.010***	0.004***	-0.010***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Employed vs. non-employed	-0.515***	-0.479***	-0.287***	-0.387***	-0.280***	-0.390***	-0.287***	-0.387***
	(0.050)	(0.058)	(0.059)	(0.066)	(0.059)	(0.066)	(0.060)	(0.066)
Hours in paid work per week	-0.007***	-0.006***	-0.004**	-0.006***	-0.004*	-0.006***	-0.004*	-0.006***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Partner non-employed	-0.416***	-0.556***	-0.348***	-0.363***	-0.351***	-0.348***	-0.342***	-0.350***
	(0.059)	(0.053)	(0.063)	(0.060)	(0.063)	(0.060)	(0.063)	(0.060)
Proportion of household income provided (r.c. none)								
Very small			-0.189	-0.125	-0.186	-0.116	-0.183	-0.117
			(0.097)	(0.202)	(0.097)	(0.203)	(0.097)	(0.203)
Under a half			-0.415***	-0.116	-0.408***	-0.123	-0.404***	-0.121
			(0.091)	(0.178)	(0.091)	(0.178)	(0.091)	(0.178)
About half			-0.509***	-0.204	-0.495***	-0.206	-0.489***	-0.205
			(0.097)	(0.172)	(0.097)	(0.172)	(0.097)	(0.172)
Over a half			-0.658***	-0.328	-0.636***	-0.325	-0.633***	-0.322
			(0.114)	(0.172)	(0.114)	(0.172)	(0.114)	(0.171)
Very large			-0.567***	-0.492**	-0.542***	-0.480**	-0.541***	-0.477**
			(0.152)	(0.178)	(0.152)	(0.178)	(0.152)	(0.178)
All			-0.416*	-0.638***	-0.397*	-0.627***	-0.394*	-0.624***
			(0.166)	(0.183)	(0.166)	(0.183)	(0.166)	(0.183)
Relative education of the partners (r.c. both low educated)								
Both medium			-0.140	0.169*	-0.129	0.160*	-0.134	0.162*
			(0.081)	(0.082)	(0.080)	(0.081)	(0.080)	(0.081)
Both high			-0.295***	0.421***	-0.273**	0.392***	-0.276**	0.392***
			(0.087)	(0.088)	(0.087)	(0.089)	(0.087)	(0.089)
Partner higher			-0.105	0.240**	-0.095	0.222*	-0.099	0.224*
			(0.087)	(0.089)	(0.086)	(0.089)	(0.086)	(0.089)
Partner lower			-0.138	0.175*	-0.122	0.159	-0.128	0.159
			(0.085)	(0.088)	(0.085)	(0.087)	(0.085)	(0.087)
Value orientation					-0.064**	0.080***	-0.064**	0.080***
					(0.020)	(0.021)	(0.020)	(0.021)
Presence of children							0.148*	-0.066
							(0.074)	(0.076)
Log-likelihood	-1040.536	-884.729	-1010.705	-851.611	-1005.753	-844.829	-1003.727	-844.456
BIC	2163.963	1851.054	2196.403	1875.481	2195.708	1870.984	2200.867	1879.303
N	9998	8658	9998	8658	9998	8658	9998	8658
Groups	23	23	23	23	23	23	23	23

Legend: * p<0.05; **p<0.01; *** p<0.001. Two-tailed

Table 4.4 – Predicted values of the outcome with 90% confidence bounds for women and men by proportion of income provided and by combination of partners' education.

	Women			Men		
	Prediction	[90%	bounds]	Prediction	[90%	bounds]
Proportion of income						
Null	0.749	0.779	0.718	0.376	0.441	0.31
Very small	0.712	0.742	0.683	0.351	0.404	0.297
Under a half	0.666	0.689	0.642	0.348	0.379	0.317
About a half	0.646	0.67	0.623	0.33	0.353	0.308
Over a half	0.613	0.644	0.581	0.304	0.322	0.286
Very large part	0.634	0.682	0.586	0.273	0.296	0.251
All	0.667	0.72	0.614	0.244	0.267	0.221
Combination of partners' education						
Both low	0.709	0.736	0.683	0.304	0.333	0.274
Both medium	0.681	0.705	0.658	0.34	0.365	0.314
Both high	0.649	0.677	0.622	0.393	0.422	0.363
Respondent lower	0.69	0.716	0.664	0.354	0.382	0.326
Respondent higher	0.682	0.707	0.658	0.338	0.367	0.31

Note: predicted values are adjusted for all the variables included in model 4 by setting all the predictors, except the ones of interest, to their grand means.

37% of the housework. Although I find this gender difference in the 'shape' of the effect, the difference between who is doing less housework and who is doing more is 13 percentage points for both women and men. Given that the dependent variable is based on reported and not actual time, the different results by gender may be read in terms of discrepancies between women and men in reporting their own and their partner's time on housework at different levels of relative income or 'power'.

Moving on to the association between education and relative time on domestic chores, I find that for both men and women the strongest predictor of equal sharing is being part of a highly educated couple. In such partnerships, in fact, women perform less domestic chores (around 65%) compared to women in lower educated couples (around 71%), who do not differ from women living in partnerships with other combinations of education. Men who live in highly educated couples, instead, perform more domestic chores compared to men in lower educated couples (39% vs. 30%). This would seem to suggest that being in a highly educated couple is more consequential to equally sharing chores than being better educated than the partner. Further, the magnitude of the association is smaller for women, as the difference between the smallest and largest predicted share of housework is 6 percentage points. The figure for men, instead, is of almost 10 percentage points. Predicted values for all categories are reported in table 4.4.

The fourth individual-level hypothesis regards value orientation toward gender roles. As expected, individuals who display gender-equal attitudes tend to share housework more equally. Women who display traditional value orientations, in fact, perform almost 70% of the chores compared to 62% for least traditional women. Traditional men, instead, do around 28% of the housework as opposed to men with more modern attitudes toward gender roles who perform 35%.

The presence of children, finally, is associated with a 5 percentage points larger reported share of women's housework, while men's share is unaffected. The magnitude of the association is rather small but it is statistically significant (estimate: 0.148, $p<0.05$), and confirms previous literature according to which sex-specialization in housework is greater when children are present. In the attempt to distinguish country-specific associations between the presence of children and the allocation of time to chores, I also ran a random-intercepts random slope model estimating a different 'presence of children' coefficient for each country. Interestingly, the results from this operation (shown in table 4.5) reveal, first of all, that the overall fit of the model does not change, as intercepts and coefficients have magnitude and significance similar to model 4. Secondly, the variance term for the random intercept is close to zero, pointing to the fact that mothers in different contexts do not differ substantially in their reports on the relative time spent doing chores. Figure 4.4 reports predicted values of relative time on domestic chores for mothers and non mothers in all countries adjusted for age, marital status, number of household members, employment status, hours of employment, partner's employment status, proportion of household income, relative education of the partners and value orientation. It clearly shows that there are important country differences in the amount of relative time women spend on domestic chores, and that the presence of children increases women's share of housework, but it also reveals that – contrary to expectations – such an increase is constant between countries.

To better understand the baseline differences between countries, I calculate and display in figure 4.3 predicted values for each country obtained from the full individual-level model (model four). Once again, predictions are calculated holding all the individual variables at their grand mean.

The plot shows, for each country, the predicted average share of housework for women and men. The countries are displayed in ascending order from most to least gender equal in the relative time on chores. The plot confirms the findings from previous literature and from the descriptive statistics. Partners share housework more evenly in northern European countries, while the least equal allocation of time to chores is found in southern European countries. Another interesting result that emerges clearly from the graph – and that can also be found by scrutinizing the variance components in table 4.7 – is that women display much more variation than men: the predicted values for women in fact range from 60% in Finland to 75% in Greece. For men, instead, the predictions have a range that is about a third of women's and fall between 29% and 35%. In other words, after controlling for a number of relevant individual-level traits, unobserved contextual characteristics are related to women's perceptions of the division of domestic chores more than to men's. By including macro-level variables in models five and six (reported in table 4.6) we address these unobserved sources of variance.

The results confirm my last hypothesis: couples share housework more evenly - meaning that women report doing less and men doing more of it – in countries where women are active in the workforce or in countries where they are present in the public sphere. Predicted values for the macro-level predictors are calculated and plotted in figure 4.5. The general result that emerges is that men and women, respectively, increase and decrease their share of housework as contextual levels of female labor force participation or gender empowerment increase. For men, however, the traits appear to have a very similar magnitude, although female labor force participation seems to have a slightly steeper slope, suggesting that it has a stronger impact on men's contribution to housework compared to the other predictor. Female labor force participation is the strongest predictor also for women.

Table 4.5 – Multi-level regression models for housework sharing: dependent variable proportion of domestic chores performed by each partner (unstandardized regression coefficients, standard errors in parentheses)

	Model four b: random intercepts & random slopes	
	Women	Men
Constant	2.067***	-0.068
	(0.149)	(0.214)
Age	0.007**	-0.009***
	(0.002)	(0.002)
Married	0.072	-0.076
	(0.064)	(0.065)
N household members	0.046	-0.065*
	(0.030)	(0.033)
Hours of housework	-0.010***	0.004***
	(0.001)	(0.001)
Employed vs. non-employed	-0.287***	-0.387***
	(0.060)	(0.066)
Hours in paid work per week	-0.004*	-0.006***
	(0.002)	(0.002)
Partner non-employed	-0.342***	-0.350***
	(0.063)	(0.060)
Proportion of household income provided - r.c. None		
Very small	-0.184	-0.117
	(0.097)	(0.203)
Under a half	-0.405***	-0.121
	(0.091)	(0.178)
About half	-0.489***	-0.205
	(0.097)	(0.172)
Over a half	-0.633***	-0.322
	(0.114)	(0.171)
Very large	-0.541***	-0.477**
	(0.152)	(0.178)
All	-0.393*	-0.624***
	(0.166)	(0.183)
Relative education - r.c. Both low		
Both medium	-0.134	0.162*
	(0.080)	(0.081)
Both high	-0.275**	0.392***
	(0.087)	(0.089)
Partner higher	-0.099	0.224*
	(0.086)	(0.089)
Partner lower	-0.128	0.159
	(0.085)	(0.087)
Value orientation	-0.064**	0.080***
	(0.020)	(0.021)
Presence of children	0.148*	-0.066
	(0.074)	(0.076)
Log-likelihood	-1003.724	-844.456
BIC	2219.281	1879.303
N	9998	8658
Groups	23	23
Legend: *p< 0.05; ** p<0.01; *** p<0.001. Two-tailed		

Figure 4.3 – Predicted values of share of housework by country and gender

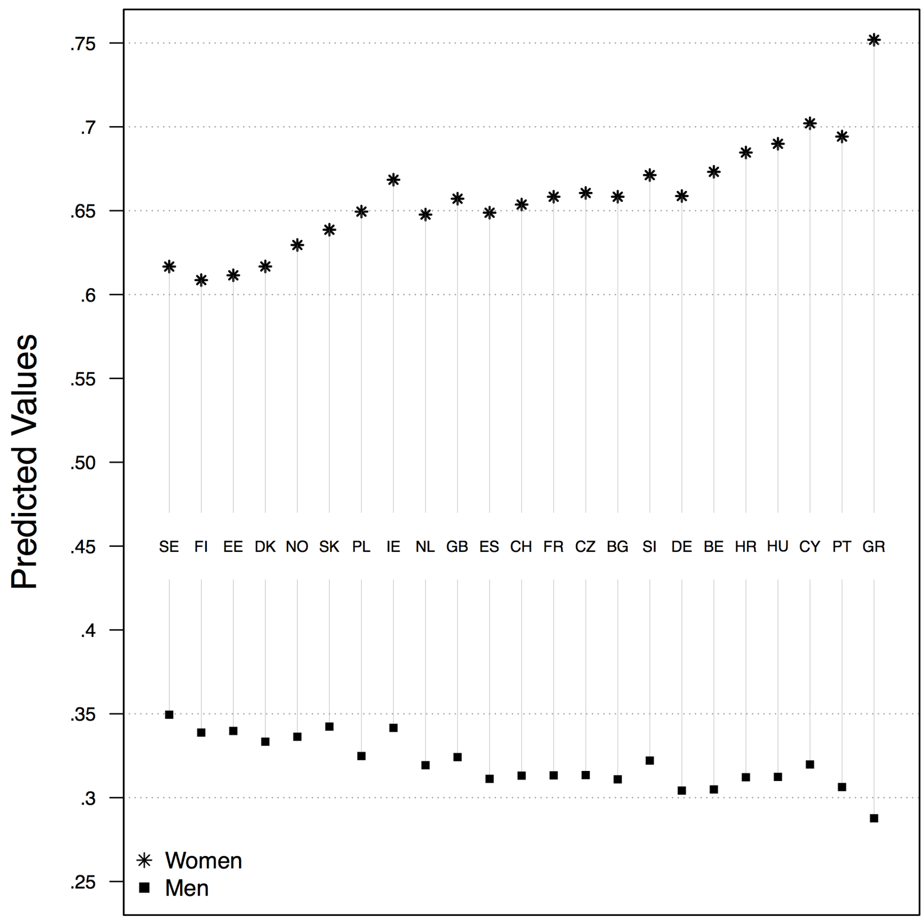


Table 4.6 – Multi-level regression models for housework sharing: dependent variable proportion of domestic chores performed by each partner (unstandardized regression coefficients, standard errors in parentheses)

	Model five		Model six	
	Women	Men	Women	Men
Constant	2.275***	-0.182	2.826***	-0.385
	(0.154)	(0.215)	(0.281)	(0.287)
Age	0.007**	-0.009***	0.007**	-0.009***
	(0.002)	(0.002)	(0.002)	(0.002)
Married	0.065	-0.065	0.066	-0.069
	(0.064)	(0.065)	(0.064)	(0.065)
N household members	0.048	-0.071*	0.046	-0.067*
	(0.030)	(0.033)	(0.030)	(0.033)
Hours of housework	-0.010***	0.005***	-0.010***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Employed vs. non-employed	-0.289***	-0.386***	-0.285***	-0.389***
	(0.059)	(0.066)	(0.059)	(0.066)
Hours of paid work per week	-0.004**	-0.006***	-0.004**	-0.006***
	(0.002)	(0.002)	(0.002)	(0.002)
Partner non-employed	-0.342***	-0.352***	-0.346***	-0.350***
	(0.063)	(0.060)	(0.063)	(0.060)
Proportion of household income provided (r.c. none)				
Very small	-0.184	-0.113	-0.189	-0.117
	(0.096)	(0.202)	(0.096)	(0.203)
Under a half	-0.399***	-0.131	-0.406***	-0.130
	(0.091)	(0.177)	(0.091)	(0.178)
About half	-0.486***	-0.215	-0.492***	-0.214
	(0.097)	(0.172)	(0.097)	(0.172)
Over a half	-0.627***	-0.340*	-0.635***	-0.337*
	(0.114)	(0.171)	(0.114)	(0.172)
Very large	-0.539***	-0.493**	-0.544***	-0.491**
	(0.152)	(0.177)	(0.152)	(0.178)
All	-0.409*	-0.618***	-0.404*	-0.633***
	(0.166)	(0.183)	(0.166)	(0.183)
Relative education of the partners (r.c. both low)				
Both medium	-0.144	0.173*	-0.153	0.175*
	(0.079)	(0.080)	(0.080)	(0.081)
Both high	-0.275**	0.392***	-0.282**	0.396***
	(0.086)	(0.088)	(0.086)	(0.088)
Partner higher	-0.099	0.226*	-0.105	0.229*
	(0.086)	(0.089)	(0.086)	(0.089)
Partner lower	-0.128	0.156	-0.135	0.160
	(0.084)	(0.087)	(0.085)	(0.087)
Value orientation	-0.053**	0.066**	-0.056**	0.073***
	(0.020)	(0.022)	(0.020)	(0.022)
Presence of children	0.146*	-0.047	0.145*	-0.056
	(0.074)	(0.076)	(0.074)	(0.076)
FLFP	-1.561**	0.863*		
	(0.476)	(0.401)		
GEM			-1.021**	0.459
			(0.330)	(0.281)
Log-likelihood	-998.077	-840.103	-999.547	-843.159
BIC	2198.777	1879.664	2201.718	1885.776
N	9998	8658	9998	8658
Groups	23	23	23	23
Legend: *p< 0.05; ** p<0.01; *** p<0.001. Two-tailed				

Figure 4.4 – Predicted values of share of housework by women with and without children in the household

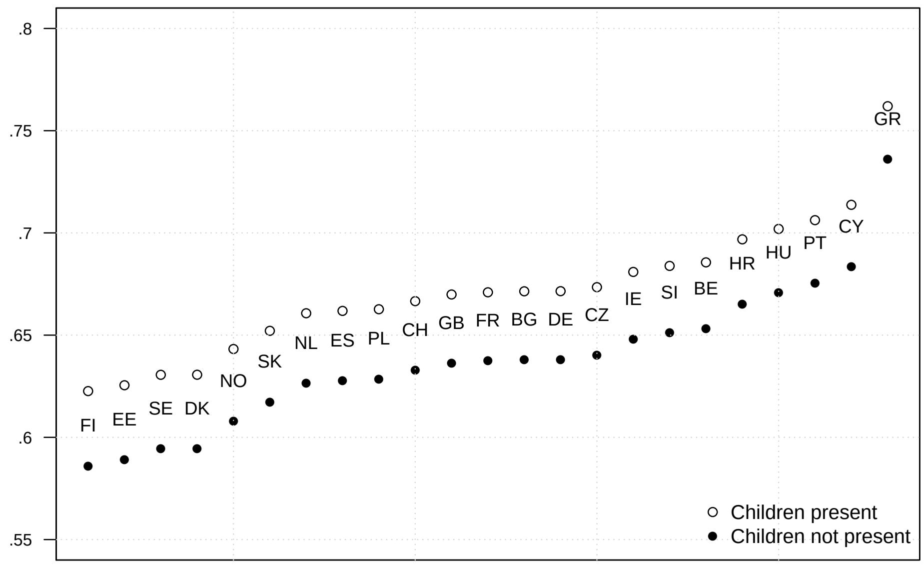
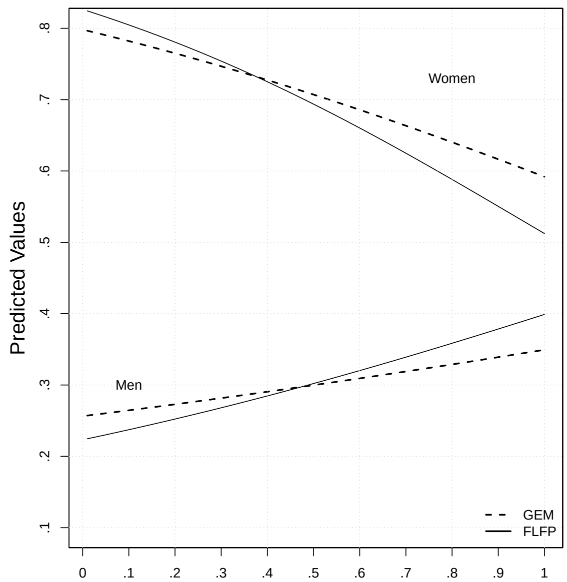


Table 4.7 – Multi-level regression models for housework sharing: variance components, models one to six

	Women						
	Model one	Model two	Model three	Model four	Model four b	Model five	Model six
Variance components							
Intercept	0.054	0.038	0.032	0.030	0.031	0.019	0.016
Standard deviation	(0.233)	(0.196)	(0.178)	(0.174)	(0.176)	(0.136)	(0.128)
Presence of children					0.000		
Standard deviation					(0.004)		
	Men						
	Model one	Model two	Model three	Model four	Model four b	Model five	Model six
Variance components							
Intercept	0.031	0.017	0.010	0.010	0.010	0.009	0.007
Standard deviation	(0.177)	(0.129)	(0.102)	(0.102)	(0.100)	(0.093)	(0.084)
Presence of children					0.000		
Standard deviation					(0.003)		

Figure 4.5 – Predicted values of share of housework by gender at various levels of macro level characteristics



Finally, by including macro-level predictors, the between-country variation in intercepts is strongly reduced. For women, in fact, the difference in the range of the country-specific predictions is reduced from 15 percentage points in the model without macro-level variables to 9 and 8 percentage points after controlling for female labor force participation and gender empowerment respectively. The country-difference for men, which was already rather small after controlling for individual-level characteristics, is also reduced by the macro-level predictors, but to a smaller extent.

4.4 Discussion

In this chapter I have investigated the allocation of time to domestic chores among couples using data from the fifth wave of the European Social Survey on 23 European countries. Using multi-level random intercepts models I test whether time constraints, relative resources and gender ideology are predictors of the division of chores and whether they affect women and men to a different extent. In particular, the presence of children as predictor of a more unequal allocation of time to domestic chores is tested, both as a fixed and a random effect. Further, I investigate the relation between the relative time on housework and two macro-level characteristics: female labor force participation and gender empowerment.

The results confirm that the relative time spent on housework by couples in 2010 is still strongly gendered. In all countries women perform the majority of domestic work, although women do the least and men the most in northern European countries. This is consistent with previous findings and also with my hypothesis concerning welfare-regime differences in the division of domestic chores between partners. In fact, in countries belonging to the social-democratic welfare regime (Denmark, Finland, Norway and Sweden) where female labor market participation is encouraged and policies to increase men's involvement in the home are present, the division of chores is most equal. On the contrary, in countries belonging to the Mediterranean cluster, such as Portugal and Greece, and to a smaller extent in certain Conservative countries, like Germany and Belgium, the division of domestic chores is much more unequal, consistent with the persistence of traditional forms of family that are pursued by the welfare state. An interesting exception is provided by Spain, where women and men report a division of chores that is more equal than would be expected. This result suggests caution in interpreting the results in the framework of the capitalist welfare regime typology and indicates that other factors could be at play (e.g. social norms not accounted for by membership in a specific welfare regime).

As far as macro-level traits are concerned, I find that the presence of women in the work force and in the public sphere are associated with a more equal allocation of time to domestic chores within the household, although after controlling for individual characteristics the cross-country differences for women are much larger than for men. This points to the fact that contextual features shape women's more than men's perception of their share of housework. Once we control for macro-level traits, however, the variation between women in different countries is partially reduced. As far as domestic chores are concerned, therefore, women seem to act upon prevailing norms of behavior to a greater extent than men.

Although I find a large symmetry in the accounts of housework by women and men, throughout the analysis some important gender differences emerge. At the individual-level, mothers report a higher share of housework compared to non-mothers, while fathers and non fathers do not differ. Since the measure I use is based on the information provided by only one respondent, this result could be interpreted in the light of the gendered norms on parenthood. In other words, mothers might be over-reporting their share of housework and under-reporting their partner's because norms on motherhood imply a greater responsibility for housework. This result mirrors previous findings according to which women modify their daily lives more than men when they become parents (Craig and Mullan 2010).

Moreover, the presence of children is associated with a greater relative time on housework for mothers regardless of welfare regime. While this result comes as a surprise, a possible interpretation lies in the nature of the mother-child relation that may be resistant to external pressures. In other words, the intensive mothering ideology (Hays 1996) – that would lead mothers to invest more in their family than in other spheres of their life – might shape their behavior in a way that is out of reach of state-promoted policies. In other words, the contextual features that manage to partially equalize women and men's time on domestic chores in Scandinavian countries – be it policies aiming at involving men in housework, greater gender egalitarian values or more women in the public sphere – do not seem to reach mothers, who, regardless of the country of residence, report a higher share of housework than childless women.

To sum up, the analysis in this chapter, while confirming previous findings on the division of chores within households, suggests that data collected through the response of only one household member can account for the perception of the relative time spent on chores but is not a perfect measure of the actual relative time spent chores. The different results that emerged by gender confirm the need for comparable, high quality time-budget data on a large number of countries.

With respect to the dissertation research question, in this chapter I confirm findings of previous studies and show that mothers report a more unequal allocation of time to domestic chores than childless women. On the contrary, I find no evidence of fathers reporting a smaller share of housework than non-fathers. Finally, although there is evidence that the relative time on chores is more gender equal in northern European countries, possibly because of the greater effort from the welfare state to de-familize “women’s work” and to promote greater participation of men in the household, I do not find regime-specific differences in the association between parenthood and relative time on chores. Thus, the social democratic welfare state would not seem to have the same equalizing effect on the division of chores among parents as it has for childless women and men.

5

Chapter Five
Presence of children, childbirth and relative earnings of the couple

5.1 Introduction

Despite the increasing presence of women in the workforce and their improved levels of education (Blossfeld and Drobnič 2001), many European and western countries feature a gender gap in earnings (Eurostat 2012b, Hersch and Stratton 2002). The disparity between genders is further increased by the fact that when children come along, women suffer from the so-called motherhood penalty (Budig and England 2001, Avellar and Smock 2003) while fathers, to the contrary, benefit from a fatherhood premium (Koslowski 2011, Lundberg and Rose 2002). Although studies find that part of the gender gap in earnings and of the motherhood penalty is reduced when controlling for individual characteristics, it does not disappear completely (Blau et al. 1998, Hersch and Stratton 2002, Sigle-Rushton and Waldfogel 2007, Esping-Andersen 2009).

Not much is known on the long term determinants of within-household spousal inequalities in earnings. In fact, there is little empirical evidence concerning what elements contribute to the relative share of earnings couple members bring to the household over the life course (Stier and Mandel 2009, Raley et al. 2006, Winslow-Bowe 2006). According to economic theory (Becker 1985), human capital, in the form of education of the partners and experience in the labor market, can account for partners' different levels of earnings. Labor market performance, type of occupation and hours usually worked are also likely to predict a different earning balance within the household.

Why should the presence and number of children imply a lower share of earnings from the female partner? There are several reasons for which this may happen. As far as work performance is concerned, mothers may lose job experience or be less productive at work; furthermore, they might choose jobs that are more easily reconciled with family needs. Finally, they might be discriminated against by employers because they are mothers. One or all of these elements may contribute to mothers having lower earnings than non-mothers, but, at the same time, women with lower earning potential might be selected into motherhood, and the effect may not be causal (Budig and England 2001).

In this chapter, I first investigate the individual and household features that are associated with within-couple inequality in earnings using multi-level models on a large number of countries. Second, I use fixed effects panel models to test whether the birth of a child significantly changes the earning balance of a couple.

5.2 Cross-sectional multi-level analysis

5.2.1 Data, sample and measures

The analyses of this chapter are performed using data from the EU-SILC 2008 longitudinal file. The data cover four years, from 2005 to 2008, and 26 European countries: Austria (AT), Belgium (BE), Bulgaria (BG), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), Greece (GR), Hungary (HU), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), the Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovenia (SI), Slovakia (SK) and the United Kingdom (UK). I exclude women who are out of the labor market for the entire observation window, and those whose youngest child is older than 18. Thus, my sample includes women aged 18 to 45 who live with a partner (N 93023). Table 5.1 reports the dependent variable and sample sizes by country while table 5.2 displays descriptive statistics for the overall sample. Descriptives are weighted using the personal base weight of the EU-SILC database.

Dependent variable

I use labor market earnings to capture women's economic resources relative to their partner's. Since the aim is understanding how motherhood relates to labor market performance, following Raley et al. (2006) and Winslow-Bowe (2006), the dependent variable measures the female partner's share of earnings relative to the sum of her earnings and her partner's earnings.

Each partner's personal earnings are calculated as the sum of the following measures: employee cash or near cash income[1]; non-cash employee income; cash benefits or losses from self-employment (including royalties) and unemployment benefits. The information on earned income pertains to the income reference period which, depending on the country of residence, can be a fixed 12-month period or a moving 12-month period preceding the interview.

Some countries of the data-set provide the income information as gross (G), while others as net (N). This may be problematic if the members of a couple are taxed differently, because in this case gross-income could mask large within-household gender differences. Table 5.1 reports which countries have gross measures and which have net, along with country sample sizes and the average of the dependent variable by country. With the intent of minimizing the bias introduced by this issue, first of all I adopt extreme caution when commenting on the results for the countries where income is collected as gross. Secondly, I test the robustness of my results by running models separately by groups of countries, according to whether the information was collected as net or as gross.

Independent variables

Following human capital theory, I include level of education to account for part of the relative earnings. I include a variable measuring the relative education of the couple, which, as in the previous chapters, is a semi-compound measure built on the original ISCED codes including five categories: both partners are low educated; both partners are medium educated; both partners are high educated; the partner is more educated than the respondent and the partner is less educated than the respondent[2].

[1]In defining this form of resources, the EU-SILC manual uses *Income* as a synonym of earned income.

[2]As in chapter three, the education variable is obtained through a recode of the original ISCED values as follows: pre-primary education (ISCED 0), primary education (ISCED

Being in paid work and hours of paid work also predict earnings, so I include the variable 'number of hours usually worked per week in main job' (coded zero for who is not in paid work) of both the partners. I include the age of the partner to capture differences in accumulation of human capital by the partners.

Following the argument that female partners are more likely to achieve the status of primary breadwinner when the household is economically vulnerable (Winslow-Bowe 2006), I include a four-category measure of the couple's relative disposable income (lowest quartile as reference group)[3]. This measure, similar to the one used by Mandel (2012) and Mandel and Semyonov (2005), has the advantage of capturing the position of each household in the "national earnings distribution, irrespective of cross-national differences in the length of the wage ladder" (Mandel 2012, p. 245). Such a feature is particularly useful in our case since we are comparing a large number of

1) and lower secondary education (ISCED 2) have been recoded as low levels of education; (upper) secondary education (ISCED 3) and post-secondary non tertiary education (ISCED 4) are recoded as medium levels of education while first stage of tertiary education (not leading directly to an advanced research qualification, ISCED 5) and second stage of tertiary education (leading to an advanced research qualification, ISCED 6) are coded as high level of education.

[3]According to the EU-SILC manual, disposable household income can be computed by adding all the personal income components with the household income components, as follows: personal income components (employee cash or near cash income (PY010G/N); non-cash employee income (PY020G/N); employers' social insurance contributions (PY030G/N); cash benefits or losses from self-employment (including royalties)(PY050G/N); value of goods produced for own consumption (PY070G/N); unemployment benefits (PY090G/N); old-age benefits (PY100G/N); survivor' benefits (PY110G/N), sickness benefits (PY120G/N); disability benefits (PY130G/N) and education-related allowances (PY140G/N)) *plus* income components at household level: imputed rent (HY030G/N); income from rental of a property or land (HY040G/N); family/children related allowances (HY050G); social exclusion not elsewhere classified (HY060G/N); housing allowances (HY070G/N); regular inter-household cash transfers received (HY080G/N); interests, dividends, profit from capital investments in unincorporated business (HY090G/N); income received by people aged under 16 (HY110G/N) *minus* employer's social insurance contributions (PY030G/N); interest paid on mortgage (HY100G/N); regular taxes on wealth (HY120G/N); regular inter-household cash transfer paid (HY130G/N); tax on income and social insurance contributions (HY140G/N). To build the household income variable I sum all the components of income with the exclusion of family related allowances. These are not included in the computation because they are conditional on the birth or on the presence of a child and thus would artificially shape the relation between the couples' relative contributions in the presence of children, which is what I am trying to model.

countries. Furthermore, the use of a relative measure should minimize the differences between gross and net information on income.

Finally, I control for the number of children age 18 or younger in the household. At this stage, it is sufficient to control for the presence and number of children; I shall investigate the birth of the first and subsequent children in the longitudinal analysis of the following section.

Method

As in the previous chapter, I run random intercept, two-level models, with individuals nested in countries. As this is a panel data set, individuals potentially contribute to the data with more than one observation. The correlation within individuals might introduce bias in the analysis. To control for this, I ran three-level models with time-observations nested in individuals nested in countries. However, the results did not differ from the two-level model; therefore, for parsimony, I report results from the latter. As far as the model is concerned, as previously, I use a generalized linear model with a logit link and the binomial family in order to obtain predicted values that fall within the range of 0 and 1 (Hox 2010, McDowell and Cox 2004).

5.2.2 Results

Table 5.2 reports means and standard deviations for the variables included in the multi-level models. On average, women earn about 38% of the total household income. Figure 5.1 instead shows women's mean income shares by country, ordered from least to most equal, and by net vs. gross income information. It is difficult to make meaningful comparisons between countries where data were collected differently. Among the countries where data on earnings are net (left hand side panel of figure 5.1), the country with the most equal household contribution is Slovenia (45%), followed by Portugal (43%), Poland (42%), Czech Republic (42%) and Romania (41%). The least equal are Austria (34%), and Estonia (35%). Among the second group of countries (right hand side panel of figure 5.1), Denmark and Hungary show the most equal household contribution (both about 40%), while the lowest value is in the Netherlands (34%).

Moving to the results of the multivariate analyses, table 5.3 reports the results for the random intercept models (models 1-3). Given the concerns regarding the net vs. gross data on earned income, as a robustness check,

Figure 5.1 – Women's average share of earnings by country

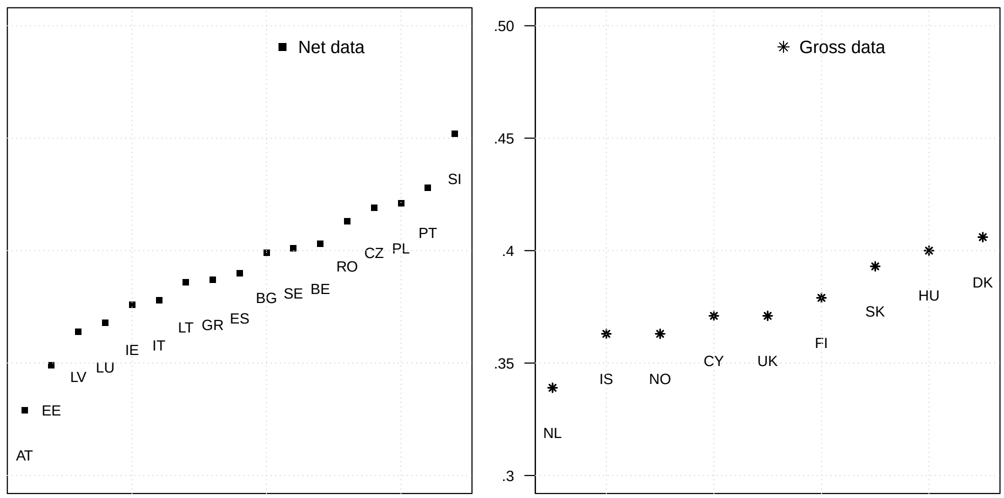


Figure 5.2 – Random intercepts from models 3.a and 3.b. Dependent variable: women's relative earnings by country

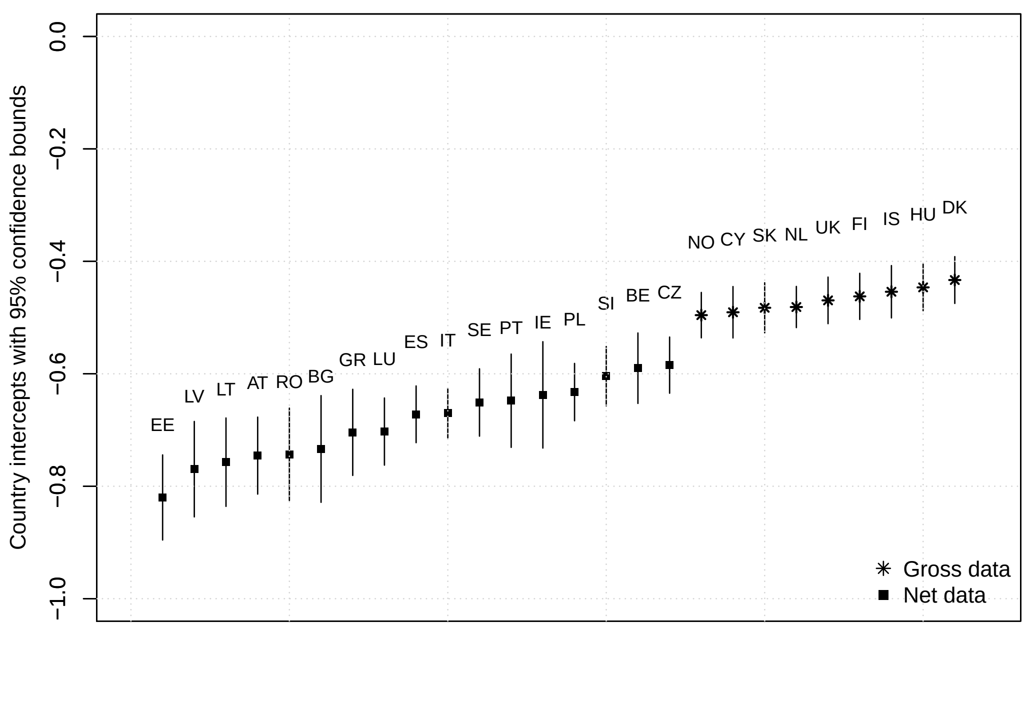


Table 5.1 – Income information by country

Cluster	Country	NET	GROSS	Used	Dependent Variable	% Zero Earnings	N
	CY	no	yes	GROSS	.371	.0391	2022
	IT	yes	yes	NET	.378	.0775	8348
Southern	GR	yes	yes	NET	.387	.103	2159
	ES	yes	yes	NET	.39	.0894	6108
	PT	yes	yes	NET	.428	.0455	1647
	IS	no	yes	GROSS	.363	.0294	1853
	NO	no	yes	GROSS	.363	.0332	4377
Northern	FI	no	yes	GROSS	.379	.0415	4113
	SE	yes	yes	NET	.401	.0284	3920
	DK	no	yes	GROSS	.406	.0252	3624
	AT	yes	yes	NET	.329	.0963	3157
	NL	no	yes	GROSS	.339	.0401	7001
Continental	LU	yes	yes	NET	.368	.0711	4158
	BE	yes	yes	NET	.403	.0339	3542
	CZ	yes	yes	NET	.419	.158	6058
	EE	yes	yes	NET	.349	.121	2248
Baltic	LV	yes	yes	NET	.364	.0658	1652
	LT	yes	yes	NET	.386	.102	1928
	SK	no	yes	GROSS	.393	.0865	2410
	BG	yes	yes	NET	.399	.103	1125
Eastern	HU	no	yes	GROSS	.4	.117	3904
	RO	yes	yes	NET	.413	.0569	1674
	PL	yes	yes	NET	.421	.109	5798
	SI	yes	yes	NET	.452	.0351	5086
English	UK	no	yes	GROSS	.371	.0696	3941
speaking	IE	yes	yes	NET	.376	.105	1170

Table 5.2 – Descriptive statistics†

	Mean	SD
Her share of earnings (range 0-1)		
Overall	.385	.233
Between		.2085
Within		.106
Proportion of within variation (%): .21		
Proportion of between variation (%): .822		
Proportion of zero relative earnings (%): 7.25		
Age class (%)		
18-29	.188	.39
30-34	.23	.421
35-39	.266	.442
40-45	.316	.465
Relative educational level (%)		
Both low ed.	.101	.301
Both medium ed.	.347	.476
Both high ed	.184	.387
Respondent higher ed.	.224	.417
Respondent lower ed.	.144	.351
Age of the partner	38.5	7.23
Hours paid work per week (range 0-99)	28.9	16.4
Partner's hours paid work per week (range 0-99)	40	14.2
Household income (%)		
< 25p	.248	.432
25p-50	.252	.434
50-75	.249	.432
> 75	.251	.433
Number of children <= 18	1.45	1.05
N	93023	

† Descriptives are weighted using personal base weights

Table 5.3 – Multi-level regression models for relative earnings. Dependent variable: proportion of women's earnings over total (unstandardized regression coefficients, standard errors in parentheses)

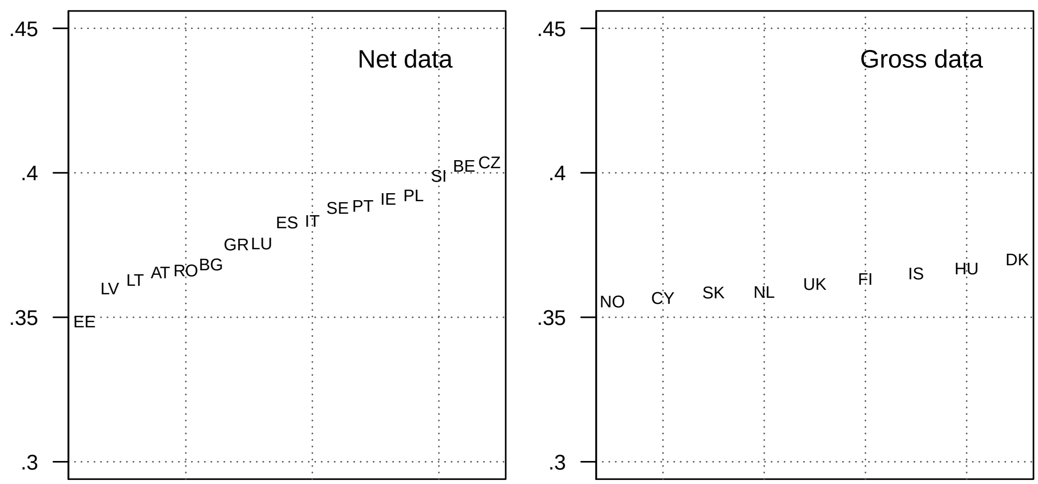
	Model one	Model two	Model three
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Constant	-1.362***	-0.659***	-0.615***
	(0.027)	(0.061)	(0.060)
Age 30-34 (r.c. 18-29)	-0.013	0.010	0.078**
	(0.022)	(0.024)	(0.025)
35-39	0.033	0.049	0.153***
	(0.021)	(0.027)	(0.028)
40-45	0.127***	0.117***	0.220***
	(0.020)	(0.031)	(0.032)
Hours of employment per week	0.027***	0.029***	0.029***
	(0.000)	(0.000)	(0.000)
Age partner		0.002	0.003*
		(0.002)	(0.002)
Relative education (r.c. both low)			
Both medium ed.		0.034	0.061*
		(0.028)	(0.028)
Both high ed.		0.051	0.101**
		(0.030)	(0.031)
Respondent higher		0.223***	0.244***
		(0.029)	(0.029)
Respondent lower		-0.126***	-0.102***
		(0.031)	(0.031)
Partner's hours of employment per week		-0.023***	-0.022***
		(0.001)	(0.001)
Household income (r.c. < 25p)			
25-50p			-0.129***
			(0.021)
50-75p			-0.136***
			(0.021)
> 75p			-0.200***
			(0.022)
Number of children <= 18			-0.078***
			(0.007)
Variance components			
Intercepts	0.006	0.004	0.0007
	(0.079)	(0.068)	(0.027)
Log-likelihood	-10591.778	-9484.590	-9397.869
Deviance	21183.555	18969.180	18795.738
AIC	21195.555	18993.180	18827.738
BIC	21252.199	19106.467	18978.787
N		93023	
Groups		26	
Legend: *p<0.05; **p< 0.01; *** p<0.001, Two-tailed.			

Table 5.4 – Multi-level regression models for relative earnings by subsample of countries: gross and net income. Dependent variable proportion of women's earnings over total (unstandardized regression coefficients, standard errors in parentheses.)

	Model 3.a Gross subsample	Model 3.b Net subsample
Constant	-0.468***	-0.686***
	(0.105)	(0.077)
Age 30-34 (r.c. 18-29)	0.062	0.084**
	(0.041)	(0.031)
35-39	0.125**	0.170***
	(0.047)	(0.035)
40-45	0.189***	0.240***
	(0.054)	(0.040)
Hours worked per week	0.030***	0.029***
	(0.001)	(0.001)
Age partner	0.001	0.004*
	(0.003)	(0.002)
Relative education (r.c. both low)		
Both medium ed.	-0.017	0.077*
	(0.061)	(0.033)
Both high ed.	0.051	0.110**
	(0.065)	(0.037)
Respondent higher	0.172**	0.269***
	(0.063)	(0.034)
Respondent lower	-0.162*	-0.086*
	(0.065)	(0.037)
Partner's hours worked per week	-0.023***	-0.021***
	(0.001)	(0.001)
Household income (r.c. < 25p)		
25-50p	-0.088*	-0.021***
	(0.035)	(0.001)
50-75p	-0.102**	-0.146***
	(0.036)	(0.025)
> 75p	-0.188***	-0.148***
	(0.039)	(0.026)
Number of children <= 18	-0.076***	-0.079***
	(0.012)	(0.010)
Variance components		
Intercepts	0.001	0.006
	(0.027)	(0.075)
Log-likelihood	-2757.354	-6623.712
Deviance	5514.709	13247.424
AIC	5546.709	13279.424
BIC	5681.295	13423.398
N	33245	59778
Groups	9	17

Legend: *p<0.05; **p< 0.01; *** p<0.001, Two-tailed.
Gross subsample: CY NL UK HU SK IS NO FI DK.
Net subsample: RO GR IT AT LU ES IE EE PL BG CZ LV LT BE PT SE SI.

Figure 5.3 – Predicted values of women's relative earnings by country (predictions are obtained from models 3.a and 3.b. All variables are set to sample grand means)



I also run model three on two different subsamples of countries (table 5.4). The first subsample (model 3.a) includes the countries for which information is collected as gross, while the second subsample (model 3.b) includes the countries for which information is collected as net.

First of all, the random intercepts in all models confirm that women contribute less than their partners in all countries, and the predicted values are well below 50% in most countries[4], as shown in figure 5.3. The plots show that the differences between countries, with respect to the mean values, are reduced when controlling for individual characteristics. This means that the compositional differences between countries – that are controlled for in the multivariate analyses – account for some of the cross-national variation in the household earnings balance. When controlling for individual characteristics the differences between countries become much smaller, in particular in the gross-income group. Recalling that I have excluded from the analyses those women who have no earnings across the entire observation period, these results appear to indicate that the within-couple earning balance is quite similar between European states.

[4]Predictions for each country by mode of income-data collection were calculated from models 3.a and 3.b respectively, holding all variables to the subsample means.

The results from the pooled model and the models by subsamples are very similar, both in sign and, to a smaller extent, magnitude. Considering individual traits in model 3, age class seems to be an important predictor of earnings, as it shows that middle aged women are likely to be contributing more to the household budget than younger women. Part of this result is probably driven by work experience, that we cannot include in the analysis due to the large number of missing observations for this variable. Furthermore, as expected, hours of employment per week are important predictors of relative earnings (0.029, $p<0.001$).

Looking at human capital via relative education, I find that women are more likely to have higher relative earnings when they live in a highly educated homogamous partnership (0.101, $p<0.01$) and even more so when their level of education exceeds their partners' (0.244, $p<0.001$) than when both partners are low educated. The hours of employment of the partner are negatively related to women's earnings but the coefficient is rather small (-0.022, $p<0.001$). Not surprisingly, the number of children aged 18 or younger in the household is associated with a lower share of women's relative earnings (-0.078, $p<0.001$).

When it comes to the association between household income and relative earnings, I find that the better off the overall economic household standing, the lower the woman's relative contribution. This result is consistent with the economic vulnerability argument, according to which women's contribution is more valuable when the overall economic standing of the household is low. In other words, women in poorer households are more likely to be contributing to the same extent as their partners. The results are robust to the mode of income data collection, although the negative association appears stronger among the gross-data countries.

To summarize this part of the analysis, the results show that, on average, women earn less than half of the household income in all countries, and that age, hours of paid work, educational attainment of both partners, partner's hours of paid work, level of household income and the presence of children are important predictors of the share of earnings.

In the following section I take a longitudinal approach and investigate the effect of a childbirth on women's relative earnings.

5.3 Longitudinal analysis

The analysis of the previous section has given some insights on the relation between a number of individual and household variables and partners' relative earnings. In particular, it has confirmed that women earn less than their partner in all European countries; that hours of paid work are positively associated with women's relative earnings while their partners' hours of paid work are negatively associated with them; that human capital – measured as relative education of the partners – is relevant to women's chances of having higher earnings relative to their partners'. In the present section, taking advantage of the longitudinal nature of the EU-SILC data, I run panel models in order to investigate whether the birth of a child leads to a reduction of women's relative contribution.

5.3.1 Data, sample and measures

In the following paragraphs I introduce the variables and models used for the panel data analysis. As far as the sample is concerned, I rely on the 2008 longitudinal EU-SILC database and I select households formed by women age 18-45 living in a household with a partner (N 93023) who reside in one of the 26 available countries: Austria (AT), Belgium (BE), Bulgaria (BG), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), Greece (GR), Hungary (HU), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), the Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovenia (SI), Slovakia (SK) and the United Kingdom (UK). The EU-SILC is an unbalanced panel where household members are interviewed every year for a maximum of four years. Therefore, the individuals in the sample range from a minimum of one to a maximum of four observations. As in the previous analysis, I exclude those women who have zero earnings across the observation window and those whose youngest child is older than 18.

Part of the analysis is conducted on the full sample by pooling countries together. However, I also run models by clusters of countries to investigate the mediating effect of context on individual behavior. The country clusters resemble as much as possible the capitalist welfare regime typology. Further, due to the data limitation on income that was introduced in the previous section, as a robustness check I select one country per cluster – Italy, Sweden, Austria, Estonia, Slovenia and Ireland – and run models for each of those countries. The countries used in the models and the respective regimes are indicated in table 5.1. Note that these countries are chosen because their data on income are net.

Dependent and independent variables

As in the previous section, the dependent variable captures the female partner's share of earned income relative to the total earned income, as of the income reference period.

The time varying independent variables included in the models are: age; age of the partner (range 18-70); number of hours usually worked per week in main job (coded zero if not in paid work) of both partners; household income as a four-category measure[5] compared to the rest of the sample income distribution (lowest quartile as reference group).

I use two variables to estimate the impact of childbirth on relative contribution. In the longitudinal fixed effects framework, these variables should allow testing whether the birth of a child affects a woman's earning share, net of individual time-invariant unobserved characteristics. The first variable measures whether there is a newborn, i.e. a child age 0 or 1, in the household. The second variable controls for order of birth, i.e., whether the newborn is the first, the second or third or higher child. It is useful to consider order of birth, first of all, because the selected countries have very different fertility rates, thus focusing only on one birth, e.g. the first birth, might lead to unwanted sample selections; second of all, the order of the child may make substantial differences to the effect of childbirth on relative earnings; and third, institutional characteristics may have different ways of mediating the effect of the birth of the first and of subsequent children. For example, the birth of the first or a second child may have different repercussions on women's relative earned income in different contexts. Consider a woman who has reduced her hours of employment to take care of the first child: in a social democracy, thanks to extensive child care services, the birth of a second child may not lead her to further reduce her hours in employment; in a southern European state, instead, the birth of the second child may imply that the mother has to withdraw from work completely to look after both children.

[5]There may be some concerned regarding to what extent household change their position in the income distribution over time. Table C.1 in the Appendix shows that households move from one group to another over waves, indicating that the variable is indeed time-varying.

Since the absolute number of children in the household may also be related to the relative earnings of the couple, I also control for number of children younger than 18 living in the household, excluding the newborn. Descriptive statistics are reported in table 5.2 and in table 5.5.

Method

For this part of the analysis I run fixed effects[6] models following the research strategy presented in section 2.3.2: I first run a pooled model with all countries included. As a second step, I obtain cluster-specific slopes for the first time-varying variable of interest by interacting the newborn variable with cluster dummies to obtain the 'childbirth' effect in different contexts. Then, I run models by country-cluster to verify the 'order of birth effect' in each cluster and to explore the effects of the remaining variables in context. Finally, as a robustness check, I run models separately for the six countries for which net information on income is available, choosing one country for each cluster.

The main advantage of using panel data in this context is that by applying fixed effects models I can control for unobserved individual heterogeneity. Unfortunately, there is a source of endogeneity in that data that I cannot completely correct for, as the timing of the birth and of the change in relative income are difficult to separate out. The newborn variable, in fact, indicates whether a childbirth took place within the current or the previous year, while the income information refers to the 12 months preceding the interview. Thus, the two events could overlap. However, we must consider that any change in women's behavior that could lead to a reduction in earnings might be triggered not by childbirth itself, but by pregnancy. Therefore, even if the change in earnings does take place prior to childbirth, the arrival of the child can still be considered the triggering cause.

[6] Hausman (1978) tests comparing the results for fixed and random effects were performed. The Hausman test is designed to detect whether there is a violation in the random effects modeling assumption that the explanatory variables are orthogonal to the unit effects. Results are reported in the Appendix (table C.2). The large and significant Hausman statistic indicates that only the FE model is consistent and should be chosen over the RE model.

Table 5.5 – Descriptive statistics† - Continued

	Mean	SD
Presence of newborns		
None	.86	.347
First child	.0649	.246
Second child	.0529	.224
Third child or higher order	.0218	.146
N other children excluding newborn	1.31	1.07
N	93023	

† Descriptives are weighted using personal base weights

5.3.2 Results

In table 5.6 the results from the first three models are displayed: two fixed effects pooled models with different specifications of the childbirth variable (birth of a child, and birth of a child by order of birth) and the fixed effects pooled model with cluster-dummies interacted with the birth of a child. I do not interact the 'birth of a child by order of birth' variable because it would yield a very high number of interaction terms. Instead, in table 5.7 I report the results by groups of countries considering the 'birth of a child by order of birth' variable.

In model 1, (table 5.6) the coefficient indicating the birth of a child is negative and significant (-0.054, $p<0.001$); the results in model 2, furthermore, show that the order of birth of the child does not make a large difference to the outcome. However, when interacting the birth of the child in different contexts, the strongest negative effect is found in the northern European cluster (-0.086, $p<0.001$), followed by the Baltic (-0.066, $p<0.001$), the eastern (-0.042, $p<0.001$), the continental (-0.030, $p<0.001$), and finally southern European states (-0.016, $p<0.001$) that are the reference group. However, the coefficient is nonsignificant in the English-speaking clusters. Thus, the results point in the direction of a negative effect of the birth on the relative contribution of the female partner, but with different degrees of magnitude between welfare regimes.

As far as the other predictors are concerned, weekly hours of employment and weekly hours of employment of the partner affect the relative share of earnings: own hours of work per week in fact significantly increase one's share of earnings, while the opposite happens when the partner increases his work effort. Such result is not surprising and in line with previous findings. Furthermore, the number of other children in the household is also negatively associated with the female partner's relative contribution.

Table 5.6 – Pooled & welfare-regime interacted fixed effect regression models. Dependent variable: woman's relative earned income (unstandardized coefficients, standard errors in parenthesis).

	Pooled model 1	Pooled model 2	Interacted model
Newborn	-0.054***		-0.016***
	(0.003)		(0.005)
Order of birth of the newborn			
1st child		-0.054***	
		(0.004)	
2nd child		-0.055***	
		(0.003)	
3rd or above		-0.053***	
		(0.005)	
Newborn X Welfare regime - r.c. Southern			
Northern			-0.086***
			(0.006)
Central			-0.030***
			(0.006)
Baltic			-0.066***
			(0.011)
Eastern			-0.042***
			(0.007)
English speaking			-0.015
			(0.010)
Age	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)
Age of the partner	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)
Hours worked per week	0.003***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)
Partners hours worked per week	-0.002***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)
Household income (r.c. < 25)			
25-50	0.017***	0.017***	0.015***
	(0.002)	(0.002)	(0.002)
50-75	0.025***	0.025***	0.022***
	(0.002)	(0.002)	(0.002)
> 75	0.018***	0.018***	0.014***
	(0.003)	(0.003)	(0.003)
N other kids	-0.025***	-0.025***	-0.025***
	(0.003)	(0.003)	(0.003)
Constant	0.275***	0.275***	0.274***
	(0.022)	(0.022)	(0.022)
N		93023	

*p<0.05, ** p<0.01, *** p<0.001, Two-tailed.

To grasp a better understanding of the variables in context, table 5.7 reports the results for order of birth of the newborn by groups of countries. The models show that there are important regime differences when considering the order of birth. In the northern and central countries, the negative effect

Table 5.7 – Fixed effect regression models by groups of countries. Dependent variable: woman's relative earned income (Unstandardized coefficients, standard errors in parenthesis)

	Southern Coef./(s.e.)	Northern Coef./(s.e.)	Central Coef./(s.e.)	Baltic Coef./(s.e.)	Eastern Coef./(s.e.)	English speaking Coef./(s.e.)
Order of the newborn						
1st child	-0.007	-0.105***	-0.052***	-0.099***	-0.058***	-0.021
	(0.007)	(0.006)	(0.007)	(0.022)	(0.011)	(0.014)
2nd child	-0.022**	-0.097***	-0.050***	-0.043*	-0.061***	-0.031*
	(0.007)	(0.006)	(0.006)	(0.020)	(0.010)	(0.014)
3rd or above	-0.009	-0.087***	-0.039***	-0.095***	-0.051***	-0.039*
	(0.011)	(0.007)	(0.008)	(0.022)	(0.013)	(0.018)
Age	0.005	0.004	-0.001	-0.001	0.003	-0.002
	(0.005)	(0.003)	(0.004)	(0.009)	(0.006)	(0.011)
Age of the partner	-0.000	-0.003	0.005	0.002	0.003	0.004
	(0.005)	(0.003)	(0.003)	(0.009)	(0.006)	(0.011)
Hours worked per week	0.002***	0.002***	0.004***	0.003***	0.003***	0.006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Partners hours worked per week	-0.001***	-0.002***	-0.001***	-0.002***	-0.002***	-0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Household income (r.c. < 25)						
25-50	0.025***	0.023***	0.010*	0.011	0.018***	-0.034***
	(0.004)	(0.004)	(0.004)	(0.010)	(0.005)	(0.009)
50-75	0.032***	0.036***	0.024***	0.003	0.018**	-0.037***
	(0.005)	(0.005)	(0.005)	(0.011)	(0.006)	(0.010)
> 75	0.020**	0.029***	0.032***	-0.026*	0.007	-0.057***
	(0.006)	(0.006)	(0.006)	(0.013)	(0.007)	(0.011)
N other kids	-0.017**	-0.010**	-0.042***	-0.004	-0.028***	-0.047***
	(0.006)	(0.004)	(0.005)	(0.014)	(0.008)	(0.011)
Constant	0.199***	0.389***	0.207***	0.345**	0.247***	0.383***
	(0.049)	(0.038)	(0.039)	(0.110)	(0.057)	(0.098)
N	20284	17887	23916	5828	19997	5111

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

Table 5.8 – Fixed effect regression models by country. Dependent variable: woman's relative earned income. (Unstandardized coefficients, standard errors in parenthesis.)

	Italy	Sweden	Austria	Estonia	Slovenia	Ireland
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Newborn	-0.004	-0.127***	-0.059***	-0.055*	-0.124***	-0.028
	(0.008)	(0.010)	(0.017)	(0.023)	(0.011)	(0.018)
Age	-0.012	0.007	-0.011	0.009	-0.001	0.005
	(0.008)	(0.007)	(0.008)	(0.013)	(0.008)	(0.028)
Age of the partner	0.015	-0.004	0.011	-0.006	0.005	-0.003
	(0.008)	(0.007)	(0.008)	(0.012)	(0.007)	(0.028)
Hours worked per week	0.002***	0.002***	0.003***	0.003***	0.002***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Partners hours worked per week	-0.001***	-0.002***	-0.001	-0.002**	-0.001***	-0.002**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Household income (r.c. < 25)						
25-50	0.044***	0.035***	0.045***	0.028	0.028***	-0.008
	(0.007)	(0.008)	(0.010)	(0.016)	(0.007)	(0.016)
50-75	0.041***	0.043***	0.075***	-0.004	0.028***	-0.014
	(0.008)	(0.010)	(0.012)	(0.018)	(0.008)	(0.017)
> 75	0.031***	0.040***	0.074***	-0.017	0.014	-0.012
	(0.009)	(0.011)	(0.014)	(0.022)	(0.009)	(0.019)
N other kids	-0.014	-0.020*	-0.033*	-0.033	0.009	-0.073***
	(0.010)	(0.009)	(0.015)	(0.021)	(0.011)	(0.021)
Constant	0.182*	0.356***	0.254*	0.293	0.246**	0.394
	(0.073)	(0.089)	(0.119)	(0.185)	(0.083)	(0.214)
N	8348	3920	3157	2248	5086	1170

*p<0.05, ** p<0.01, *** p<0.001. Two-tailed.

Table 5.9 – Fixed effect regression models by country. Dependent variable: woman's relative earned income. (Unstandardized coefficients, standard errors in parenthesis.)

	Italy Coef./(s.e.)	Sweden Coef./(s.e.)	Austria Coef./(s.e.)	Estonia Coef./(s.e.)	Slovenia Coef./(s.e.)	Ireland Coef./(s.e.)
Order of the newborn						
1st child	0.004	-0.134***	-0.072**	-0.069	-0.167***	-0.051
	(0.011)	(0.014)	(0.023)	(0.036)	(0.017)	(0.029)
2nd child	-0.017	-0.132***	-0.061**	-0.035	-0.129***	-0.015
	(0.011)	(0.013)	(0.021)	(0.032)	(0.013)	(0.026)
3rd or above	0.009	-0.112***	-0.042	-0.065*	-0.083***	-0.023
	(0.017)	(0.017)	(0.027)	(0.033)	(0.018)	(0.025)
Age	-0.012	0.007	-0.010	0.009	-0.001	0.004
	(0.008)	(0.007)	(0.008)	(0.013)	(0.008)	(0.028)
Age of the partner	0.015	-0.004	0.011	-0.006	0.005	-0.001
	(0.008)	(0.007)	(0.008)	(0.012)	(0.007)	(0.028)
Hours worked per week	0.002***	0.002***	0.003***	0.003***	0.002***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Partners hours worked per week	-0.001***	-0.002***	-0.001	-0.002***	-0.001***	-0.002**
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Household income (r.c. < 25)						
25-50	0.044***	0.034***	0.045***	0.028	0.026***	-0.008
	(0.007)	(0.008)	(0.010)	(0.016)	(0.007)	(0.016)
50-75	0.041***	0.042***	0.075***	-0.004	0.027***	-0.014
	(0.008)	(0.010)	(0.012)	(0.018)	(0.008)	(0.017)
> 75	0.031***	0.039***	0.074***	-0.018	0.013	-0.011
	(0.009)	(0.011)	(0.014)	(0.022)	(0.009)	(0.019)
N other kids	-0.013	-0.020*	-0.036*	-0.034	-0.000	-0.074***
	(0.010)	(0.009)	(0.016)	(0.022)	(0.012)	(0.021)
Constant	0.182*	0.357***	0.257*	0.301	0.256**	0.387
	(0.073)	(0.089)	(0.119)	(0.186)	(0.083)	(0.214)
N	8348	3920	3157	2248	5086	1170

*p<0.05, ** p<0.01, *** p<0.001. Two-tailed.

is largest when the newborn is the first child. In the English-speaking group, the birth of a child seems to become larger as the order of birth increases, while in the southern cluster the negative effect emerges only for the birth of the second child. In the Baltic and Eastern groups, there seems to be a non-linear effect: in the Baltic countries the effect is largest at the birth of the first and third child, while in the Eastern the effect is largest at the birth if the second child.

I test the results by performing the analyses only on the countries for which net information is available, which reflects disposable income to a greater extent than the gross information. Tables 5.8 and 5.9 report the results for the six selected countries. In the first set of models I verify only the impact of the birth of the child, while in the second set I also look at the order of the child. Results are consistent with the ones from the welfare regime clusters. In Italy, neither the birth of a child per se nor a higher order birth affect mothers' relative contribution. In Sweden, by contrast, there is the strongest negative impact of the birth of a child (-0.127, $p<0.001$), and the effect only slightly changes at different order of births. Similarly, in Slovenia there is a rather strong negative impact of childbirth (-0.124, $p<0.001$). Furthermore, the effect is statistically significant at all order of births, although it decreases in magnitude. In Austria and Estonia, there is a smaller negative effect of childbirth which seems to be concentrated on the birth of the first child, while in Ireland the effect of a child of any order is negative but nonsignificant.

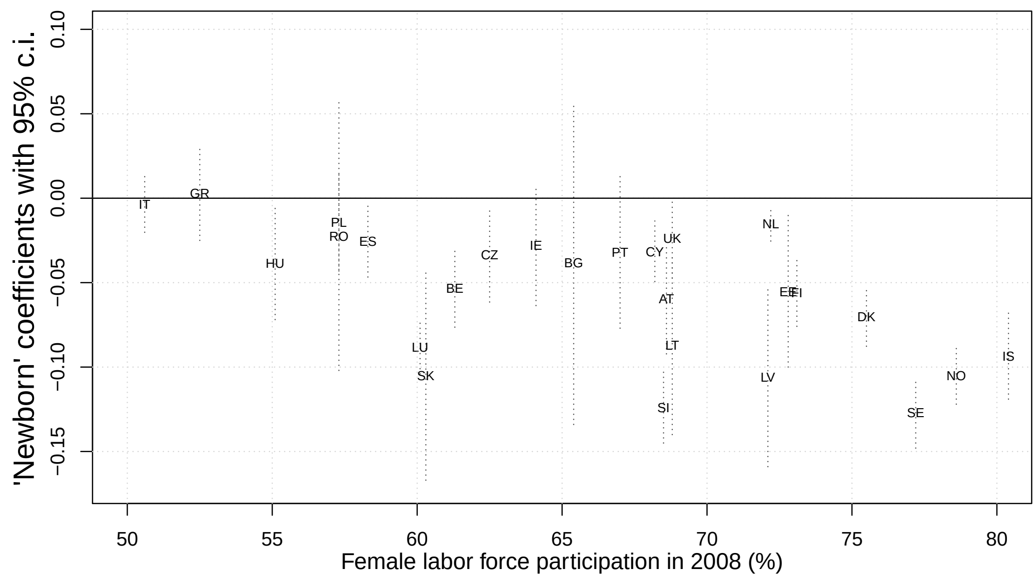
5.4 Discussion

Some considerations can be drawn by these results. First of all, a gendered earnings imbalance emerges in all European countries, regardless of the presence of children and regardless of country-specific characteristics. Second of all, partners' contributions show less between country variability than I anticipated. Considering that the sample excluded women who earned nothing for the entire observation period, this suggests that large country differences lie in the *probability* of taking part in the labor market (as seen in chapter three) rather than in the outcome in terms of relative earnings. Furthermore, it is noteworthy that several of the personal and household characteristics considered in the analysis have the same effect across different contextual circumstances. Age, weekly hours of employment, educational attainment, partner's work hours and household economic resources all contribute to shaping the within-couple division of earnings to similar extents in different contextual circumstances. This would imply that contexts have little or no moderating effect on the way within-household differences in earnings are shaped by individual traits.

When it comes to childbirth, however, important differences do, indeed, emerge. Childbirth is known to entail negative consequences to women's labor market participation and to work performance. Thus the motherhood penalty is something that could be expected in all institutional settings. However, the northern European social democracies appear to be the ones where the birth of a child entails the largest negative change in women's relative earnings. On the contrary, in southern European countries the negative effect of childbirth on women's relative earnings is smallest. This result emerged from the interacted model of table 5.6, from the country-by-country models in table 5.8, and is even more clear in figure 5.4, that reports coefficients and 95% confidence bounds of the newborn variable estimated in each country[7] plotted against female labor force participation rates. In three southern European countries (i.e. Italy, Greece, Portugal), the negative effect of childbirth is close to zero, while in the remaining countries of the group (Cyprus and Spain) the effect is very small. In the northern European countries, instead, the effect is always negative and significant.

[7]Tables for the full models by country are reported in the Appendix.

Figure 5.4 – Effect of any order childbirth on women's relative earnings by country. Full models are reported in the Appendix.



How do we explain this? Such large differences could be due to the country-specific processes of selection into motherhood and into specific jobs. As discussed in the introduction, women in northern European countries are much more likely to be in the workforce than women in the southern states, and they are also much more likely to have children (Ahn and Mira 2002). However, the gender gap in earnings in some Mediterranean countries is much smaller than in Scandinavian countries (Eurostat 2012), the labor market is more rigid, there is less availability of family-friendly work opportunities (i.e. part-time, flexible hours, working from home etc.) and public child care arrangements for children under 2 years of age are scarce. Thus, compared to their northern European peers, *working* women in the southern group: *a*) have earnings that are not far from their partners', *b*) are not likely to exit and re-entry the rigid labor market, *c*) are overall less likely to have children and *d*) face greater difficulties in finding child care arrangements or jobs that they can adapt to their family needs.

Keeping all this in mind, why does the negative effect of childbirth on relative earnings emerge in southern European countries to a smaller extent than elsewhere? I argue that, although women in southern Europe are on the whole less likely to be in the work force, those who are in the labor market have relatively high earnings and given the rigidity of the labor market they stay in their job *even when they have children*. Thus, we do not see a fall in their relative earnings. This could also be because the majority of men work full-time and the standard work day in southern Europe is generally long and thus difficult to increase with over-time. On the contrary, in scandinavian countries, given the large gender gap in earnings, the availability of universalistic child care facilities and large public sector, women are more likely to end up in low-paid jobs when they become mothers or to temporarily drop out of the work force. Hence, the higher penalty in relative earnings.

A point to keep in mind in the discussion is that, in calculating relative earnings, family allowances are left out of the equation. The ratio behind this choice was to avoid the endogeneity that would arise from having a predictor (i.e. the presence or birth of a child) that directly accounts for part of the dependent variable (i.e. non labor earnings deriving from family allowances). It could be argued, however, that the large negative effect that arises in the northern European countries is a result of how the dependent variable is computed. In fact, we might imagine that women in scandinavian countries forego labor earnings precisely because they are receiving an alternative, non labor source of income, such as parental allowances. We could easily test for this if it were possible to include these alternative sources of income into women's side of the earnings equation. Unfortunately, the EU-SILC data on this variable is collected at the household level, so there is no way of knowing *which* household member was granted the family allowance. For the sake of speculation I ran a small experiment by running pooled models one and two and the interacted model of table 5.6 with different specifications of the dependent variable. Specifically, I verify how much the outcome would change if the woman was to personally receive 0%, 50% or 100% of the family related allowance. The results are reported in the Appendix in table C.8 and show that the inclusion of family allowances has different effects on women's relative resources in different groups of countries: in the southern group, were the effect of childbirth was very small, adding resources to women makes almost no difference, as the coefficient goes very close to zero and is nonsignificant. In the northern group, to the contrary, the reduction of the negative effect is noteworthy, as it drops from -0.086 ($p < 0.001$) to -0.013 ($p < 0.05$). This could indicate that women in northern European countries compensate the loss of earned income with non-labor sources of income. In the other groups we also find a reduction in the negative effect of childbirth, although small. These results are the product of a intentional manipulation of the data, so it is not possible to draw any conclusions from them; the cross-national differences that emerged from the experiment, however, could be worthwhile to investigate in further research.

Returning to the results that emerged for the remaining countries, it is much more difficult to speculate on the intermediate cases, i.e. the large group of continental, baltic and eastern European countries. Here, the effect of childbirth on relative income is negative and significant, but its magnitude is smaller than in the northern European countries. As female labor force participation rates in most of these countries are higher than in southern European countries, I would not expect a 'floor effect' to emerged as clearly as in the latter; however, the participation rates and fertility rates are not high enough to generate the large fall in earnings that is associated with motherhood in the Scandinavian group. One exception to this argument could be the Netherlands, which has fertility rates and female labor force participation rates high enough to justify a greater motherhood penalty than the one it actually displays.

Another important point to make regards the nature of the negative effect of childbirth: its effect is indeed negative, but it is also *event-specific*. The short duration of the EU-SILC panel does not allow me to empirically investigate whether the negative effect of childbirth is permanent or temporary. Labor market characteristics are likely to be critical in this instance: countries with rigid labor markets, such as Italy, can make it difficult for women to re-enter the work force if they drop out in the event of a childbirth. This could imply long lasting negative effects of childbirth on earnings. However, the rigidity of the labor market is probably what keeps women with earnings from dropping out in the first place, hence the small negative effect we find in the analyses. This could indicate that there are large within-gender insider-outsider[8] differences in the effect of a childbirth on earnings. Flexibility in labor market legislation or availability of family friendly jobs, on the contrary, can make it easier for women to exit and re-enter the work force around childbirth, but the risks of having lost work experience and the depreciation of human capital might be costly in terms of earnings on the

[8] The insider-outsider debate is of particular relevance in the southern European group, where there are large differences in access to benefits (family benefits, unemployment benefits, pensions etc.) between employees holding permanent or fixed term contracts. A different issue that could be investigated regards the difference between employees and self-employed, in particular for professionals with high earnings who have the most to loose if they stay out of work.

long run.

Thus, to conclude, the findings in the chapter point to the fact that in all the considered European countries women contribute to their household income less than men, and that certain individual characteristics are strong predictors of relative earnings regardless of institutional characteristics. The effect of a childbirth, instead, is strongly mediated by contextual circumstances, and the results suggest that the birth of a child is strongly related to a reduction in relative earnings in the social democracies. The higher levels of female labor force participation, of fertility rates and the higher gender gap in earnings that can be found in these countries are likely to be the driving forces behind this form of within-household inequality.

6

Chapter Six
Discussion and conclusion

It is an obvious and incontrovertible fact that women and men in contemporary societies take on different roles and behave differently. Why this should be the case is the object of a very longstanding debate, which sees two main, and opposing, positions. There are some scholars who argue that the large differences between women and men can be traced down to their DNA. The opposing position, instead, points to socialization as the main mechanism in determining the differences in women and men's behavior. In the first case, the differences are intrinsic and immutable, while in the second case they are externally imposed and modifiable. Currently, research seems to be finding the truth somewhere in between. In a recent and discussed article, Catherine Hakim comments:

> Sex differentials that were once regarded as universal and innate [such as differences in maths ability, or in overall intelligence quotient (IQ)] have been found to be socially constructed, and virtually eliminated. However, recent reviews (Swim 1994, Eagly 1995, Hyde 1996, pp. 114, 2005, Campbell 2002, Pinker 2002) find that two sex differentials remain unchanged. They appear to be unvarying across time and across cultures: men are substantially more aggressive than women, and they have fundamentally different attitudes to sexuality" (Hakim 2010, p. 506).

Adding on to this debate is beyond the scope of this dissertation. However, it is a useful starting point from which to draw some conclusions. Historically speaking, the 'genetically determined roles' explanation seems to fit well with the fact that societies have associated authority and leadership with males in the vast majority of cases. This is changing in contemporary democracies, as more women are taking active part in the public sphere, both via labor market participation and political activity. Evidence of this is the growing number of women head of government or head of state in European countries. Further, as I have shown in the introduction, women and men in many European countries now reach similar levels of education and earnings, and compete in a much wider field of occupations than in the past. Thus, while there is no way to rule out either position, there is evidence of the fact that over time women and men's standing in societies has become more similar. However, the differences between mothers and fathers seem to be taking longer to converge.

The narrowing of the differences between women and men, mothers and fathers, does not have the same pace everywhere. This suggests that the institutional setting can have large repercussions on the degree of gender (in)equality. In particular, in this work I suggest that among the contextual features individuals are embedded in, welfare states, even if they do not explicitly address the issue of gender equality, are bound to have a very large impact in shaping the behavior of women and men, mothers and fathers.

In this work, I argue that to address gender (in)equality it is not sufficient to look at the differences between women and men *in general*, but it is crucial to focus on what happens at the household level, i.e. at the differences between partners. If the household is where gender differences are produced in the first place, as theories of socialization suggest, then the household is the starting point to reverse the process. I have taken a comparative approach to address gender differences in three areas: participation in the labor market, allocation of time to domestic work, and earning capacity.

Why do I consider these three areas? As I have argued in the introduction, even in the most decommodified country having adequate economic resources is necessary for an individual to achieve independence. Thus, being able to participate in the labor market is the first condition for individual's freedom and is the first to receive attention in this study. Inequality in the labor market and inequality in domestic work are intrinsically linked (Hook 2010). Hence, the second element to study is necessarily the time devoted to domestic chores by women and men. Clearly, as long as women are attributed the role of primary homemakers by the surrounding context and as long as they view themselves as such, it will be difficult for them to be engaged in paid work as fully as men. If they cannot fully participate in the labor market due to their commitment to the domestic sphere, then we are back to square one in an ongoing cycle of inequality. The last domain is inequality in earnings, which is obviously related to the first two. In fact, women may chose to work shorter hours or to be in low paid jobs because their responsibilities at home do not allow them to fully embrace the role of primary breadwinner or to invest in a career. This will inevitably lead them to have lower earnings than their partners. If women's earnings are systematically lower than their partner's or if they are hampered by the birth and presence of children, their bargaining power is strongly reduced. This, in turn, can result in women doing more domestic chores. Having access to earnings, on the contrary, can be thought of as a *loophole* in the cycle. In fact, having control over economic resources can allow women to more effectively bargain a more equitable division of chores, or alternatively, to outsource domestic chores (Treas and Ruijter 2008). Figures 6.1 and 6.2 provide a graphical representation of the cycles outlined above. Note that the arrows are used to represent associations and not causal relations. Figure 6.1 shows how the three areas for women are interrelated in the case of within-couple gender inequality. Domestic chores and employment are mutually related as Hook points out; employment affects earnings which in turn are related to domestic chores because lower earnings are associated with less bargaining power (Schober 2013). Figure 6.2, instead, shows a scenario where the cycle is interrupted. The key feature here is that domestic chores are not directly associated with employment nor with earnings. It is quite easy to see that this is the situation men have traditionally faced in the male breadwinner model: in such a scenario, men are not expected to accommodate their work life around their household needs, thus their effort and time are completely devoted to employment. This leads them to have control over economic resources (i.e. earnings) and ultimately to greater bargaining power vis a vis their partner. In case of gender equality within the household, however, we would expect this pattern for both partners, i.e. we expect both partners to be employed, to have a certain amount of income, and to use their economic resources to deal with housework, via bargaining, outsourcing or both.

My research strategy to investigate gender differences in the domains of paid work, domestic chores and earnings moved as follows. First of all, I have considered to what extent women and men's behavior differs in the three areas, and what individual and household traits are related to women and men's behavior. Second of all, I have asked whether, and to what extent, the presence of children or the birth of a child contribute to men and women

Figure 6.1 – Cycle of within-couple inequality in employment, domestic chores and earnings

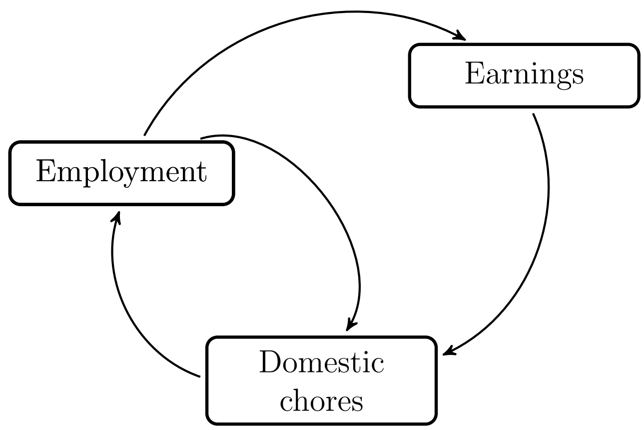
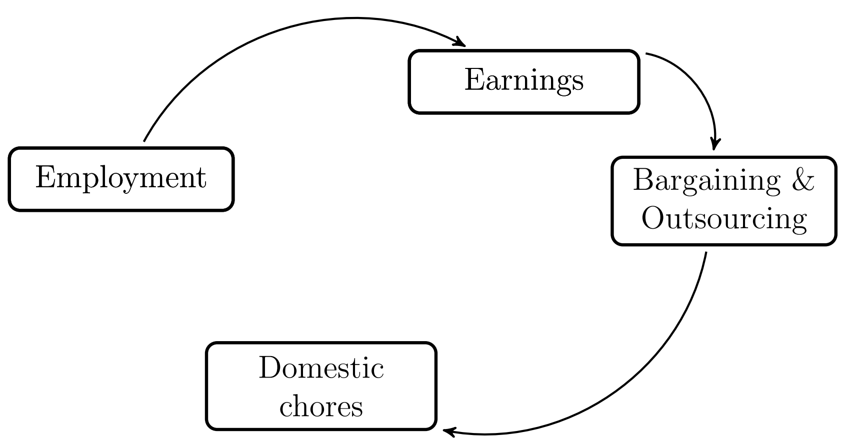


Figure 6.2 – State of within-couple equality in employment, domestic chores and earnings



behaving differently in each of the domains. By comparing the results of men and women living in different countries, I have been able to investigate whether the gender differences in behavior were attributable to individual characteristics only or could be attributed to the different institutional setting.

Guided by the capitalist welfare regime typology, my main macro-level hypothesis regarded the (in)effectiveness of the welfare state in reducing gender inequalities. In general, the link between individual behavior and contextual circumstances is not straightforward to pinpoint. Therefore, a note of caution in interpreting the results in the light of the capitalist welfare regime typology is required. Many other factors, not accounted for in the analyses, may very well be at play. However, the equalizing effect of the social democratic regime beyond individual characteristics in a variety of circumstances is a consolidated finding. Thus, it seems plausible to hypothesize that the overall equalizing aims of such regime address gender inequalities to a larger extent that the conservative or liberal practices of the other welfare regimes.

According to my hypothesis, in the social democratic countries women and men, mothers and fathers, were expected to behave similarly in the three considered areas because the welfare state supports equality at the highest standards on a universalistic basis. In other words, by promoting opportunities for everyone, the social democratic countries reach the highest levels of gender equality. Instead, the non-interventionism of the liberal welfare state or the explicit up-hold of the traditional division of work within households in the conservative and southern European countries were expected to yield a stronger degree of within-household inequality. The findings of each analysis support this idea. The first empirical chapter highlighted that, in Norway, women and men's probabilities of being in paid labor and having children were closer than in any other country. In the second empirical chapter, it was shown that the division of domestic chores is much more gender-egalitarian in the countries belonging to the social democratic welfare regime than elsewhere; finally, the results from the last chapter brought evidence to the notion that partners in northern European countries contribute to a similar extent to the household economic welfare. The behavior of women and men, mothers and fathers, in the considered domains – paid work, unpaid work and relative earning capacity – in the other countries is far from being so similar.

However, even in the social democratic regime, gender differences are far from dissolved. The second empirical chapter in fact revealed that the presence of children yields a greater share of housework for women but not for men regardless of country of residence. This suggests that the equalizing effect of the northern European countries reaches women and men but not mothers and fathers, entailing a persistence of gender differences even in these countries. Furthermore, although within household earnings are among the most equal in northern Europe, they are still not full equal and, most importantly, the birth of a child entails a reduction of the mother's share of earnings that is larger than in any other group of countries. Thus, even if the reduction is event-specific, it still entails gender inequality.

Indeed, in all countries, the presence of children is associated with a greater gender inequality in the probability of participating in the labor market, in the division of domestic chores, and in earning capacity. This does not mean that children cause inequality. However, the differences between mothers and childless women suggest that, when speaking of gender inequalities, we must look not only at between gender but also at within gender difference.

To conclude, the social democratic welfare states seem to be the ones where gender equality, though not fully present, is at least in reach. What lies behind the high gender equality in the social democratic regime? I argue that the propelling force behind gender equality is the strong effort of the welfare state in promoting female and especially maternal employment. In capitalistic societies, labor market participation is the key to independence and well being. The economic crisis that over the last few years has been scourging European countries and the consequent sky-high levels of unemployment, especially among the younger cohorts, has rendered crystal clear how employment is essential to well being. As long as women take on the role of secondary earners or of housewives – be it for lack of child care services, for earnings disparity, or for cultural resistance – one member of the couple will be 'less equal than the other'. I am not arguing that equality comes from doing the same things. However, being out of the labor market or being the ancillary earner increase the risk of being in poverty and/or of being economically dependent, both of which imply within-household inequality. In this sense, the liberal welfare regime takes a step in the direction of gender equality, as labor market participation is the primary source of welfare for anyone living in this group of countries. However, it also takes three steps back because it generates a large stratification by class. Continental and southern European countries, instead, fail even to take that one step forward and are stuck in a gender unequal traditionalism. The social democratic regime seems to have reached the aim because female labor force participation is encouraged and the universalistic nature of the welfare state guarantees social rights of citizenship regardless of gender.

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Appendix A

Appendix to chapter three

In tables A.1 and A.2 chi-squared and p-values for the Small-Hsiao[1] IIA tests are reported. The tests show that in all cases the assumption of independence of irrelevant alternatives is not violated, i.e. that the choice between two alternative outcomes is unaffected by what other choices are available.

[1]The tests are computed using the mlogtest command in Stata (Long and Freese 2005).

Table A.1 – Small-Hsiao tests of IIA assumption for women in four countries

Ho: Odds(Outcome-J vs Outcome-K) are independent of other alternatives.

Education equation					
	Omitted	Chi^2	d.f.	P> chi^2	Evidence
Germany N 5517	Working, one kid	40.457	45	0.665	for Ho
	Not working, two kids	54.638	45	0.154	for Ho
	Not working, one kid	48.452	45	0.335	for Ho
	Working childless	43.235	45	0.547	for Ho
Italy N 9001	Working, one kid	40.888	45	0.647	for Ho
	Not working, two kids	29.375	45	0.965	for Ho
	Not working, one kid	36.484	45	0.813	for Ho
	Working childless	45.874	45	0.436	for Ho
Norway N 2984	Working, one kid	45.210	45	0.463	for Ho
	Not working, two kids	41.244	45	0.632	for Ho
	Not working, one kid	48.110	45	0.348	for Ho
	Working childless	41.562	45	0.618	for Ho
United Kingdom N 3931	Working, one kid	43.819	45	0.522	for Ho
	Not working, two kids	47.060	45	0.388	for Ho
	Not working, one kid	41.879	45	0.605	for Ho
	Working childless	50.552	45	0.264	for Ho

Relative education equation					
	Omitted	Chi^2	d.f.	P> chi^2	Evidence
Germany N 5517	Working, one kid	39.669	45	0.697	for Ho
	Not working, two kids	41.541	45	0.619	for Ho
	Not working, one kid	35.244	45	0.851	for Ho
	Working childless	43.087	45	0.553	for Ho
Italy N 9001	Working, one kid	49.393	45	0.302	for Ho
	Not working, two kids	59.410	45	0.073	for Ho
	Not working, one kid	56.323	45	0.120	for Ho
	Working childless	51.035	45	0.248	for Ho
Norway N 2984	Working, one kid	45.313	45	0.459	for Ho
	Not working, two kids	53.204	45	0.188	for Ho
	Not working, one kid	44.950	45	0.474	for Ho
	Working childless	45.340	45	0.458	for Ho
United Kingdom N 3931	Working, one kid	51.613	45	0.231	for Ho
	Not working, two kids	45.058	45	0.470	for Ho
	Not working, one kid	43.042	45	0.555	for Ho
	Working childless	52.356	45	0.210	for Ho

Baseline: working, two or more children.

Table A.2 – Small-Hsiao tests of IIA assumption for men in four countries

Ho: Odds(Outcome-J vs Outcome-K) are independent of other alternatives.

Education equation

	Omitted	Chi^2	d.f.	P> chi^2	Evidence
Germany	Working, one kid	40.154	45	0.677	for Ho
N 5517	Not working, two kids	40.385	45	0.668	for Ho
	Not working, one kid	41.155	45	0.636	for Ho
	Working childless	43.364	45	0.541	for Ho
	Working, one kid	34.369	45	0.875	for Ho
Italy N 9001	Not working, two kids	45.203	45	0.463	for Ho
	Not working, one kid	37.194	45	0.789	for Ho
	Working childless	40.811	45	0.650	for Ho
			45		
Norway	Working, one kid	43.280	45	0.545	for Ho
N 2984	Not working, two kids	45.528	45	0.450	for Ho
	Not working, one kid	61.207	45	0.054	for Ho
	Working childless	52.964	45	0.194	for Ho
United Kingdom	Working, one kid	46.869	45	0.396	for Ho
N 3931	Not working, two kids	31.679	45	0.933	for Ho
	Not working, one kid	44.261	45	0.503	for Ho
	Working childless	36.598	45	0.810	for Ho

Relative education equation

	Omitted	Chi^2	d.f.	P> chi^2	Evidence
Germany	Working, one kid	59.572	45	0.072	for Ho
N 5517	Not working, two kids	38.759	45	0.732	for Ho
	Not working, one kid	50.156	45	0.276	for Ho
	Working childless	48.797	45	0.323	for Ho
Italy	Working, one kid	44.295	45	0.502	for Ho
N 9001	Not working, two kids	47.591	45	0.368	for Ho
	Not working, one kid	52.634	45	0.203	for Ho
	Working childless	39.797	45	0.691	for Ho
Norway	Working, one kid	29.288	45	0.966	for Ho
N 2984	Not working, two kids	41.141	45	0.636	for Ho
	Not working, one kid	36.492	45	0.813	for Ho
	Working childless	44.253	45	0.503	for Ho
United Kingdom	Working, one kid	42.770	45	0.567	for Ho
N 3931	Not working, two kids	45.708	45	0.443	for Ho
	Not working, one kid	54.678	45	0.153	for Ho
	Working childless	63.191	45	0.038	for Ho

Baseline: working, two or more children.

Table A.3 – Model one: multinomial logistic regression results by gender for Germany. Dependent variable: combination of work and parenthood. (Unstandardized coefficients, standard errors in parenthesis)

	Women				Men			
	Work one child	Not work 2+ children	Not work one child	Work no children	Work one child	Not work 2+ children	Not work one child	Work no children
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Age	-0.847***	-0.563***	-1.199***	-1.684***	-0.619***	-0.715***	-0.911***	-1.108***
	(0.126)	(0.122)	(0.134)	(0.129)	(0.057)	(0.083)	(0.084)	(0.068)
Age Square	0.010***	0.006***	0.014***	0.021***	0.007***	0.009***	0.011***	0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Married vs. cohabitating	-0.986***	0.310	-0.974***	-2.279***	-1.006***	-0.483	-1.539***	-2.215***
	(0.166)	(0.209)	(0.192)	(0.158)	(0.143)	(0.305)	(0.260)	(0.149)
Household wealth - r.c. <=25p								
25p-50p	-0.352**	0.626***	0.278	-1.217***	0.032	0.987	1.605*	-0.311*
	(0.122)	(0.119)	(0.172)	(0.136)	(0.099)	(0.548)	(0.797)	(0.129)
50p-75p	-0.685***	1.129***	0.546**	-2.161***	-0.092	2.216***	3.154***	-0.708***
	(0.135)	(0.130)	(0.186)	(0.165)	(0.105)	(0.497)	(0.741)	(0.152)
>75p	-0.976***	1.823***	1.098***	-2.742***	-0.136	4.308***	4.755***	-0.589**
	(0.158)	(0.144)	(0.201)	(0.201)	(0.116)	(0.479)	(0.735)	(0.179)
Partner's earned income - r.c. <=25p								
25p-50p	-0.381**	0.360**	-0.014	-0.160	0.252*	0.677**	0.425	1.992***
	(0.122)	(0.120)	(0.156)	(0.152)	(0.099)	(0.209)	(0.260)	(0.317)
50p-75p	-0.544***	0.954***	0.365*	-0.673***	0.771***	1.166***	1.288***	3.092***
	(0.133)	(0.129)	(0.172)	(0.167)	(0.099)	(0.234)	(0.268)	(0.309)
>75p	-1.040***	1.644***	0.717***	-1.308***	1.169***	2.499***	2.565***	4.834***
	(0.158)	(0.146)	(0.200)	(0.187)	(0.114)	(0.265)	(0.305)	(0.312)
Own education - r.c. low education								
Medium ed.	0.006	-0.754***	-0.487*	0.150	0.384	-0.695**	-0.534	-0.112
	(0.215)	(0.166)	(0.223)	(0.274)	(0.206)	(0.255)	(0.307)	(0.276)
High ed.	-0.225	-1.251***	-0.928***	0.039	0.296	-1.106***	-1.346***	-0.089
	(0.223)	(0.176)	(0.238)	(0.282)	(0.211)	(0.285)	(0.349)	(0.281)
Partner's education - r.c. low education								
Medium ed. part.	0.529*	0.217	0.331	0.004	-0.102	-0.806***	-0.177	-0.527*
	(0.234)	(0.192)	(0.262)	(0.272)	(0.161)	(0.244)	(0.334)	(0.263)
High ed. part.	0.385	0.303	0.477	0.120	-0.394*	-0.825**	-0.234	-1.043***
	(0.242)	(0.199)	(0.272)	(0.279)	(0.172)	(0.278)	(0.367)	(0.275)
Year	0.003	-0.289***	-0.229***	0.149**	0.056	-0.197*	-0.121	0.318***
	(0.042)	(0.038)	(0.052)	(0.050)	(0.035)	(0.077)	(0.090)	(0.051)
Constant	12.601	591.007***	483.743***	-263.428**	-98.457	404.616**	255.513	-614.938***
	(83.462)	(75.686)	(105.098)	(100.378)	(69.822)	(155.200)	(181.575)	(101.481)
Chi^2		2417.17				2965.342		
p		0.000				0.000		
N		5517				5517		

Dependent variable reference category: working, two or more children.
*p<0.05, **p<0.01, ***p<0.001. Two-tailed.

Table A.4 – Model two: multinomial logistic regression results by gender for Germany. Dependent variable: combination of work and parenthood. (Unstandardized coefficients, standard errors in parenthesis)

	Women				Men			
	Work one child	Not work 2+ children	Not work one child	Work no children	Work one child	Not work 2+ children	Not work one child	Work no children
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Age	-0.846***	-0.574***	-1.206***	-1.682***	-0.621***	-0.718***	-0.911***	-1.120***
	(0.126)	(0.122)	(0.134)	(0.129)	(0.057)	(0.083)	(0.084)	(0.068)
Age Square	0.010***	0.006***	0.014***	0.021***	0.007***	0.009***	0.011***	0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Married vs. cohabitating	-0.988***	0.322	-0.975***	-2.277***	-1.014***	-0.469	-1.542***	-2.215***
	(0.166)	(0.209)	(0.192)	(0.158)	(0.143)	(0.306)	(0.261)	(0.149)
Household wealth - r.c. <=25p								
25p-50p	-0.355**	0.633***	0.278	-1.216***	0.030	0.978	1.583*	-0.305*
	(0.122)	(0.119)	(0.172)	(0.136)	(0.099)	(0.547)	(0.797)	(0.129)
50p-75p	-0.692***	1.141***	0.550**	-2.163***	-0.090	2.221***	3.147***	-0.687***
	(0.135)	(0.130)	(0.186)	(0.166)	(0.104)	(0.496)	(0.741)	(0.151)
>75p	-0.986***	1.838***	1.107***	-2.733***	-0.130	4.351***	4.770***	-0.544**
	(0.158)	(0.144)	(0.201)	(0.200)	(0.116)	(0.478)	(0.735)	(0.178)
Partner's earned income - r.c. <=25p								
25p-50p	-0.372**	0.383**	0.001	-0.162	0.247*	0.665**	0.413	1.979***
	(0.122)	(0.120)	(0.156)	(0.152)	(0.099)	(0.208)	(0.259)	(0.316)
50p-75p	-0.544***	0.926***	0.365*	-0.683***	0.764***	1.114***	1.248***	3.041***
	(0.133)	(0.129)	(0.172)	(0.167)	(0.099)	(0.232)	(0.267)	(0.306)
>75p	-1.042***	1.597***	0.717***	-1.317***	1.167***	2.465***	2.535***	4.782***
	(0.158)	(0.145)	(0.200)	(0.186)	(0.114)	(0.263)	(0.304)	(0.309)
Partner's relative education - r.c. both low education								
Both medium ed	0.779	-0.435	0.205	1.069	0.654	-1.467***	-0.833	0.507
	(0.417)	(0.288)	(0.425)	(0.588)	(0.369)	(0.361)	(0.454)	(0.629)
Both high ed	0.395	-0.822**	-0.131	1.074	0.242	-2.111***	-1.892***	0.035
	(0.423)	(0.294)	(0.436)	(0.593)	(0.374)	(0.409)	(0.521)	(0.632)
Respondent higher	0.559	-0.780**	-0.081	0.997	0.624	-1.237***	-1.191*	0.709
	(0.425)	(0.299)	(0.439)	(0.596)	(0.372)	(0.368)	(0.480)	(0.632)
Respondent lower	0.690	-0.119	0.475	1.210*	0.445	-0.943*	-0.406	0.192
	(0.422)	(0.291)	(0.430)	(0.593)	(0.378)	(0.376)	(0.470)	(0.637)
Year	0.004	-0.286***	-0.226***	0.149**	0.059	-0.188*	-0.114	0.318***
	(0.042)	(0.038)	(0.052)	(0.050)	(0.035)	(0.077)	(0.091)	(0.051)
Constant	8.806	585.460***	477.010***	-263.641**	-104.548	385.706*	242.166	-617.045***
	(83.470)	(75.619)	(105.092)	(100.401)	(69.827)	(155.203)	(181.900)	(101.510)
Chi^2	2406.999				2967.707			
p	0.000				0.000			
N	5517				5517			

Dependent variable reference category: working, two or more children.
*p<0.05, **p<0.01, ***p<0.001

Table A.5 – Model one: multinomial logistic regression results by gender for Italy. Dependent variable: combination of work and parenthood. (Unstandardized coefficients, standard errors in parenthesis)

	Women				Men			
	Work one child	Not work 2+ children	Not work one child	Work no children	Work one child	Not work 2+ children	Not work one child	Work no children
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Age	-0.499***	-0.514***	-0.774***	-0.770***	-0.422***	-0.397***	-0.910***	-0.874***
	(0.094)	(0.090)	(0.096)	(0.099)	(0.045)	(0.073)	(0.070)	(0.055)
Age Square	0.005***	0.006***	0.008***	0.008***	0.004***	0.005***	0.010***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Married vs. cohabitating	-0.504**	0.451*	-0.427*	-1.948***	-0.637***	0.054	-1.006***	-1.963***
	(0.157)	(0.184)	(0.176)	(0.142)	(0.126)	(0.322)	(0.277)	(0.129)
Household wealth - r.c. <=25p								
25p-50p	-0.257*	0.273	0.581**	-0.452**	-0.001	0.085	0.722	-0.140
	(0.123)	(0.144)	(0.190)	(0.142)	(0.106)	(0.376)	(0.610)	(0.135)
50p-75p	-0.404**	1.047***	1.044***	-0.889***	-0.117	0.822*	1.723**	-0.443**
	(0.135)	(0.139)	(0.188)	(0.164)	(0.108)	(0.326)	(0.553)	(0.158)
>75p	-0.590***	1.596***	1.208***	-1.395***	-0.409***	1.491***	2.084***	-0.939***
	(0.148)	(0.140)	(0.193)	(0.196)	(0.114)	(0.307)	(0.542)	(0.188)
Partner's earned income - r.c. <=25p								
25p-50p	-0.019	-0.004	0.097	0.071	0.193**	-0.017	0.224	2.781***
	(0.098)	(0.088)	(0.106)	(0.110)	(0.074)	(0.138)	(0.206)	(0.264)
50p-75p	-0.042	0.194*	0.082	-0.275*	0.594***	-0.022	0.527*	3.853***
	(0.098)	(0.089)	(0.110)	(0.115)	(0.073)	(0.159)	(0.212)	(0.257)
>75p	-0.267*	0.392***	0.013	-0.645***	0.507***	0.440**	0.557*	3.652***
	(0.104)	(0.094)	(0.120)	(0.125)	(0.078)	(0.162)	(0.241)	(0.261)
Own education - r.c. low education								
Medium ed.	0.238**	-0.940***	-0.690***	0.148	0.116*	-0.662***	-0.387*	0.279**
	(0.081)	(0.068)	(0.085)	(0.099)	(0.058)	(0.126)	(0.173)	(0.088)
High ed.	0.216	-1.893***	-1.289***	0.644***	-0.012	-0.947***	-0.657	0.015
	(0.114)	(0.131)	(0.152)	(0.129)	(0.095)	(0.259)	(0.337)	(0.132)
Partner's education - r.c. low education								
Medium ed. part.	0.141	-0.245***	0.023	0.433***	0.208***	-0.441***	-0.034	0.223*
	(0.076)	(0.068)	(0.085)	(0.092)	(0.061)	(0.124)	(0.175)	(0.097)
High ed. part.	-0.087	-0.390**	0.136	0.264	0.171	-0.357	0.271	0.741***
	(0.119)	(0.121)	(0.146)	(0.139)	(0.098)	(0.244)	(0.296)	(0.129)
Year	0.155**	-0.424***	-0.468***	0.246***	0.028	-0.584***	-0.860***	0.085
	(0.048)	(0.057)	(0.081)	(0.056)	(0.042)	(0.144)	(0.259)	(0.053)
Constant	-298.397**	860.036***	955.951***	-475.736***	-46.378	1177.490***	1741.501***	-152.570
	(97.123)	(114.987)	(161.720)	(112.315)	(84.271)	(287.834)	(520.153)	(106.054)
Chi^2	3188.889				2883.359			
p	0.000				0.000			
N	9001				9001			

Dependent variable reference category: working, two or more children.
*p<0.05, **p<0.01, ***p<0.001. Two-tail.

Table A.6 – Model two: multinomial logistic regression results by gender for Italy. Dependent variable: combination of work and parenthood. (Unstandardized coefficients, standard errors in parenthesis)

	Women				Men			
	Work one child	Not work 2+ children	Not work one child	Work no children	Work one child	Not work 2+ children	Not work one child	Work no children
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Age	-0.501***	-0.534***	-0.785***	-0.760***	-0.423***	-0.394***	-0.910***	-0.868***
	(0.094)	(0.090)	(0.096)	(0.099)	(0.045)	(0.073)	(0.070)	(0.055)
Age Square	0.005***	0.006***	0.009***	0.008***	0.004***	0.005***	0.010***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Married vs. cohabitating	-0.501**	0.457*	-0.426*	-1.926***	-0.636***	0.049	-1.013***	-1.949***
	(0.157)	(0.183)	(0.176)	(0.142)	(0.126)	(0.322)	(0.278)	(0.129)
Household wealth - r.c. <=25p								
25p-50p	-0.260*	0.351*	0.612**	-0.450**	-0.009	0.121	0.730	-0.145
	(0.123)	(0.143)	(0.190)	(0.142)	(0.105)	(0.376)	(0.610)	(0.135)
50p-75p	-0.407**	1.141***	1.087***	-0.916***	-0.126	0.860**	1.735**	-0.467**
	(0.134)	(0.138)	(0.187)	(0.163)	(0.108)	(0.325)	(0.553)	(0.157)
>75p	-0.599***	1.679***	1.248***	-1.436***	-0.417***	1.527***	2.093***	-0.966***
	(0.148)	(0.140)	(0.193)	(0.196)	(0.114)	(0.307)	(0.542)	(0.188)
Partner's earned income - r.c. <=25p								
25p-50p	-0.021	0.003	0.098	0.066	0.195**	-0.019	0.225	2.779***
	(0.098)	(0.088)	(0.106)	(0.110)	(0.074)	(0.138)	(0.206)	(0.263)
50p-75p	-0.043	0.179*	0.073	-0.256*	0.598***	-0.024	0.525*	3.840***
	(0.098)	(0.089)	(0.110)	(0.114)	(0.072)	(0.159)	(0.211)	(0.257)
>75p	-0.280**	0.294**	-0.036	-0.621***	0.520***	0.415**	0.548*	3.693***
	(0.103)	(0.093)	(0.119)	(0.123)	(0.077)	(0.160)	(0.238)	(0.260)
Partner's relative education - r.c. both low education								
Both medium ed	0.408***	-1.155***	-0.627***	0.645***	0.324***	-1.028***	-0.367	0.535***
	(0.100)	(0.084)	(0.104)	(0.125)	(0.073)	(0.157)	(0.212)	(0.121)
Both high ed	0.190	-2.286***	-1.198***	1.006***	0.126	-1.574***	-0.470	0.776***
	(0.145)	(0.181)	(0.199)	(0.167)	(0.121)	(0.377)	(0.419)	(0.161)
Respondent higher	0.361***	-1.110***	-0.794***	0.719***	0.184*	-1.053***	-0.552*	0.443**
	(0.102)	(0.086)	(0.110)	(0.126)	(0.082)	(0.173)	(0.255)	(0.138)
Respondent lower	0.274*	-0.413***	-0.060	0.712***	0.259***	-0.691***	-0.063	0.665***
	(0.118)	(0.092)	(0.116)	(0.144)	(0.077)	(0.147)	(0.203)	(0.123)
Year	0.157**	-0.459***	-0.484***	0.258***	0.032	-0.600***	-0.865***	0.096
	(0.048)	(0.057)	(0.081)	(0.056)	(0.042)	(0.143)	(0.259)	(0.053)
Constant	-302.877**	931.780***	988.634***	-500.278***	-53.718	1208.988***	1751.989***	-175.691
	(96.910)	(114.201)	(161.453)	(111.896)	(84.012)	(287.366)	(519.778)	(105.675)
Chi^2	3015.916				2865.704			
p	0.000				0.000			
N	9001				9001			

Dependent variable reference category: working, two or more children.
*p<0.05, **p<0.01, ***p<0.001

Table A.7 – Model one: multinomial logistic regression results by gender for Norway. Dependent variable: combination of work and parenthood. (Unstandardized coefficients, standard errors in parenthesis)

	Women				Men			
	Work one child	Not work 2+ children	Not work one child	Work no children	Work one child	Not work 2+ children	Not work one child	Work no children
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
	Women				Men			
Age	-0.770***	-0.341*	-1.289***	-1.590***	-0.768***	-0.119	-0.886***	-1.157***
	(0.124)	(0.141)	(0.172)	(0.125)	(0.068)	(0.174)	(0.149)	(0.073)
Age Square	0.009***	0.004	0.017***	0.021***	0.009***	0.002	0.011***	0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Married vs. cohabitating	-0.879***	0.236	-0.412	-1.809***	-0.862***	0.056	-0.925	-1.973***
	(0.132)	(0.172)	(0.261)	(0.141)	(0.123)	(0.326)	(0.474)	(0.140)
Household wealth - r.c. <=25p								
25p-50p	-0.144	0.800***	0.690	-0.566**	-0.106	0.377	13.824	-0.143
	(0.177)	(0.214)	(0.435)	(0.194)	(0.150)	(0.553)	(876.682)	(0.176)
50p-75p	-0.251	1.523***	1.093*	-1.172***	-0.104	1.785***	14.756	-0.075
	(0.209)	(0.239)	(0.478)	(0.237)	(0.162)	(0.491)	(876.682)	(0.197)
>75p	-0.717**	2.250***	2.330***	-1.401***	-0.200	2.994***	16.092	0.220
	(0.257)	(0.251)	(0.475)	(0.286)	(0.190)	(0.485)	(876.682)	(0.233)
Partner's earned income - r.c. <=25p								
25p-50p	-0.079	-0.129	0.069	-0.451*	0.247	0.007	0.873	1.265***
	(0.182)	(0.193)	(0.302)	(0.202)	(0.157)	(0.335)	(0.501)	(0.244)
50p-75p	-0.359	0.608**	0.359	-0.546*	0.305	0.548	-0.283	2.210***
	(0.206)	(0.198)	(0.351)	(0.227)	(0.166)	(0.346)	(0.857)	(0.250)
>75p	-0.375	1.302***	0.915*	-1.060***	0.177	1.119**	-0.221	2.731***
	(0.239)	(0.237)	(0.431)	(0.267)	(0.182)	(0.393)	(1.150)	(0.264)
Own education - r.c. low education								
Medium ed.	-0.262	-0.931***	-0.978**	-0.287	-0.505**	-0.487	0.842	-0.554*
	(0.220)	(0.183)	(0.305)	(0.248)	(0.182)	(0.317)	(1.058)	(0.236)
High ed.	0.029	-1.412***	-1.552***	0.174	-0.356	-1.192**	0.321	-0.342
	(0.226)	(0.214)	(0.379)	(0.256)	(0.201)	(0.437)	(1.191)	(0.255)
Partner's education - r.c. low education								
Medium ed. part.	-0.228	-0.317	-1.103***	-0.559*	-0.226	-0.477	-1.288*	-0.414
	(0.209)	(0.195)	(0.312)	(0.235)	(0.188)	(0.347)	(0.608)	(0.239)
High ed. part.	-0.166	-0.514*	-0.614	-0.306	0.001	-0.209	-0.344	-0.255
	(0.227)	(0.232)	(0.366)	(0.252)	(0.200)	(0.397)	(0.662)	(0.250)
Year	0.013	-0.334***	-0.471***	-0.088	0.002	-0.311*	-0.559*	-0.024
	(0.060)	(0.067)	(0.123)	(0.067)	(0.056)	(0.127)	(0.257)	(0.068)
Constant	-9.819	674.627***	966.947***	208.002	10.831	621.433*	1119.296	70.141
	(119.590)	(134.546)	(245.894)	(134.084)	(111.750)	(253.767)	(1017.337)	(135.494)
Chi^2		1335.364				1271.005		
p		0.000				0.000		
N		2984				2984		

Dependent variable reference category: working, two or more children.
*p<0.05, **p<0.01, ***p<0.001. Two-tail.

Table A.8 – Model two: multinomial logistic regression results by gender for Norway. Dependent variable: combination of work and parenthood. (Unstandardized coefficients, standard errors in parenthesis)

	Women				Men			
	Work one child	Not work 2+ children	Not work one child	Work no children	Work one child	Not work 2+ children	Not work one child	Work no children
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Age	-0.767***	-0.359*	-1.331***	-1.585***	-0.765***	-0.116	-0.911***	-1.154***
	(0.124)	(0.140)	(0.171)	(0.125)	(0.068)	(0.173)	(0.151)	(0.073)
Age Square	0.009***	0.004*	0.017***	0.021***	0.009***	0.002	0.011***	0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Married vs. cohabitating	-0.882***	0.243	-0.413	-1.811***	-0.865***	0.051	-0.902	-1.977***
	(0.132)	(0.171)	(0.259)	(0.141)	(0.123)	(0.325)	(0.485)	(0.140)
Household wealth - r.c. <=25p								
25p-50p	-0.140	0.856***	0.708	-0.556**	-0.107	0.424	12.995	-0.136
	(0.177)	(0.212)	(0.433)	(0.194)	(0.149)	(0.553)	(568.308)	(0.176)
50p-75p	-0.242	1.649***	1.221*	-1.146***	-0.087	1.866***	13.925	-0.052
	(0.208)	(0.237)	(0.474)	(0.236)	(0.161)	(0.491)	(568.308)	(0.197)
>75p	-0.722**	2.357***	2.427***	-1.413***	-0.208	3.058***	15.243	0.210
	(0.257)	(0.248)	(0.470)	(0.286)	(0.189)	(0.483)	(568.308)	(0.233)
Partner's earned income - r.c. <=25p								
25p-50p	-0.083	-0.151	0.077	-0.470*	0.245	-0.002	0.871	1.254***
	(0.182)	(0.192)	(0.301)	(0.202)	(0.157)	(0.334)	(0.500)	(0.243)
50p-75p	-0.368	0.602**	0.388	-0.566*	0.293	0.469	-0.236	2.183***
	(0.206)	(0.197)	(0.349)	(0.226)	(0.166)	(0.342)	(0.852)	(0.249)
>75p	-0.386	1.252***	0.949*	-1.076***	0.163	0.989**	-0.119	2.703***
	(0.239)	(0.235)	(0.429)	(0.267)	(0.182)	(0.381)	(1.142)	(0.262)
Partner's relative education - r.c. both low education								
Both medium ed	-0.757	-0.918*	-2.216***	-1.135*	-1.034**	-0.413	-1.304	-1.258**
	(0.458)	(0.373)	(0.497)	(0.485)	(0.354)	(0.658)	(1.129)	(0.462)
Both high ed	-0.375	-1.484***	-2.222***	-0.410	-0.639	-0.705	-1.195	-0.903
	(0.460)	(0.396)	(0.547)	(0.486)	(0.359)	(0.725)	(1.284)	(0.468)
Respondent higher	-0.417	-1.227**	-1.900***	-0.680	-0.790*	-0.335	-0.394	-1.075*
	(0.457)	(0.383)	(0.508)	(0.485)	(0.359)	(0.683)	(1.134)	(0.471)
Respondent lower	-0.599	-0.608	-1.376**	-1.046*	-0.626	-0.039	-0.437	-1.037*
	(0.465)	(0.380)	(0.494)	(0.494)	(0.355)	(0.664)	(1.143)	(0.465)
Year	0.014	-0.259***	-0.434***	-0.075	0.005	-0.251*	-0.534*	-0.005
	(0.059)	(0.064)	(0.119)	(0.066)	(0.055)	(0.123)	(0.251)	(0.067)
Constant	-12.195	524.213***	893.110***	181.581	6.678	500.180*	1071.419	33.477
	(118.033)	(129.040)	(238.177)	(132.303)	(110.272)	(245.882)	(759.661)	(133.728)
Chi^2	1300.391				1263.302			
p	0.000				0.000			
N	2984				2984			

Dependent variable reference category: working, two or more children.
*p<0.05, **p<0.01, ***p<0.001. Two-tail.

Table A.9 – Model one: multinomial logistic regression results by gender for the United Kingdom. Dependent variable: combination of work and parenthood. (Unstandardized coefficients, standard errors in parenthesis)

	Women				Men			
	Work one child	Not work 2+ children	Not work one child	Work no children	Work one child	Not work 2+ children	Not work one child	Work no children
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Age	-0.606***	-0.293**	-0.853***	-0.901***	-0.512***	-0.473***	-0.483***	-0.771***
	(0.102)	(0.105)	(0.124)	(0.099)	(0.050)	(0.073)	(0.098)	(0.055)
Age Square	0.007***	0.003	0.010***	0.011***	0.006***	0.006***	0.006***	0.009***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Married vs. cohabitating	-0.480***	0.065	-0.393*	-1.424***	-0.507***	-0.141	-0.789**	-1.435***
	(0.129)	(0.139)	(0.182)	(0.117)	(0.113)	(0.216)	(0.285)	(0.118)
Household wealth - r.c. <=25p								
25p-50p	0.099	0.341	0.789**	-0.496***	0.302*	0.399	-0.273	0.305*
	(0.152)	(0.179)	(0.273)	(0.143)	(0.125)	(0.776)	(1.232)	(0.132)
50p-75p	-0.301	1.150***	1.356***	-1.411***	0.097	1.354*	2.229**	0.225
	(0.180)	(0.207)	(0.319)	(0.174)	(0.137)	(0.690)	(0.824)	(0.153)
>75p	-0.740***	2.372***	2.218***	-3.013***	-0.122	3.872***	4.146***	-0.403*
	(0.219)	(0.228)	(0.345)	(0.236)	(0.153)	(0.645)	(0.801)	(0.203)
Partner's earned income - r.c. <=25p								
25p-50p	-0.153	-0.254	-0.150	-0.461**	0.330**	-0.378	-0.587	1.668***
	(0.161)	(0.153)	(0.219)	(0.162)	(0.125)	(0.210)	(0.338)	(0.271)
50p-75p	-0.359*	0.390*	0.310	-1.164***	0.750***	-0.097	0.235	3.571***
	(0.181)	(0.185)	(0.271)	(0.182)	(0.132)	(0.300)	(0.401)	(0.265)
>75p	-0.487*	1.539***	1.434***	-1.652***	0.738***	0.694	1.594**	4.218***
	(0.214)	(0.225)	(0.325)	(0.209)	(0.148)	(0.448)	(0.498)	(0.276)
Own education - r.c. low education								
Medium ed.	-0.178	-1.071***	-1.091***	-0.309	0.141	-0.434	-0.015	0.321
	(0.230)	(0.181)	(0.266)	(0.249)	(0.167)	(0.222)	(0.358)	(0.215)
High ed.	-0.103	-1.592***	-0.974***	-0.069	0.175	-0.973**	-0.340	0.420
	(0.242)	(0.206)	(0.290)	(0.258)	(0.182)	(0.322)	(0.453)	(0.228)
Partner's education - r.c. low education								
Medium ed. part.	0.146	0.180	0.398	0.506*	-0.130	-0.288	-0.489	-0.443
	(0.186)	(0.170)	(0.268)	(0.212)	(0.185)	(0.242)	(0.385)	(0.261)
High ed. part.	0.121	0.352	0.779**	0.722**	-0.019	-0.263	0.119	-0.478
	(0.205)	(0.195)	(0.296)	(0.227)	(0.200)	(0.324)	(0.453)	(0.273)
Year	0.001	-0.102*	-0.023	0.063	0.006	-0.103	-0.027	0.057
	(0.050)	(0.051)	(0.075)	(0.049)	(0.044)	(0.090)	(0.132)	(0.050)
Constant	10.222	210.530*	61.708	-106.092	-1.609	211.341	58.497	-100.096
	(99.697)	(102.098)	(151.245)	(98.999)	(88.657)	(181.328)	(264.048)	(100.539)
Chi^2	1842.585				2142.699			
p	0.000				0.000			
N	3931				3931			

Dependent variable reference category: working, two or more children.
*p<0.05, **p<0.01, ***p<0.001. Two-tail.

Table A.10 – Model two: multinomial logistic regression results by gender for the United Kingdom. Dependent variable: combination of work and parenthood. (Unstandardized coefficients, standard errors in parenthesis)

	Women				Men			
	Work one child	Not work 2+ children	Not work one child	Work no children	Work one child	Not work 2+ children	Not work one child	Work no children
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Age	-0.612***	-0.299**	-0.856***	-0.906***	-0.510***	-0.474***	-0.481***	-0.765***
	(0.102)	(0.105)	(0.124)	(0.099)	(0.050)	(0.073)	(0.099)	(0.055)
Age Square	0.007***	0.003	0.010***	0.011***	0.006***	0.006***	0.006***	0.008***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Married vs. cohabitating	-0.475***	0.080	-0.374*	-1.417***	-0.502***	-0.145	-0.792**	-1.430***
	(0.129)	(0.139)	(0.181)	(0.117)	(0.113)	(0.216)	(0.285)	(0.118)
Household wealth - r.c. <=25p								
25p-50p	0.084	0.350	0.779**	-0.516***	0.288*	0.439	-0.245	0.299*
	(0.152)	(0.179)	(0.273)	(0.143)	(0.125)	(0.775)	(1.232)	(0.131)
50p-75p	-0.320	1.174***	1.356***	-1.449***	0.071	1.414*	2.256**	0.216
	(0.179)	(0.207)	(0.319)	(0.174)	(0.136)	(0.689)	(0.823)	(0.152)
>75p	-0.773***	2.403***	2.202***	-3.093***	-0.159	3.950***	4.168***	-0.417*
	(0.218)	(0.227)	(0.343)	(0.235)	(0.151)	(0.642)	(0.799)	(0.202)
Partner's earned income - r.c. <=25p								
25p-50p	-0.153	-0.260	-0.138	-0.457**	0.326**	-0.387	-0.605	1.662***
	(0.161)	(0.153)	(0.219)	(0.161)	(0.125)	(0.210)	(0.337)	(0.271)
50p-75p	-0.348	0.371*	0.321	-1.150***	0.749***	-0.133	0.193	3.565***
	(0.181)	(0.184)	(0.270)	(0.181)	(0.132)	(0.297)	(0.398)	(0.264)
>75p	-0.468*	1.514***	1.427***	-1.659***	0.750***	0.615	1.590**	4.220***
	(0.214)	(0.223)	(0.325)	(0.209)	(0.149)	(0.442)	(0.489)	(0.276)
Partner's relative education - r.c. both low education								
Both medium ed	-0.147	-1.108***	-0.911*	-0.027	-0.140	-0.801**	-0.323	-0.337
	(0.324)	(0.236)	(0.354)	(0.357)	(0.259)	(0.277)	(0.496)	(0.373)
Both high ed	-0.184	-1.528***	-0.444	0.404	-0.054	-1.166**	-0.016	-0.295
	(0.337)	(0.263)	(0.374)	(0.365)	(0.271)	(0.398)	(0.575)	(0.382)
Respondent higher	-0.043	-1.492***	-1.093**	-0.045	-0.033	-1.077**	-0.126	-0.189
	(0.331)	(0.253)	(0.379)	(0.364)	(0.271)	(0.342)	(0.554)	(0.388)
Respondent lower	-0.011	-0.657**	-0.528	0.089	-0.010	-0.500	0.145	-0.427
	(0.340)	(0.252)	(0.380)	(0.373)	(0.268)	(0.305)	(0.520)	(0.381)
Year	0.005	-0.095	-0.038	0.055	0.008	-0.096	-0.030	0.057
	(0.050)	(0.051)	(0.076)	(0.049)	(0.044)	(0.091)	(0.133)	(0.050)
Constant	2.088	196.222	90.218	-89.346	-6.440	197.926	63.701	-100.113
	(100.020)	(102.717)	(152.166)	(99.140)	(89.023)	(182.105)	(265.659)	(100.887)
Chi^2	1834.119				2134.78			
p	0.000				0.000			
N	3931				3931			

Dependent variable reference category: working, two or more children.
*p<0.05, **p<0.01, ***p<0.001. Two-tail.

Appendix B

Appendix to chapter four

Figure B.1 – Cook's distance by country and gender. Cut-off point: .17. Cook's distances were calculated for all models. For parsimony, the following plots report Cook's distances for the two models including all individual, household and country-level predictors.

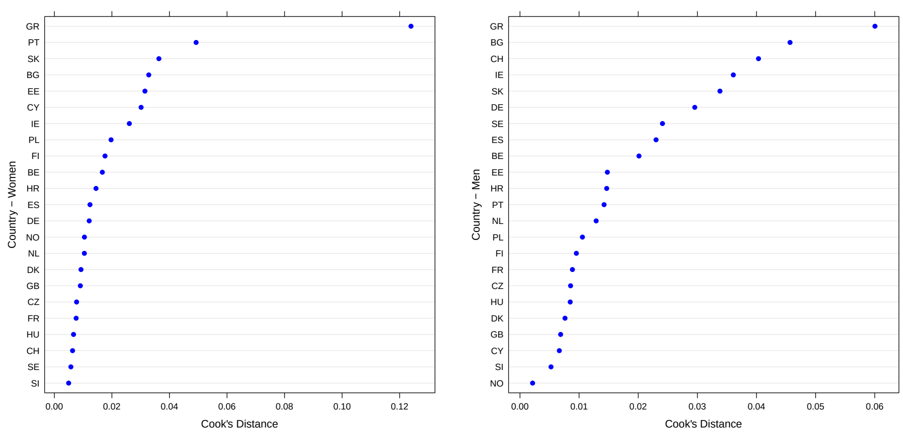

Table B.1 – Mean values of the gender equality item by country, gender and level of education

Country	Women			Men		
	Low	Medium	High	Low	Medium	High
BE	3.32	3.29	3.36	3.19	3.44	3.72
BG	2.46	2.92	3.11	2.27	2.71	3.14
CH	2.12	2.35	2.94	2.72	2.37	2.63
CY	1.8	2.04	2.76	1.95	2.14	2.62
CZ	2.5	2.76	3.02	1.95	2.55	2.83
DE	2.69	2.79	3.12	2.5	2.84	2.93
DK	3.58	3.82	3.94	3.75	3.77	3.88
EE	2.61	2.67	2.82	2.57	2.72	2.85
ES	2.66	3.09	3.12	2.43	2.98	3.08
FI	3.43	3.62	3.75	3.5	3.69	3.49
FR	2.57	2.86	3.21	2.67	2.96	3.4
GB	2.84	2.67	2.99	3.14	3.22	3.16
GR	2.28	2.48	2.81	2.25	2.39	2.47
HR	2.15	2.73	3.08	2.65	2.76	3.17
HU	2.46	2.67	2.68	1.97	2.5	2.47
IE	2.96	3.21	3.29	3.37	3.33	3.33
NL	3.21	3.59	3.69	3.25	3.6	3.69
NO	3.43	3.63	3.72	3.23	3.49	3.57
PL	2.31	2.4	2.9	2.45	2.58	3.08
PT	2.52	2.84	2.82	2.5	2.89	3.19
SE	3.19	3.62	3.95	3.6	3.68	3.96
SI	2.72	2.93	3.12	2.44	2.85	3.23
SK	2.22	2.82	3	2.71	2.66	3.1
Total	2.67	2.90	3.26	2.75	2.93	3.25

Table B.2 – Descriptive statistics by women's reported proportion of household income

Income provided by the respondent	Mean relative time on housework	Mean age	Married %	Mean N household members	Mean weekly household hours of housework
None	0.827	45	0.904	3.398	43
Very small	0.762	44	0.831	3.354	39
Under a half	0.7	45	0.83	3.184	33
About half	0.669	44	0.763	2.984	32
Over a half	0.625	46	0.759	2.925	28
Very large	0.639	44	0.774	3.162	32
All	0.682	44	0.857	3.167	42
Income provided by the respondent	**In employment %**	**Mean weekly hours employment**	**Partner in employment %**	**Mean gender equality**	**Presence of children %**
None	0.012	24.322	0.24	2.465	0.689
Very small	0.337	28.512	0.186	2.775	0.676
Under a half	0.68	34.248	0.179	3.013	0.618
About half	0.779	37.667	0.236	3.137	0.543
Over a half	0.821	38.324	0.366	3.326	0.525
Very large	0.811	39.428	0.455	3.249	0.62
All	0.741	33.171	0.55	2.777	0.614

Figure B.2 – Distribution of respondent's reported own time on housework vs. respondent's reported partner's time on housework by gender and country

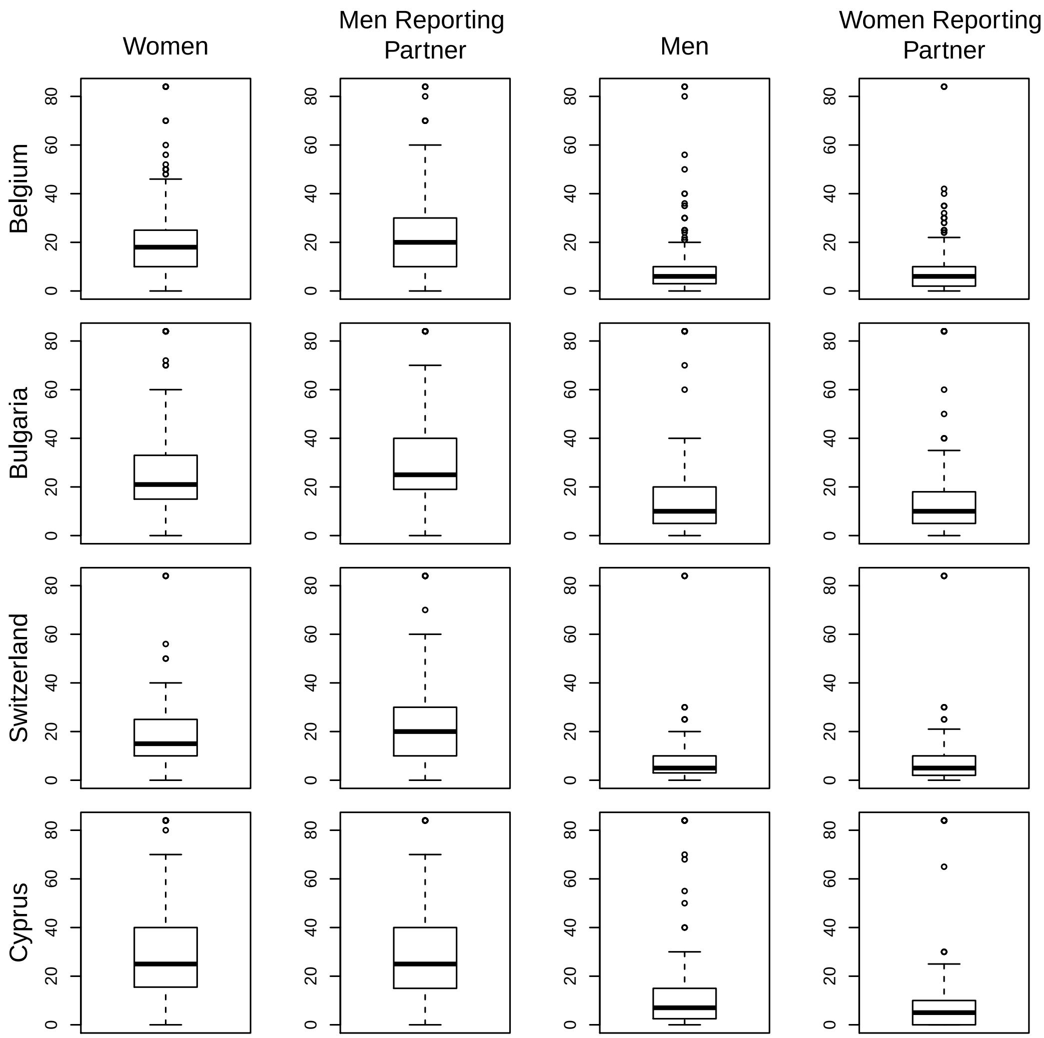

Figure B.3 – Distribution of respondent's reported own time on housework vs. respondent's reported partner's time on housework by gender and country - continued

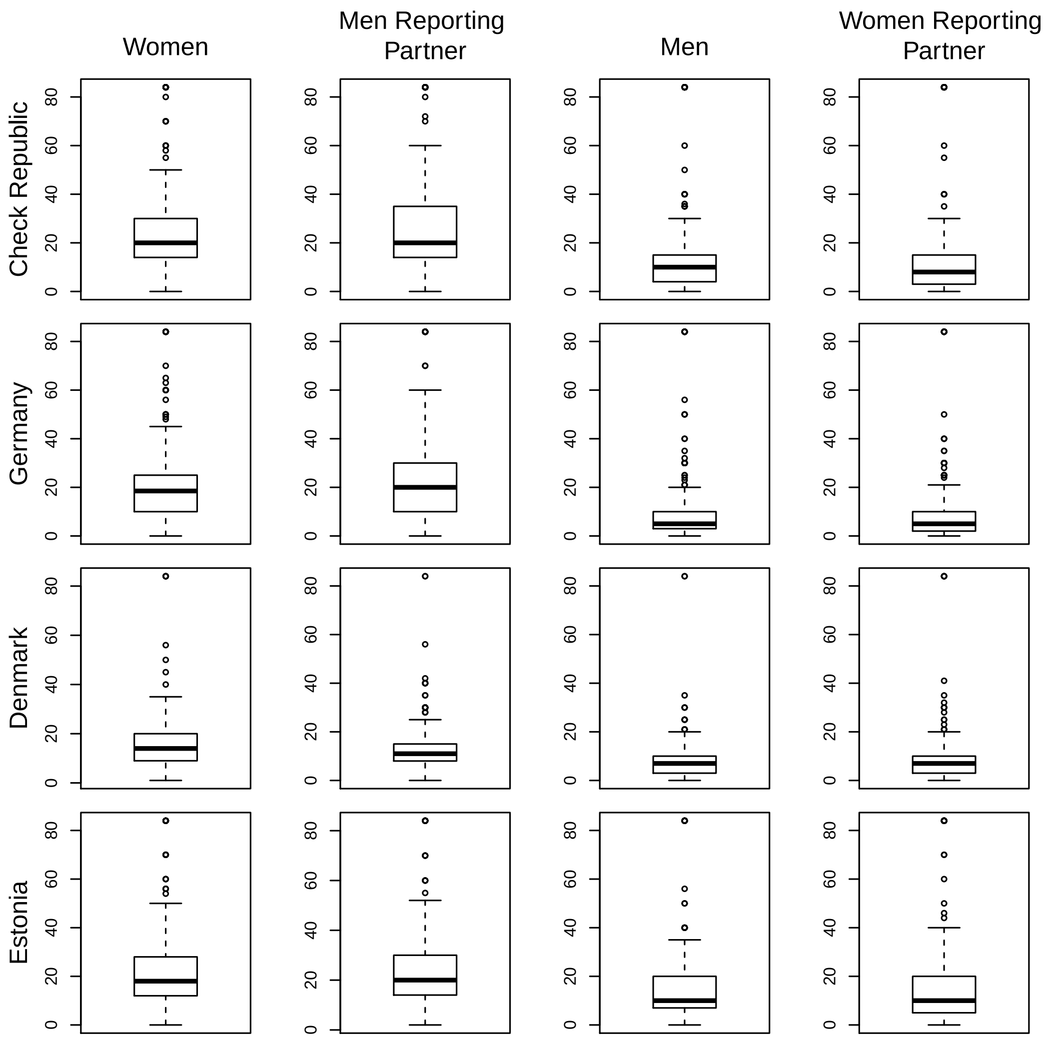

Figure B.4 – Distribution of respondent's reported own time on housework vs. respondent's reported partner's time on housework by gender and country - continued

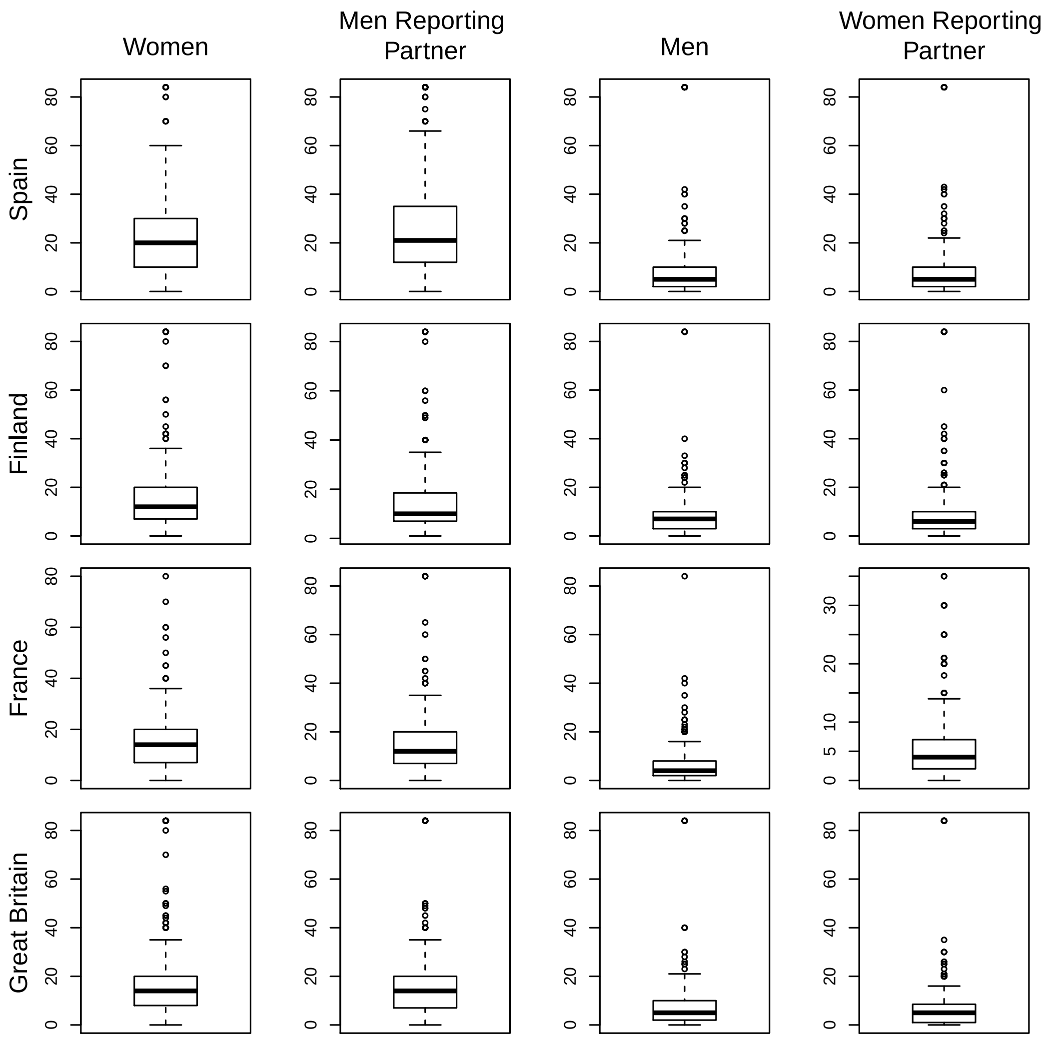

Figure B.5 – Distribution of respondent's reported own time on housework vs. respondent's reported partner's time on housework by gender and country - continued

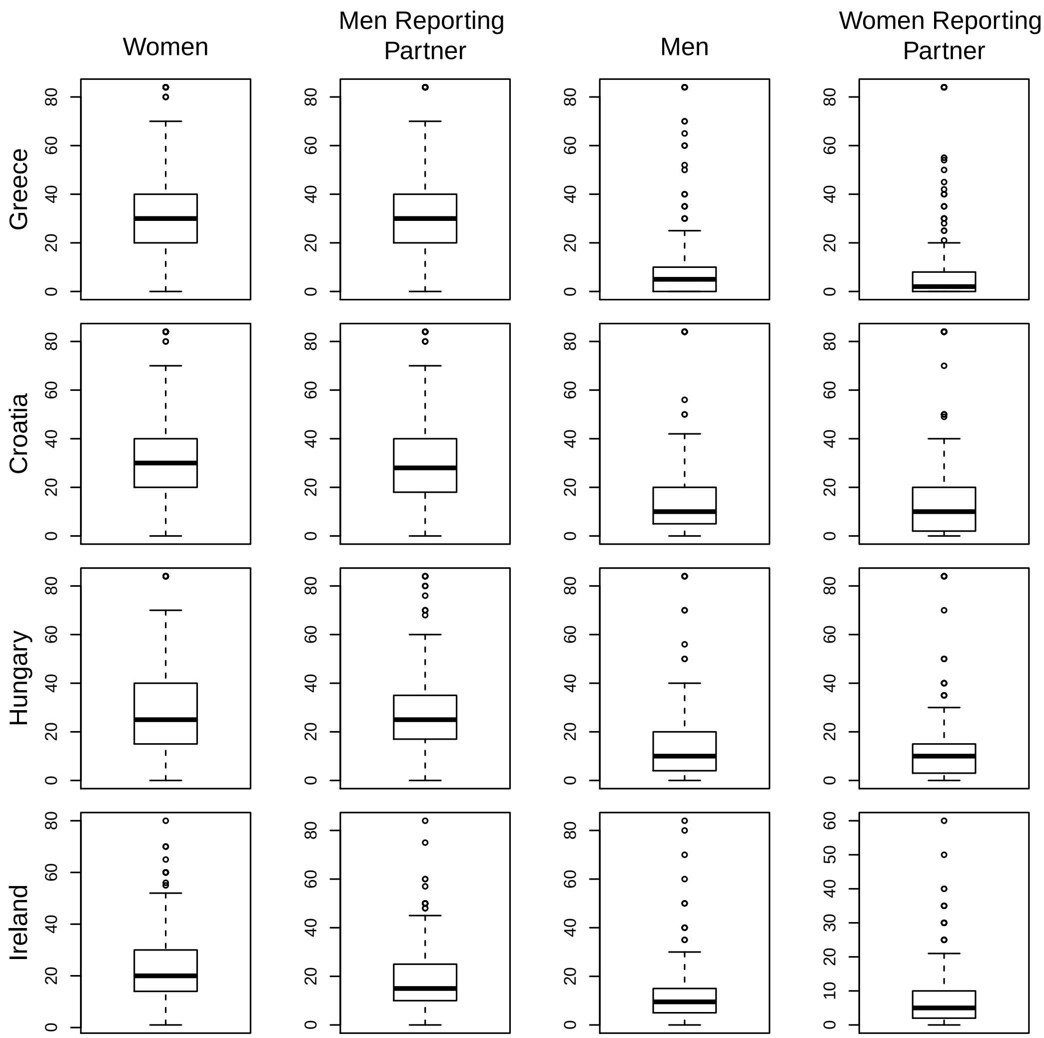

Figure B.6 – Distribution of respondent's reported own time on housework vs. respondent's reported partner's time on housework by gender and country - continued

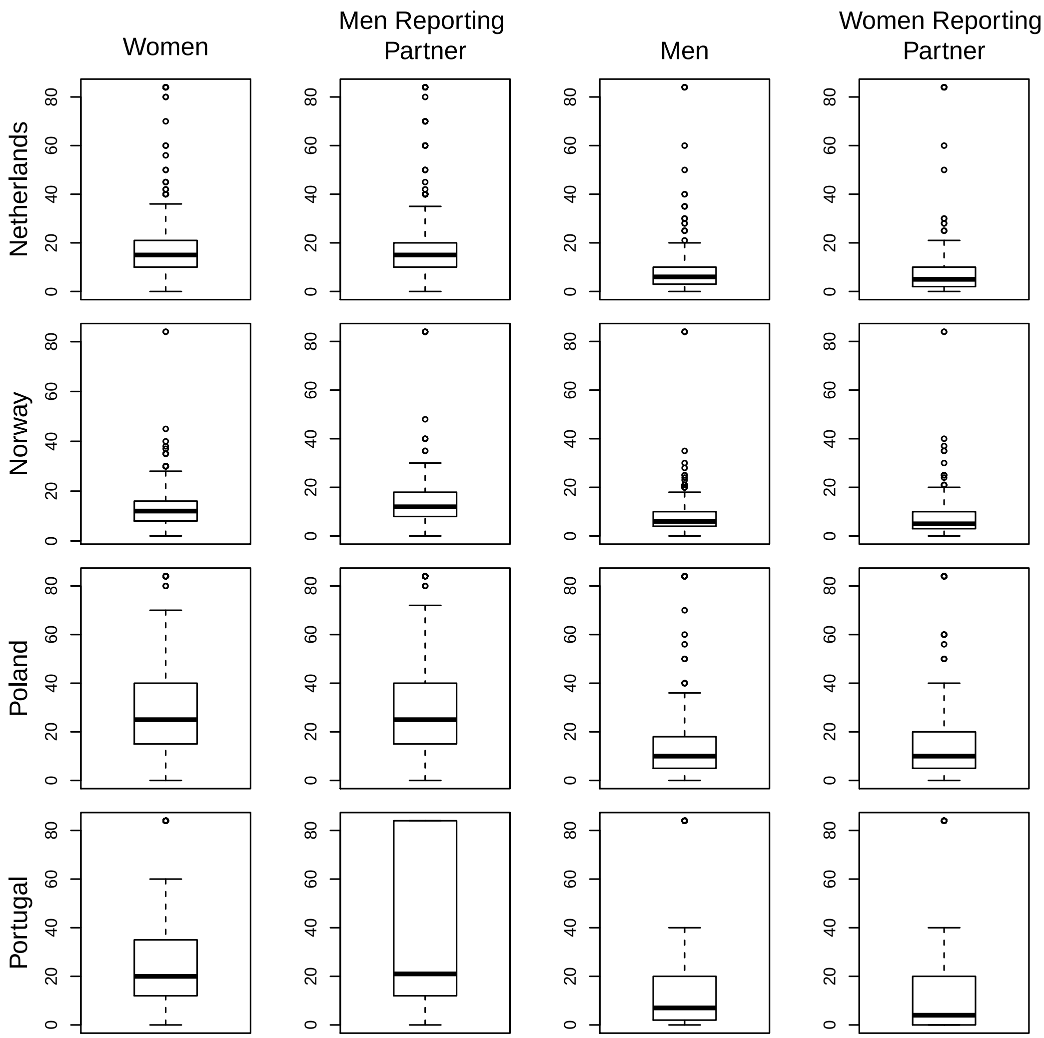

Figure B.7 – Distribution of respondent's reported own time on housework vs. respondent's reported partner's time on housework by gender and country - continued

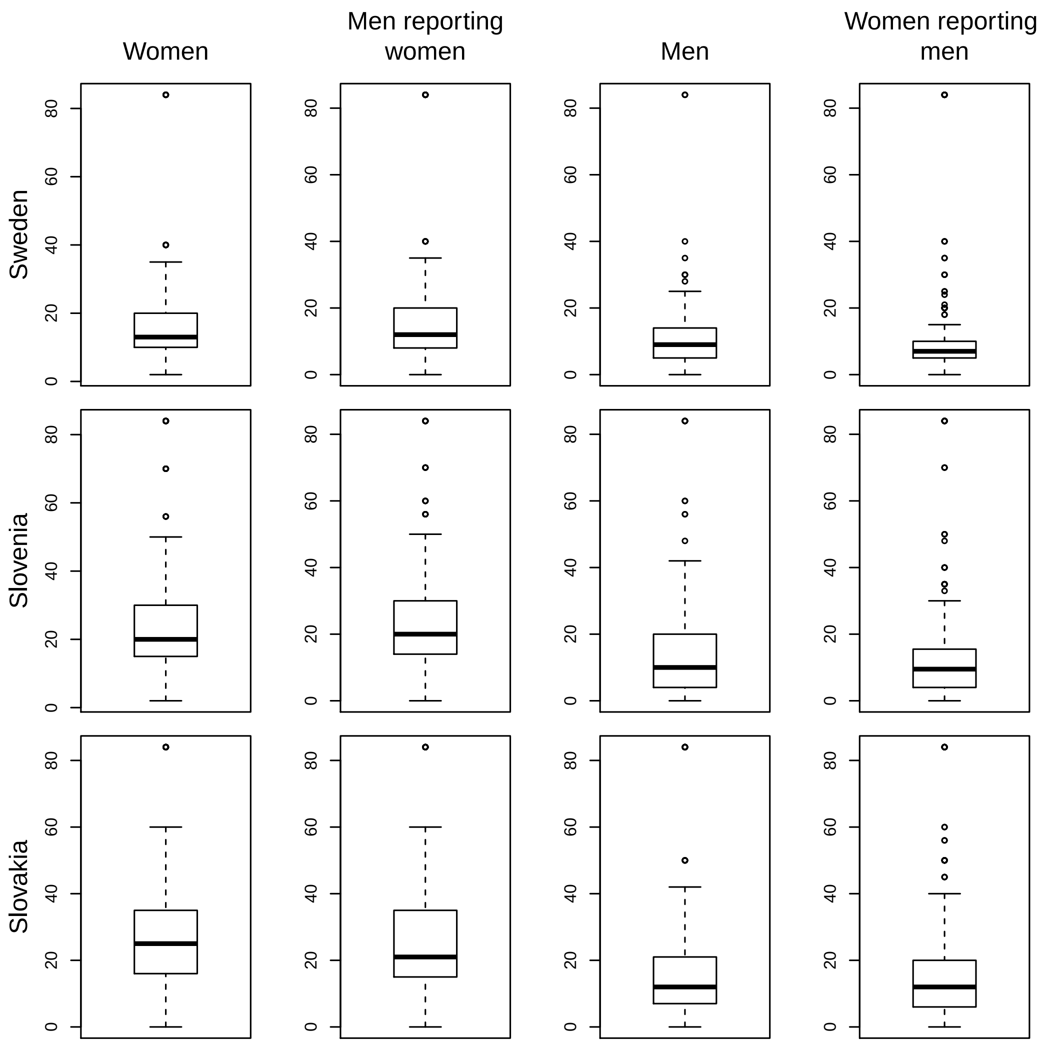

Table B.3 – Multi-level regression models for housework sharing. Random intercepts and random slopes models. Dependent variable: proportion of domestic chores performed by each partner (unstandardized regression coefficients, standard errors in parentheses)

Women	Random slopes 1	Random slopes 2	Random slopes 3	Random slopes 4
Constant	**2.065*****	**2.068*****	**2.060*****	**2.072*****
	(0.149)	**(0.149)**	**(0.150)**	**(0.148)**
Age	0.007**	0.007**	0.007**	0.007**
	(0.002)	(0.002)	(0.002)	(0.002)
Married vs. not married	0.073	0.073	0.073	0.072
	(0.064)	(0.064)	(0.064)	(0.064)
N Household members	0.047	0.046	0.046	0.046
	(0.030)	(0.030)	(0.030)	(0.030)
Hours housework	-0.010***	-0.010***	-0.010***	-0.010***
	(0.001)	(0.001)	(0.001)	(0.001)
Employed vs. not employed	**-0.289*****	-0.288***	-0.288***	-0.288***
	(0.060)	(0.060)	(0.060)	(0.060)
Hours of paid work per week	**-0.004***	-0.004*	-0.004*	-0.004*
	(0.002)	(0.002)	(0.002)	(0.002)
Partner employed vs. not employed	**-0.343*****	-0.343***	-0.342***	-0.343***
	(0.063)	(0.063)	(0.063)	(0.063)
Presence of children	0.148*	0.148*	0.148*	0.148*
	(0.074)	(0.074)	(0.074)	(0.074)
Proportion of household income provided (r.c. none)				
Very small	-0.181	**-0.183**	-0.183	-0.185
	(0.097)	**(0.097)**	(0.097)	(0.097)
Under a half	-0.401***	**-0.407*****	-0.404***	-0.405***
	(0.091)	**(0.091)**	(0.091)	(0.091)
About half	-0.485***	**-0.489*****	-0.488***	-0.490***
	(0.097)	**(0.097)**	(0.097)	(0.097)
Over a half	-0.629***	**-0.637*****	-0.632***	-0.633***
	(0.114)	(0.114)	**(0.114)**	(0.114)
Very large	-0.537***	**-0.541*****	-0.541***	-0.541***
	(0.152)	**(0.152)**	(0.152)	(0.152)
All	-0.387*	**-0.367***	-0.390*	-0.395*
	(0.166)	**(0.166)**	(0.166)	(0.166)
Relative education of the partners (r.c. both low educated)				
Both Medium	-0.133	-0.132	**-0.129**	-0.136
	(0.080)	(0.080)	**(0.081)**	(0.080)
Both High	-0.275**	-0.275**	**-0.272****	-0.276**
	(0.087)	(0.087)	**(0.087)**	(0.087)
Partner Higher	-0.098	-0.098	**-0.091**	-0.100
	(0.086)	(0.086)	**(0.087)**	(0.086)
Partner Lower	-0.127	-0.128	**-0.120**	-0.129
	(0.085)	(0.085)	**(0.085)**	(0.085)
Value Orientation	-0.064**	-0.064**	-0.064**	**-0.063****
	(0.020)	(0.020)	(0.020)	**(0.020)**
Variance Components				
Intercepts	0.030	0.029	0.037	0.023
	(0.173)	(0.169)	(0.191)	(0.152)
Slopes	0.000	0.002	0.000	0.000
	(0.004)	(0.040)	(0.001)	(0.007)
	0.000			
	(0.013)			
	0.000			
	(0.000)			
	0.000			
	(0.004)			
Log-likelihood	-1003.675	-1003.474	-1003.391	-1003.665
BIC	2283.655	2449.034	2329.138	2219.164
N	9998	9998	9998	9998
Groups	23	23	23	23

Legend: * p<0.05; **p<0.01; *** p<0.001. Two-tailed.
The coefficients allowed to vary across levels for each model are in bold.

Table B.4 – Multi-level regression models for housework sharing. Random intercepts and random slopes models. Dependent variable: proportion of domestic chores performed by each partner (unstandardized regression coefficients, standard errors in parentheses)

Men	Random slopes 1	Random slopes 2	Random slopes 3	Random slopes 4
Constant	**-0.076**	**-0.086**	**-0.067**	**-0.073**
	(0.213)	**(0.213)**	**(0.215)**	**(0.213)**
Age	-0.009***	-0.009***	-0.009***	-0.009***
	(0.002)	(0.002)	(0.002)	(0.002)
Married vs. not married	-0.076	-0.074	-0.076	-0.076
	(0.065)	(0.065)	(0.065)	(0.065)
N household members	-0.064*	-0.064*	-0.064*	-0.065*
	(0.033)	(0.033)	(0.033)	(0.033)
Hours housework	0.004***	0.004***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Employed vs. not employed	**-0.387*** **	-0.388***	-0.387***	-0.387***
	(0.066)	**(0.066)**	(0.066)	(0.066)
Hours of paid work per week	**-0.006*** **	-0.006***	-0.006***	-0.006***
	(0.002)	(0.002)	(0.002)	(0.002)
Partner employed vs. not employed	**-0.350*** **	-0.351***	-0.351***	-0.350***
	(0.060)	(0.060)	(0.060)	(0.060)
Presence of children	-0.067	-0.066	-0.067	-0.065
	(0.076)	(0.076)	(0.076)	(0.076)
Proportion of household income provided (r.c. none)				
Very small	-0.113	**-0.094**	-0.116	-0.116
	(0.202)	**(0.209)**	(0.203)	(0.203)
Under a half	-0.116	**-0.099**	-0.121	-0.121
	(0.177)	**(0.178)**	(0.178)	(0.178)
About half	-0.201	**-0.183**	-0.205	-0.204
	(0.172)	**(0.172)**	(0.172)	(0.172)
Over a half	-0.318	**-0.303**	-0.323	-0.322
	(0.171)	**(0.172)**	(0.171)	(0.171)
Very large	-0.473**	**-0.459***	-0.477**	-0.477**
	(0.177)	**(0.178)**	(0.178)	(0.178)
All	-0.613***	**-0.590** **	-0.624***	-0.625***
	(0.183)	**(0.186)**	(0.183)	(0.183)
Relative education of the partners (r.c. both low educated)				
Both Medium	0.161*	0.158	**0.160**	0.164*
	(0.081)	(0.082)	**(0.082)**	(0.081)
Both High	0.392***	0.387***	**0.391*** **	0.394***
	(0.089)	(0.089)	**(0.089)**	(0.089)
Partner Higher	0.224*	0.219*	**0.223***	0.225*
	(0.089)	(0.090)	**(0.090)**	(0.089)
Partner Lower	0.160	0.156	**0.159**	0.160
	(0.087)	(0.087)	**(0.088)**	(0.087)
Value Orientation	0.081***	0.080***	0.080***	**0.080*** **
	(0.021)	(0.021)	(0.021)	**(0.021)**
Variance Components				
Intercepts	0.005	0.000	0.012	0.004
	(0.069)	(0.000)	(0.109)	(0.064)
Slopes	0.001	0.020	0.000	0.000
	(0.026)	(0.143)	(0.012)	(0.013)
	0.000			
	(0.0105)			
	0.000			
	(0.000)			
	0.000			
	(0.026)			
Log-likelihood	-844.359	-843.497	-844.375	-844.287
BIC	1960.706	2122.174	2006.069	1897.098
N	8658	8658	8658	8658
Groups	23	23	23	23

Legend: * p<0.05; **p<0.01; *** p<0.001. Two-tailed.
The coefficients allowed to vary across levels for each model are in bold.

Appendix C

Appendix to chapter five

Table C.1 – Transition between classes of income over waves %

		Household income, quartiles				
		< 25	25-50p	50-75p	over 75p	Total
Lagged household income, quartiles	< 25	65.86	22.99	7.68	3.48	100
	25-50p	21.27	49.61	23.17	5.95	100
	50-75p	6.42	21.19	52.14	20.2	100
	over 75p	3.05	5.96	18.01	72.97	100

Table C.2 – Hausman test results: fixed vs. random effects

Model	chi^2	d.f.	p-value
Pooled model 1	4940.93	9	0.000
Pooled model 2	4942.34	11	0.000
Interacted model	5000.32	14	0.000

Table C.3 – Fixed effect regression models by countries. Dependent variable: relative economic contribution of the female partner to household total (Unstandardized coefficients, standard errors in parenthesis)

	Cyprus Coef./(s.e.)	Greece Coef./(s.e.)	Italy Coef./(s.e.)	Portugal Coef./(s.e.)	Spain Coef./(s.e.)
Newborn	-0.031***	0.003	-0.004	-0.032	-0.025*
	(0.009)	(0.014)	(0.008)	(0.023)	(0.011)
Age	0.006	0.000	-0.012	-0.006	0.024**
	(0.010)	(0.017)	(0.008)	(0.021)	(0.009)
Age of the partner	-0.004	0.005	0.015	0.003	-0.015
	(0.010)	(0.018)	(0.008)	(0.021)	(0.009)
Hours worked per week	0.002***	0.004***	0.002***	0.001**	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Partners hours worked per week	0.000	-0.003***	-0.001***	-0.001*	-0.001**
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Household income (r.c. < 25)					
25-50	0.009	0.019	0.044***	0.003	0.010
	(0.010)	(0.014)	(0.007)	(0.015)	(0.009)
50-75	0.018	0.050**	0.041***	0.007	0.024*
	(0.012)	(0.017)	(0.008)	(0.018)	(0.010)
> 75	-0.004	0.053*	0.031***	-0.009	0.008
	(0.015)	(0.022)	(0.009)	(0.026)	(0.013)
N other kids	-0.013	-0.006	-0.014	0.022	-0.035**
	(0.009)	(0.017)	(0.010)	(0.024)	(0.011)
Constant	0.254**	0.139	0.182*	0.511**	0.090
	(0.092)	(0.162)	(0.073)	(0.167)	(0.102)
N	2022	2159	8348	1647	6108

*p<0.05, ** p<0.01, *** p<0.001. Two-tailed.

Table C.4 – Fixed effect regression models by countries. Dependent variable: relative economic contribution of the female partner to household total (Unstandardized coefficients, standard errors in parenthesis)

	Denmark	Finland	Iceland	Norway	Sweden
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Newborn	-0.070***	-0.056***	-0.093***	-0.105***	-0.127***
	(0.009)	(0.010)	(0.013)	(0.009)	(0.010)
Age	0.011	0.007	0.004	-0.008	0.007
	(0.006)	(0.007)	(0.010)	(0.007)	(0.007)
Age of the partner	-0.012	-0.004	-0.004	0.006	-0.004
	(0.006)	(0.007)	(0.010)	(0.007)	(0.007)
Hours worked per week	0.000	0.002***	0.001***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Partners hours worked per week	-0.002***	-0.002***	-0.001	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Household income (r.c. < 25)					
25-50	-0.035***	0.036***	-0.025	0.040***	0.035***
	(0.009)	(0.009)	(0.013)	(0.008)	(0.008)
50-75	-0.041***	0.057***	-0.015	0.059***	0.043***
	(0.011)	(0.011)	(0.016)	(0.010)	(0.010)
> 75	-0.062***	0.028	-0.008	0.064***	0.040***
	(0.012)	(0.014)	(0.018)	(0.012)	(0.011)
N other kids	0.005	-0.016*	-0.019	-0.000	-0.020*
	(0.009)	(0.007)	(0.011)	(0.007)	(0.009)
Constant	0.544***	0.284***	0.403***	0.424***	0.356***
	(0.085)	(0.086)	(0.117)	(0.070)	(0.089)
N	3624	4113	1853	4377	3920

*p<0.05, ** p<0.01, *** p<0.001. Two-tailed.

Table C.5 – Fixed effect regression models by countries. Dependent variable: relative economic contribution of the female partner to household total (Unstandardized coefficients, standard errors in parenthesis)

	Austria Coef./(s.e.)	Belgium Coef./(s.e.)	Czech Republic Coef./(s.e.)	Luxemburg Coef./(s.e.)	Netherlands Coef./(s.e.)
Newborn	-0.059***	-0.053***	-0.033*	-0.088***	-0.015**
	(0.017)	(0.012)	(0.014)	(0.008)	(0.005)
Age	-0.011	0.010	-0.001	-0.007	0.027*
	(0.008)	(0.007)	(0.009)	(0.006)	(0.013)
Age of the partner	0.011	-0.008	0.009	0.010	-0.026*
	(0.008)	(0.007)	(0.009)	(0.006)	(0.013)
Hours worked per week	0.003***	0.002***	0.006***	0.003***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Partners hours worked per week	-0.001	0.000	-0.001	-0.002***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Household income (r.c. < 25)					
25-50	0.045***	0.011	-0.018	0.045***	-0.011*
	(0.010)	(0.010)	(0.011)	(0.010)	(0.004)
50-75	0.075***	-0.002	0.004	0.074***	-0.011*
	(0.012)	(0.011)	(0.012)	(0.013)	(0.005)
> 75	0.074***	-0.015	0.016	0.096***	-0.005
	(0.014)	(0.013)	(0.014)	(0.017)	(0.006)
N other kids	-0.033*	-0.027	-0.094***	-0.033***	-0.026***
	(0.015)	(0.014)	(0.017)	(0.009)	(0.005)
Constant	0.254*	0.345***	0.086	0.224**	0.407***
	(0.119)	(0.102)	(0.095)	(0.082)	(0.058)
N	3157	3542	6058	4158	7001

*p<0.05, ** p<0.01, *** p<0.001. Two-tailed.

Table C.6 – Fixed effect regression models by countries. Dependent variable: relative economic contribution of the female partner to household total (Unstandardized coefficients, standard errors in parenthesis)

	Bulgaria	Hungary	Poland	Romania	Slovenia	Slovakia
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Newborn	-0.038	-0.038*	-0.014	-0.022	-0.124***	-0.105***
	(0.049)	(0.017)	(0.015)	(0.040)	(0.011)	(0.032)
Age	-0.003	0.013	-0.016	0.000	-0.001	-0.003
	(0.024)	(0.010)	(0.016)	(0.012)	(0.008)	(0.025)
Age of the partner	-0.004	-0.004	0.025	-0.013	0.005	0.002
	(0.024)	(0.010)	(0.016)	(0.012)	(0.007)	(0.025)
Hours worked per week	0.005***	0.004***	0.003***	0.003***	0.002***	0.003***
	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Partners hours worked per week	-0.003***	-0.002***	-0.002***	-0.005***	-0.001***	-0.002***
	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Household income (r.c. < 25)						
25-50	0.019	0.048***	-0.004	0.036*	0.028***	-0.027*
	(0.026)	(0.011)	(0.011)	(0.016)	(0.007)	(0.013)
50-75	-0.037	0.065***	-0.009	0.029	0.028***	-0.036*
	(0.029)	(0.013)	(0.012)	(0.019)	(0.008)	(0.016)
> 75	-0.067*	0.050**	-0.017	0.023	0.014	-0.038*
	(0.032)	(0.016)	(0.014)	(0.024)	(0.009)	(0.018)
N other kids	-0.025	-0.063***	-0.040*	0.151***	0.009	-0.077**
	(0.040)	(0.018)	(0.017)	(0.043)	(0.011)	(0.027)
Constant	0.726*	0.126	0.084	0.776**	0.246**	0.575***
	(0.366)	(0.125)	(0.113)	(0.277)	(0.083)	(0.170)
N	1125	3904	5798	1674	5086	2410

*p<0.05, ** p<0.01, *** p<0.001. Two-tailed.

Table C.7 – Fixed effect regression models by countries. Dependent variable: relative economic contribution of the female partner to household total (Unstandardized coefficients, standard errors in parenthesis)

	Estonia Coef./(s.e.)	Lithuania Coef./(s.e.)	Latvia Coef./(s.e.)	Ireland Coef./(s.e.)	United Kingdom Coef./(s.e.)
Newborn	-0.055*	-0.087**	-0.106***	-0.028	-0.024
	(0.023)	(0.027)	(0.027)	(0.018)	(0.012)
Age	0.009	-0.053**	0.012	0.005	-0.005
	(0.013)	(0.020)	(0.015)	(0.028)	(0.012)
Age of the partner	-0.006	0.045*	-0.001	-0.003	0.006
	(0.012)	(0.020)	(0.015)	(0.028)	(0.012)
Hours worked per week	0.003***	0.003***	0.002***	0.004***	0.006***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Partners hours worked per week	-0.002**	-0.002***	-0.002***	-0.002**	-0.004***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Household income (r.c. < 25)					
25-50	0.028	0.006	-0.002	-0.008	-0.044***
	(0.016)	(0.017)	(0.017)	(0.016)	(0.010)
50-75	-0.004	0.006	0.007	-0.014	-0.049***
	(0.018)	(0.020)	(0.019)	(0.017)	(0.012)
> 75	-0.017	-0.040	-0.029	-0.012	-0.081***
	(0.022)	(0.023)	(0.021)	(0.019)	(0.014)
N other kids	-0.033	0.060*	-0.028	-0.073***	-0.039**
	(0.021)	(0.026)	(0.023)	(0.021)	(0.012)
Constant	0.293	0.474*	0.080	0.394	0.368***
	(0.185)	(0.197)	(0.190)	(0.214)	(0.109)
N	2248	1928	1652	1170	3941

*p<0.05, ** p<0.01, *** p<0.001. Two-tailed.

Table C.8 – Pooled and interacted fixed effect regression models with three different specifications of the dependent variable⋆ (Unstandardized coefficients, standard errors in parenthesis)

	Pooled Model One A ∗	Pooled Model One B†	Pooled Model One C‡	Pooled Model Two A	Pooled Model Two B	Pooled Model Two C	Interacted Model A	Interacted Model B	Interacted Model C
	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)	Coef./(s.e.)
Newborn	-0.054***	-0.019***	0.004				-0.016***	-0.003	0.006
	(0.003)	(0.002)	(0.002)				(0.005)	(0.004)	(0.004)
1st child				-0.054***	-0.021***	0.003			
				(0.004)	(0.003)	(0.003)			
2nd child				-0.055***	-0.018***	0.004			
				(0.003)	(0.003)	(0.003)			
3rd or above				-0.053***	-0.016***	0.006			
				(0.005)	(0.004)	(0.004)			
Northern							-0.086***	-0.042***	-0.013*
							(0.006)	(0.006)	(0.006)
Central							-0.030***	-0.015**	-0.008
							(0.006)	(0.005)	(0.005)
Baltic							-0.066***	0.007	0.046***
							(0.011)	(0.010)	(0.010)
Eastern							-0.042***	-0.006	0.013*
							(0.007)	(0.007)	(0.006)
English							-0.015	-0.013	-0.010
							(0.010)	(0.009)	(0.009)
Constant	0.275***	0.381***	0.414***	0.275***	0.381***	0.414***	0.274***	0.379***	0.412***
	(0.022)	(0.020)	(0.019)	(0.022)	(0.020)	(0.019)	(0.022)	(0.020)	(0.019)
N					93023				

*p<0.05, ** p<0.01, *** p<0.001. Two-tailed.

⋆ The dependent variable is the relative economic contribution of the female partner to the household total. Three alternative dependent variables are built using different components of personal income as detailed below.

∗ The dependent variable in models A is built using: employee cash or near cash income; non-cash employee income; cash benefits or losses from self-employment (including royalties) and unemployment benefits.

† The dependent variable in models B is built using: employee cash or near cash income; non-cash employee income; cash benefits or losses from self-employment (including royalties) and unemployment benefits. Women's share is increased by adding 50% of the family related allowances.

‡ The dependent variable in models C is built using: employee cash or near cash income; non-cash employee income; cash benefits or losses from self-employment (including royalties) and unemployment benefits. Women's share is increased by adding 100% of the family related allowances.

Note: independent variables that are controlled in the model but not shown in the table: age, age of the partner,hours worked per week, hours worked per week by the partner, household income level and number of children in the household.