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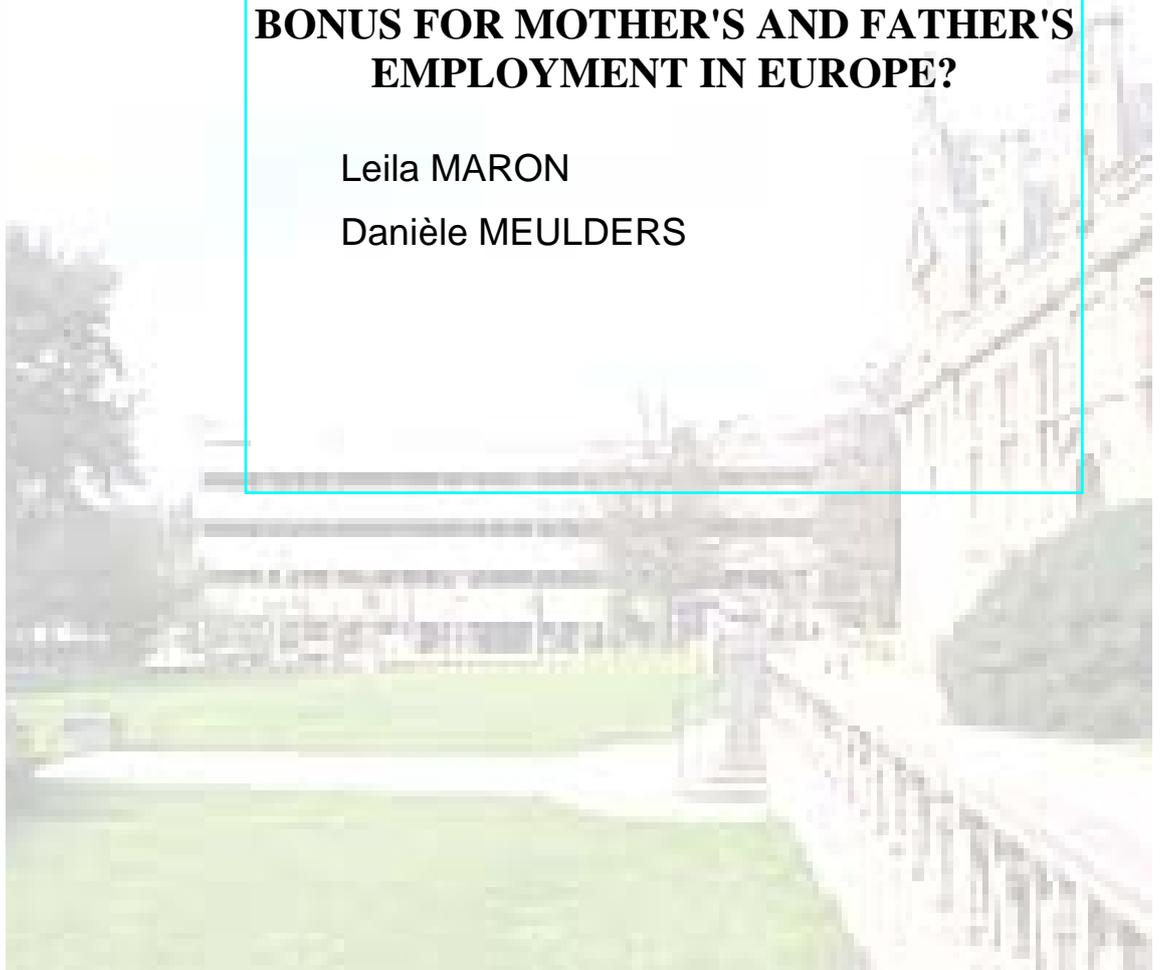
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**HAVING A CHILD: A PENALTY OR
BONUS FOR MOTHER'S AND FATHER'S
EMPLOYMENT IN EUROPE?**

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HAVING A CHILD: A PENALTY OR BONUS FOR MOTHER'S AND FATHER'S EMPLOYMENT IN EUROPE?

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Abstract: In this paper, we aim to study the impact of the presence of young children in the home on mother's and father's employment patterns.

The results show that motherhood has an important and negative impact on labour market participation both in terms of part-time and inactivity and the child effect decreases with the age of the youngest child.

As far as men are concerned, regression results show that the link between fatherhood and men's hours worked tends to be reversed in comparison with women (fathers work more hours than their childless counterparts) and suggest that men assume their good-provider role.

Keywords: parenthood, female participation, labour market conditions dual-earner couples, work effort

JEL codes: J13, J21, J22

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1. Introduction

While the effects of motherhood on women's work are well documented, little attention has been given to the effects of fatherhood on men's employment (Kaufman and Uhlenberg, 2000). Despite the large increase in female participation in the labour market since 1960, women with children are still less likely to work than non-mothers. Being a mother tends to conflict with paid work outside the home and maternity has various effects on be in mother's professional career: it can lead them to give up their work (temporarily or definitively), encourage them to reduce their working time, lead them to change professions or branches of industry, slow down the progression of their career and their wages. These effects are observed to variable degrees in the various European countries.

At the opposite, and this phenomenon is observed everywhere in Europe, paternity may exert positive effects on employment: fathers work more and under better conditions than men without children.

In this paper, the objective is to examine the way in which becoming a parent affects the amount of time that men and women spend in paid employment in 13 European countries.

We examine the link between work and parenthood in Europe and estimate the impact of taking charge of a child on labour market participation and on working hours of women and men using data from the European Survey on Income and Living Conditions (EU-SILC – 2004) for 13 countries. Female labour supply is not just studied in terms of participation versus non-participation but we also distinguish between the effect of motherhood on women's probability to hold part-time versus full-time jobs.

The theoretical and empirical framework is discussed in the next section. In Section 3, we present the model to estimate the employment penalties faced by mothers as compared with childless women in the 13 countries and the regression results using 2004 EU-SILC data. Section 4 analyses the link between fatherhood and men's hours worked. Finally, section 5 concludes.

2. Theoretical and empirical background

Parenthood is a major determinant of labour market participation and it has a very different incidence on male and female employment due to the fact that women and men differs in terms of allocation of resources between to their role as workers and as parents (Bielby and Bielby, 1989). Women tend to identify more with their family role than do men and they give priority to this role. As a result, activity profiles of fathers and mothers are expected to differ. Despite changes in gender roles since the sixties, the traditional effect of parenthood on work effort persists: mothers tend to be responsible for childcare while fathers assume the breadwinner role and work more in order to meet the family's economic needs and bring home more money. In general, the employment rate of women who have no children is higher than the employment rate of their counterparts with children while the reverse is observed among men (De Henau and al., 2004).

Mothers' and fathers' labour market situation depends on their economic and ideological characteristics but also on other factors such as discrimination, stereotypes, institutional context, public policies, and so forth.

Different theories explain labour market participation and the intra-household distribution of tasks.

Household production theory suggests that families allocate their time between market work, home unpaid work and leisure so as to maximise their earning potential. Due to his

characteristics (human capital, wage earning ability, occupational position, etc.), the man does less domestic labour since his resources increase the value of time in paid work more than that of time in unpaid work (Leibenstein, 1954; Samuelson, 1956; Becker, 1960, 1965, 1974, 1981; Geerken and Gove, 1983).

According to the new home economics perspective and the human capital theory, men and women do the activities in which they are most productive: men specialise in external work for pay while women specialise in unpaid work (household task and care of children) (Parsons and Bales, 1955; Becker, 1960, 1962, 1965, 1974, 1981, 1991; Blau and al., 1998).

The household bargaining or relative resource model considers that the individual with the most resources (which can be measured by wage and other incomes, education, professional prestige, and so forth) has more influence on distribution of tasks and can more easily decide to do not household work and care of children (Blood and Wolfe, 1960; Farkas, 1976; Coverman, 1985; Kamo, 1988; Goldscheider and Waite, 1991; Brines, 1993; Blau and al., 1998).

According to the demand/response perspective, the allocation of time between men and women can be explained by the available time they have for domestic work which depends on demand (number of children, family size, and so forth) and response factors (wage, working time, and so forth) (Stafford and al., 1977; Perruci and al., 1978; Coverman, 1985).

Finally, the gender role perspective suggests that during their childhood, men and women are socialised within roles adapted to their sex (Parsons and Bales, 1955; Eagly, 1987; Edley and Wetherell, 1995; Fischer, 1997).

According to classical labour supply theory, maternity affects the decision of whether or not to engage in paid work and, if yes, for how many hours. The presence of a child generally increases the time spent out of the labour market and in particular during the first years following childbirth (Shapiro and Mott, 1979; Cramer, 1980; Waite and al., 1985; Joshi and al., 1996; Gornick and al., 1997; Sanchez and Thomson, 1997; Falzone, 2000; Kaufman and Uhlenberg, 2000; Kenjoh, 2003).

Findings from existing research are generally consistent with the expectation of a negative relationship between motherhood status and women's employment. The number of children decreases the probability to participate in the labour market compared with a woman with the same characteristics but no children and mothers taking charge of young children are less likely to be employed (Gornick and al., 1997; Kaufman and Uhlenberg, 2000). In terms of hours worked, mothers work on average 5 hours less per week than childless women and the presence of young children has the strongest impact: mothers with a child aged between 0 and 5 years work 4 hours per week less than those without children and this effect persists but becomes smaller when the child grows up (Kaufman and Uhlenberg, 2000).

In their study, Gornick and al. (Gornick and al., 1997) found significant child penalties in half of fourteen OECD countries: Australia, Canada, Germany, the Netherlands, Norway, United States and United Kingdom. The effect is largest in this last country where the presence of a child aged between 0 and 2 years reduces the probability of employment by 45 percentage points and the presence of a child aged between 3 and 6 years is associated with a 31 percentage point decrease. Motherhood employment penalties are stronger for mothers of infants than of preschool-aged children.

In a more recent study, De Henau, Meulders and al. (De Henau and al., 2004) found that infants are associated with a significant and strong impact on inactivity and part-time in Luxembourg, Ireland, Austria, The Netherlands, the United-Kingdom and Germany but the size of this effect differs between countries. In Belgium, motherhood has no significant effect while a small but significant effect is measured in Denmark in terms of inactivity.

This phenomenon conforms to the traditional model of specialisation of gender roles in the household: the woman takes care of the children and the family while the man is the financial provider. This is particularly true when the number of children rises. The employment gap between men and women then grows more strongly. However, since the beginning of the eighties, the activity rates of the women having three children or more tend to increase in all European countries but at a different degree and in different intervals (Maruani, 2000).

The effect of children on male commitment to work is somewhat less clear. Two competing models can be distinguished (Goldscheider and Waite, 1991; Hyde and al., 1993). The "good provider" model (Bernard, 1981), the more traditional one, suggests that fathers tend to work more than non-fathers while the "involved father" model predicts that fatherhood will encourage men to work less (Kaufman and Uhlenberg, 2000).

Many studies are consistent with the first theory as they found a positive relationship between fatherhood and men's employment. Among men who are employed, both being married and having children both lead to a greater work effort and likelihood of being on a career track (Uhlenberg and Cooney, 1990; Cooney and Uhlenberg, 1991; Sanchez and Thomson, 1997; Deven and al., 1998; Nock, 1998a, 1998b; Kaufman and Uhlenberg, 2000; O'Brien and Schemilt, 2003; De Henau and al., 2004) but some studies find no child effect on men job's commitment or work schedules (Pittman and Orthner, 1988; Presser, 1995; Dermott, 2006). Others studies indicate that breadwinning is one of the most fundamental pillars of male identity (Morgan, 1992) and that this role is an important component of men's fathering identity and their form of commitment to family life (Warin and al., 1999; Hatten and al., 2002). According to Cramer (Cramer, 1980), fatherhood puts additional pressure on men to earn more because they are the family's principal wage earner and having an additional child increases the number of hours that fathers work outside the home. In a more recent study, Nock (Nock, 1998b) found that married men increase their work effort by about two weeks per year when they have their first child. Kaufman and Uhlenberg (Kaufman and Uhlenberg, 2000) found two opposite effects of fatherhood: fathers with traditional attitudes work nearly 11 hours more per week than their counterparts without children and fathers with more egalitarian attitudes decrease their work by 9 hours per week compared with non-fathers. According to these theoretical accounts and empirical studies, the presence of a child may have an impact on fathers' employment behaviour: if a man connects his fathering role with breadwinning, he will probably raise his work effort and at the opposite, he will spend less time in employment than non-fathers if he wants to be involved in the childcare. Finally, fatherhood may be irrelevant to men's behaviour on the labour market.

The conclusions based on simple comparisons between fathers and non-fathers may be problematic because of the presence of other variables (Dermott, 2006). Indeed, the transition to fatherhood is between the ages of 25 and 45 and the average age at first childbirth occurs around 30. This period is also key for career progression and stabilization and "the transition to parenthood and career development may be independently associated with an increased level of job commitment and concomitant increased hours of employment for men" (Dermott, 2006). It is important to take all relevant variables into account when we examine the link between fatherhood and work effort.

3. A cross-sectional analysis of motherhood-induced employment gaps

3.1 The model

To compute the employment penalties induced by maternity, we first estimate at the individual level labour market participation equations, allowing for three possible outcomes: full-time, part-time and inactivity. To do so, two different methodologies are applied: the first model, based on the methodology applied by Gornick (Gornick and al., 1998) and De Henau, Meulders and O'Dorchai (De Henau and al., 2006), includes age and education as proxy variables for wage while the second model directly includes wage. The latter method requires applying the Heckman two-stage estimation procedure (Heckman, 1979) to investigate the existence of selection bias.

Both methodologies consist in estimating a labour supply model that computes the probability of three outcomes: work full-time, work part-time and inactivity or non participation (including unemployment)¹. Given this discrete outcome structure for the dependent variable, a multinomial logit model with unordered dependent variable is appropriate:

$$\Pr(y_i = FT) = \frac{1}{1 + e^{X_i \hat{\beta}^{(2)}} + e^{X_i \hat{\beta}^{(3)}}}$$
$$\Pr(y_i = IN) = \frac{e^{X_i \hat{\beta}^{(2)}}}{1 + e^{X_i \hat{\beta}^{(2)}} + e^{X_i \hat{\beta}^{(3)}}}$$
$$\Pr(y_i = PT) = \frac{e^{X_i \hat{\beta}^{(3)}}}{1 + e^{X_i \hat{\beta}^{(2)}} + e^{X_i \hat{\beta}^{(3)}}}$$

where $\Pr(y_i = FT)$, $\Pr(y_i = IN)$ and $\Pr(y_i = PT)$ are the respective probabilities that the three possible outcomes occur (respectively full-time, inactive, part-time), arbitrarily taking the full-time employed as the reference group², X_i is a vector of observed characteristics of individual i and $\hat{\beta}^{(2)}$ and $\hat{\beta}^{(3)}$ are the sets of estimated coefficients corresponding to the inactivity and part-time outcomes respectively. Note that we estimate the sets of coefficients separately by country.

To make the interpretation of the coefficients easier, we use the concept of “relative risk ratios”. For example, the probability of ($y=IN$) relative to that of the base group ($y=FT$) is

$$\frac{\Pr(y_i = IN)}{\Pr(y_i = FT)} = e^{X_i \hat{\beta}^{(2)}}$$

It follows that the natural logarithm of the odds ratio of being inactive to having a full-time job – the so-called relative risk ratio (rrr) – is in fact a linear combination of the independent or explanatory variables.

¹ The categories of inactivity and unemployment could not be distinguished because of the data used and unemployed women are negligible in our sample.

² We have used the statistical software Intercooled Stata 9.0. For more details on the multinomial logit estimation, see Greene (2003) Greene W. H. *Econometric analysis - Fifth edition*, Prentice Hall.

In the second stage of the model, we compute differences in average national full-time equivalent employment rates for mothers and non-mothers based on their probabilities to either work full-time, part-time or to be inactive obtained in the multinomial logit model.

Then, a decomposition exercise on the multinomial logit model (called the method of recycled predictions) allows to test whether or not the employment gap that separates mothers from their counterparts without children is mainly due to the fact that they have different personal characteristics (such as age, level of education or partner's income) or rather to the presence of a child. In other words, the decomposition technique yields an answer to the question whether the employment gap between mothers and non-mothers is due to motherhood or to other individual characteristics by isolating the net employment effect associated with the presence of children from that emerging from differences in characteristics between mothers and non-mothers. We thus obtain net motherhood-induced employment gaps for each country.

The child effect net of the effect caused by differences in characteristics is estimated on a pooled sample of mothers and non-mothers and we assume that characteristics are identically rewarded in both populations and a dummy indicating the presence of a young child captures the entire child effect (although some part of it may be included in the constant term which captures the effect of all unobserved heterogeneity).

The decomposition of the gap in a child and a characteristics effect is approximated as follows:

$$\bar{Y}_j^{MO} - \bar{Y}_j^{NM} = \left[\sum_{i=1}^{N^{MO}} \frac{F(X_i^{MO} \hat{\beta}_j^{PO})}{N^{MO}} - \sum_{i=1}^{N^{NM}} \frac{F(X_i^{NM} \hat{\beta}_j^{PO})}{N^{NM}} \right] + \left[\sum_{i=1}^{N^{MO}} \frac{F(X_i^{MO} \hat{\beta}_j^{PO} + \hat{\gamma}_j^{PO})}{N^{MO}} - \sum_{i=1}^{N^{MO}} \frac{F(X_i^{MO} \hat{\beta}_j^{PO})}{N^{MO}} \right]$$

where:

- \bar{Y}_j^{MO} and \bar{Y}_j^{NM} are the mean probabilities of outcome j (j = inactivity or part-time, relative to full-time) for mothers and non-mothers respectively;
- N^{MO} and N^{NM} are the sample sizes for mothers and non-mothers respectively;
- $\hat{\beta}_j^{PO}$ is the vector of estimated coefficients for the explanatory variables X_i , excluding the child dummy and computed on the pooled sample, and
- $\hat{\gamma}_j^{PO}$ is the pooled estimated coefficient for the dummy indicating the presence of a young child.

The expression within the first pair of brackets represents the difference in terms of characteristics between mothers and non-mothers (the difference in characteristics is isolated by considering that mothers do not have a young child)³ while the expression within the second pair of brackets is the difference due to the presence of a child and is computed based on mothers' characteristics only: the first term is indeed the mean outcome probability for the sample of mothers while the second term is the outcome for "hypothetical non-mothers".

³ In practice, the first term within the brackets corresponds to the "hypothetical non-mothers": we let mothers hold on to their specific distribution of characteristics but we suppose they no longer have children, so that the difference in outcome (with respect to non-mothers) is entirely due to differences in characteristics between the sample of mothers and that of non-mothers. This technique is called the method of recycled prediction.

3.2 Data and sample description

3.2.1 The European Community Statistics on Income and Living Conditions

The data used in this study are taken from the first wave of the new data base Community Statistics on Income and Living Conditions (EU-SILC) for the year 2004. EU-SILC was designed to continue the European Community Household Panel (ECHP) and is therefore strongly similar with the ECHP. EU-SILC is an annual investigation based on a standard questionnaire addressed to a sample of households and individuals representative of the population of each European country in which the survey is carried out. This harmonized questionnaire provides data on households and individuals, related to family situation, living conditions, income, employment, education, and so forth

The variables used for the estimations are described hereafter and all data come from the first wave of EU-SILC which covers the following countries: Austria, Belgium, Denmark, Spain, Estonia, Finland, France, Greece, Ireland, Italy, Luxembourg, Norway, Portugal and finally Sweden⁴.

3.2.2 Sample selection

The selection of the sample was driven by three main criteria: the age of the women, their status of cohabitation and of motherhood.

First, we have selected the women of childbearing age who are likely to have completed the period of full-time education and to be economically active. Therefore, the sample includes women between 25 and 49 years (except self-employed workers). The upper limit is set as low as forty-nine years of age because we only observe an extremely small number of mothers of a child under six years of age beyond this age.

Second, given that employment decisions can greatly differ according to whether a woman is unmarried or living in couple, we also integrated this variable in the analysis. The situation on the labour market of women in a couple tends to be more sensitive when they have children due to the fact that they have less financial constraints than the single mother because of the income of their partner. Given the very different behaviour of single mothers and those living in a couple it would have been too simplistic and even erroneous to group both categories under the unique header of mothers (Gornick and al., 1998). Therefore, we have selected only women in a couple, whether married or not. By retaining only couples, results may contain a selection bias because the decision to live in a couple may be influenced by career-family plans but in this paper, we only draw conclusion for women in a couple, so no bias occurs.

Finally, we define the status of mother as any woman with a child aged less than 15 years in the household. This age is often considered as a limit age, from which the child becomes be less dependent on its parents and more autonomous. In many countries, it is also the age at which school attendance is no longer compulsory and that child becomes active in the labour market. The category of non-mothers includes three subgroups of women: mothers whose youngest child is older than 14 years and still living in the household, mothers whose child or children has/have left the household and, finally, women who have never had a child. The latter two subgroups cannot be distinguished in the EU-SILC. Indeed, the majority of databases, such as EU-SILC, do not give information on maternity when the child left the family unit and the age at which a woman had her first child is unknown. The effects of maternity correspond to the effects of the presence of a child under 15 in the household and the same is true for the analysis carried out on fathers.

⁴ However, we could not include Norway in our analysis because of all variables that we need are not available.

3.3 Variables used in the regressions

The dependent variable is a discrete variable which can take three different outcomes: working full-time, working part-time or not working (including inactivity or non-participation and unemployment)⁵. We consider that part-time work corresponds to less than 30 working hours per week and full time to 30 working hours or more. Because of the poor reliability of the reported number of hours worked in the EU-SILC data set, a distinction between short and long part-time work was not possible. Therefore, the computation of full-time equivalent employment rates rest on the assumption that part-time work is half-time i.e. 20 working hours per week. This assumption could lead to an over-estimate of full-time equivalent employment rates and an undervaluation of the mothers' employment gap between mothers and non-mothers if part-time work in fact corresponds to less than 20 hours per week.

The explanatory variables are the following:

- age;
- level of education;
- marital status;
- potential hourly wage;
- hourly wage of the partner;
- age of the youngest child.

We expect that a woman's age has an effect on her activity through combined age and generation effects. Indeed, younger generations are supposed to participate more in the labour market. Moreover, by including age in our model, we can control for potential labour market experience. The model also includes the quadratic form of the age, given by the age squared, in order to take into account the non-linear relation between a woman's age and her probability of being in one of the three employment outcome categories.

The highest level of education attained is measured by three binary variables indicating if the individual obtained her primary education degree, a secondary or a post-secondary degree. The group of reference is the lowest educational level. Education is expected to have a positive impact on women's attachment to the labour market and on women's full-time labour market participation. Moreover, the level of education may be considered as a proxy for women's earning capacity.

Hourly wage is computed based on the wage in the reference income period, the number of months a woman was working during this period and, finally, the hours currently worked. Potential hourly wage is included in one of our labour supply models in order to take into account the substitution effect or the income effect. The (potential) hourly wage variable is taken in this logarithmic form. Note that, in EU-SILC, wage variables correspond to net amounts or gross amounts depending on the country.

The hourly wage of the partner is also considered. Its effect may be different: it may have a substitution effect or an income effect. According to Cohen and Bianchi (Cohen and Bianchi, 1999) and Prieto-Rodríguez and Rodríguez-Gutiérrez (Prieto-Rodríguez and Rodríguez-Gutiérrez, 2003), it has a negative effect on female labour supply, whether part-time or full

⁵ The categories of inactivity and unemployment could not be distinguished because of the data used and unemployed women are negligible in our sample.

time. The higher is the husband's wage, the higher is the likelihood that a woman withdraw from the labour market in comparison with a situation where the household is financially constrained to dual earning.

The effect may just as well be opposite: a higher income implies a greater financial possibility to pay for the expenses of childcare and thus the mother does not have to stay at home to care for the children.

In order to capture the effect of a second income, the husband's wage is retained in the model since we expect it to influence woman's labour market participation.

We also control for marital status. Note that income taxation systems differ substantially across countries and marital status remains an important determinant in some countries. The dichotomous variable "married" was not included for Estonia because most women in a couple retained in the analysis (that is to say women aged between 25 and 49 years) are married.

Finally, in order to measure the impact of the presence and age of the youngest child, three binary variables were built respectively indicating if the youngest child is aged between 0-2 years, 3-5 years and 6-14 years; the group of reference being when there is no child aged less than 15 years in the household. These age ranges were chosen in accordance to the most common institutional features of childcare and early educational structures implemented throughout the countries sampled. The strongest negative pressure is expected to go out from the presence of a very young child.

It would have been interesting to include non labour income of households because it may have a negative effect on female labour supply (Cohen and Bianchi, 1999) and regions to capture the geographical determinant of labour demand but the EU-SILC provides no information on these variables for 2004.

Detailed descriptive statistics on all variables used in the present analysis and for all 13 European countries are available from the author upon request.

3.4 Regression results

3.4.1 Estimation of the two multinomial logit models

The results of the regressions based on the two different methodologies are available in appendix (the first method includes age and education as a proxy variable for wage while the second one includes wage and corrects for selection bias).

The two methodologies lead to comparable results for the majority of the variables and analyzed countries. They confirm the expected effect of the explanatory variables but the size of these effects differs between countries. The presence of child has a more or less important effect according to its age. In general, this variable explains for a great part mothers' inactivity and part-time work.

Table 1: Effect of a youngest child aged between 0 and 2 years on the probability of part-time work and inactivity

	Part-time	Inactivity
High effect (effect > 3)**	AT, EE, LU	AT, EE, FI, FR, LU, SE
Middle effect (effect < 3)	DK*, ES, FI, FR, IE*, IT	BE*, ES, GR, IE, IT
Irrelevant effect	BE, GR, PT, SE	DK, PT
* The effect becomes irrelevant when the method including predicted wage is used. ** A high effect, more than 3, means that a women having a youngest child aged between 0 and 2 years has a probability to work part-time or to not work higher of more than 3 times compared to a woman who does not have any child aged under 15 years.		

Source: EU-SILC (2004), own calculations

The effect of a youngest child aged between 0-2 years is significant and most pronounced in terms of reduction of the number of hours worked as in terms of inactivity in Austria, Estonia and Luxembourg. In Austria, depending on the methodology used, the probability of working part-time is 3.5 and 3.8 times more important in the presence of a child aged less than 3 years in comparison with a childless woman. In terms of inactivity, these probabilities are respectively 13 and 17.

In Finland, France and Sweden, the presence of a very young child results in more inactivity since the probability of not working increases more than 3 times in these countries.

The effect of an infant is average in terms of part-time work in Denmark, Spain, Finland, France, Ireland and Italy where the probability that a mother of a youngest child aged between 0-2 years reduces her working time is between 1.7 and 2.6 times larger than that for a non-mother. In terms of inactivity, the motherhood effect is average in Belgium, Spain, Greece, Ireland and Italy.

Finally, having a child between 0 and 2 years does not result in any significant effect in terms of reduction of hours in Belgium, Greece, Portugal and Sweden and in terms of inactivity in Denmark and Portugal.

Table 2: Effect of a youngest child aged between 3 and 5 years on the probability of part-time work and inactivity

	Part-time	Inactivity
High effect (effect > 3)**	AT, EE, LU	AT, EE, IE, LU
Middle effect (effect < 3)	BE, DK, ES, FR, IE, IT	BE*, ES, FI, FR, IT
Irrelevant effect	FI**, GR, PT, SE	DK, GR, PT, SE**
* The effect becomes irrelevant when the method including predicted wage is used. ** The effect becomes irrelevant when the method including predicted wage is used. *** A high effect, more than 3, means that a women having a youngest child aged between 0 and 2 years has a probability to work part-time or to not work higher of more than 3 times compared to a woman who does not have any child aged under 15 years.		

Source: EU-SILC (2004), own calculations

The presence of a youngest child aged between 3 and 5 years has a high impact both in terms of part-time work and inactivity in Austria (where the "relative risk ratio" which gives the

increase in probability, goes up to 9.9), Luxembourg and Estonia. Irish mothers are 4 times more likely no to work than those without children.

This effect is weaker in Belgium, Denmark, Spain, France, Ireland and Italy in terms of part-time work and in Belgium, Spain, Finland, France and Italy in terms of inactivity.

Finally, having a pre-schoolers does not appear significant in terms of part-time in Finland, Greece, Portugal and Sweden and in terms of inactivity in Denmark, Greece, Portugal and Sweden.

These results are in general similar to those of De Henau, Meulders and O'Dorchai (2006). Both studies find a strong effect of infants and pre-schoolers in Austria, Luxembourg and Ireland in terms of inactivity and part-time; the effect of a youngest child aged between 0 and 2 years is weaker in terms of inactivity in France, Italy and Spain and irrelevant in Belgium, Portugal and Greece. In both studies, an irrelevant impact of a youngest child aged between 3 and 5 years is found in terms of inactivity in Denmark and Greece and in terms of part-time in Finland and Portugal.

In line with our intuition, the level of education is significant and having a post-secondary degree decreases the probability of working part-time in Austria, Belgium, Finland, Ireland, Italy and Spain while it significantly reduces the probability of inactivity in the majority of the countries.

Being legally married appears irrelevant in the majority of countries in terms of part-time work except in Italy and Luxembourg where this probability doubles while it is significant in Austria, France, Italy, Luxembourg and Spain in terms of inactivity with the probability of being inactive multiplied by 1.5 to 3.5 times.

A woman's income is significant and increases her likelihood to work part-time in Ireland, Italy, Austria and Belgium while decreases her probability of being inactive in Belgium, Denmark, Finland, Greece and Sweden.

The partner's income is irrelevant for all countries except Sweden where it increases the probability of working part-time and in Greece and Luxembourg where it increases that of being inactive.

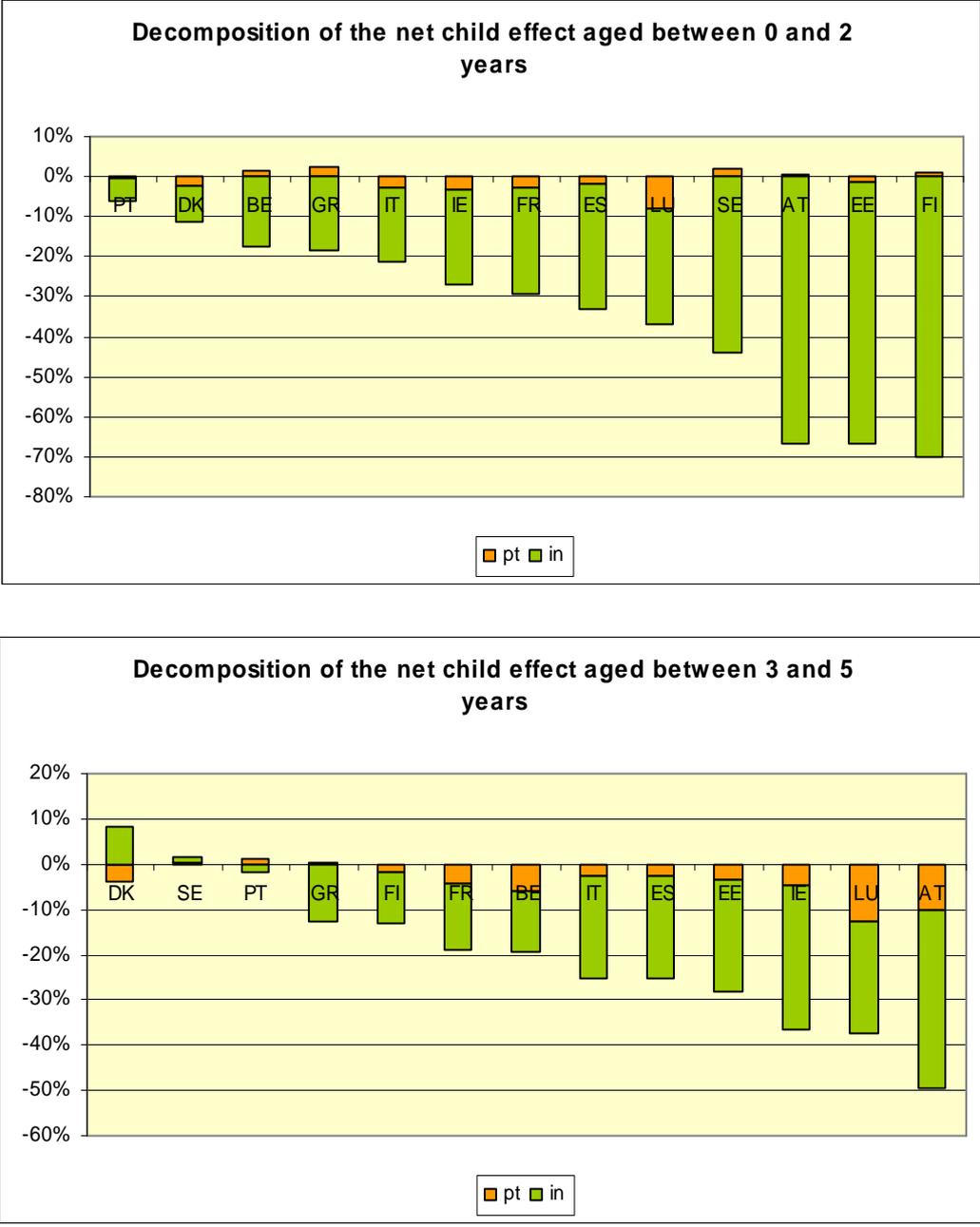
3.4.2 Computation of the gross and the net child effect

Given that one of the main objectives of this analysis is the comparison between countries in terms of full time equivalent employment penalties faced by mothers of young children and that the pure regressions do not allow to draw direct conclusions on part-time and inactivity effects, we have compute the net full-time equivalent employment gap induced by motherhood (see the method of recycled predictions in the discussion of the empirical model).

The net child effect is also decomposed in order to distinguish between the impact in terms of reduction of working hours and that of inactivity. In addition, these effects are computed for children aged between 0 and 2 years and for those aged between 3 and 5 years because, as already illustrated by the analysis of relative risk ratios in the previous sub-section, the size of the net child effect differs between infants and pre-schoolers.

Both methodologies used (age and education versus potential wage) give similar results⁶. Therefore, only the results from the methodology based on age and education as proxies for wages will be presented.

Graph 1: Decomposition of the relative net gap in full-time equivalent employment rates between mothers and non-mothers of 25-49 years of age according to the age of the youngest child – contribution of reduced hours and inactivity



Source: EU-SILC (2004), own calculations

The effect of infants is mainly observed in terms of inactivity and it is the highest in Austria, Estonia and Finland, where it rises with nearly 70%. The employment gap lies between 20

⁶ The differences between the two methodologies applied are shown in appendix.

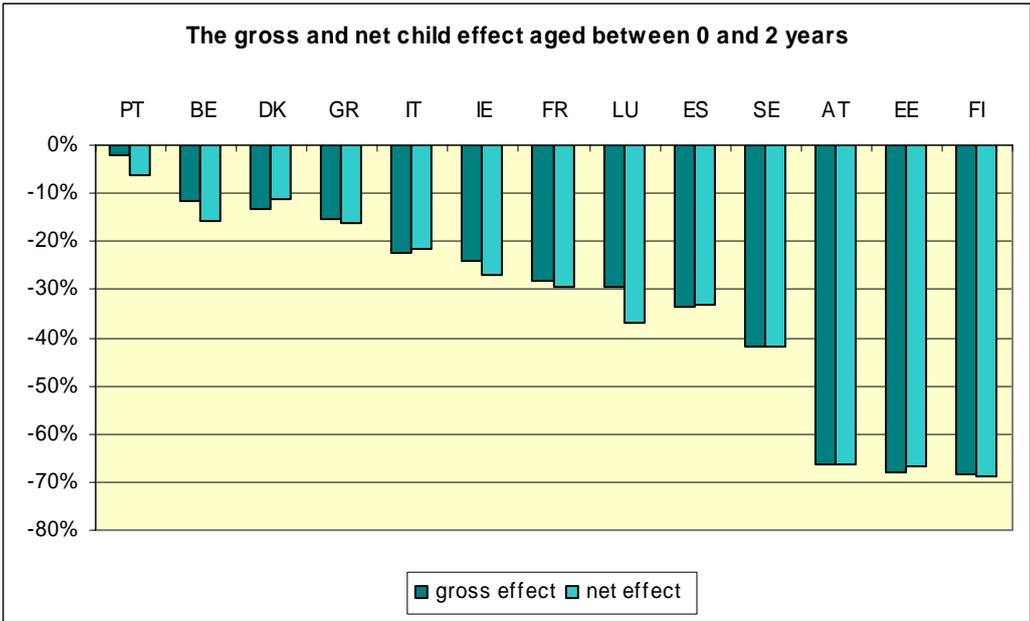
and 45% in Italy, Ireland, France, Spain, Luxembourg and Sweden. Finally, it is weakest in Portugal, Denmark, Belgium and Greece where it is less than 20%.

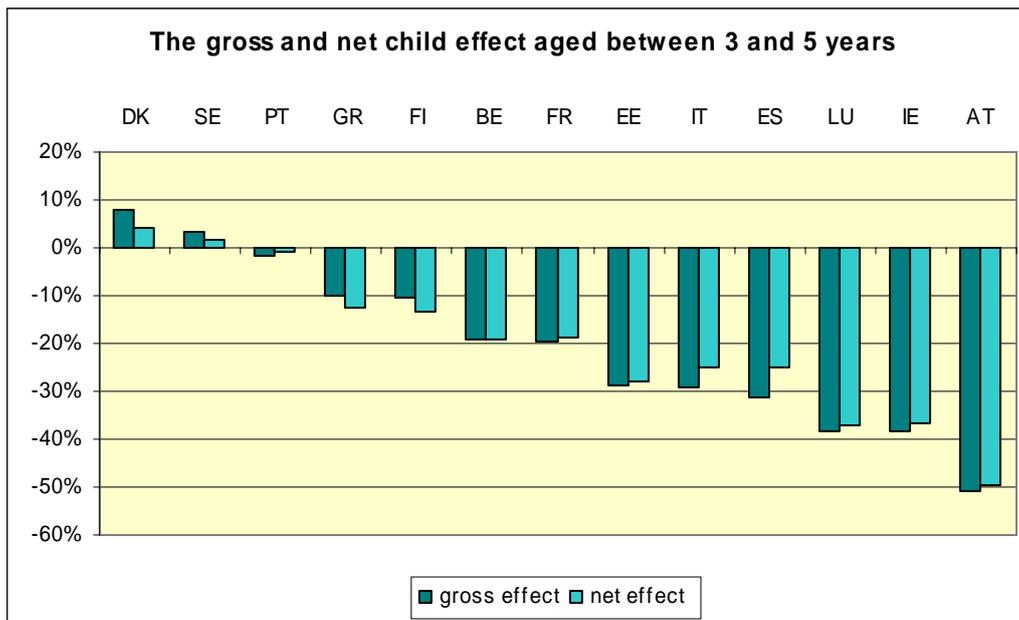
The effect of pre-schoolers is lower than that observed for infants and the part-time contribution to the gap has increased in most countries. Note that in Belgium, Italy and Ireland, the net employment gap between mothers and childless women increases with the age of the youngest child.

These results are similar to those of De Henau, Meulders and O'Dorchai (2006) but are larger for all countries except Portugal, Greece, Ireland and France when we consider infants. As far as pre-schoolers are concerned, our results are in the same range for Denmark, Belgium, France, Luxembourg and Ireland. A stronger effect is found in Greece, Finland and Italy and a weaker one for Spain, Portugal and Austria.

The high employment penalties for mothers in Austria and Luxembourg can be explained by the relatively low coverage rate of the public childcare system for pre-school aged children. In Austria, public policies and cultural norms are more traditionally familialist: they discourage women's economic independence in the couple "by stimulating mothers to choose inactivity rather than part-time work and part-time work rather than full-time jobs" (De Henau and al., 2006) and mothers have to take care of their children themselves. At the opposite, the small or irrelevant child effect and the relatively low motherhood employment gap found in Portugal, Belgium, Sweden and Denmark can be explained by a higher provision of public childcare and better public support for families. The results for Southern countries (except Portugal) can be explained by their low female employment, their little use of part-time, the fact that "the small minority of women who do decide to work are expected to have greater job attachment" (De Henau and al., 2006) and the fact that employed mothers can count on their family networks to take care of their children.

Graph 2: Comparison of the relative gross and net gap in full-time equivalent employment rates between mothers and non-mothers of 25-49 years of age according to the age of the youngest child





Source: EU-SILC (2004), own calculations

In most of countries, the net child effect is close to the gross effect and this is true for both age categories of children. The employment gap between mothers and non-mothers is mainly explained by the presence of a young child and not by the fact that mothers and non-mothers differ in terms of observed characteristics.

Nevertheless, in some countries as Belgium, Ireland, Luxembourg, Portugal, the net effect is larger than the gross effect for a youngest child aged between 0 and 2 years and the same is observed for Greece and Finland when the youngest child is aged between 3 and 5 years. This means that mothers' characteristics decrease the employment gap between mothers and non-mothers, compensating for the negative effect of the presence of a young child at home.

4. A cross sectional analysis of men's working hours

4.1 The model and variables used in the regression

Using the same model as we had applied to compute the employment penalties induced by motherhood does not really make sense in the case of fatherhood because previous research has already noted that the effect of children on male labour participation tends to be positive or irrelevant (Pittman and Orthner, 1988; Uhlenberg and Cooney, 1990; Cooney and Uhlenberg, 1991; Presser, 1995; Deven and al., 1998; Nock, 1998a, 1998b; Kaufman and Uhlenberg, 2000; O'Brien and Schemilt, 2003; Dermott, 2006; Moller and Misra, 2006). Moreover, given that the majority of men work on a full-time basis, it is impossible to distinguish the three outcomes of full-time, part-time and inactivity/unemployment as we did for the analysis of female labour market participation. Therefore, we examine the relationship between fatherhood status and men's hours of work and we tend to explore evidence for the existence of breadwinning as a component of men's fathering identity.

The dependent variable is the total hours worked per week in the main job for the fathers who are employed and we use an ordinary least squares regression because the outcome is a continuous variable.

Three models are tested, each using a different measure of fatherhood status. First, we use a dummy indicating whether a man has a child as the key independent variable. Secondly, we focus on the effects of the number of children under 15 years in the household. In the last model, the measure of fatherhood status is the age of the youngest child indicated by a dichotomous variable (0-2 years, 3-5 years, and 6-14 years) and the reference group is men with no child under 15 years in this household. We also include different terms showing the interactions between the age of the youngest child and the country (a man with no child under 15 years in his household being the reference group).

The presence of a child is not the only factor determining the number of working hours and its contributing power is expected to be less pronounced than for women. Indeed, other variables contribute more in terms of explaining men's work effort. We include independent variables traditionally regressed to explain working hours: age and its quadratic forms; nationality (a dummy indicating whether the respondent is born in a foreign country and we distinguish if the person is born in a European country or not); level of education (low as the reference group/medium/high) which is expected to have a positive effect on participation in the labour market; occupational category (legislators, senior officials and managers/ professionals/ technicians/ clerks/ service/ agricultural and fishery workers/ craft and related traders workers/ plant and machine operators and assemblers/ elementary occupations as the reference group/ armed forces) which has a great explanatory power and definitely determines total hours worked per week; earnings (hourly gross/net wage taken in its logarithmic form) which may have a substitution or an income effect; ability which is a dummy indicating if the household is able to make ends meet and tenure status which is a dummy indicating if the household is owner or not as proxies for disposable income; and, finally, the wife's hours of work.

4.2 Data and sample selection

The data used in this paper are taken from the data base Community Statistics one Income and Living Conditions (EU-SILC) for the year 2004 (for the description of the database EU-SILC, see the previous section).

Similar to the analysis of the employment gap induced by motherhood, the selection of the sample was driven by three main criteria: the age of men, their status of cohabitation and of fatherhood. Therefore, we have selected men at an age that makes them likely to have a child and to have completed the period of full-time education and to be economically active. Thus, the sample includes men between 25 and 49 years (except self-employed workers). We first estimate the regression predicting hours worked on this sample and we secondly stratify the sample by age (under age 36 versus age 36 and older) in order to examine whether men in more recent cohorts might have more egalitarian attitudes.

We define fatherhood status as any man with a child aged less than 15 years in the household. The category of non-fathers includes three subgroups of men: fathers whose youngest child is older than 14 years and still living in the household, fathers whose the child or children has/have left the household and, finally, men who have never had a child. The latter two subgroups cannot be distinguished in the EU-SILC.

4.3 Regression results

We first examine the effect of fatherhood status on hours worked according to the three different measures used and based on the three different samples for all European countries. The table shows the regression coefficients for hours worked for employed men⁷.

Table 3: Coefficients from regression of total hours worked according three different measures of fatherhood

	25-35 years			36-49 years			25-49 years		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Have child(ren)	1.020 (0.371)***			0.329 (0.320)			0.484 (0.240)**		
Nb. child(ren)		0.622 (0.211)***			0.193 (0.139)			0.273 (0.116)**	
Yst child 0-2y.			1.307 (0.451)***			-0.285 (0.452)			0.444 (0.320)
Yst child 3-5y.			0.807 (0.484)*			0.539 (0.444)			0.557 (0.327)*
Yst child 6-14y.			0.379 (0.547)			0.382 (0.330)			0.472 (0.274)*
Observations	4092	4092	4092	9129	9129	9129	13221	13221	13221
R-squared	0.13	0.13	0.13	0.11	0.11	0.11	0.11	0.11	0.11
Robust standard errors in parentheses									
* significant at 10%; ** significant at 5%; *** significant at 1%									
Notes: Controls for age, age squared, nationality, education, occupation, wage, ability to make ends meet, housing tenure and wife's work hours but the coefficients are not shown (see in appendix).									

Source: EU-SILC (2004), own calculations

Fathers aged between 25 and 35 years work more per week than their counterparts without children and this effect increases with the number of children (+ 0.6 hours per week). On average, men who have a child work about one hour more per week than non-fathers and the size of this effect depends on the youngest child's age: when the child is an infant, the effect become stronger (about 1.3 hours per week) than when it is a pre-schooler (about 0.8 hour per week). These effects become irrelevant when we examine regression results for men aged between 36 and 49 years and that could suggest that the child effect decreases and may disappear when the child grows up.

In order to examine the fatherhood effect across countries, we estimate regressions including a terms showing the interactions between the age of the youngest child and the country (a man with no child under 15 years in his household being the reference group)⁸.

⁷ See in appendices to examine all coefficients from regression..

⁸ See in appendices to examine all coefficients from regression..

Table 4: Regression results including interaction effects between the age of the youngest child age as measure of fatherhood status and countries

		<i>25-35 years</i>	<i>36-49 years</i>
Yst child 0-2y.	<i>Effect <2hours</i> <i>Effect >2hours</i>	BE, IT LU	EE
Yst child 3-5y.	<i>Effect <2hours</i> <i>Effect >2hours</i>	AT, ES, LU	DK IE
Yst child 6-14y	<i>Effect <2hours</i> <i>Effect >2hours</i>	AT, PT	BE, DK, IT

Source: EU-SILC (2004), own calculations

In several countries, the child effect is significant and fathers tend to work more than their childless counterparts but the size of these effects depends on the child's age and differs between countries.

In Belgium and Italy, men with infants work less than 2 hours more per week in comparison with non-fathers. This effect is stronger in Luxembourg and Estonia where fathers work more than 2 hours per week more compared with non-fathers.

The effect of pre-schoolers is significant in Denmark where fathers work 1.4 hours more per week than men without children and it increases in Spain (+2 hours), Luxembourg (+2.2 hours), Ireland (+2.3 hours) and ,finally, in Austria (+5.7hours).

An effect is also observed when the child grows older in Belgium, Denmark and Italy where it is lower than 2 hours per week and in Portugal and Austria where it increases hours worked by 3 and 3.6, respectively.

We also control for other independent variables such as nationality, education, occupation, and so forth We find that a man born in another country than the country where he lives has a negative impact on hours worked (-1.7 hours per week); hours worked decrease with wage and therefore it seems that there is a substitution effect (-5 hours per week); the wife's hours worked have a significant but small impact on work hours of her husband (+0.1 hour per week) and occupation has a strong explanatory power because working long hours is particularly common in occupations such as professional and managerial positions and plant and machine operators; level of education and housing tenure status have no significant effect on hours worked.

5. Conclusions

Motherhood has an important and negative impact on female labour market participation. The effect of a youngest child between 0 and 2 years is significant both in terms of reduction of hours worked and in terms of inactivity in most countries studied. The child effect is most pronounced in Austria, Estonia and Luxembourg. In Austria, depending on the methodology used, the probability of working part-time is 3.5 and 3.8 times more important in the presence of a child aged less than 3 years in comparison with a childless woman. In terms of inactivity, these probabilities are respectively 13 and 17. The presence of a child aged between 0 and 2 years is irrelevant in terms of reduction of hours in Belgium, Greece, Portugal and Sweden and in terms of inactivity in Denmark and Portugal. The effect of a youngest child aged between 3 and 5 years is significant in most countries except in Greece, Portugal and Sweden in terms of reduction of hours and in Denmark and Portugal in terms of inactivity.

Another finding is that the employment gap between mothers and non-mothers is mainly explained by the presence of a young child and not by the fact that mothers and non-mothers differ in terms of observed characteristics. The full-time equivalent employment gap between mothers and non-mothers due to the presence of an infant is mainly observed in terms of inactivity and it is the highest in Austria, Estonia and Finland where it is nearly 70%. The employment gap lies between 20 and 45% in Italy, Ireland, France, Spain, Luxembourg and Sweden. Finally, it is the weakest in Portugal, Denmark, Belgium and Greece where it is less than 20%. The effect of pre-schoolers is lower than that observed for infants and the part-time contribution to the gap has increased in most countries. In Belgium, Italy and Ireland, the net employment gap between mothers and childless women increases with the age of the youngest child.

The high employment penalties for mothers in Austria and Luxembourg can be explained by the relatively low coverage rate of the public childcare system for pre-school aged children. In Austria, public policies and cultural norms are more traditionally familialist: they discourage women's economic independence in the couple "by stimulating mothers to choose inactivity rather than part-time work and part-time work rather than full-time jobs" (De Henau and al., 2006) and mothers have to take care of their children themselves. At the opposite, the small or irrelevant child effect and the relatively low motherhood employment gap found in Portugal, Belgium, Sweden and Denmark can be explained by a higher provision of public childcare and better public support for families. The results for Southern countries (except Portugal) can be explained by their low female employment, their little use of part-time, the fact that "the small minority of women who do decide to work are expected to have greater job attachment" (De Henau and al., 2006) and the fact that employed mothers can count on their family networks to take care of their children.

As far as men are concerned, regression results show that the link between fatherhood and men's hours worked tends to be reversed in comparison with women: fathers work more hours than their childless counterparts controlling for age, nationality, education, occupation, ability to make ends meet, housing tenure status and earnings and the wife's hours worked. These results are consistent with findings from past research (Uhlenberg and Cooney 1990; Cooney and Uhlenberg 1991; Sanchez and Thomson 1997; Deven, Inglis and al. 1998; Nock 1998a; Nock 1998b; Kaufman and Uhlenberg 2000; O'Brien and Schemilt 2003) and suggest that men assume their good-provider role. A father aged between 25 and 35 years works one hour more per week than a non-father and the size of this effect depends on the age of the youngest child: when the child is younger than 2 years, the effect becomes stronger and fathers tend to increase their hours worked by 1.3 hours per week; when the child is aged between 3 and 5 years, father work 0.8 hour more than non-fathers. The size of the fatherhood impact on work

effort differs across European countries. In Belgium and Italy, men with infants work less than 2 hours more per week in comparison with non-fathers. This effect is stronger in Luxembourg and Estonia where fathers work more than 2 hours per week compared with non-fathers. The effect of pre-schoolers is significant in Denmark where fathers work 1.4 hours more per week than men without children and it increases in Spain (+2 hours), Luxembourg (+2.2 hours), Ireland (+2.3 hours) and, finally, in Austria (+5.7 hours). An effect is also observed when the child is aged between 6 and 14 years in Belgium, Denmark and Italy where it is lower than 2 hours per week and in Portugal and Austria where it increases hours worked by 3 and 3.6, respectively.

Despite changes in gender roles since the sixties, the traditional effect of parenthood on work effort persists: mothers tend to reduce their commitment to work outside the home and are more likely to be inactive and work part-time in comparison with their childless counterparts while fathers continue to assume the breadwinner role.

Future research might include fathers' role in terms of unpaid work. Their greater involvement in domestic work and child care plays an important role to increase their wives' labour participation. Another area for future research is the analysis of motherhood-induced penalties in terms of occupational and inter-industry segregation among employed mothers of young children. Finally, the study might be extended beyond the European Union to include other countries in order to examine the link between different organisations of the labour market, cultural norms and gender differences in terms of commitment to paid work.

References:

- Becker G. S. (1960), "An economic analysis of fertility", In (Eds), *Demographic and economic change in developed countries*, Princeton University Press, Princeton.
- Becker G. S. (1962), "Investment in human capital : A theoretical analysis", *Journal of Political Economy*, Vol.70, No. 5, pp.9-49.
- Becker G. S. (1974), "A theory of social interactions", *Journal of Political Economy*, Vol.82, No. 6, pp.1063-18094.
- Becker G. S. (1965), "A theory of the allocation of time", *Economic Journal*, Vol.75, No. 229, pp.793-517.
- Becker G. S. (1981), *A treatise on the family*, MA expanded Edition, Cambridge.
- Becker G. S. (1991), *A treatise on the family*, MA:Harvard University Press.
- Bernard J. (1981), "The good-provider role: Its rise and fall", *American Psychologist*, Vol.36, No. 1, pp.1-12.
- Bielby W. T.andD. D. Bielby (1989), "Family ties: Balancing commitments to work and family in dual earner households", *American Sociological Review*, Vol.54, No. 5, pp.776-789.
- Blau F. D.,M. FerberandA. Winkler (1998), *The economics of women, men, and work*, Upper Saddle River, NJ: Prentice Hall.
- Blood R. O.andD. M. Wolfe (1960), *Husbands and wives*, Free Press, New York.
- Brines J. (1993), "The exchange value of housework", *Rationality and Sociology*, Vol.5, No. 3, pp.302-340.
- Cohen P. N.andS. M. Bianchi (1999), "Marriage, children, and women's employment: what do we know?" *Monthly Labor Review*, Vol.122, No. 12, pp.22-31.
- Cooney T. M.andP. Uhlenberg (1991), "Changes in work-family connections among highly educated men and women, 1970 to 1980", *Journal of Family Issues*, Vol.12, No. 1, pp.69-90.
- Coverman S. (1985), "Explaining husband's participation in domestic labor", *Sociological Quarterly*, Vol.26, No. 1, pp.81-97.
- Cramer J. C. (1980), *The effects of fertility on husband's economic activity: Evidence from static, dynamic and nonrecursive models*, Julian L.Simon and Julie DaVanzo.
- De Henau J.,D. MeuldersandS. O'Dorchai (2004), "Conclusion", In European Commission (Eds), *The Rationale of Motherhood Choices: Influence of Employment Conditions and of Public Policies - Final report, Chapter 4*.
- De Henau J.,D. MeuldersandS. O'Dorchai (2006), "Maybe Baby! The Comparative Effectiveness of Public Policies to Fight Motherhood-Induced Employment Penalties and

Decreasing Fertility in the Former EU-15", Working Paper DULBEA, Research series, N°06-02.RS, DULBEA.

Dermott E. (2006), "What's parenthood got to do with it?: men's hours of paid work", *The British Journal of Sociology*, Vol.57, No. 4, pp.619-634.

Deven F.,S. Inglis,P. MossandP. Petrie (1998), "A state of the art review on the reconciliation Work and family life for men and women and the quality of care services", Research Report 44, department for Education and Employment.

Eagly A. H. (1987), *Sex differences in social behavior: A social-role interpretation*.

Edley N.andM. Wetherell (1995), *Men in perspective: Practice, power and identity*, London-New York.

Falzone J. S. (2000), "Labor market decisions of married women: With emphasis on part-time employment", *International Advances in Economic Research*, Vol.6, No. 4, pp.662-671.

Farkas G. (1976), "Education, wage rates, and the division of labor between husband and wife", *Journal of Marriage and the Family*, Vol.38, No. 3, pp.473-483.

Fischer G.-N. (1997), *La psychologie sociale*, Editions du Seuil,, Paris.

Geerken M.andW. R. Gove (1983), *At home and at work : The family's allocation of labor*, Beverly Hills.

Goldscheider F. K.andL. J. Waite (1991), *New families, no families? The transformation of the American home*, University of California Press.

Gornick J.,M. K. MeyersandK. E. Ross (1998), "Public policies and the employment of mothers: A cross-national study", *Social Science Quarterly*, Vol.79, No. 1, pp.35-54.

Gornick J.,M. K. MeyersandK. E. Ross (1997), "Supporting the employment of mothers: Policy variation across fourteen welfare States", *Journal of European Social Policy*, Vol.7, No. 1, pp.45-70.

Greene W. H. *Econometric analysis - Fifth edition*, Prentice Hall.

Hatten W.,L. VinterandR. Williams (2002), "Dads on dads: Needs and expectations at home and at work", Research Discussion Series, Equal Opportunities Commission.

Heckman J. J. (1979), "Sample selection bias as specification error", *Econometrica*, Vol.47, No. 1, pp.153-162.

Hyde J. S.,M. J. EssexandF. Horton (1993), "Fathers and parental leave: Attitudes and experiences", *Journal of Family Issues*, Vol.14, No. 4, pp.616-636.

Joshi H.,S. MacranandD. Shirley (1996), "Employment after childbearing and women's subsequent labour force participation: Evidence from the British 1958 birth cohort", *Journal of Population Economics*, Vol.9, No. 3, pp.325-348.

- Kamo Y. (1988), "Determinants of household division of labor: Resources, power and ideology", *Journal of Family*, Vol.9, No. 2, pp.177-200.
- Kaufman G.andP. Uhlenberg (2000), "The influence of parenthood on the work effort of married men and women", *Social Forces*, Vol.78, No. 3, pp.931-947.
- Kenjoh E. (2003), "Women's employment around birth of the first child in Britain, Germany, the Netherlands, Sweden and Japan", Working Papers of the Institute for Social and Economics Research/Paper 2003-16, University of Essex.
- Leibenstein H. (1954), *A theory of economic-demographic development*, Princeton University Press,, Princeton.
- Maruani M. (2000), *Travail and emploi des femmes*, Ed. la Découverte,, Paris.
- Moller S.andJ. Misra (2006), "Reconciliation Policies and the Effects of Motherhood on Employment, Earnings, and Poverty", Luxembourg Income Study Working Paper Serie, LIS Working Paper No.429,
- Morgan D. H. J. (1992), *Discovering men*, Routledge, London and New York.
- Nock S. L. (1998b), "The consequences of premarital fatherhood", *American Sociological Review*, Vol.63, No. 2, pp.250-263.
- Nock S. L. (1998a), *Marriage in men's lives*, Oxford Univeristy Press, Oxford.
- O'Brien M.andI. Schemilt (2003), "Working fathers - Earning and caring", Equal Opportunities Commission, Research Discussion Series, European Commission.
- Parsons J. E.andR. F. Bales (1955), *Family, socialization and interaction process*, Free Press, Glencoe.
- Perruci C. C.,H. R. PottesandD. C. Rhoads (1978), "Determinants of male family-role performance", *Psychology of Women Quarterly*, Vol.3, No. 1, pp.53-66.
- Pittman J. F.andD. K. Orthner (1988), "Gender differences in the prediction of job commitment", *Journal of Social Behavior and Personality*, Vol.3, No. 4, pp.227-248.
- Presser H. B. (1995), "Job, family and gender: determinants of nonstandard work schedules among employed americans in 1991", *Demography*, Vol.32, No. 4, pp.577-598.
- Prieto-Rodriguez J.andC. Rodriguez-Gutiérrez (2003), "Participation of Married Women in the Labour Market and the 'Added Worker Effect' in Europe", *Journal of Socio-Economics*, Vol.32, No., pp.423-446.
- Samuelson P. A. (1956), "Social indifference curves", *Quarterly Journal of Economics*, Vol.70, No. 1, pp.1-22.
- Sanchez L.andE. Thomson (1997), "Becoming mothers and fathers: parenthood, gender, and the division of labor", *Gender and Society*, Vol.11, No. 6, pp.747-772.

Shapiro D. and F. L. Mott (1979), "Labor supply behavior of prospective and new mothers", *Demography*, Vol.16, No. 2, pp.199-208.

Stafford R., E. Backman and P. Dibona (1977), "The division of labor among cohabiting and married couples", *Journal of Marriage and the Family*, Vol.50, No. 1, pp.595-618.

Uhlenberg P. and T. M. Cooney (1990), "Male and female physicians: Family and career", *Social Science and Medicine*, Vol.30, No. 3, pp.373-378.

Waite L. J., G. W. Haggstrom and D. E. Kanouse (1985), "Changes in the Employment Activities of New Parents", *American Sociological Review*, Vol.50, No. 2, pp.263-272.

Warin J., Y. Solomon, C. Lewis and W. Langford (1999), *Fathers, work and family life*, Family Policy Studies Centre.

Appendix:

Table 1: Motherhood-induced employment gap
Regression results of the first methodology (age and education as proxy of wage) –
Multinomial logit model (dependent variable: the probability of working part-time/ being
inactive)

	AT	BE	DK	EE	ES	FI	FR	GR	IE	IT	LU	PT	SE
Part-time													
Age	1.231 (0.318)	0.754 (0.177)	0.784 (0.207)	2.264 (1.337)	2.330 (0.602)***	1.211 (0.478)	1.135 (0.205)	0.942 (0.351)	0.655 (0.244)	1.125 (0.206)	0.709 (0.325)	1.022 (0.560)	0.874 (0.246)
Age squared	0.998 (0.004)	1.005 (0.003)	1.004 (0.004)	0.990 (0.008)	0.988 (0.004)***	0.996 (0.006)	0.998 (0.003)	1.001 (0.005)	1.007 (0.005)	0.999 (0.003)	1.006 (0.006)	1.000 (0.008)	1.002 (0.004)
Medium educ.	0.814 (0.204)	0.797 (0.213)	0.638 (0.177)	0.405 (0.345)	0.810 (0.171)	0.461 (0.196)*	1.156 (0.295)	0.693 (0.282)	0.409 (0.142)***	0.673 (0.097)***	0.586 (0.207)	0.501 (0.290)	0.835 (0.369)
High educ.	0.609 (0.163)*	0.521 (0.133)**	0.697 (0.209)	0.823 (0.682)	0.425 (0.085)***	0.366 (0.158)**	1.033 (0.273)	1.420 (0.555)	0.401 (0.136)***	0.747 (0.126)*	0.564 (0.280)	0.346 (0.241)	0.417 (0.189)*
Yst child 0-2y.	3.476 (1.207)***	1.090 (0.321)	1.904 (0.613)**	7.321 (5.767)**	2.078 (0.510)***	2.547 (1.151)**	2.016 (0.450)***	0.917 (0.404)	1.915 (0.743)*	1.716 (0.319)***	3.570 (1.941)**	1.305 (0.846)	1.087 (0.418)
Yst child 3-5y.	6.507 (2.083)***	2.085 (0.638)**	1.890 (0.581)**	6.174 (3.692)***	1.979 (0.467)***	1.887 (0.741)	2.020 (0.449)***	1.083 (0.417)	2.731 (1.060)***	1.812 (0.343)***	5.321 (2.853)***	0.669 (0.426)	0.947 (0.352)
Yst child 6-14y.	3.381 (0.825)***	1.636 (0.376)**	1.303 (0.405)	1.877 (0.987)	0.986 (0.233)	1.289 (0.563)	1.920 (0.394)***	0.818 (0.273)	2.785 (1.021)***	1.288 (0.210)	3.805 (1.644)***	0.765 (0.377)	1.260 (0.352)
Leg. married	1.629 (0.588)	1.384 (0.364)	1.144 (0.268)	- -	1.541 (0.450)	0.888 (0.279)	1.120 (0.181)	0.513 (0.354)	1.243 (0.470)	2.296 (0.636)***	2.602 (1.093)**	1.261 (1.119)	1.192 (0.285)
Husband labour inc.	0.875 (0.233)	1.236 (0.280)	0.758 (0.163)	0.730 (0.216)	0.962 (0.166)	1.334 (0.353)	1.133 (0.175)	1.228 (0.331)	1.343 (0.311)	1.113 (0.168)	1.646 (0.610)	1.038 (0.429)	1.691 (0.438)**
Not employed													
Age	0.673 (0.176)	0.744 (0.170)	0.945 (0.209)	0.894 (0.236)	1.107 (0.179)	0.657 (0.123)**	0.791 (0.142)	0.822 (0.193)	0.721 (0.219)	0.807 (0.113)	0.567 (0.207)	0.828 (0.208)	0.813 (0.176)
Age squared	1.006 (0.004)	1.005 (0.003)	0.999 (0.003)	1.001 (0.004)	0.999 (0.002)	1.006 (0.003)**	1.003 (0.003)	1.002 (0.003)	1.005 (0.004)	1.003 (0.002)	1.009 (0.005)*	1.003 (0.004)	1.002 (0.003)
Medium educ.	0.433 (0.100)***	0.445 (0.112)***	0.339 (0.071)***	0.640 (0.256)	0.524 (0.074)***	0.896 (0.254)	0.632 (0.127)**	0.321 (0.067)***	0.313 (0.098)***	0.323 (0.036)***	0.486 (0.149)**	0.365 (0.116)***	0.512 (0.157)**
High educ.	0.299 (0.074)***	0.146 (0.036)***	0.270 (0.060)***	0.348 (0.144)**	0.203 (0.029)***	0.450 (0.128)***	0.353 (0.079)***	0.121 (0.030)***	0.168 (0.051)***	0.157 (0.026)***	0.324 (0.131)***	0.195 (0.077)***	0.521 (0.159)**
Yst child 0-2y.	17.098 (5.361)***	2.097 (0.626)**	1.518 (0.342)*	22.089 (8.672)***	3.026 (0.519)***	14.244 (3.042)***	4.085 (0.824)***	1.654 (0.454)*	2.814 (0.943)***	1.893 (0.294)***	3.867 (1.491)***	1.373 (0.465)	4.345 (0.988)**
Yst child 3-5y.	9.539 (3.059)***	2.202 (0.766)**	0.695 (0.185)	4.592 (1.617)***	2.327 (0.396)***	1.800 (0.374)***	2.441 (0.495)***	1.444 (0.395)	4.319 (1.429)***	2.155 (0.358)***	4.188 (1.836)***	1.067 (0.331)	0.926 (0.260)
Yst child 6-14y.	4.022 (0.987)***	0.963 (0.269)	0.786 (0.192)	2.018 (0.610)**	1.757 (0.262)***	0.719 (0.158)	1.348 (0.272)	1.374 (0.317)	3.120 (0.954)***	2.051 (0.279)***	2.648 (0.980)***	0.902 (0.238)	0.846 (0.217)
Leg. married	2.157 (0.678)**	1.444 (0.407)	1.203 (0.220)	- -	2.068 (0.411)***	0.903 (0.147)	1.413 (0.214)**	1.499 (1.066)	2.264 (0.842)**	3.558 (0.875)***	3.329 (1.156)***	0.873 (0.317)	1.370 (0.237)*
Husband labour inc.	0.734 (0.189)	1.218 (0.345)	0.798 (0.151)	0.825 (0.136)	0.925 (0.120)	1.031 (0.196)	0.929 (0.155)	1.810 (0.421)**	1.078 (0.254)	1.243 (0.176)	2.246 (0.719)**	1.027 (0.216)	1.049 (0.137)
Observations	855	926	1436	636	2343	1688	1784	883	696	3095	825	780	1111
Log likelihood	-802.32	-876.31	-1073.76	-389.87	-2083.70	-1120.30	-1625.32	-779.88	-696.78	-2929.23	-807.23	-523.26	-854.94
Pseudo R-Squared	0.13	0.08	0.06	0.16	0.08	0.16	0.04	0.08	0.08	0.07	0.10	0.04	0.08
Wald Chi2	192.26	123.11	107.14	145.70	222.37	266.41	105.78	107.84	85.90	260.72	76.89	33.58	126.35
Coefficients: "Relative Risk Ratio" (RRR). For example, in belgium, having a child aged between 3 and 5 years increases twice (2.085) the relative probability of working part-time over being full time compared to a woman with no child under 15 years, while being highly educated reduces of 1.92 times (1/0.521) this probability compared to low educated woman.													
Robust standard errors in parentheses													
* significant at 10%; ** significant at 5%; *** significant at 1%													

Source: EU-SILC (2004), own calculations

Table 2: Motherhood-induced employment gap
Regression results of the second methodology (potential wage as explanatory variable) –
Probit model (the dependent variable: participate or not on the labour market)

	AT	BE	DK	EE	ES	FI	FR	GR	IE	IT	LU	PT	SE
Age	0.098 (0.038)**	0.069 (0.034)**	0.074 (0.029)***	0.124 (0.044)***	0.021 (0.028)	0.053 (0.029)*	0.082 (0.027)***	0.111 (0.040)***	0.008 (0.045)	0.082 (0.025)***	0.071 (0.060)	0.056 (0.036)	0.055 (0.032)*
Age squared	-0.001 (0.001)**	-0.001 (0.000)**	-0.001 (0.000)*	-0.002 (0.001)**	-0.000 (0.000)	-0.001 (0.000)	-0.001 (0.000)***	-0.001 (0.001)**	-0.000 (0.001)	-0.001 (0.000)***	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.000)
Birth. EU	-0.130 (0.055)**	-0.132 (0.065)**	-0.025 (0.085)	-	-0.043 (0.071)	-0.016 (0.087)	-0.151 (0.060)**	-0.081 (0.077)	-0.000 (0.053)	-0.145 (0.048)***	-0.025 (0.051)	0.024 (0.093)	-0.048 (0.064)
Birth. Oth.	-0.045 (0.051)	-0.432 (0.051)***	-0.308 (0.060)***	-0.124 (0.060)**	-0.109 (0.046)**	-0.358 (0.068)***	-0.261 (0.053)***	0.001 (0.051)	-0.347 (0.078)***	-0.133 (0.037)***	-0.302 (0.092)***	-0.003 (0.053)	-0.172 (0.044)***
Medium educ.	0.159 (0.036)***	0.143 (0.034)***	0.146 (0.029)***	0.203 (0.059)***	0.144 (0.024)***	-0.024 (0.042)	0.038 (0.033)	0.167 (0.034)***	0.213 (0.040)***	0.241 (0.018)***	0.059 (0.054)	0.151 (0.027)***	0.115 (0.049)**
High educ.	0.201 (0.035)***	0.335 (0.031)***	0.151 (0.027)***	0.286 (0.058)***	0.338 (0.020)***	0.093 (0.042)**	0.116 (0.032)***	0.386 (0.029)***	0.355 (0.037)***	0.366 (0.020)***	0.148 (0.057)**	0.187 (0.026)***	0.073 (0.050)
Nb. Children	-0.129 (0.014)***	-0.035 (0.013)***	0.015 (0.011)	-0.112 (0.016)***	-0.093 (0.011)***	-0.066 (0.012)***	-0.090 (0.010)***	-0.068 (0.017)***	-0.116 (0.015)***	-0.081 (0.010)***	-0.103 (0.023)***	-0.023 (0.015)	-0.040 (0.014)***
Observations	1144	1274	1968	933	3670	2570	2196	1540	1162	4873	997	1122	1488
Log likelihood	-671.06	-652.74	-957.50	-486.25	-2290.71	-1516.78	-1126.95	-958.78	-679.70	-3082.24	-604.16	-583.65	-840.51
Pseudo R-Squared	0.10	0.15	0.12	0.12	0.09	0.07	0.07	0.09	0.12	0.09	0.08	0.05	0.06
Wald Chi2	135.54	198.72	198.95	98.08	325.66	80.45	134.86	146.49	139.78	370.09	41.02	48.39	81.89
Robust standard errors in parentheses													
* significant at 10%; ** significant at 5%; *** significant at 1%													

Source: EU-SILC (2004), own calculations

Table 3: Motherhood-induced employment gap
Regression results of the second methodology (potential wage as explanatory variable) –
Ordinary Least Squares model (dependent variable: log hourly wage)

	AT	BE	DK	EE	ES	FI	FR	GR	IE	IT	LU	PT	SE
Age	-0.020 (0.039)	-0.001 (0.031)	0.048 (0.058)	-0.047 (0.073)	0.079 (0.037)**	0.035 (0.030)	-0.020 (0.031)	0.199 (0.053)***	0.055 (0.051)	0.080 (0.032)**	0.039 (0.081)	0.041 (0.064)	-0.261 (0.070)***
Age squared	0.000 (0.001)	0.000 (0.000)	-0.000 (0.001)	0.001 (0.001)	-0.001 (0.001)*	-0.000 (0.000)	0.000 (0.000)	-0.002 (0.001)***	-0.001 (0.001)	-0.001 (0.000)**	-0.000 (0.001)	-0.000 (0.001)	0.004 (0.001)***
Medium educ.	0.132 (0.042)***	0.053 (0.044)	0.131 (0.064)**	0.233 (0.112)**	0.273 (0.048)***	0.139 (0.062)**	0.099 (0.056)*	0.479 (0.068)***	0.171 (0.062)***	0.272 (0.047)***	0.384 (0.065)***	0.479 (0.146)***	-0.037 (0.191)
High educ.	0.444 (0.045)***	0.285 (0.060)***	0.328 (0.068)***	0.566 (0.118)***	0.674 (0.069)***	0.400 (0.065)***	0.419 (0.059)***	1.065 (0.136)***	0.574 (0.070)***	0.476 (0.070)***	0.621 (0.094)***	1.073 (0.170)***	0.196 (0.188)
Lambda	-0.378 (0.288)	-0.820 (0.319)**	-0.986 (0.877)	-1.442 (0.590)**	1.101 (0.370)***	-0.144 (0.386)	0.053 (0.288)	2.080 (0.658)***	0.386 (0.354)	0.389 (0.350)	-0.343 (0.447)	1.899 (1.812)	-2.525 (0.953)***
Observations	691	864	1410	660	1832	1707	1584	703	680	2560	590	798	1047
R-squared	0.20	0.20	0.15	0.11	0.17	0.11	0.10	0.31	0.18	0.10	0.25	0.37	0.04
Robust standard errors in parentheses													
* significant at 10%; ** significant at 5%; *** significant at 1%													

Source: EU-SILC (2004), own calculations

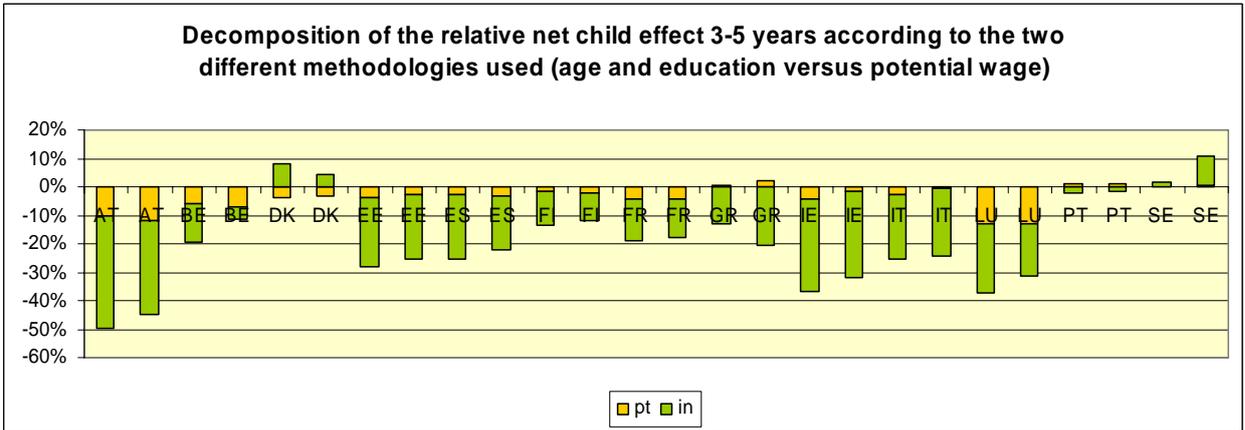
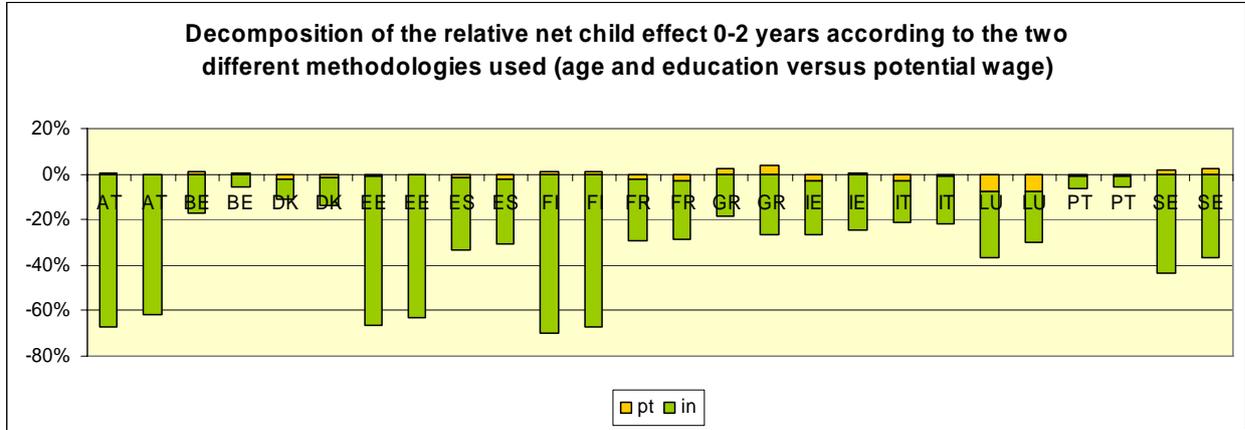
Table 4: Motherhood-induced employment gap
Regression results of the second methodology (potential wage as explanatory variable) –
Multinomial logit model (dependent variable: the probability of working part-time/ being
inactive)

	AT	BE	DK	EE	ES	FI	FR	GR	IE	IT	LU	PT	SE
Part-time													
Medium educ.	0.458 (0.163)**	0.552 (0.163)**	0.519 (0.184)*	1.963 (2.795)	0.616 (0.169)*	1.723 (1.271)	1.033 (0.272)	0.523 (0.243)	0.225 (0.107)**	0.237 (0.078)**	0.258 (0.235)	0.523 (0.508)	0.942 (0.412)
High educ.	0.116 (0.104)**	0.162 (0.079)**	0.461 (0.246)	13.966 (33.400)	0.217 (0.112)**	18.908 (31.845)*	0.633 (0.305)	0.746 (0.525)	0.035 (0.047)**	0.113 (0.064)**	0.146 (0.221)	0.388 (0.821)	0.560 (0.264)
Yst child 0-2y.	3.828 (1.358)**	1.064 (0.320)	1.653 (0.526)	3.562 (2.788)	2.196 (0.551)**	2.696 (1.157)**	2.087 (0.455)**	0.838 (0.348)	1.419 (0.538)	1.476 (0.265)**	3.244 (1.928)**	1.311 (0.805)	0.909 (0.373)
Yst child 3-5y.	7.299 (2.418)**	2.023 (0.608)**	1.630 (0.484)*	3.304 (1.941)**	2.055 (0.507)**	2.011 (0.750)*	2.109 (0.454)**	0.955 (0.359)	2.051 (0.825)*	1.540 (0.289)**	4.804 (2.644)**	0.672 (0.410)	0.766 (0.288)
Yst child 6-14y.	3.953 (0.899)**	1.700 (0.370)**	1.227 (0.385)	1.369 (0.751)	0.910 (0.240)	1.261 (0.534)	1.988 (0.402)**	0.702 (0.256)	2.330 (0.915)**	1.116 (0.195)	3.893 (1.666)**	0.770 (0.353)	1.039 (0.294)
Leg. married	1.765 (0.630)	1.444 (0.372)	1.151 (0.270)	- -	1.676 (0.502)*	0.860 (0.277)	1.130 (0.182)	0.513 (0.353)	1.122 (0.430)	2.330 (0.647)**	2.619 (1.074)**	1.267 (1.114)	1.146 (0.269)
Wife labour inc.	29.906 (55.302)*	14.972 (16.649)**	2.794 (2.893)	0.041 (0.115)	4.577 (4.366)	0.000 (0.000)**	3.318 (3.683)	2.725 (2.868)	112.454 (291.054)*	108.218 (146.255)**	6.944 (14.111)	0.882 (2.258)	0.367 (0.279)
Husband labour inc.	0.897 (0.240)	1.296 (0.293)	0.768 (0.161)	0.748 (0.218)	0.932 (0.161)	1.350 (0.361)	1.138 (0.176)	1.172 (0.306)	1.313 (0.306)	1.112 (0.166)	1.614 (0.574)	1.040 (0.421)	1.695 (0.433)**
Not employed													
Medium educ.	0.687 (0.253)	0.550 (0.152)**	0.724 (0.168)	1.518 (1.101)	0.393 (0.078)**	2.351 (1.090)*	0.593 (0.131)**	0.522 (0.140)**	0.237 (0.091)**	0.359 (0.086)**	0.285 (0.194)*	0.320 (0.166)**	0.653 (0.201)
High educ.	1.202 (1.193)	0.304 (0.157)**	1.292 (0.424)	2.072 (2.635)	0.098 (0.038)**	7.373 (7.742)*	0.269 (0.129)**	0.339 (0.164)**	0.048 (0.050)**	0.184 (0.081)**	0.129 (0.136)*	0.135 (0.158)*	0.905 (0.313)
Yst child 0-2y.	12.926 (4.361)**	1.262 (0.385)	1.732 (0.374)**	19.685 (7.698)**	2.769 (0.464)**	12.718 (2.645)**	3.909 (0.772)**	2.072 (0.531)**	2.680 (0.872)**	1.929 (0.289)**	2.966 (1.136)**	1.341 (0.440)	3.178 (0.701)**
Yst child 3-5y.	7.210 (2.453)**	1.504 (0.504)	0.827 (0.206)	4.085 (1.431)**	2.090 (0.367)**	1.645 (0.333)**	2.283 (0.445)**	1.748 (0.455)**	3.677 (1.236)**	2.117 (0.343)**	3.300 (1.394)**	1.045 (0.309)	0.633 (0.170)*
Yst child 6-14y.	3.305 (0.828)**	0.932 (0.254)	0.922 (0.226)	1.680 (0.532)	1.531 (0.257)**	0.714 (0.153)	1.250 (0.243)	1.613 (0.387)**	2.622 (0.843)**	1.937 (0.276)**	2.589 (0.950)**	0.865 (0.219)	0.581 (0.127)**
Leg. married	2.195 (0.669)**	1.827 (0.518)**	1.212 (0.225)	- -	2.001 (0.398)**	0.930 (0.150)	1.369 (0.207)**	1.423 (0.990)	1.798 (0.660)	3.435 (0.846)**	3.329 (1.102)**	0.848 (0.307)	1.226 (0.200)
Wife labour inc.	0.056 (0.114)	0.131 (0.149)*	0.022 (0.015)**	0.093 (0.143)	4.478 (3.270)**	0.001 (0.002)**	1.894 (2.043)	0.211 (0.138)**	13.293 (27.299)	0.663 (0.653)	3.306 (4.953)	1.486 (1.744)	0.158 (0.096)**
Husband labour inc.	0.750 (0.194)	1.409 (0.405)	0.805 (0.158)	0.835 (0.137)	0.893 (0.117)	1.051 (0.199)	0.909 (0.153)	1.739 (0.404)**	1.003 (0.237)	1.220 (0.172)	2.234 (0.675)**	1.007 (0.212)	1.050 (0.131)
Observations	855	923	1436	636	2340	1688	1784	883	696	3092	823	780	1111
Log likelihood	-803.64	-874.31	-1069.02	-391.90	-2086.08	-1120.75	-1626.98	-780.99	-699.62	-2931.05	-813.29	-523.55	-855.45
Pseudo R-Squared	0.13	0.08	0.07	0.15	0.08	0.16	0.04	0.08	0.08	0.07	0.09	0.04	0.08
Wald Chi2	197.30	119.96	115.82	141.65	215.79	261.10	103.53	104.64	77.07	255.56	74.56	29.92	126.81
Coefficients: "Relative Risk Ratio" (RRR). For example, in belgium, having a child aged between 3 and 5 years increases twice (2.023) the relative probability of working part-time over being full time compared to a woman with no child under 15 years, while being highly educated reduces of 6.17 times (1/01.162) this probability compared to low educated woman.													
Robust standard errors in parentheses													
* significant at 10%, ** significant at 5%, *** significant at 1%													

Source: EU-SILC (2004), own calculations

Graph 1: Motherhood-induced employment gap

Decomposition of the relative net gap in full-time equivalent employment rates between mothers and non-mothers of 25-49 years of age according to the age of a youngest child – contribution of reduced hours and inactivity – Differences between the two methodologies applied



Source: EU-SILC (2004), own calculations

Table 5: Fatherhood and hours worked
Regressions results according to different measures of fatherhood status - Ordinary Least Squares model (dependent variable: hours worked)

	25-35			36-49			25-49		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Age	0.986 (1.372)	1.097 (1.378)	0.859 (1.369)	-0.455 (0.837)	-0.508 (0.843)	-0.581 (0.841)	-0.024 (0.229)	-0.040 (0.227)	-0.028 (0.229)
Age squared	-0.017 (0.022)	-0.019 (0.022)	-0.015 (0.022)	0.005 (0.010)	0.006 (0.010)	0.007 (0.010)	0.000 (0.003)	0.001 (0.003)	0.000 (0.003)
Birth EU	1.431 (0.760)*	1.453 (0.759)*	1.533 (0.760)**	-1.498 (0.789)*	-1.489 (0.789)*	-1.499 (0.789)*	-0.432 (0.586)	-0.418 (0.585)	-0.428 (0.585)
Birth Non EU	0.641 (0.950)	0.607 (0.950)	0.708 (0.950)	-2.378 (0.734)***	-2.384 (0.733)***	-2.366 (0.736)***	-1.226 (0.607)**	-1.237 (0.606)**	-1.227 (0.606)**
Medium educ.	-0.518 (0.457)	-0.553 (0.455)	-0.539 (0.456)	-0.250 (0.325)	-0.269 (0.326)	-0.256 (0.325)	-0.376 (0.263)	-0.401 (0.264)	-0.375 (0.263)
High educ.	0.683 (0.592)	0.634 (0.586)	0.630 (0.587)	0.178 (0.411)	0.159 (0.412)	0.193 (0.410)	0.309 (0.334)	0.283 (0.335)	0.310 (0.333)
Occ. Leg	6.027 (1.146)***	5.998 (1.149)***	6.019 (1.147)***	8.704 (0.893)***	8.689 (0.892)***	8.702 (0.893)***	7.941 (0.714)***	7.920 (0.714)***	7.937 (0.714)***
Occ. Prof	2.982 (1.067)***	2.945 (1.060)***	2.964 (1.062)***	1.197 (0.797)	1.194 (0.798)	1.213 (0.798)	1.809 (0.640)***	1.798 (0.639)***	1.808 (0.640)***
Occ. Tech	1.754 (0.817)**	1.737 (0.817)**	1.743 (0.815)**	1.829 (0.744)**	1.830 (0.745)**	1.836 (0.744)**	1.846 (0.563)***	1.844 (0.563)***	1.845 (0.564)***
Occ. Clerks	0.079 (0.832)	0.049 (0.833)	0.089 (0.831)	-0.014 (0.703)	-0.009 (0.704)	-0.007 (0.702)	-0.000 (0.548)	-0.002 (0.548)	-0.004 (0.549)
Occ. Serv	1.035 (0.907)	1.019 (0.909)	1.034 (0.905)	1.182 (0.752)	1.181 (0.752)	1.185 (0.751)	1.184 (0.591)**	1.177 (0.590)**	1.182 (0.591)**
Occ. Agr	-1.459 (1.423)	-1.483 (1.422)	-1.408 (1.416)	2.204 (1.553)	2.196 (1.550)	2.220 (1.547)	0.864 (1.139)	0.852 (1.137)	0.861 (1.139)
Occ. Craft	1.091 (0.772)	1.037 (0.772)	1.101 (0.768)	0.923 (0.661)	0.927 (0.663)	0.917 (0.661)	0.966 (0.511)*	0.960 (0.511)*	0.964 (0.511)*
Occ. Plant	2.229 (0.836)***	2.174 (0.836)***	2.250 (0.834)***	1.353 (0.702)*	1.351 (0.703)*	1.344 (0.702)*	1.665 (0.547)***	1.653 (0.546)***	1.661 (0.547)***
Occ. Arm	3.315 (1.846)*	3.331 (1.845)*	3.350 (1.842)*	0.035 (0.968)	0.058 (0.970)	0.011 (0.969)	1.310 (0.942)	1.333 (0.943)	1.303 (0.940)
Have child(ren)	1.020 (0.371)***	-	-	0.329 (0.320)	-	-	0.484 (0.240)**	-	-
Nb. child(ren)	-	0.622 (0.211)***	-	-	0.193 (0.139)	-	-	0.273 (0.116)**	-
Yst child 0-2y.	-	-	1.307 (0.451)***	-	-	-0.285 (0.452)	-	-	0.444 (0.320)
Yst child 3-5y.	-	-	0.807 (0.484)*	-	-	0.539 (0.444)	-	-	0.557 (0.327)*
Yst child 6-14y.	-	-	0.379 (0.547)	-	-	0.382 (0.330)	-	-	0.472 (0.274)*
Ability	-0.751 (0.433)*	-0.733 (0.435)*	-0.748 (0.433)*	-0.921 (0.267)***	-0.925 (0.267)***	-0.908 (0.267)***	-0.866 (0.231)***	-0.865 (0.232)***	-0.866 (0.231)***
Tenure	0.460 (0.345)	0.480 (0.346)	0.455 (0.345)	0.485 (0.343)	0.474 (0.344)	0.487 (0.344)	0.560 (0.248)**	0.559 (0.249)**	0.561 (0.248)**
Labour inc.	-3.899 (0.341)***	-3.942 (0.344)***	-3.919 (0.342)***	-3.326 (0.263)***	-3.348 (0.267)***	-3.324 (0.263)***	-3.562 (0.211)***	-3.589 (0.214)***	-3.562 (0.211)***
Wife lab. work hours	0.137 (0.022)***	0.138 (0.022)***	0.137 (0.023)***	0.072 (0.023)***	0.073 (0.023)***	0.072 (0.023)***	0.093 (0.017)***	0.093 (0.017)***	0.093 (0.017)***
Observations	4092	4092	4092	9129	9129	9129	13221	13221	13221
R-squared	0.13	0.13	0.13	0.11	0.11	0.11	0.11	0.11	0.11

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Source: EU-SILC (2004), own calculations

Table 6: Fatherhood and hours worked
Regressions results according to the age of a youngest child as measure of fatherhood status -
Ordinary Least Squares model (dependent variable: hours worked)

	25-35 years	36-49 years	25-49 years		25-35 years	36-49 years	25-49 years
Age	1.212	0.196	0.003	BEchild02	1.633*	1.420	1.109
Age squared	-0.021	-0.002	0.000	BEchild35	-0.686	0.827	-0.023
Birth EU	1.196	-1.766**	-0.692	BEchild614	-1.009	1.147*	0.972
Birth Non EU	0.802	-1.693**	-1.122*	DKchild02	-0.299	0.649	0.204
Medium educ.	-0.163	-0.108	-0.171	DKchild35	0.116	1.487**	0.893*
High educ.	0.858	0.433	0.509	DKchild614	0.190	1.576***	1.122**
Occ. Leg	7.030***	9.074***	8.849***	EEchild02	2.210	2.243*	2.180
Occ. Prof	3.618***	2.099***	2.695***	EEchild35	-1.272	1.113	0.405
Occ. Tech	2.374***	2.422***	2.488***	EEchild614	1.403	0.755	0.845
Occ. Clerks	0.314	0.469	0.429	ESchild02	2.227	-0.152	0.857
Occ. Serv	1.354	1.591**	1.560***	ESchild35	2.035*	1.224	1.428*
Occ. Agr	-0.923	1.913	0.978	ESchild614	2.954	-0.183	0.566
Occ. Craft	1.404*	1.145*	1.307**	FIchild02	0.133	-0.140	-0.021
Occ. Plant	2.469***	1.675**	2.006***	FIchild35	-0.017	0.364	0.299
Occ. Arm	4.089**	0.919	2.219**	FIchild614	0.665	0.769	0.596
Ability	-1.191***	-0.863***	-1.039***	FRchild02	0.949	-1.560	-0.430
Tenure	0.305	0.562*	0.520**	FRchild35	1.362	0.149	0.501
Husband labour inc.	-5.429***	-4.963***	-5.306***	FRchild614	-0.899	0.109	0.571
Wife lab. work hours	0.141***	0.085***	0.097***	IEchild02	0.599	1.065	0.949
AT	-8.877***	-5.516***	-6.970***	IEchild35	1.106	2.281*	1.477
DK	0.555	-0.808	-0.350	IEchild614	2.793	1.776	1.536
EE	-9.577***	-9.837***	-10.376***	ITchild02	1.848**	0.673	1.335**
ES	-2.687***	-1.870***	-2.514***	ITchild35	0.154	0.516	0.276
FI	-1.688**	-2.217***	-2.178***	ITchild614	-0.020	1.101**	0.668
FR	-2.764***	-1.289	-2.057***	LUchild02	2.399**	-0.975	0.153
GR	-3.048***	-3.510***	-3.587***	LUchild35	2.243**	2.113	1.833
IE	0.575	-0.924	-0.438	LUchild614	1.716	0.504	0.789
IT	-1.538*	-3.118***	-2.830***	PTchild02	2.333	-0.385	0.662
LU	0.919	3.472***	2.673***	PTchild35	1.061	1.463	0.782
PT	-5.794***	-4.430***	-5.016***	PTchild614	3.068**	-0.382	0.346
SE	-1.740**	-1.503**	-1.844***	SEchild02	-0.734	0.977	-0.020
ATchild02	0.915	-0.290	-0.289	SEchild35	0.964	-0.126	0.092
ATchild35	5.705**	0.317	2.435*	SEchild614	0.451	0.860	1.008**
Observations	4092	9673	13221				
R-squared	0.16	0.12	0.13				
Robust standard errors in parentheses							
* significant at 10%; ** significant at 5%; *** significant at 1%							

Source: EU-SILC (2004), own calculations

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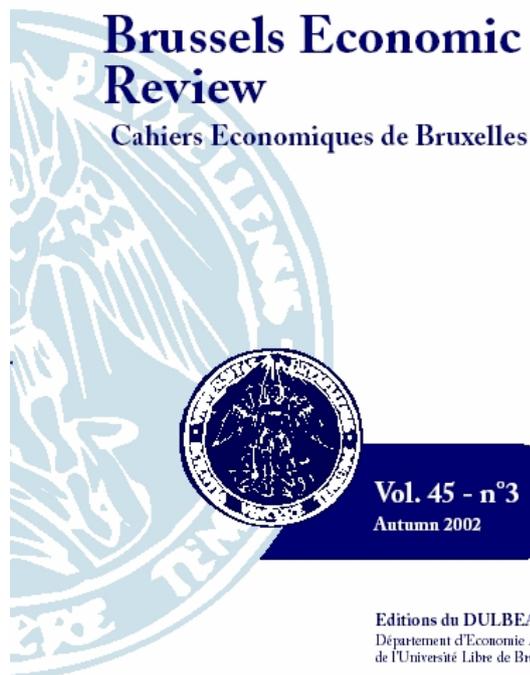
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