

Within-Couple Inequality in Earnings and the Relative Motherhood Penalty. A Cross-National Study of European Countries*

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Abstract

While much research has focused on the difference in earnings between childless women and men, mothers and fathers, somewhat less is known on the difference in earnings between women and their partners, in particular in the transition to parenthood. This article fills this void by investigating within-couple earnings inequality in the event of a childbirth in different institutional settings. Two research questions are addressed: 1) Does a childbirth lead to a reduction in women's earned income relative to their partner? 2) Can mothers compensate the loss of labor related income through alternative sources of income? Fixed effects panel models on EU-SILC (2004-2008) data from 8 European countries show that having a child negatively affects women's share of earned income in the majority of countries. However, cross-national differences in the results suggest that in countries where income support for parents is higher, mothers can rely on non labor sources of income, such as payments from parental leave benefits, to compensate the reduction of relative earned income. In other words, the results indicate a relative motherhood penalty in *earnings* that is not, ultimately, a relative motherhood penalty in *income*, at least in the short run. In countries where income support for parents is lower, by contrast, the negative effect of a childbirth on mothers' earnings is smallest, indicating that women privilege remaining in the work force around childbirth.

Keywords: motherhood penalty, gender gap in earnings, parental leave, labor market behavior, Europe.

1 Introduction

It is well known that Europe features a gender gap in earnings (OECD, 2014) and that mothers tend to have lower earnings than childless women (Budig and England, 2001; Davies and Pierre, 2005). This article investigates a somewhat understudied issue: whether the transition to parenthood has a negative effect on women's income relative to their partners' (Winslow-Bowe, 2006; Stier and Mandel, 2009). Distinguishing between *absolute* and *relative* gender differences in income is important because the former contribute to gender differences at the societal level, while the latter imply that *within* households men have greater economic and bargaining power (Blood and Wolfe, 1960). While women's economic dependence is not in itself a negative outcome, with the increase of partnership dissolutions in Europe (OECD, 2014), the extent to which mothers maintain their economic independence can be diriment for their wellbeing. First of all, maternal earnings are important to protect their household from poverty (Barbieri and Bozzon, forthcoming). Moreover, research has shown that divorced and single women face greater economic losses and poverty risks than men (McLanahan, 2009; Tamborini et al., 2012). Although scholars have suggested that women's high levels of income may be detrimental for union stability (Becker, 1985), the empirical evidence for this relationship is mixed (Dribe and Stanfors, 2010; Bertrand et al., 2013).

This article asks, first, to what extent women in different European countries face a reduction of relative earned income in the event of a childbirth. Second, whether mothers can compensate the loss of labor related income through alternative sources of income. To this end, I ask whether mothers can rely on family benefits – for example payments from parental leave – as economic resources in alternative to the earned income that is foregone with motherhood. Fixed effects models, performed using longitudinal EU-SILC data on 8 western European countries representing different welfare regimes (Esping-Andersen, 1999) from

2004 to 2008 show that European women earn less than their partners and that their relative earned income decreases with a childbirth; the earned income reduction associated with childbirth, however, is largest in countries where family benefits, broadly conceptualized, are generous (i.e. Sweden and Luxembourg), suggesting that women in these countries may chose to forego labor related earnings and rely on payments from family benefits to hinder the relative motherhood penalty. By contrast, the income reduction associated with childbirth is smallest in countries that do not provide generous family benefits (i.e. Italy, Portugal and Spain) indicating that women in countries with a ‘Southern welfare model’ (Ferrera, 1996) may chose to remain in their jobs around childbirth (Bardasi and Gornick, 2000).

2 Background

2.1 The motherhood penalty and the fatherhood premium

It is well known that mothers earn less than childless women. According to Budig and England (2001, p. 204), there are several reasons for which this may happen:

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

Whatever the case, research has found evidence of the motherhood penalty both in Europe and in the US. Molina and Montuenga (2009) find an evident wage penalty for Spanish mothers. Davies and Pierre (2005), in a cross-national longitudinal study, show that motherhood leads to lower wages in Germany, Denmark, the United Kingdom, Ireland, Spain and Portugal. Nsiah et al. (2013) find evidence of the motherhood penalty in Sweden. Sigle-Rushton and Waldfogel (2007), however, find that in northern European countries the wage differential between mothers and childless women is smaller than in continental and liberal

countries. Mothers in the US also pay a price for having children (Waldfogel, 1998; Budig and England, 2001). Notwithstanding, recent evidence from this country suggests that something might be changing for high skilled, high earning women. Indeed, both Budig and Hodges (2010) and Cooke (2014) show that the motherhood penalty is much larger for women at the lower end of the earning distribution than among highly paid women. Furthermore, McDaniel and Buchmann (2013) report preliminary evidence of a motherhood premium for women in traditionally male dominated professions.

The motherhood penalty is counterbalanced by a fatherhood premium. Koslowski (2011), using longitudinal data for Europe shows that fathers have higher hourly wage rates than childless men. Lundberg and Rose (2002), similarly, show that in the US fathers have significantly higher hourly wage rates. This is generally accounted for by the fact that fathers increase their work supply to access higher earnings, in line with Becker's specialization theory. Another recognized mechanism, however, is the selection of highly productive men into marriage first and fatherhood afterwards (Gray, 1997).

The fact that women forego earnings when they become mothers while men earn more when they become fathers is likely to have consequences on the partners' relative share of earnings and to engender a non gender neutral 'family gap' in earned income (Waldfogel, 1998, p. 137). On the basis of this, I formulate my first hypothesis:

H1: women face a reduction in their earnings relative to the couple's total earned income when they have a child.

European countries feature large differences in their institutional settings, in particular in the extent to which they support maternal employment (Del Boca et al., 2009), in the type and availability of family benefits (Davaki, 2010), and in their welfare provision (Esping-Andersen, 1999). Therefore, the relation between the birth of a child and relative earned income may differ between contexts. I address this issue in the following section.

2.2 Considering the context: alternative strategies to deal with the motherhood penalty

Country specific policies such as measures of maternal employment support (Del Boca et al., 2009) and the type of available family benefits (Davaki, 2010) can help us understand how the country context can channel women's choices with respect to their working and parenting responsibilities, and ultimately their earnings. Much literature has focused on women's labor market behavior around childbirth, and the results indicate that mothers' employment behavior and their earnings are affected by country-level policies and labor market characteristics. Drange and Rege (2013) using longitudinal register data from Norway find that the 1998 universal Cash-for-Care program led to a reduction in the labor market participation of mothers of children age two or younger. Studies on Austria (Lalive and Zweimüller, 2009) and Germany (Schönberg and Ludsteck, 2007) find that job-protected parental leaves have short term, and not long term, negative effects on mothers' labor market participation. Using longitudinal data from 13 European countries to study changes in women's working hours from pre-birth to two years after childbirth, Uunk et al. (2005) show that women reduce their working hours after childbirth, but that the reduction is smallest in countries with generous public child care. As far as the labor market is concerned, Bardasi and Gornick (2000) find that mothers are more likely to be in part-time jobs or out of work rather than in full-time jobs in Germany and in the UK, while Italian mothers are forced to choose between working full-time or not working at all due to the low availability of part-time opportunities and other family friendly jobs.

Now consider an employed woman close to childbirth who has to decide how to allocate time and resources towards parenting and employment. Following Budig and England (2001), we can imagine five possible ways to deal with the two competing responsibilities: i) leave employment; ii) decrease employment time/effort; iii) stay in employment and go on unpaid

parental leave; iv) stay in employment and go on paid parental leave; v) maintain employment time/effort. Under the hypothesis that the male partner's earnings are unchanged¹ alternatives i, ii, and iii entail a reduction of the mother's relative income. Alternatives iv and v, by contrast, allow mothers to maintain their income. How can country characteristics and state level policies orient women's choices towards one alternative or another? Tables 1 and 2 show several country characteristics that could influence mothers' behavior in terms of employment and family. The availability of child care services for children under the age of three; a tax benefit system that rewards dual earner households; and the availability of jobs with flexible working hours (table 1), could enable and promote maternal labor force participation.

Table 1

Sweden is the most generous country in terms of these characteristics and is also the country that has the highest levels of maternal labor force participation² (80.3%, OECD, 2014). Austria has a lower coverage in terms of child care, but fares rather well on the other indicators and has a maternal employment rate of 74%. Spain and Italy, on the contrary, have a very low coverage of child care availability in that age span, they scarcely reward households with two earners, and have among the least flexible working hours, suggesting that reconciling work and motherhood should be particularly difficult in these countries. Indeed, only 59.3% and 55.27% of Spanish and Italian mothers are in the workforce (OECD, 2014). Given such low support for working mothers, employed women in southern European and continental countries could be more likely to drop out of the labor market when they become mothers (Gutiérrez-Domènech, 2005). By contrast, in countries where there is higher support for maternal employment, mothers may be more likely to stay in their job or to shift into a family friendly, albeit less remunerative, job (Mandel and Semyonov, 2005). In both cases women would face a reduction in their relative earnings. Alternatively, women might

decide to maintain their position in employment but reduce their working time or effort or go on paid leave. This last alternative calls for the substitution of earned income with payments from parental leave. The extent to which mothers on leave maintain their income depends of course on the length and replacement rate of the leave. The parental and child care leaves reported in table 2 show a rather large cross-national variation that is likely to trigger different behaviors in women who, after maternity leave³ is over, must decide whether to return to work or not.

Table 2

While in Spain, for instance, parental leave can be up to 156 weeks long and offers no economic compensation, in Luxembourg it is one year long and compensated at 90%. Therefore, in case of parental leave uptake, *ceteris paribus*, the reduction in relative income should be larger for a woman in Spain than in Luxembourg. Austria and Sweden offer a relatively generous alternative to returning to employment, where Austria privileges duration (104 weeks covered at 18%) and Sweden compensation (68 weeks covered at 65%). Belgium, Luxembourg and Sweden stand out for being the only ones to provide child care leave, Luxembourg being the country with the most generous provision in terms of length and compensation. Considering these alternatives, in countries where the payment for parental leave is generous, mothers might decide to go on leave (Schönberg and Ludsteck, 2007; Lalive and Zweimüller, 2009) and forego labor related earnings for the duration of the leave. Since the compensation is never full, they are bound to face a reduction in their share of income. Women in countries where parental leave is poorly compensated, instead, are likely to face a larger reduction in their share of income if they chose not to return to work. Based on these considerations, I formulate a second hypothesis:

H2: mothers' reduction in relative income at childbirth is smaller in countries where payments from family benefits are generous and is larger in countries where payments from family benefits are ungenerous.

2.3 The within-couple gap in earnings

A part from having a child, numerous elements contribute to differences in partners' earnings. Stier and Mandel (2009) suggest that spouses' endowments such as human capital, time devoted to paid work, type and field of occupation and how partners plan their career determine the couple's relative earnings. Indeed, women increase their share of income when they are employed and when they are more educated than their partners' (Winslow-Bowe, 2006; Bardasi and Gornick, 2008). In absence of gendered discrimination of wages, therefore, the more similar the partners' endowments, the more equal their earnings. Women, however, generally begin the partnership with a disadvantage because they are younger than their partners and have had less time to accumulate the work experience that is crucial for earnings (Stier and Mandel, 2009). Furthermore, at lower levels of household income partners are more likely to be earning similar amounts, to the point that the household's economic vulnerability could be determinant for female members to achieve the status of primary breadwinner (Winslow-Bowe, 2006). When possible given the models and data availability, these elements are included in the multivariate analyses.

3 Methodology

3.1 Data, sample and variables

The analyses are performed using the longitudinal EU-SILC database covering the years 2004-2008 (EU-SILC, 2008). The European Union Statistics on Income and Living Conditions is a yearly unbalanced panel that surveys all household members for a maximum

of four years. Not all the countries of the database are used in this analysis because some provide gross data on income while others net data. As this could generate problems in comparability, I consider only western European countries that collect net income data: Austria (AT), Belgium (BE), Spain (ES), Ireland (IE), Italy (IT), Luxembourg (LU), Portugal (PT), Sweden (SE). The eight countries form a suitable selection for comparison as they belong to different welfare regimes (Esping-Andersen, 1999; Ferrera, 1996). Austria, Belgium and Luxembourg can be considered part of the so-called conservative welfare regime, where benefits are tightly related to work performance. Italy, Spain and Portugal pertain to the so-called ‘Southern regime’ (Ferrera, 1996), where large portions of welfare are offloaded from the state to families, while Sweden is the representative of the social-democratic welfare regime, where benefits and services are mostly guaranteed on a universalistic basis. Ireland’s welfare, by contrast, has been defined as a mixed model that combines market services with family-provided welfare (Barry and Conroy, 2014).

I select partnered women between 18 and 45 years old whose personal earned income exceeded zero at least once throughout the panel in order to exclude those women who are full-time homemakers throughout the observation period and whose earned income cannot have changed. Similarly, I exclude those few households featuring full-time male homemakers.

To test whether women’s earned income is susceptible to the birth of a child and whether the availability of various types of family benefits compensates for the loss of earned income, I use two measures of women’s relative income. The first dependent variable (y_1), following Winslow-Bowe (2006), measures the female partner’s share of earnings relative to the sum of her earnings and her partner’s earnings. Each partner’s personal earnings are calculated as the sum of employee cash or near cash income; non-cash employee income; cash benefits or losses from self-employment and unemployment benefits. The information on income

pertains to the income reference period which, depending on the country of residence, can be a fixed or a moving 12-month period preceding the interview. I exclude other forms of economic resources, such as interests from capital investment, which are the least susceptible to changes in labor market behavior. Unemployment benefits, for the same reason, are included. The second dependent variable (y_2) allows investigating whether access to non-labor sources of income can engender cross-national differences in the relation between a childbirth and women's relative income. This is achieved by including payments from various types of family benefits⁴ among the woman's forms of income. Two issues about this measure need to be stressed. First of all, the variable indicating payments from family benefits pools together various payments and therefore does not allow distinguishing between different types of family benefits, i.e. payments from maternity, paternity and parental leave, vs. payments from cash-for-care benefits, etc. However, maternity and parental leave are by far the ones providing the higher payments in all the considered countries (Davaki, 2010; Multilinks, 2011). Second, these benefits are measured at the household level, so it is not possible to discern who 'earned' the benefit. Thus, when building this measure I purposely alter the couple's income measures by artificially attributing to the woman the family benefit. This is likely to be unproblematic because in the vast majority of cases it is mothers who go on parental leave and receive the payments (Davaki, 2010). If the payment is generous, women's share is bound to be boosted upwards and the measure allows discerning whether payments from family benefits effectively replace earned income.

To estimate the impact of a childbirth on the dependent variables I use a dummy indicating whether there is a newborn, i.e. a child age 0 or 1, in the household⁵. In the longitudinal fixed effects framework, this variable tests whether the birth of a child at time $t-1$ affects a woman's current earning share at time t , net of individual time-invariant unobserved characteristics. Unfortunately, it only provides an instantaneous effect of childbirth and gives no hint on

whether the change in relative earnings is long term or temporary, as found for the relation between childbirth and maternal employment (Lalive and Zweimüller, 2009).

The time varying control variables included in the models are: age (18-45); age of the partner (18-70); number of hours usually worked per week in main job (coded zero if not in paid work, lagged at t-1 and divided by 100) of both partners; the number of children younger than 18 living in the household, excluding the newborn. Following the argument that female partners are more likely to achieve the status of primary breadwinner when the household is economically vulnerable (Winslow-Bowe, 2006), I include a four-category measure of the household's relative disposable income (lowest quartile as reference group). This measure, similar to the one used by Mandel and Semyonov (2005) captures the position of each household in the national earnings distribution, a feature that is particularly attractive when comparing income across countries over time. Disposable household income is computed by summing all the personal and household income components with the exclusion of family related benefits that are used in y_2 . Table 3 reports descriptive statistics and sample sizes. Additional descriptive analyses are presented in the online supplementary material.

Table 3

3.2 Method

The hypotheses are tested using fixed effects models (FE) that allow for permanent unobserved heterogeneity. In this instance it is particularly important because individual unobserved characteristics might affect both the explanatory and the dependent variable, i.e. mothers might be less career-oriented than childless women. I run two models:

$$y_{1it} = \beta X_{it} + \gamma_1 Newborn_{it} + \varepsilon_{it}$$

$$y_{2it} = \beta X_{it} + \gamma_2 Newborn_{it} + \varepsilon_{it}$$

where y_{1it} is the proportion of a woman's labor earnings to the total of the woman's plus her partner's earnings at time t, and where y_{2it} is the same variable but with payments from

family benefits summed to women's labor earnings. X_{it} is the vector of the time varying controls outlined in the previous section and ε_{it} is the error. The parameters of interest are γ_1 and γ_2 which are the marginal effect of the birth of a child ($Newborn_{it}$) on the two specifications of women's relative income. Hence, the fixed effects models allow estimating the effect of a childbirth that occurred in the previous year on the woman's current share of income while controlling for the observed time invariant characteristics and for unobserved heterogeneity (Wooldridge, 2010). The drawback of this is that the effect of, for example, education or marital status cannot be singled out⁶. An alternative to the fixed effects estimator is the random effects estimator which, by exploiting both the within and the between variation of the sample, allows obtaining estimates for the time invariant characteristics. However, the large Hausman statistics - reported in tables 4 and 5 - indicate that only the fixed effects model is consistent.

4 Results

4.1 Descriptive analysis

Before moving to the fixed effects models, it is useful to look at the cross-national differences in the dependent variables. The mean values presented here do not take into account the longitudinal nature of the data, but are a useful starting point to look at what happens to relative earnings in the presence of children. Figure 1 shows, for each country, the average relative earned income (y_1) for women with and without a newborn in the household. Figure 2, instead, shows women's average relative earned income plus payments from family benefits (y_2), again conditioning on the presence of a newborn in each country. Not surprisingly, in all countries women earn less than 50% of the partners' overall earned income and women with a child age 0 or 1 earn relatively less than those without. The magnitude of the difference, however, is subject to a certain cross-national variation: in the southern

European countries (Italy and Portugal) and in Belgium the difference between the two groups is small, while in Luxembourg, Austria and Sweden it is much larger. Once the payments from family benefits are included in the variable (figure 2), the average relative income is predictably higher for all women, and the average difference between the two groups basically disappears. The case of Sweden is of particular interest because the difference between the two groups of women – one of the largest for y_1 – changes sign once the payments from family benefits are included. This suggests that, in Sweden, but also in Luxembourg and Austria, payments from family benefits constitute a much larger portion of household income than in Italy and Portugal.

Figure 1

Figure 2

Some of these results might be somewhat unexpected. In particular that women with small children earn relatively less in Sweden than in Spain and Italy, where maternal employment support is low. However, it must be recalled that non earning women are excluded from the analyses as their relative earned income by construction cannot change in the event of a childbirth. When considering also these women, it emerges that women's relative earned income is, on average, much lower in countries with low support for maternal employment⁷, indicating – as further discussed below – that in such countries women are more likely to be out of the labor market, but at the same time those who are employed are less vulnerable to short term losses of earned income.

4.2 Panel analysis

Considering now the results from the multivariate analyses⁸, tables 4 and 5 show the two fixed effects panel models by country. In model one (M1) the dependent variable is women's

relative earned income (y_1) while in model two (M2) the dependent variable is relative earned income plus the payments from family benefits (y_2).

Table 4

Table 5

Figure 3 plots the newborn coefficients with 95% confidence bounds (dotted lines) for y_1 in each country, displayed from largest to smallest. Net of unobservable individual characteristics, childbirth entails a reduction of women's relative earned income in all countries, in line with the motherhood penalty argument and with hypothesis 1. There is, however, ample room for country differences. The largest negative relation emerges in Sweden (-0.124, $p < 0.001$) and Luxembourg (-0.092, $p < 0.001$). Portugal and Italy display the two smallest values, with their upper confidence bound touching the zero line (-0.030, $p > 0.1$; -0.014, $p > 0.1$, respectively), while Austria (-0.084, $p < 0.001$), Belgium (-0.056, $p < 0.001$), Ireland (-0.052, $p < 0.01$) and Spain (-0.034, $p < 0.001$) are located in between the two extremes. How do we interpret these results in the light of the national institutional settings outlined earlier? If reduced earnings are a result of women leaving employment around childbirth (Fouarge et al., 2010) or reducing their employment hours (Uunk et al., 2005), then the characteristics of different labor markets could be called upon to explain part of the cross-national differences. For instance, if labor market characteristics make it difficult to adjust labor supply in accordance with family needs (Del Boca et al., 2009), then in countries with reduced female labor force participation and scarce availability of part-time jobs (Bardasi and Gornick, 2000) employed women could be less likely to leave their jobs when they become mothers (Del Boca and Sauer, 2009) and therefore be less vulnerable to earned income reductions. By contrast, in countries with higher female labor supply and greater availability of family friendly jobs, mothers might be more at risk of shifting into less remunerative jobs (Mandel and Semyonov, 2005), hence the large negative effect of a childbirth on their relative

earned income. In a nutshell, these results would suggest that women in Italy, Portugal and Spain modify their working lives very little around childbirth, remaining in their jobs and perhaps limiting their working hours to some extent. In Sweden and Luxembourg, by contrast, the magnitude of the coefficients seems to indicate that mothers make greater changes to their working life, either dropping out of the work force, choosing a less remunerative job or going on unpaid leave.

Figure 3

What happens by including payments from family benefits in the dependent variable? The results from model two (plotted in the solid lines of figure 3) show that the negative association between relative income and childbirth disappears once these payments are included. Furthermore, the countries that showed the largest negative association in the first model, i.e. Sweden and Luxembourg, are the ones to which the inclusion of payments from family benefits makes the largest difference. In Sweden, the coefficient is still negative but is now very close to zero (-0.005 , $p > 0.1$). In Luxembourg the value has become positive (0.016 , $p < 0.05$). In Belgium, Austria and Ireland the coefficients have become smaller and are no longer statistically different from zero. The coefficients in the southern European countries, in particular Italy and Portugal, were already very close to zero and have only marginally changed.

These results are in contrast with hypothesis 2. In Sweden, Luxembourg and to a smaller extent Belgium, countries with generous provisions of family benefits (Davaki, 2010), the reduction in women's relative earned income at childbirth is compensated by an alternative, non-labor source of income: family benefits. Thus, new mothers' economic position in the couple is *not* affected by the birth of a child if payments from family benefits are given to the mother. By contrast, in Italy, Portugal and to smaller extent Spain, there are only small differences between the newborn coefficients in model one and model two, indicating that a)

women in southern European countries do not face the expected reduction in relative earned income at childbirth and b) payments from family benefits are not an alternative source of income for southern European mothers. The result would therefore suggest that, in countries where payments from family benefits are scarce, new mothers remain in their job and rely on labor related earnings to a larger extent than mothers living in other contexts. This finding is in line with other research outputs highlighting the peculiar labor market behavior of women in the ‘Southern welfare’ regime (Ferrera, 1996). Del Boca and Sauer (2009, p. 290) for example discuss that “women in Italy and Spain that decide to bear a child less often withdraw from the labor market [...] Moreover, women who remain employed tend to have full-time work commitments”. According to the authors, women in the two countries face substantially higher adjustment costs at childbirth due to the scarcity of part-time jobs and the inadequacy in quantity and flexibility of child care services. Similarly, Bardasi and Gornick (2000) show that Italian mothers are more likely than mothers in Germany and the UK to choose full-time rather than part-time work.

All in all, the results indicate that the birth of a child does not affect the short term economic position of women relative to their partners neither in countries with generous payments from family benefits (contingent on mothers being the sole receiver of the payments) nor in countries with ungenerous payments from family benefits.

4.3 Robustness check: modeling absolute income

Since the dependent variable is a proportion, the coefficients from the models that indicated decreases in women’s relative earned income, net of payments from family benefits (M1), could be the result of an increase in the male partner’s absolute earned income, instead of a decrease in women’s absolute earned income. Given the fatherhood premium argument (Koslowski, 2011) this possibility cannot be dismissed and if this were the case we could not

attribute the changes in the couple's relative earned income to changes in the mother's labor market behavior. To verify this, we run Zellner's (1962) seemingly unrelated regression models with two equations and two dependent variables, i.e. the natural log of absolute earned income of women and their partner, and we regress these on the newborn variable in each country. In order to preserve the fixed effects framework we run the analysis using individual mean centered variables, adjusting the standard errors for the individual level fixed effects. The full models are reported in tables 6 and 7, while the adjusted coefficients and 95% confidence intervals for the newborn coefficients for women and men are plotted in figure 4.

Figure 4

The coefficients for women indicate a negative effect of childbirth on absolute earnings that is consistent with the previous findings: the decrease in income at childbirth is largest in Sweden, Luxembourg, Austria, Ireland and Belgium, and smallest and non significant in southern European countries. The confidence intervals around the coefficients for men, by contrast, all cross the zero line, suggesting that the birth of a child does not increase fathers' absolute earnings. All in all, the results indicate that changes in women's absolute earnings, and not men's, are responsible for the changes in relative earned income at childbirth.

Table 6

Table 7

5 Conclusions

In European countries, on average, mothers earn less than their childless counterparts (Davies and Pierre, 2005) while fathers have higher earnings than childless men (Koslowski, 2011). Not much is known, instead, on the difference in earnings between partners in the transition to parenthood (Winslow-Bowe, 2006; Waldfogel, 1998). This article contributes to the literature on gender inequality in earnings by showing that, in all the considered European countries, despite consistent differences in terms of labor market structure (Del Boca et al.,

2009), family policies (Davaki, 2010), and welfare arrangements (Esping-Andersen, 1999), women earn relatively less than their partners. By focusing on income differences between partners rather than between women and men in general, the article acknowledges the existence of a ‘family gap’ in earnings in the European context that had been seldom addressed in previous research. Indeed, women’s, and even more so mothers’, relative economic vulnerability can have serious consequences, in particular in terms of poverty risks, not just in case of partnership dissolution (Tamborini et al., 2012) but also if their partner is jobless (Barbieri et al., 2012).

The article further adds to the literature by revealing that, with the exception of southern European countries, childbirth entails an additional penalty to women’s relative earnings, which, however, disappears once we include payments from various types of family benefits among women’s sources of income. In other words, the mechanism behind the observed reduction in relative earnings would be the – perhaps temporary - withdrawal of mothers from paid labor. Thus, it would appear that women choose to forego labor related earnings and substitute them with a non labor source of income, payments from family benefits, and therefore *de facto* recuperate the observed short term childbirth penalty relative to their partners. If mothers are truly the sole receivers of the payments from family benefits, and if these payments are used as a buffer against the reduction of relative earned income, what we find is a relative motherhood penalty in *earnings* that is not, ultimately, a relative motherhood penalty in *income*, at least in the short run. Unfortunately, the short duration of the panel impedes verifying what happens in the medium and long run. If mothers eventually return to their job, as investigated by Drange and Rege (2013) and Schönberg and Ludsteck (2007) who find that job-protected maternal leaves have negative short term but not long term consequences on mothers’ labor force participation, then there are good reasons to believe that having a child does not have long lasting effects on women’s relative earned income.

However, this could only be tested by observing mothers' earnings for a higher number of years. The story is different in southern European welfare states (Ferrera, 1996), where we practically observe no changes in mothers' relative earned income at childbirth, indicating that mothers privilege remaining in the work force around childbirth. This result is not surprising considering the findings from previous research on women's labor market behavior in southern Europe, where the scarce availability of part-time or family friendly jobs (Bardasi and Gornick, 2000) separate women into two very different groups: those who are employed full-time throughout their life, and those who are not. The first is a relatively small, selected and motivated group of women that may not be willing to forego labor related earnings (and the concomitant employment experience and growth in human capital) around childbirth and for whom we do not observe reductions of relative earned income at childbirth. The second group is represented by those women who are either out of the workforce to begin with or who drop out of the labor market prior to childbirth and never reenter (Del Boca and Sauer, 2009). Thus, the fact that mothers face a much smaller reduction in relative earnings in southern European countries could be, in itself, a positive sign for gender equality, but it is actually masking much wider within and between gender inequalities.

An aspect of the motherhood penalty that I do not address is whether it varies along maternal characteristics. Recent studies for the US and other liberal welfare states, for example, have shown that the motherhood penalty is larger among lowly paid mothers than among highly paid ones (Budig and Hodges, 2010; Cooke, 2014). Indeed, to what extent European mothers with different socio-economic backgrounds experience the motherhood penalty is a promising area for future research. Similarly, research should address to what extent paternal characteristics are involved in the formation of 'family gaps' in earnings and income in European countries. Ultimately, it would be extremely valuable to grasp a better

understanding of how various family policies - not just economic benefits - interplay in determining motherhood penalties and fatherhood premiums.

To conclude, it is useful to recall that while women's economic dependence within the household does not necessarily imply negative outcomes for themselves, their couple or their children, their economic independence entails several benefits, both in terms of gender equality and of economic well-being in case of partnership dissolution. Cultural reasons, however, might be keeping women in the position of ancillary earners within households. Bertrand and colleagues (2013), in fact, show that women and men in Canada and in the US have a preference towards partnerships where the husband earns more than the wife to the point that marriages with breadwinning wives are more miserable and have higher risks of divorce. Hence, the question that remains to be answered is whether European women's position of secondary earners within the household is an involuntary consequence of gender specialization that stems from structural features, or is the result of a voluntary decision by women and their partners.

¹ At this stage we simplify the decision making process by assuming that the man's income around childbirth goes unchanged. This assumption is unrealistic given the fatherhood premium argument and we deal with it in the empirical analyses.

² It should be noted that employment rates in Northern European countries appear to be much higher than in Continental countries because they include mothers of small children who are temporarily on leave (OECD, 2014).

³ I focus on parental rather than maternity leaves because the former present much more cross-national variation and therefore are more likely to trigger different behavior in mothers from different countries.

⁴ The full list of payments included in the variable is detailed in the online supplementary material.

⁵ Models considering whether the child was first, second or higher order were run and did not yield additional information. Results available in table A2 in the online supplementary material.

⁶ To ensure that the quartile of household disposable income were time-varying I cross tabulated the current and the lagged disposable household income of the household and verified that households change their position in the income distribution over time (results not show but available upon request).

⁷ More information on the group of non-employed women and a discussion on the effects of childbirth on this group is included in the online supplementary material.

⁸ Due to space limitations, I limit the discussion of the results to the effects of the childbirth variable. For a commentary of the other variables included in the models, see the online supplementary material.

Disclaimer

This article is based on data from Eurostat, EU Statistics on Income and Living Conditions (2008). The responsibility for all conclusions drawn from the data lies entirely with the author.

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Tables and figures

Table 1: Child care coverage, neutrality of the tax/benefit system and employment hours' flexibility in eight European countries

	Child care services [†] coverage (%)	Neutrality of the tax system [‡]	Flexible hours employment*
Austria	9	34.3	21.7
Belgium	34	10.5	19.4
Spain	16	21.7	7.0
Ireland	15	109.3	15.9
Italy	11	26.1	12.1
Luxembourg	14	30.2	20.6
Portugal	19	26.2	6.5
Sweden	49	34.8	39.5

[†] Coverage rate for children under 3 years old (share of children) (Multilinks 2011).

[‡] Difference in net transfers to government: single and equal dual-earner couples. Tax-Benefit model, 2010 (OECD, 2014).

*Proportion of employees who can adapt working hours within certain limits. Fifth European Survey on Working Conditions 2010 (OECD, 2014).

Table 2: Length and coverage of parental and child care leave in eight European countries

	N parental leave weeks	Parental leave compensation [†]	N child care leave weeks	Child care leave compensation [‡]
Austria	104	17.9	0	0
Belgium	26	25.2	52	22.8
Spain	156	0	0	0
Ireland	28	0	0	0
Italy	44	30	0	0
Luxembourg	52	90.2	104	24.6
Portugal	26	25	0	0
Sweden	68.6	65.1	78	12.7

[†] Parental and [‡] child care compensation are cash benefits paid during the leave and are expressed in terms of the percent of female wages in manufacturing (Gauthier, 2010).

Table 3: Descriptive statistics by country. Mean values and proportions. Women age 18-45

	AT	BE	ES	IE	IT	LU	PT	SE
	Means							
Relative earned income y_1 (0-1)	0.315	0.392	0.368	0.363	0.365	0.352	0.415	0.390
Relative earned income + family benefits y_2 (0-1)	0.404	0.435	0.374	0.424	0.379	0.422	0.435	0.452
Absolute earned income (Euros)	11639	15278	10626	20159	13235	20827	8105	15861
Absolute earned income of the partner (Euros)	24443	24091	17138	34697	22835	37984	12290	24061
Age (18-45)	36.33	34.81	36.21	37.33	36.90	33.59	36.47	35.03
Age of the partner (18-70)	39.54	37.39	38.91	40.05	40.26	36.52	39.34	37.78
Hours of employment per week (t-1)/100	0.225	0.288	0.272	0.243	0.258	0.288	0.351	0.300
Partner's hours of employment per week (t-1) /100	0.409	0.409	0.415	0.405	0.410	0.419	0.413	0.387
N other children	1.431	1.409	1.266	1.688	1.250	1.086	1.435	1.459
	Proportions							
Household disposable income - quartiles:								
<25	0.250	0.251	0.250	0.251	0.250	0.250	0.251	0.250
25-50	0.250	0.250	0.250	0.249	0.250	0.250	0.250	0.250
50-75	0.250	0.250	0.250	0.251	0.250	0.250	0.250	0.250
>75	0.249	0.249	0.250	0.249	0.250	0.250	0.250	0.250
Newborn	0.125	0.135	0.153	0.179	0.139	0.216	0.0927	0.187
N	3183	3543	6297	1176	8304	4074	1736	4022
Proportion of excluded households due to a never-earning partner:								
Couples with a never-earning woman	0.185	0.125	0.219	0.229	0.271	0.227	0.174	0.055
Couples with a never-earning man	0.013	0.024	0.020	0.039	0.019	0.029	0.027	0.026

Table 4: Fixed effect regression models: Austria, Belgium, Spain and Ireland. Unstandardized coefficients, standard errors in parentheses

Model Dependent variable	Austria		Belgium		Spain		Ireland	
	M1 y ₁	M2 y ₂	M1 y ₁	M2 y ₂	M1 y ₁	M2 y ₂	M1 y ₁	M2 y ₂
Newborn	-0.084*** (0.016)	-0.006 (0.014)	-0.056*** (0.011)	-0.009 (0.010)	-0.034*** (0.010)	-0.011 (0.010)	-0.052** (0.018)	-0.004 (0.016)
Age	-0.011 (0.008)	-0.020** (0.007)	0.005 (0.006)	0.007 (0.006)	0.019* (0.008)	0.019* (0.009)	0.008 (0.026)	0.022 (0.024)
Age of the partner	0.011 (0.008)	0.016* (0.007)	-0.004 (0.006)	-0.005 (0.006)	-0.009 (0.008)	-0.008 (0.008)	-0.001 (0.026)	-0.015 (0.024)
Hours worked per week t-1 /100	0.363*** (0.042)	0.282*** (0.036)	0.207*** (0.040)	0.156*** (0.036)	0.259*** (0.030)	0.266*** (0.030)	0.389*** (0.082)	0.300*** (0.075)
Partner's hours worked per week t-1 /100	-0.193*** (0.053)	-0.199*** (0.045)	0.042 (0.048)	0.036 (0.043)	-0.163*** (0.035)	-0.163*** (0.035)	-0.098 (0.081)	-0.118 (0.074)
Household disposable income (r.c. <25)								
25-50	0.050*** (0.011)	-0.023* (0.009)	0.010 (0.010)	-0.013 (0.009)	-0.011 (0.009)	-0.016 (0.009)	-0.013 (0.017)	-0.037* (0.015)
50-75	0.088*** (0.012)	-0.017 (0.010)	-0.004 (0.012)	-0.035*** (0.011)	0.008 (0.010)	-0.000 (0.010)	-0.015 (0.018)	-0.047** (0.016)
>75	0.091*** (0.014)	-0.036** (0.012)	-0.019 (0.014)	-0.066*** (0.012)	-0.007 (0.012)	-0.016 (0.012)	-0.014 (0.019)	-0.053** (0.017)
N other kids	-0.031* (0.015)	0.015 (0.013)	-0.039** (0.013)	-0.014 (0.012)	-0.040*** (0.010)	-0.031** (0.010)	-0.095*** (0.020)	-0.047* (0.018)
Constant	0.277* (0.120)	0.501*** (0.102)	0.351*** (0.101)	0.349*** (0.091)	0.058 (0.098)	0.038 (0.098)	0.216 (0.212)	0.321 (0.194)
R-Squared	0.112	0.0577	0.0307	0.0272	0.0366	0.035	0.0751	0.0587
N obs.	3183		3543		6297		1176	
N groups	1465		1589		2583		532	
Hausman test FE vs. RE	70.31	66.66	64.35	77.56	107.83	103.8	60.45	59.28
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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

Table 5: Fixed effect regression models: Italy, Luxembourg, Portugal and Sweden. Unstandardized coefficients, standard errors in parentheses

Model	Italy		Luxembourg		Portugal		Sweden	
	M1	M2	M1	M2	M1	M2	M1	M2
Dependent variable	y ₁	y ₂	y ₁	y ₂	y ₁	y ₂	y ₁	y ₂
Newborn	-0.014 (0.008)	-0.004 (0.008)	-0.092*** (0.008)	0.016* (0.006)	-0.030 (0.022)	-0.000 (0.021)	-0.124*** (0.010)	-0.005 (0.009)
Age	-0.004 (0.007)	-0.003 (0.007)	-0.016* (0.007)	-0.011 (0.006)	-0.015 (0.020)	-0.017 (0.019)	0.012 (0.007)	0.009 (0.006)
Age of the partner	0.008 (0.007)	0.007 (0.007)	0.018** (0.006)	0.016** (0.005)	0.009 (0.020)	0.010 (0.019)	-0.009 (0.007)	-0.009 (0.006)
Hours worked per week t-1 /100	0.205*** (0.023)	0.183*** (0.023)	0.340*** (0.028)	0.296*** (0.024)	0.324*** (0.063)	0.252*** (0.061)	0.110** (0.036)	0.114*** (0.030)
Partner's hours worked per week t-1 /100	-0.093*** (0.024)	-0.081*** (0.024)	-0.213*** (0.038)	-0.193*** (0.032)	-0.111 (0.083)	-0.192* (0.080)	-0.192*** (0.041)	-0.185*** (0.035)
Household disposable income (r.c. <25)								
25-50	0.017* (0.008)	0.009 (0.008)	0.045*** (0.009)	-0.002 (0.008)	-0.017 (0.016)	-0.034* (0.015)	0.043*** (0.008)	-0.020** (0.007)
50-75	0.040*** (0.009)	0.027** (0.009)	0.060*** (0.013)	-0.019 (0.011)	-0.038* (0.018)	-0.058** (0.018)	0.049*** (0.010)	-0.023** (0.008)
>75	0.034*** (0.010)	0.019 (0.010)	0.083*** (0.015)	-0.020 (0.013)	-0.043 (0.025)	-0.067** (0.024)	0.046*** (0.011)	-0.028** (0.009)
N other kids	-0.023* (0.010)	-0.019* (0.010)	-0.029*** (0.008)	0.003 (0.007)	0.028 (0.023)	0.031 (0.022)	-0.022* (0.009)	-0.004 (0.007)
Constant	0.194** (0.071)	0.194** (0.070)	0.206** (0.079)	0.205** (0.067)	0.519** (0.164)	0.661*** (0.157)	0.376*** (0.084)	0.523*** (0.070)
R-Squared	.0259	.0195	.141	.0745	.0429	.039	.146	.0252
N obs.	8304		4074		1736		4022	
N groups	3428		1540		728		1750	
Hausman tests FE vs. RE	255.88	275.26	157.08	151.90	16.93	15.96	109.25	130.30
P-value	0.000	0.000	0.000	0.000	0.0497	0.0676	0.000	0.000

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

Table 6: Sureg fixed effect regression models: Austria, Belgium, Spain and Ireland. Dependent variable: natural logarithm of women and men's absolute earned income. Unstandardized coefficients, standard errors in parentheses

	Austria		Belgium		Spain		Ireland	
	Women	Men	Women	Men	Women	Men	Women	Men
Newborn	-1.081** (0.404)	0.260 (0.154)	-0.460** (0.150)	0.076 (0.117)	-0.305 (0.164)	0.105 (0.091)	-0.542 (0.324)	-0.292 (0.177)
Age	-0.047 (0.156)	0.080 (0.048)	0.199* (0.099)	0.000 (0.044)	0.319* (0.127)	-0.052 (0.081)	-0.410 (0.702)	-0.112 (0.090)
Age of the partner	0.292* (0.147)	0.007 (0.039)	-0.020 (0.099)	0.092 (0.048)	-0.067 (0.123)	0.060 (0.080)	0.588 (0.706)	0.109 (0.087)
N other kids	-0.469 (0.380)	0.157 (0.211)	-0.501* (0.222)	0.073 (0.148)	-0.402* (0.169)	0.154 (0.100)	-1.313** (0.411)	0.201 (0.155)
Women's hours worked per week (t-1) /100	6.205*** (0.868)	-0.054 (0.543)	3.463*** (0.875)	-0.026 (0.315)	4.311*** (0.585)	-0.057 (0.327)	8.349*** (1.946)	0.257 (0.524)
Men's hours worked per week (t-1) /100	-0.075 (1.316)	2.106* (0.961)	0.359 (0.985)	0.385 (0.575)	-0.086 (0.609)	1.855** (0.626)	0.861 (1.731)	2.657 (2.194)
Constant	1.227*** (0.057)	-0.710*** (0.171)	0.344*** (0.094)	-0.888*** (0.166)	1.200*** (0.041)	0.392*** (0.073)	1.008*** (0.103)	0.257 (0.185)
N obs.	3183		3543		6297		1176	
N groups	1465		1589		2583		532	

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

Table 7: Sureg fixed effect regression models: Italy, Luxembourg, Portugal and Sweden. Dependent variable: natural logarithm of women and men's absolute earned income. Unstandardized coefficients, standard errors in parentheses

	Italy		Luxembourg		Portugal		Sweden	
	Women	Men	Women	Men	Women	Men	Women	Men
Newborn	-0.191 (0.152)	0.104 (0.081)	-1.185*** (0.150)	-0.025 (0.060)	-0.019 (0.351)	0.071 (0.121)	-1.230*** (0.128)	-0.118 (0.078)
Age	-0.059 (0.130)	-0.040 (0.066)	0.127 (0.134)	0.184*** (0.055)	-0.010 (0.251)	0.327 (0.219)	0.164* (0.078)	0.078 (0.061)
Age of the partner	0.191 (0.129)	0.092 (0.068)	0.100 (0.133)	-0.122* (0.049)	0.147 (0.258)	-0.206 (0.214)	-0.017 (0.070)	0.027 (0.062)
N other kids	-0.283 (0.196)	0.108 (0.111)	-0.431* (0.185)	-0.014 (0.079)	0.263 (0.332)	-0.168 (0.150)	-0.027 (0.124)	0.024 (0.063)
Women's hours worked per week (t-1) /100	4.266*** (0.526)	0.120 (0.228)	7.958*** (0.786)	-0.147 (0.301)	4.984** (1.597)	0.224 (0.620)	1.003** (0.384)	0.151 (0.390)
Men's hours worked per week (t-1) /100	0.035 (0.525)	1.354*** (0.330)	-1.541 (0.796)	1.046 (0.640)	0.214 (1.602)	1.745 (1.577)	0.444 (0.452)	1.238* (0.557)
Constant	0.905*** (0.044)	-0.368*** (0.091)	1.089*** (0.058)	-0.329* (0.142)	0.462*** (0.115)	-0.292 (0.188)	0.087 (0.091)	-0.686*** (0.149)
N obs.	8304		4074		1736		4022	
N groups	3428		1540		728		1750	

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

Figure 1. Average relative earned income (y1) for women with and without a newborn in the household by country.

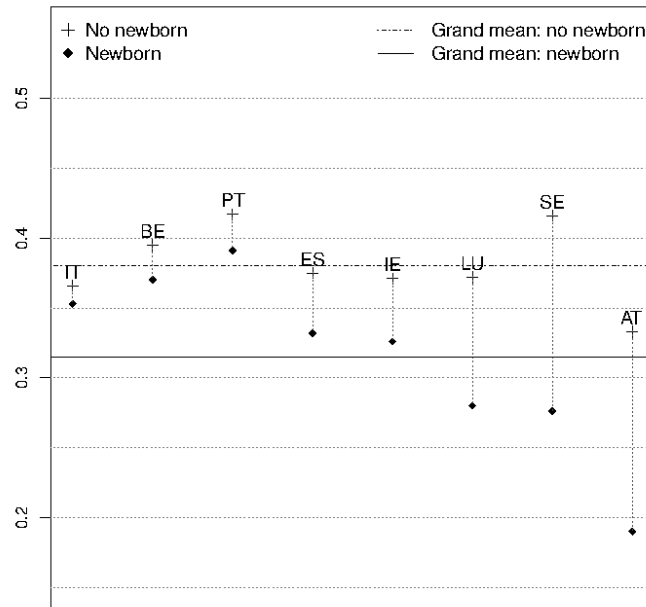


Figure 2. Average relative earned income plus family benefits (y2) for women with and without a newborn in the household by country.

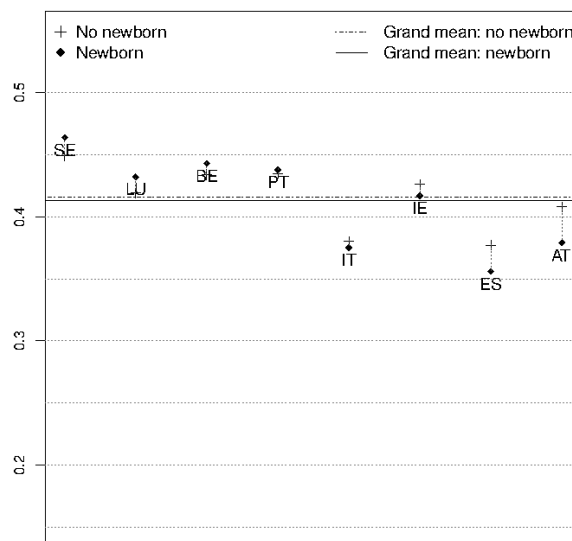


Figure 3. Newborn coefficients with 95 per cent confidence intervals on women's relative earnings (y1) and on women's relative earnings plus family benefits (y2) by country.

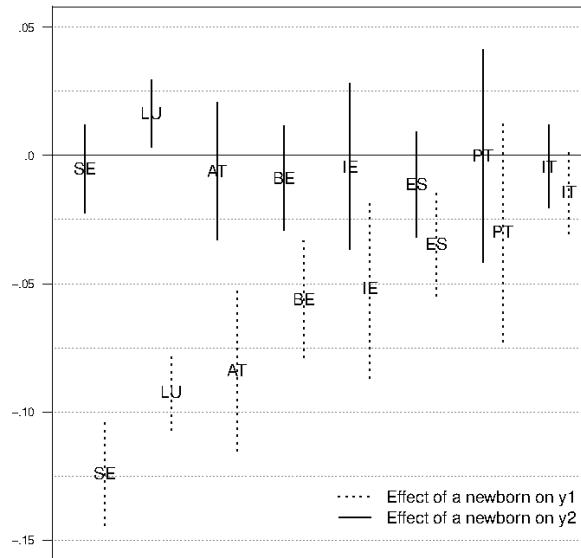


Figure 4. Newborn coefficients with 95 per cent confidence intervals on the natural log of women and men's absolute earned income by country.

