Mothers' employment and child care choices across the European Union[1]

Thematic Panel22 - Macro comparative perspectives on care policies

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Abstract

The aim of this paper is to analyse maternal employment patterns and the demand for formal and informal child care as inter-related decisions across Europe, which are shaped by country-specific institutional settings. We explore a sample of pre-schoolers and their parents drawn from the EU-SILC (2005-2013) in a set of 11 EU countries. The analytical strategy consists of a set of *trivariate tobit* models that allow for mutual interdependencies across decisions and to take into account the distribution of the dependent variables. The results vary across countries and are very much related to the public provision of child care as well as the institutional context, defined here by a set of welfare regimes based on family-oriented policies and institutions.

Keywords: female employment; child care; family friendly policies; *trivariate probit.*

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1. Introduction

The aim of this paper is to understand, in a European-wide comparative perspective, how the institutional context concerning family friendly employment regulations, financial support to families and cultural norms (among other factors) shape the interdependencies across the demand for external child care – that is, the one provided by an external person, either at the family house or outside – at pre-school age and mothers' employment decisions. Such interdependencies are widely acknowledged, as the demand for external child care contributes to maximising mothers' utility concerning child care and labour force participation (Chaudry et al., 2010). The present piece of research aims to contribute to the strand of literature where mothers' labour supply and external child care demand are modelled simultaneously (see Chiuri, 2000; Powell, 2002; Del Boca and Vuri, 2007; Nicodemo and Waldmann, 2009).

This paper contributes to this strand of literature by simultaneously analysing mothers of under-school children's work and demand for formal and informal child care in a set of 11 EU countries, which represent different welfare and care regimes. Formal care is education at pre-school, education at compulsory school, child care at centre-based services and child care at day-care centres, regardless they are public/free or private/paid, while and informal care is provided by professional child-minders - at the child's home or at the child-minder's – or by grandparents, by other household members (outside parents) or other relatives, friends or neighbours. We follow Esping-Andersen (1999, et. al 2002) and other research proposals (Sapir, 2006) to focus in more detail on gender relations and work-family reconciliation under different welfare state regimes (Anxo et al., 2007). The latter are featured by the institutional set up and child care provisions, patterns of financial support to families and cultural norms shape households' choices regarding labour market participation and the intra-household division of labour.

To conduct the analysis, we draw a sample of native-born[2] mothers and their young preschool children from the European Union Survey on Income and Living Conditions (EU-SILC)[3] from 2005 to 2013 in 11 EU member states, namely, Spain, Italy, Denmark, Sweden, France, UK, Netherlands, Germany, Ireland, Poland and Hungary. The analytical strategy consists of a *trivariate tobit* model, which accommodate for the distribution of the three dependent variables, censored at zero. In a similar fashion to Kaya Bahçe and Memiş (2013) we account for potential endogeneity across them by performing a simultaneous –trivariate – estimation, where we can address potential inter-dependencies (complementarities and substitutabilities) across

[2] Foreign born mothers have been excluded from the sample as their partnership and fertility decisions might have taken place in their countries of origin and, therefore, in a non-observable context.

[3] The EU-SILC micro-data files are used under the provisions of the contract RPP 227/2014 between Universidad de Castilla-La Mancha and Eurostat.

female employment and use of external child care. This approach also allows considering the potential combination of both formal and informal child care, as they are not mutually exclusive.

We expect international differences in mothers' paid employment and their demand for external child care to be very much shaped by the institutional context. Namely, we expect to find that (a) mothers labour supply is much less conditioned by the demand for external child care where public child care is largely available, care centres services are more affordable or subsidised and/or families receive economic support to that aim; (b) formal and informal child care will be mutual substitutes, but substitutability between them will be milder in countries/regimes where working arrangements are less family friendly, since some women might need to use both types of care (in which case, formal and informal care would be complementary).

Our main results confirm our expectations and point to the need of improving child care provision as a measure to promote females participation in the labour market. Women's response to those incentives varies across the different welfare systems and institutional models, with mothers labour market decisions being much less conditioned by the use of external child care in Scandinavian countries than in the rest.

The contents of this paper go as follows: after this introduction, Section 2 will be devoted to theoretical approaches and empirical evidence on mothers' employment and child care decisions; the main institutional settings will be described in Section 3; in Section 4 the data-set will be presented; Section 5 to the empirical strategy and the discussion of the results from the multivariate analysis will be displayed. Section 6 concludes.

2. Literature review

2.1. Theoretical approaches to mothers' labour force participation and use of child care

The provision for child care is a relevant determinant in mothers' labour participation decisions, while female labour market status also represents the most relevant driver of the demand for external child care. Because of the decrease in birth rates, households have, on average, fewer children, and the overall amount of time devoted to child raising has fallen. As female employment spreads, women demand more external (formal and/or informal) child care. Despite the increase in the female labour supply, gender inequalities in time-use persist and the main part of unpaid housework and care activities are still predominantly performed by women. In couples with pre-school children, mothers tend to reduce their labour supply, but for fathers, the reverse effect has been found. Nevertheless, the impact of young children on mothers' labour market participation varies considerably across the countries (Anxo et al., 2007). Moreover, during the Great Recession, and because of the striking risk of unemployment in bread-winners

(mostly men) women have behaved like “added workers”, except in those cases where the lack of childcare services keeps them out of labour market (Arpaia and Curci, 2010).

In order to understand the care giving and employment plans of parents, it is essential to consider not only the role of their preferences between employment and care but also how parent’s employments can be affected. There are significant differences between male and female employment, the participation of women in better-paying jobs is much lower than in the case of men which can lead to an unfair distribution of responsibilities within the household. If the couple negotiates who is going to dedicate more time to child care and less to paid work, the one with the higher salary has the bargaining power to remain more hours in the labour market. However, the economic theory cannot completely explain the child care strategies within couples, since economic considerations and strategies of efficiency are not the only relevant ones for families. On the one hand, there are also altruistic behaviours and relations based on affection. And on the other hand, the institutional and cultural contexts play a significant role establishing what choices are desirable and "normal" (Pfau-Effinger, 2005).

Risman (1999) proposed a theoretical approach connecting the institutional context and the characteristics of the couple. The institutional context affects the child care decision at least in three different ways: offering incentives or disincentives, creating more or less opportunities and establishing cultural references. For example, the social family policy can assign to one of the partners the responsibility of the care by giving longer parental leave to mothers than to fathers, and reinforcing an asymmetric distribution of intra household work (Sainsbury, 1996). In the same vein, Leahy and Doughney (2006) develop the concept of “adaptive preferences”. Women do not have the possibility of choosing between family and labour market according with their preferences; the culture, the labour market and the policies push men and women into different directions and they finally adapt their preferences to these contexts.

Nevertheless, and regardless of the institutional context, more educated women are more likely to demand formal or market care as they are more aware about the expected impact of pre-school attendance on children’s development (Smith and Ratcliffe, 2009). The presence of more than one child in under-school age may also affect family strategies concerning care as it implies potential economies of scale in the organisation of caring arrangements (Del Boca and Vuri, 2007). And access to informal help networks (namely, nearby relatives and friends) are also relevant in the composition of the demand for child care between formal and informal types (Borra, 2010).

2.2. Empirical evidence on mothers' employment and child care decisions

One of the most prolific strands of literature on mother's labour supply connects it with the cost and availability of child care services that shape their demand. Child-care costs are found to reduce the probability of using purchased child care and discourage women from working outside home in an array of developed countries (for a survey, see Morrissey, 2017), while the availability of child care has a positive effect on female employment.

Another strand of literature studies the determinants of formal (versus informal) external child care use. One of the most relevant ones is parental educational attainment (see Nicodemo and Waldmann, 2009; Borra, 2010; Viitanen, 2005; Leibowitz et al., 1992). Mothers' personal income from paid employment and - other sources of household income- are also positively correlated with the demand for formal care (Del Boca and Vuri, 2007; Hofferth and Wissoker, 1992; Michalopoulos and Robins, 2002). Mothers' employment status and worked hours significantly shape the demand for child care inasmuch they capture women's needs for -usually formal- child care (Borra and Palma, 2009; Connelly and Kimmel, 2003). Evidence on price elasticity in the demand for market/paid child care is far more conclusive and shows a strongly negative significant impact of child care costs on child care decisions (Borra, 2010). Moreover, as formal and informal child care are mutual substitutes, increases in the cost of formal, centre-based care do often drive women towards informal/relative care (Doiron and Kalb, 2005).

3. International differences in the provision of formal child care in the EU

The State plays a key role in the protection and promotion of the economic and social well-being of its citizens and particularly in mediating the demands of family and caregiving responsibilities. Family policies focused on care and education of young children have become more relevant since the increase in women's employment (Meyers et al., 1999). There are many arguments in favour of public investment in child care services, as their availability has a positive impact on female participation and even fertility rates. Consequently, and following the European Commission guidelines, all European countries have undertaken initiatives to increase availability - and quality - of these services. However, each regime type has a characteristic configuration of social policies that differ in the extent and form to which they provide these care services and also each regime type has a distinctive pattern of socio-economic and labour market outcomes. Our analysis moves beyond single country studies to identify similarities in the ways they support women to facilitate their employment and caregiving responsibilities.

There are some different classifications of the welfare state systems, the first one by Esping-Andersen (1999) classified the most developed welfare state systems into three categories: Social Democratic, Conservative and Liberal. Sapir (2006) identified four models covering

different geographical areas: the Nordic, the Liberal, the Continental and the Mediterranean. After the fall of the communist block and their integration within the market economy the Eastern Europe model has been added (Tache and Dumitrache, 2012).

Together with child care provisions, other public policies promoting mothers' labour force participation include parental leave systems and working time arrangements. The combination of the provision of pre-school public facilities and the arrangements/legal provisions define the prevalent child care regime in every country (Bettio and Plantenga, 2004, Plantenga and Remery, 2009, 2015, Da Roit and Sabatinelli, 2007). The selected countries in this paper are representative of different institutional models concerning formal and informal child care arrangements and also female employment patterns, described over the following paragraphs, while some key institutional features about them are summarised in Table A.3., in the Appendix.

The Scandinavian model, Denmark and Sweden, defined by high and continuous female labour force participation and employment rates over the life course. Dual-earner households are common, with relatively low gender disparities in labour market participation. Universal public child care is provided. Denmark has the highest proportion of under-threes enrolled in child care, 70 per cent in 2014. In Sweden, the extensive parental benefit system the parental benefit period takes 44.4 weeks, from which 27.4 are paid - allows mothers/parents with very young children to stay at home to take care of them during their first year(s) of live. These countries are relatively light users of informal care (Bettio and Plantenga, 2004).

The Central European model, here illustrated by France, Germany and Netherlands is featured by high female participation rates and high part time rates but, in contrast to Nordic countries, family formation and motherhood are still associated with either withdrawal from the labour market or reductions in working time. Public child care services provision was limited prior to the European targets about the use of formal child care (the so-called Barcelona targets). In France motherhood is supported by a high formal care coverage rate and a lower cost of public child care than in the other two countries (Del Boca, 2015). In the Netherlands, the availability of quality part-time employment opportunities enhances work and family life balance. The high cost of formal child care affects the use of this type of care and there is an ongoing debate on the effects of government child care policies on female labour market participation. Until very recently, Germany registered a low proportion of children younger than 3 years old in formal child care. Still, there are differences in the public provision of child care between West Germany, where it is relatively new, and East Germany, where there is a longstanding tradition of external child care and those services are more widespread (Plantenga and Remery, 2015).

The Southern countries model is exemplified by Italy and Spain. They exhibit low female employment rates and the highest incidence of traditional 'male breadwinner' households in the

selected set of countries, but when employed, women typically work full-time. In both countries a significant proportion of children younger than 3 years old are looked after by an unpaid informal care provider. Concerning formal child care, Southern European countries are moving toward a mixed system that combines private and public services (Del Boca, 2015). For example, in Spain, despite the positive changes in mothers' enrolment rates since the eighties (Cebrián and Moreno, 2008; CES, 2016) strong family networks still plays an important role providing informal child care (Bettio and Plantenga, 2004).

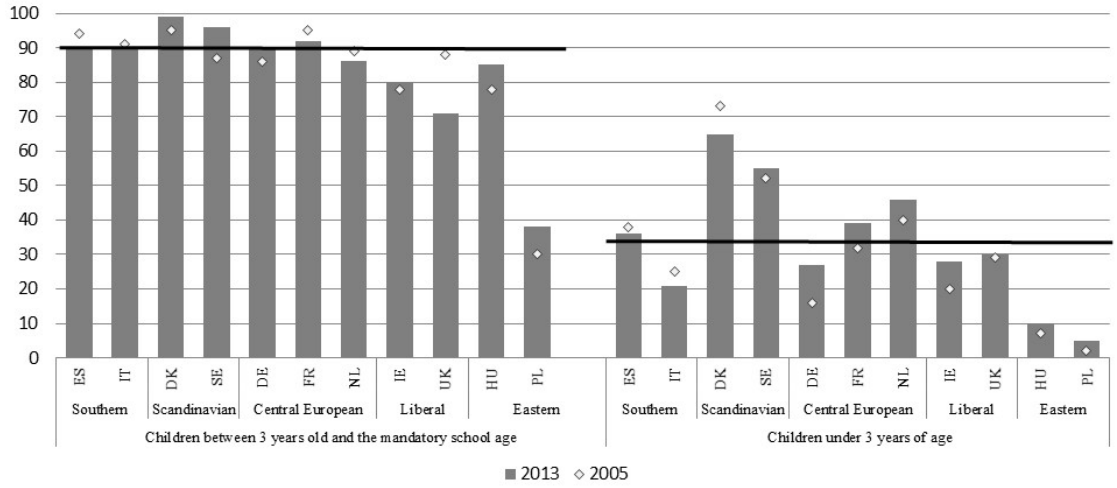
Countries in *The Liberal model*, Ireland and the United Kingdom are featured by a relative large social assistance for people in extreme situations and the cash transfers are primarily oriented to people in working age (Sapir, 2006). In these countries family policies are relatively weak, with low public provision of child care and costly private market child care services. In the UK provision of child care is expensive and dominated by private (either market or non-profit) sectors. Access to public child care centres has been limited and targeted to households in need. However, in the UK the low support is associated with high female participation (Del Boca, 2015). In Ireland female participation rates are rather low and mothers tend to reduce their working time to take care of their children.

The Eastern model, Poland and Hungary. In recent years they have experienced a noticeable progress in developing child care facilities but there is room for further improvements. Moreover, many parents are still reluctant to use formal care for children younger than 3 years old, which at the same time is not accessible and expensive. The female employment rates remain under the EU average and, interestingly, the institutional setting contributes to this with very long parental leaves, partly paid (see Table A.3.).

We expect that the institutional framework defining the different welfare states identified here will explain the observed differences across countries in the share of young children whose mothers work and/or demand external care to look after them. Public expenditure on child care and pre-school as a percentage of GDP reveals that only the countries with a Scandinavian model of welfare state, France and the United Kingdom spent more than the EU average (0.8 percent of GDP). Paid leave periods are longer in Sweden, Germany and, interestingly, in Eastern European countries. According to the literature the extensions of paid leave lengths have a positive, but small, influence on female employment rates and on the gender ratio of employment, as long as the total period of paid leave is no longer than approximately two years (Thévenon and Solaz, 2013). Long parental leave facilities, however, may not promote labour supply and may result in large differences in male and female working time patterns and may not be very favourable from the gender equality point of view.

The Barcelona European Council in 2002 set objectives in the availability of formal and informal child care: 'Member States should remove disincentives to female labour force participation, taking into account the demand for child care facilities and in line with national patterns of provision, to provide child care by 2010 to at least 90% of children between 3 years old and the mandatory school age and at least 33% of children younger than 3 years old' (European Council, 2002). Due to the large differences in public spending and private costs for early childhood education and care rates child care vary across EU countries and, as a result, the level of accomplishment of the so-called Barcelona Targets widely differs across them (Figure 1) meaning that in several EU countries women maybe do not participate in the labour market as much as they could or would like to.

Figure 1: Use of formal child care arrangements and Barcelona targets (2005 and 2013).



Source: EU-SILC, Eurostat.

In Figure 1 the share of children younger than 3 years old and between 3 and mandatory school age in the selected countries in our study is displayed for 2005 and 2013 (the initial and final years of our observation period). Denmark and Sweden, where child care is a social right, have the highest user rates, with the majority of young children in a day care facility during the week. In Denmark, around 70 percent of children in the age group 0 to 2 make use of formal childcare facilities, and in Sweden, the user rate is close to 50 percent. In both countries childcare facilities are seen as an important part of the social infrastructure. In Denmark, all Danish municipalities have to offer a childcare guarantee when a child is six months old and in Sweden all children aged 1–12 have the right to public childcare (Plantenga and Remery, 2015). As a result, in these countries childcare policies and facilities may well have hardly any effect on female labour supply.

In the Netherlands, childcare services are provided on a full-time basis, but the use of the facility may be limited to a few days per week or few hours per day, reflecting the high level of part-time employment in the Netherlands. In the United Kingdom, employed mothers typically

work part-time too, which corresponds to a high part-time use of childcare services (Plantenga and Remery, 2015). However, UK and Ireland, like Poland and Hungary, to a greater extent, are below the so-called Barcelona targets in pre-school availability. In Germany, the use of early child care has considerably evolved during the observation period and by 2013 is closer to the Barcelona target. It must be anyway kept in mind that Figure 1 displays quantitative indicators capturing coverage but not the quality of pre-school services. Some countries where coverage is not a problem are challenged instead by the quality of the services, like Spain (Del Boca, 2015).

4. The data-set and the dependent variables

The data used in this article come from the EU-SILC, which covers income and living conditions at both the household and the individual level and also addresses labour several market issues (Atkinson and Marlier, 2010). In order to monitor advances in the abovementioned Barcelona targets on the provision of child care across the EU, the questionnaire of the EU-SILC captures detailed information about weekly hours each child in the household spends on different types of external child care, here grouped into formal and informal. We explore nine waves of the EU-SILC (2005-2013). The sample is made by a pool of preschool children's records which have been matched to their mothers' and their mothers' partners'[4] interviews.

Table 1 describes the distribution of the three dependent variables in our study (mothers being in paid work, use of formal care and use of informal care) and the potential relation across activities. The upper half of Table 1 displays, first, the incidence of the three decisions (their marginal observed probabilities), by welfare regimes (see also Table A.1., where the relevant information is shown by country). Secondly, it shows the mean duration of mothers' working week and time in formal and informal care by pre-school children – when they are over zero, by welfare and care regime.

Employment rates in mothers of young children range from 82.1% in Scandinavian countries to 44% in Eastern countries (44%). The share of pre-school children in formal care follows the same pattern across country groups, ranging from 76.5% in Scandinavian countries and 31.8% in Eastern countries. Finally, there is a wide variation in the use of informal care. It is very rare in Scandinavia (2%), while in the rest of country groups around one-third of pre-school children are looked after informally at least one hour during an average week.

[4] Mothers' co-resident partners are considered children's fathers; we therefore do not distinguish between biological fathers and stepfathers.

Table 1. Share of pre-school children whose mothers paid work, use formal care or use informal care for them and time spent in all those activities. Mean incidence, mean duration and interdependencies.

	Southern	Scandinavian	Central European	Liberal	Eastern
Marginal probability = incidence (%)					
Paid work	57.56	82.08	65.23	52.86	43.98
Formal care	65.46	76.46	67.33	54.99	31.77
Informal care	30.82	2.15	37.07	36.09	32.41
Mean amount of weekly hours in paid work and external child care (when they are > 0)					
Paid work	33.55	33.52	27.75	27.26	37.85
Formal care	30.41	32.83	24.88	20.11	34.18
Informal care	17.81	26.41	13.09	16.35	21.60
Conditional probabilities as a ratio on marginal probabilities (incidence)					
Formal care | Paid work	1.08	1.03	1.14	1.12	1.38
Informal care | Paid work	1.37	1.03	1.32	1.45	1.45
Informal care | Formal care	0.97	0.20	1.03	1.07	1.02
Ratio between mean time in each activity conditional to the rest and mean time in each activity					
Formal care | Paid work	1.03	1.02	1.05	1.08	1.05
Informal care | Paid work	1.04	1.02	1.06	1.08	1.20
Informal care | Formal care	0.75	0.67	0.76	0.85	0.58
Number of mothers/households	29,782	13,056	31,023	14,154	25,360
Number of observations (children-mothers)	35,937	17,436	40,998	18,840	30,930

Source: Community Statistics on Income and Living Conditions (EU-SILC) cross-sectional files 2005/2013.

Concerning mean number of hours in each activity (provided they are over zero), the longer the time mothers spend in paid employment, the longer the time children spend in formal and informal care. The latter is always shorter than time in formal care, with the only exception of the Scandinavian countries, where it is anyway very rarely used.

Country-specific values (Table A.1., in the Appendix) add interesting nuances to the abovementioned trends: the incidence of paid employment and, consequently, the use of formal care amongst pre-schoolers' mothers is much lower in Germany than in the rest of Continental countries. Interestingly, paid employment is more common amongst mothers in Poland than in Hungary but formal care use is more spread in Hungary than in Poland. As a result, although the share of children in informal care is similar in both countries, they spend much more time in informal care in Poland than in Hungary.

The bottom half of Table 1 captures two measures of mutual interdependence of the decisions studied here, which should be later confirmed in the multivariate analysis. First, the ratios between the conditional and the marginal probability: by how much the incidence of an event (mothers' using formal child care) increases when another (mothers being in paid work)

also occurs?[5]. Second, the ratio between average amount of hours in one activity, conditional to the occurrence of the others, and the marginal average amount of hours in that activity. Positive (negative) interdependencies between incidence or duration will be detected when the above explained ratios are significantly larger than (lower than) one.

Mothers' paid employment is very much related with the use of formal care in Eastern countries: mothers' chances to demand formal care increase by 37% when they work. The connection is not so intensive in Central European, Liberal and Southern countries, and it is negligible in Scandinavian countries. Therefore, the correlation between women's labour market status and the use of formal care seems to respond to the provision of public/free (or inexpensive) pre-school centres.

Being in paid employment increases informal care use more than formal one - except in Scandinavian countries as (a) informal external care is directly substitutable by parental care at home, whereas external formal care offers extra benefits for children like skills acquisition and socialisation (Del Boca and Vuri, 2007; Mamolo et al., 2011); (b) informal care may be deployed just to cover time out of pre-school during mothers' extended working day, and (c) formal child care may be publicly provided while informal care provision trends to be provided by private (either in the market or out of the market).

Finally, formal and informal care tend to be mutual substitutes in Scandinavian countries while complementary in the rest of country groups. In Liberal countries mothers using formal child care are more prone to demand informal care as well: when they work, they need to demand both types of care in order to have full coverage of their working day/time. The picture is completed by the ratios in children's mean time in external childcare, as children in formal care spend less time in informal care. Therefore, although formal and informal care incidence may be apparently seen as complementary, they happen to be substitutable in terms of time.

5. Methodology and results

5.1. Methodology

In order to take into account the endogenous nature of mothers' employment status and their demand for formal and informal care, we simultaneously estimate the three decisions with a set of *trivariate tobit* models, where the dependent variables are mothers' time in paid work, mothers' demand for formal child care and demand for informal child care, respectively. This strategy allows us to consider unobserved characteristics that may influence all three decisions at

[5] The Bayes' Theorem proves that the conditional probability of an event A on another, B, over the marginal probability of the occurrence of B equals the conditional probability of B on A over the marginal probability of the occurrence of A.

the same time, causing correlation across them. Since our interest very much relies on detecting differences in the demand for child care and labour market participation across countries, we estimate five welfare/care regime – specific models.

Our *trivariate tobit* model starts from three latent variables, y_{i1}^*, y_{i2}^* and y_{i3}^*, which represent the latent utility of the hours in paid work and the demand for formal child and for informal child care, respectively (Wooldridge 2010):

$$y_m^* = \beta_m' X_m + \varepsilon_m, \qquad m = 1, 2, 3 \tag{1}$$

$$y_m = 1 \text{ if } y_m^* = > 0 \text{ and 0 otherwise} \tag{2}$$

where X_m (m = 1, 2, 3) are the k x 1vectors of observable explanatory variables, β_m (m = 1, 2, 3) are the vectors of unknown coefficients to be estimated, and the error terms, ε_m, represent the impact of unobserved variables on y_m and are normally distributed with mean 0, variances σ_m and covariances $\sigma_{jk} = \sigma_{kj}$, (for j,k = 1,…,3 and $j \neq k$).

The error terms ε_m, may be mutually correlated due to unobservable factors that affect whether (and for how many hours) mothers' are in paid work and demand formal and informal child care, with off-diagonal elements of the variance-covariance matrix (Σ) being ρ_{12}, ρ_{13} and ρ_{23}. When they are significant, it means that estimating the current specification is more efficient and the estimates are less biased than if three equations had been estimated separately. The sign of the pairwise correlation errors contribute to our understanding of complementarities (if positive) or substitutibilities (if negative) between mothers' labour market and external child care decisions and across types of external child care. The multivariate normal probability density function needed to estimate each observations' contribution to the likelihood function does not have a closed form solution and has to be evaluated numerically. The estimation is performed with maximum simulated likelihood methods using the Stata conditional mixed process estimator (CMP) developed in Roodman (2011).

The specifications of the sub-period specific models, the vectors X_m (m = 1, 2, 3) share the following explanatory variables: mothers' age and educational attainment; children's age and number of siblings; mothers' coresident partners' labour force status and some context variables (the degree of urbanisation and year of observation), aimed to serve as proxies of employment opportunities for women and care availability/supply and the economic cycle, respectively. To comply with exclusion restrictions, in the external care estimations also include the position of the household in the household income distribution within the country of residence (in quartiles) and the reception of child/family benefits in the household as a proxy for the institutional help provided to families to pay for external care, particularly the formal type, is included.

We expect the correlation across errors in the three equations to reflect an endogenous relation between mothers' paid employment and the use of external child care, both formal and

informal, although the correlation between them should be milder the larger the provision for public external care is. At the same time, formal and informal external care are expected to be mutual substitutes (negative correlation across errors).

In Table A.2., in the Appendix, the mean values of the explanatory variables are shown: mothers' educational attainment is particularly low in Southern European countries while reaches top values in Scandinavian countries. Only children are more frequent in Southern and Eastern countries, which are the most affected ones by low fertility rates. Family benefits represent a higher share of income in Scandinavian and Central European and even Liberal ones, compared to Eastern and Southern ones. The incidence of single motherhood is much more spread in Liberal countries with nearly one in four children live with a non-partnered mother, followed by Eastern countries (nearly 15%). The share of children brought up in urban environments in Liberal countries is much higher (61%) than the rest, while nearly half of children in Scandinavian countries are brought up in rural, thinly populated areas.

5.2. Analysis and Discussion

Table 2 shows the estimates – expressed as marginal effects - of the five sets of *trivariate tobit* models. In most cases the relevant explanatory variables follow their expected impact on the three outcomes of interest.

The variables related with mothers' human capital, as age and educational attainment, are expected to be positively correlated with paid work and demand for external child care. Education is usually considered an incentive for being in employment; indeed, it has been found that educational attainment is one of the most effective determinant of women's labour participation. The results confirm these assumptions, showing both regressors with a positive effect but age at a decreasing pace but without significant effect in Central and Liberal countries.

As children grow up, we must expect them to spend more and more hours in external formal care, whereas a less clear pattern arises in informal care. However, mothers' participation is not affected by children's age, except in Eastern countries with a positive sign. In Poland and Hungary, most parents still have a traditional view of women's role in paid and unpaid work, implying that women should be prepared to reduce labour force participation for care commitments, hence the reduction in working time is less necessary when the children grow up.

The presence of two or more children in the household discourages mothers' labour force participation, which sometimes means a lower use of external care. Depending on the group of countries, the decrease will be in formal care (Scandinavian, Liberal), or informal care (Southern, Central), or both (Eastern). This result is clearly related with the highly diverse picture of childcare services across Europe, with some countries having a well-developed system of leave

arrangements and affordable high-quality care services, while parents in other countries have to rely on informal solutions (Plantenga and Remery, 2015).

The lack of provision of public aids for single mothers could explain that in Southern countries non-partnered mothers increase their participation as well as the demand for external care. During economic crises, women usually behave as added workers and a positive correlation between their employment hours and their partners' unemployment will be expected. Nevertheless, this effect is not showed by the model results, in fact, the opposite holds, arising that within the couple, women and men labour market situations tend to be positively correlated. According to the human capital theory, there are reasons for both complementary and substituting interactions in couples' work behaviour, they may substitute their labour supply during childbearing years or, following an adverse employment shock, one partner increases his/her work behaviour in response to a reduction of his/her partner's work. On the other hand, spouses may prefer to coordinate their work and leisure in a positive manner, such as shift work or the timing of retirement in later life. However, the interactions in labour market behaviour of spouses may also be changing since married women's labour force participation rate has increased like their educational attainment. This may reduce the opportunities for substitution in the labour market, and may increase the joint impact of labour market shocks and other factors on both spouses together. When the partner is unemployed, the demand of informal care decreases while the link with formal care is hardly ever noticeable, mostly because it can be publicly provided.

The access to informal care through family and friends' networks is easier in small towns due to their proximity. Children living in intermediate and thinly populated areas are sometimes more prone to be in informal childcare and less likely to spend time in formal care than children living in densely populated areas.

The demand for informal - and, particularly, formal - care is related to the position of the household in the within country income distribution (although not always significant). Overall, those in the lowest (highest) tail of the distribution demand less (more) formal and informal care. This happens in Southern countries, but in the Scandinavian and Liberal countries the effect is only on formal, while in the Easter countries is in informal. In Central countries, lower income affects to informal care and higher income affects to formal care. The cost and availability of care services could explain this results (Da Roit and Sabatinelli, 2007)

Compared to families receiving no child benefits at all, beneficiaries of child/family benefits when benefits do not represent a high share of the mothers' income are generally more prone to demand formal and informal care. In the case of non-working mothers receiving family benefits, in Sothern and Eastern countries the demand for external care decreases, but in the

Scandinavian countries formal care use increases. In other scenarios the impact of benefits is more blurred. A systematic comparison of child benefits is difficult. Each country uses a different mix of cash and tax benefits in supporting families and the value of the help provided varies according to the type and size of the family, the age of the child and the family earning (Da Roit and Sabatinelli, 2007)

Finally, there is a positive endogenous relation between mothers' paid employment and the use of external child care, both formal (Connelly and Kimmel, 2003) and informal (Borra and Palma, 2009), as the significance and sign of the correlation across errors in the three equations point out. The coefficients expressing correlation across errors (*athrho*) are quite consistent with the initial picture displayed in Table 1: there is a positive correlation between mothers' being in paid employment and their demand for both formal and informal child care because of unobserved factors that positively influence both decisions. The Scandinavian countries are an exception and the correlation across them are milder because of a larger provision of public external care. At the same time, formal and informal external care were expected (and are shown) to be mutual substitutes (negative correlation across errors) and in Scandinavian countries, where informal care almost non-existent, the negative correlation across the error terms is really large.

In summary, although many variables describing mothers' employment and child care use patterns follow the standard evidence in all country groups, interesting differences across countries arise, which are mostly driven by differences in the provision for formal (either public or private) external care. The achievement of Barcelona's target is not always the only factor to guarantee mothers' participation, as in Southern countries where the informal care is necessary to complement the lack of quality in formal provision and its spread and coverage.

6. Conclusions

In the present paper we have described the interconnectedness across mothers' employment and external child care use. To this aim, we have focused on a particularly relevant stage of women's lifecycle, when they have pre-school children at home. The differences in the national childcare policy systems, the gender policy models and the female labour participation patterns lead us to identify clusters of countries, each of them belonging to a specific welfare state model. We have studied a sample of pre-schoolers drawn from the EU-SILC (2005-2013) in a set of 11 EU countries, grouped in five European models.

The analytical strategy consists of a set of *trivariate tobit* models that allow for mutual interdependencies across decisions and to take into account the distribution of the dependent variables. We have found complementarities between paid employment and child care while formal and informal care are shown to be mutual substitutes, with particular profiles of behaviour

arising for countries where the provision of external, formal childcare is more extended and child care is less dependent on families. The patterns of mothers' employment decisions are shaped by the institutional context; our evidence supports the non-standard economic theories developed in Section 2.1 (Risman and Sainsburies in the nineties and, more recently, Leahy and Doughney's adaptative preferences approach).

It is therefore necessary to go beyond in the provision of formal child care in order to make female labour market decisions as much independent as possible from child care responsibilities. It is also very relevant to develop policies addressed to changing the current attitudes about gender roles in care and intra-household work, including the expansion of formal childcare capacity, the promotion of a more gender-equitable use of both flexible working time arrangements (e.g. part-time work) and parental leave entitlements. This would contribute to women developing their careers according to their preferences and capabilities, which would turn into higher levels of individual wellbeing and labour market efficiency in the allocation of (human) resources.

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Table 2. *Trivariate tobit* model - marginal effects.

		Southern			Scandinavian			Central European			Liberal			Eastern		
		PW	**FC**	**IC**	**PW**	**FC**	**IC**	**PW**	**FC**	**IC**	**PW**	**FC**	**IC**	**PW**	**FC**	**IC**
Mother's age	Age	2.239***	0.813***	0.395***	4.186***	0.440*	-0.307*	2.092	0.499	0.150	1.987	0.557	-0.117	2.681***	0.258**	0.236*
		(0.186)	(0.152)	(0.120)	(0.290)	(0.252)	(0.171)	(2.499)	(1.167)	(0.688)	(2.147)	(0.582)	(1.057)	(0.167)	(0.104)	(0.121)
	Age squared	-0.0259***	-0.0105***	-0.00595***	-0.0545***	-0.00690**	0.00405*	-0.0271	-0.00744	-0.00229	-0.0257	-0.00719	0.000921	-0.0351***	-0.00392***	-0.00360**
		(0.00258)	(0.00208)	(0.00168)	(0.00407)	(0.00350)	(0.00229)	(0.0382)	(0.0166)	(0.00987)	(0.0319)	(0.00794)	(0.0145)	(0.00244)	(0.00148)	(0.00178)
Mother's educational attainment (*ref.* Up to compulsory education)	Upper secondary education	5.831***	1.148***	0.626***	8.470***	0.541	0.989*	4.993***	0.991	1.096	5.272**	0.640	1.707	6.631***	0.955***	1.401***
		(0.287)	(0.196)	(0.167)	(0.696)	(0.454)	(0.580)	(1.484)	(1.711)	(0.876)	(2.367)	(1.323)	(2.656)	(0.420)	(0.198)	(0.278)
	Tertiary education	9.844***	2.346***	1.251***	9.688***	1.014**	0.575	9.776***	4.120	1.715	9.014***	1.820	2.285	13.32***	3.475***	3.917***
		(0.284)	(0.213)	(0.175)	(0.648)	(0.448)	(0.584)	(2.169)	(2.668)	(1.054)	(2.789)	(1.810)	(3.519)	(0.517)	(0.257)	(0.337)
Age of the child (*ref.* Under one year)	1 year	0.917**	11.17***	2.015***	0.150	27.20***	0.522	-0.490	5.158***	1.184	-0.0245	6.557***	4.123***	-0.274	4.872***	3.815***
		(0.362)	(0.585)	(0.242)	(0.428)	(0.745)	(0.563)	(0.342)	(1.453)	(0.776)	(3.291)	(0.611)	(0.789)	(0.379)	(0.903)	(0.346)
	2 years	0.555	21.59***	1.218***	0.413	32.27***	2.324***	1.912	10.03***	1.837***	0.701	11.76***	4.721***	1.633***	10.95***	4.228***
		(0.339)	(0.595)	(0.228)	(0.427)	(0.699)	(0.591)	(6.956)	(1.777)	(0.570)	(1.721)	(0.649)	(0.565)	(0.391)	(1.074)	(0.347)
	3 years	0.483	33.43***	-0.0313	0.455	33.27***	2.784***	3.557	20.07***	1.169*	0.962	17.82***	4.869***	4.536***	24.61***	2.885***
		(0.391)	(0.568)	(0.227)	(0.432)	(0.684)	(0.611)	(3.090)	(0.500)	(0.604)	(1.815)	(0.832)	(0.570)	(0.417)	(1.475)	(0.330)
	4 years	-0.00682	36.60***	-0.601***	0.678	35.30***	2.339***	4.770	28.21***	0.388	1.402	24.52***	3.828***	5.690***	31.93***	1.577***
		(0.447)	(0.552)	(0.227)	(0.437)	(0.694)	(0.630)	(3.454)	(0.466)	(0.729)	(4.227)	(0.954)	(0.770)	(0.422)	(1.656)	(0.317)
	5 years	-0.220	37.55***	-0.439*	1.030**	35.05***	2.244***	5.373	30.37***	0.324	2.129	31.41***	3.278***	6.409***	38.60***	0.829***
		(0.469)	(0.547)	(0.237)	(0.450)	(0.712)	(0.665)	(3.898)	(0.488)	(0.718)	(4.699)	(0.923)	(0.763)	(0.427)	(1.789)	(0.304)
The child has siblings (*ref.* Only child)	Younger than 6 years old only	-2.142***	0.282	-0.849***	-1.453***	-2.036***	-0.459	-5.622	-2.483	-1.893*	-4.891***	-1.563**	-1.208	-5.852***	-0.689***	-1.962***
		(0.217)	(0.198)	(0.132)	(0.301)	(0.282)	(0.333)	(3.761)	(2.272)	(1.058)	(0.705)	(0.782)	(1.447)	(0.236)	(0.174)	(0.195)
	Older than 5 years old only	-3.417***	0.332*	-1.028***	-1.758***	-1.100***	-0.443	-3.627	-2.011	-1.720**	-4.079***	-1.962***	-1.722	-1.787***	-0.594***	-0.562**
		(0.235)	(0.189)	(0.147)	(0.360)	(0.319)	(0.400)	(3.549)	(1.815)	(0.850)	(0.750)	(0.625)	(1.083)	(0.270)	(0.167)	(0.221)
	Younger than 6 and older than 5	-4.917***	0.308	-2.080***	-5.699***	-2.518***	-0.522	-8.522**	-3.818	-2.829*	-7.713***	-2.625*	-2.806	-6.589***	-0.945***	-3.036***
		(0.341)	(0.347)	(0.229)	(0.409)	(0.371)	(0.495)	(3.774)	(3.341)	(1.452)	(0.273)	(1.462)	(2.681)	(0.300)	(0.215)	(0.258)
Mothers' partner's employment status (*ref.* Employed)	Short-term non-employment	-0.639	-0.0968	-1.440***	-5.705***	-0.953*	0.775	-0.433	-1.331	-1.098**	-2.849***	-0.114	-1.214	-1.270**	0.203	-1.925***
		(0.547)	(0.432)	(0.329)	(0.557)	(0.497)	(0.558)	(0.772)	(0.846)	(0.516)	(1.003)	(0.699)	(1.058)	(0.618)	(0.353)	(0.436)
	Long-term non-employment	-1.280***	-0.811**	-1.321***	-	-	-	-0.584	-1.288	-2.228***	-3.767***	-0.737	-2.644*	-1.267***	-0.345	-1.585***
		(0.456)	(0.340)	(0.309)	-	-	-	(0.473)	(0.795)	(0.407)	(1.453)	(0.821)	(1.414)	(0.437)	(0.248)	(0.312)
	No partner present in the household	2.767***	0.861***	1.700***	-4.607***	-0.893*	0.697	-1.533**	0.631	0.757**	-2.850	0.550	1.658***	-1.487***	0.197	0.634***
		(0.366)	(0.310)	(0.240)	(0.568)	(0.527)	(0.623)	(0.729)	(0.562)	(0.297)	(1.918)	(0.405)	(0.620)	(0.283)	(0.184)	(0.236)
Degree of urbanisation (*ref.* Densely populated area)	Intermediate area	0.453**	-0.266	0.446***	0.982***	-0.837***	-0.779**	-0.314	-1.104***	0.514***	0.0251	-0.268	-0.123	-0.489*	-1.878***	0.679***
		(0.214)	(0.173)	(0.126)	(0.320)	(0.275)	(0.337)	(1.076)	(0.165)	(0.160)	(0.273)	(0.165)	(0.162)	(0.281)	(0.161)	(0.234)
	Thinly populated area	-1.450***	-0.537***	0.0901	-0.639**	-0.800***	-0.402	0.813	-0.514	0.699**	0.424	-0.592***	-0.257	0.316	-2.521***	1.344***
		(0.235)	(0.185)	(0.148)	(0.288)	(0.262)	(0.303)	(1.579)	(0.403)	(0.314)	(0.491)	(0.205)	(0.232)	(0.233)	(0.154)	(0.187)
	No answer	-	-	-	-	-	-	-	-	-	1.061	-2.750***	0.284	-	-	-
		-	-	-	-	-	-	-	-	-	(3.009)	(0.386)	(1.004)	-	-	-
Overall disposable household income (*ref.* Quartile 2/3)	Quartile 1	-	-0.789***	-1.482***	-	-0.823***	-0.269	-	-0.207	-0.569*	-	-0.493**	0.311	-	-0.171	-1.013***
		-	(0.189)	(0.157)	-	(0.280)	(0.316)	-	(0.521)	(0.308)	-	(0.200)	(0.222)	-	(0.161)	(0.185)
	Quartile 4	-	1.263***	0.892***	-	0.493*	0.263	-	1.105***	0.0641	-	1.185***	0.309	-	0.0901	0.527***
		-	(0.201)	(0.141)	-	(0.259)	(0.316)	-	(0.286)	(0.193)	-	(0.226)	(0.321)	-	(0.155)	(0.188)

Table 2. *Trivariate tobit* model - marginal effects *(cont.*).

Family/child benefits & mothers' income (*ref.* No Family/child benefits)	Family/child benefits less than 50% income	-	1.587***	2.194***	-	7.033***	1.839**	-	1.721***	1.250***	-	0.321	0.601	-	-1.387***	0.920***
		-	(0.210)	(0.146)	-	(1.019)	(0.889)	-	(0.441)	(0.242)	-	(0.687)	(0.705)	-	(0.183)	(0.227)
	Family/child benefits at least 50%+ income	-	0.802*	0.353	-	5.938***	2.368**	-	1.413	0.692	-	0.0279	-0.695	-	-0.840***	0.411
		-	(0.421)	(0.291)	-	(1.213)	(1.035)	-	(1.989)	(0.785)	-	(0.910)	(1.266)	-	(0.214)	(0.273)
	Family/child benefits & mother no income	-	-1.406***	-2.275***	-	5.357***	-0.0277	-	0.465	-1.490	-	-0.475	-2.386**	-	-2.504***	-1.231***
		-	(0.264)	(0.223)	-	(1.450)	(1.336)	-	(3.078)	(1.415)	-	(1.099)	(1.214)	-	(0.192)	(0.224)
Country (*ref.* Spain, Sweden, Germany, United Kingdom, Poland)	Italy	-1.156***	0.321*	3.723***	-	-	-	-	-	-	-	-	-	-	-	-
		(0.204)	(0.176)	(0.120)	-	-	-	-	-	-	-	-	-	-	-	-
	Denmark	-	-	-	0.553**	5.114***	-4.675***	-	-	-	-	-	-	-	-	-
		-	-	-	(0.248)	(0.259)	(0.357)	-	-	-	-	-	-	-	-	-
	Netherlands	-	-	-	-	-	-	9.577	1.635	6.677***	-	-	-	-	-	-
		-	-	-	-	-	-	(6.970)	(2.494)	(2.083)	-	-	-	-	-	-
	France	-	-	-	-	-	-	10.91***	7.355***	2.697***	-	-	-	-	-	-
		-	-	-	-	-	-	(4.186)	(2.575)	(0.945)	-	-	-	-	-	-
	Ireland	-	-	-	-	-	-	-	-	-	0.179	-1.636***	-0.641	-	-	-
		-	-	-	-	-	-	-	-	-	(2.938)	(0.275)	(0.478)	-	-	-
	Hungary	-	-	-	-	-	-	-	-	-	-	-	-	-6.060***	8.487***	-1.176***
		-	-	-	-	-	-	-	-	-	-	-	-	(0.190)	(0.204)	(0.168)
Year (*ref.* 2005)	2006	0.773**	0.177	0.238	1.272**	0.234	2.981***	2.099***	0.0299	-1.365***	0.138	-0.464	0.642	-0.869**	-0.386	0.0224
		(0.389)	(0.308)	(0.225)	(0.537)	(0.457)	(0.875)	(0.666)	(0.276)	(0.167)	(1.349)	(0.283)	(0.423)	(0.390)	(0.254)	(0.294)
	2007	0.736*	-0.312	0.350	1.609***	0.495	2.995***	2.530***	-0.0903	-0.355	0.891*	-0.564*	1.072***	-0.468	0.235	-1.075***
		(0.396)	(0.304)	(0.230)	(0.533)	(0.457)	(0.882)	(0.720)	(0.633)	(0.303)	(0.470)	(0.289)	(0.328)	(0.410)	(0.268)	(0.291)
	2008	1.339***	0.242	-0.145	-0.746	1.060**	2.188**	3.298***	1.235	-0.915***	0.255	-0.402	0.768**	-0.444	0.236	-1.614***
		(0.398)	(0.318)	(0.221)	(0.496)	(0.453)	(0.853)	(1.039)	(0.952)	(0.339)	(0.898)	(0.287)	(0.342)	(0.415)	(0.278)	(0.292)
	2009	0.856**	0.284	-0.601***	0.0521	0.214	2.247**	3.038***	1.725*	-1.328***	0.141	-0.264	1.479***	-0.281	0.220	-1.955***
		(0.388)	(0.314)	(0.217)	(0.505)	(0.473)	(0.886)	(0.919)	(0.962)	(0.261)	(0.656)	(0.327)	(0.347)	(0.414)	(0.281)	(0.302)
	2010	0.778**	0.0895	-0.464**	0.255	0.277	2.150**	3.486***	2.020**	-1.535***	0.0244	0.291	0.858**	-0.467	1.076***	-2.087***
		(0.389)	(0.306)	(0.217)	(0.509)	(0.471)	(0.842)	(0.883)	(0.940)	(0.235)	(0.595)	(0.328)	(0.374)	(0.414)	(0.292)	(0.296)
	2011	1.266***	1.328***	0.224	-0.652	1.627***	2.131**	3.982***	2.239*	-1.536***	0.975	0.496	0.552	-0.971**	1.211***	-2.511***
		(0.400)	(0.318)	(0.221)	(0.513)	(0.483)	(0.861)	(1.245)	(1.176)	(0.262)	(1.162)	(0.326)	(0.341)	(0.414)	(0.297)	(0.292)
	2012	1.020**	-0.0454	-0.144	2.499***	1.486***	1.248	3.874***	1.927	-1.349***	1.422	-1.538***	1.456***	-1.096***	1.751***	-3.068***
		(0.409)	(0.311)	(0.228)	(0.557)	(0.502)	(0.828)	(1.206)	(1.302)	(0.387)	(2.569)	(0.293)	(0.537)	(0.401)	(0.318)	(0.285)
	2013	0.605	-0.489	-0.169	2.250***	2.502***	2.126**	4.030**	1.946	-1.057**	1.388	-1.380***	1.478***	-1.069***	2.110***	-2.115***
		(0.417)	(0.310)	(0.229)	(0.573)	(0.531)	(0.887)	(1.724)	(1.465)	(0.510)	(2.545)	(0.294)	(0.487)	(0.411)	(0.305)	(0.295)
Atrho21: work & formal care **Atrho31: work & informal care** **Atrho32: : formal & informal care**		**Atrho21** 0.0985*** (0.00872)	**Atrho31** 0.228*** (0.0113)	**Atrho32** -0.145*** (0.00984)	**Atrho21** 0.120*** (0.00986)	**Atrho31** -0.0368 (0.0237)	**Atrho32** -0.797*** (0.0360)	**Atrho21** 0.314*** (0.0603)	**Atrho31** 0.311*** (0.115)	**Atrho32** -0.260*** (0.0638)	**Atrho21** 0.147*** (0.0182)	**Atrho31** 0.289*** (0.0582)	**Atrho32** -0.135*** (0.0176)	**Atrho21** 0.204*** (0.0115)	**Atrho31** 0.367*** (0.00991)	**Atrho32** -0.187*** (0.0115)
-2Log Likelihood			-3,42E+11			-6,19E+10			-5,67E+11			-2,59E+11			-1,51E+11	
Observations (children-mothers)		35,937	35,937	35,937	17,436	17,436	17,436	40,998	40,998	40,998	18,840	18,840	18,840	30,930	30,930	30,930

Source: Community Statistics on Income and Living Conditions (EU-SILC) cross-sectional files 2005/2013.

Appendix

Table A.1. Mean values of dependent variables, by country.

		Paid work		Formal care		Informal care	
		Incidence (%)	**Mean hours (if h > 0)**	**Incidence (%)**	**Mean hours (if h > 0)**	**Incidence (%)**	**Mean hours (if h > 0)**
Southern	Spain	58.31	34.30	68.47	27.95	16.91	20.36
	Italy	57.00	32.98	63.23	32.39	41.12	17.04
Scandinavian	Denmark	82.72	35.00	85.53	34.14	0.28	27.91
	Sweden	81.58	32.32	69.20	31.54	3.64	26.31
Central European	Germany	45.77	23.99	57.00	26.38	17.25	12.46
	France	67.38	33.37	69.67	29.42	26.84	18.76
	Netherlands	76.46	24.29	72.08	19.63	61.07	10.70
Liberal	Ireland	52.16	28.59	48.69	21.33	27.40	20.45
	United Kingdom	53.29	26.46	58.89	19.49	41.46	14.68
Eastern	Hungary	29.82	37.94	52.49	34.49	32.98	12.25
	Poland	51.40	37.82	20.91	33.77	32.11	26.64

Source: Community Statistics on Income and Living Conditions (EU-SILC) cross-sectional files 2005/2013.

Table A.2. Mean values of variables used in the multivariate model.

		Southern	Scandinavian	Central E.	Liberal	Eastern
Dependent variables	Hours of paid work	19.25	26.72	17.29	14.27	18.38
	Hours of formal care	19.71	24.49	17.05	11.53	9.78
	Hours of informal care	5.26	6.52	4.12	6.20	7.86
Mother's age	Age	35.12	34.05	33.48	32.56	31.50
	(Standard deviation)	(5.08)	(4.98)	(5.20)	(6.27)	(5.42)
Mother's educational attainment	Up to compulsory education	31.19	8.05	11.06	10.26	10.18
	Upper secondary education	32.42	38.67	41.83	50.00	51.73
	Tertiary education	36.39	53.27	47.12	39.74	38.09
Age of the child	Under one year	16.15	16.09	13.39	10.86	16.78
	1 year	15.94	16.92	16.59	17.36	16.54
	2 years	16.75	16.77	16.81	18.02	16.79
	3 years	16.82	17.02	17.55	18.76	16.97
	4 years	17.14	16.76	18.03	17.82	16.68
	5 years	17.21	16.44	17.63	17.18	16.23
The child has siblings	Only child	39.10	26.49	30.96	30.28	38.19
	Younger than 6 years old only	30.27	40.37	37.63	37.49	25.68
	Over 5 years only	26.02	22.88	21.96	20.53	27.85
	Older than 5 years old only	4.62	10.27	9.45	11.70	8.28
Mothers' partner's employment status	Employed	84.02	86.37	84.94	67.96	76.33
	Unemployed	3.46	0.00	2.22	1.98	2.99
	Inactive person	5.09	5.25	4.31	6.14	5.77
	No partner in the household	7.43	8.38	8.52	23.91	14.91
Degree of urbanisation	Densely populated area	46.51	27.05	39.03	61.36	36.07
	Intermediate area	33.31	24.27	30.29	22.98	17.74
	Thinly populated area	20.18	48.68	19.34	12.17	46.19
	No answer	0.00	0.00	0.02	3.50	0.00
	Population Netherlands	0.00	0.00	11.32	0.00	0.00
Overall disposable household income	Quartile 1	26.53	29.92	28.19	25.64	22.83
	Quartile 2	24.61	24.69	25.97	25.62	24.16
	Quartile 3	24.81	23.91	23.20	24.34	25.18
	Quartile 4	24.05	21.48	22.64	24.39	27.83
Family/child benefits & mothers' income	No Family/child benefits	57.03	4.14	6.19	1.61	35.78
	Family/child benefits < 50% of the mothers' income	26.69	63.62	46.40	43.95	18.56
	Family/child benefits 50%+ of the mothers' income	4.73	28.61	29.83	16.79	11.81
	Family/child benefits & mother has no personal income	11.55	3.62	17.58	37.65	33.85
Country	Spain	44.55	-	-	-	-
	Italy	55.45	-	-	-	-
	Denmark	-	35.47	-	-	-
	Sweden	-	64.53	-	-	-
	Germany	-	-	39.57	-	-
	France	-	-	49.11	-	-
	Netherlands	-	-	11.32	-	-
	Ireland	-	-	-	7.54	-
	United Kindgom	-	-	-	92.46	-
	Hungary	-	-	-	-	20.02
	Poland	-	-	-	-	79.98
Year	2005	11.29	9.90	10.91	10.05	9.31
	2006	11.56	10.33	11.39	10.68	10.86
	2007	11.51	10.99	11.54	10.73	10.69
	2008	11.01	11.50	11.20	10.80	11.22
	2009	10.86	10.31	11.11	11.09	10.81
	2010	11.51	11.44	11.09	11.72	11.59
	2011	10.77	12.06	11.07	11.72	11.64
	2012	10.66	11.97	11.08	11.29	12.12
	2013	10.81	11.52	10.61	11.92	11.77
Number of mothers/households		29,782	13,056	31,023	14,154	25,360
Number of observations (children-mothers)		35,937	17,436	40,998	18,840	30,930

Source: Community Statistics on Income and Living Conditions (EU-SILC) cross-sectional files 2005/2013.

Table A.3. Institutional settings (2013).

		Public expenditure on childcare and pre-school			**Paid child-related leave periods by duration the full-rate equivalent (FRE) of the leave period if paid at 100% of usual earnings. and the remaining "unpaid" weeks**								
					Maternity leave			Paternity leave			Parental leave		
		Childcare spending as a % of GDP	Pre-primary spending as a % of GDP	Total spending as a % of GDP	Weeks of entitlement	FRE	Unpaid leave	Weeks of entitlement	FRE	Unpaid leave	Weeks of entitlement	FRE	Unpaid leave
Southern	Spain	0.5	0.1	0.4	16.0	16.0	0.0	2.1	2.1	0.0	0.0	0.0	0.0
	Italy	0.1	0.4	0.5	21.7	17.3	4.3	17.3	5.2	12.1	26.0	7.8	18.2
Scandinavian	Denmark	-	-	1.4	18.0	9.3	8.7	2.0	1.0	1.0	32.0	16.5	15.5
	Sweden	1.1	0.5	1.6	15.6	12.5	3.1	10.0	7.8	2.2	44.4	27.4	17.1
Central European	Germany	0.2	0.4	0.6	14.0	14.0	0.0	8.7	4.3	4.4	43.3	21.4	21.9
	France	0.6	0.7	1.3	16.0	15.7	0.3	2.0	2.0	0.0	26.0	4.9	21.1
	Netherlands	0.3	0.4	0.7	16.0	16.0	0.0	0.3	0.3	0.0	26.0	4.8	21.2
Liberal	Ireland	-	-	0.5	42.0	10.9	31.1	0.0	0.0	0.0	0.0	0.0	0.0
	United Kingdom	0.1	0.7	0.8	52.0	11.7	40.3	2.0	0.4	1.6	0.0	0.0	0.0
Eastern	Poland	0.5	-	-	22.0	22.0	0.0	1.0	1.0	0.0	104.0	13.3	90.7
	Hungary	0.1	0.5	0.6	24.0	16.8	7.2	1.0	1.0	0.0	136.0	28.4	107.6

Source: Organisation for Economic Co-operation and Development (OECD).