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Sacrificing their Careers for their Families? An Analysis of the Penalty to Motherhood in Europe

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This paper examines the extent of and the mechanisms behind the penalty to motherhood in six European countries. Each country provides different levels of support for maternal employment allowing us to determine institutional effects on labour market outcome. The paper's findings confirm those of previous research in the area: mothers tend to earn less than non-mothers. However, the conditions of maternal employment are not the same in all countries, with less evidence of a penalty to motherhood in countries supportive of working mothers. The paper established the United Kingdom and West Germany to have the least policy support for working mothers as well as the largest penalties to motherhood. .

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Keywords: **wages, maternal employment, cross-national analysis.**
JEL: J16, J31.

1. Introduction

There is a long tradition of analysis into the penalty to motherhood (e.g. Waldfogel 1995, 1997; Budig and England 2001). Early work, primarily on American and British data, established a penalty to motherhood that was robust to alternative specifications (e.g. Waldfogel 1995, 1997; Joshi and Paci and Waldfogel 1999). More recent analyses have examined whether mothers are similarly exposed to pay penalties across countries including Europe (e.g. Harkness and Waldfogel 2003; Davis and Pierre 2005). While these studies also find mothers to earn less than non-mothers, the penalty to motherhood is less consistent in continental Europe than in America and the United-Kingdom.

Why is it that mothers earn less than non-mothers? The penalty to motherhood is attributed to a range of factors. First, motherhood can be difficult to combine with paid employment impinging on working mothers' labour force attachment (e.g. Del Boca and Wetzels 2007). If mothers take time out of employment, we can expect earning differentials to arise from; lower work experience, possible skill attrition and other penalties for non-market engagement. Moreover, if mothers 'trade down' to part-time jobs in pursuit of work-life balance they are often required to take posts of lower occupational worth (Connolly and Gregory 2008) which pay less. Second, there is the suggestion that mothers seek employment which allows them to balance both paid work and unpaid care and that they accept lower wages in pursuit of these 'compensating differentials' (Smith 1976). The theory of compensating differentials argues that dis-

amenities in a job's characteristics will incur a wage premium in a competitive market. Similarly, desired job characteristics, such as job autonomy or provision of work-life balance, are effectively 'bought' for a lower wage. Third, individual preferences or attitudes concerning paid work may influence earnings. Traditional gender ideologies which re-enforce women's specialisation in unpaid care and their marginal role in bread-winning (Becker 1991) may result in a weak work-orientation and therefore lower earnings. Scott finds an increase in gender traditionalism in some Western countries since the early 1990s (Scott, 2006) and Polavieja (2007) finds women with traditional ideologies to earn less. Fourth, policies supportive of maternal employment are expected to influence the penalty to motherhood. Countries with less policy provision for maternal employment, such as the US and the UK, have been found to place working-mothers at a disadvantage relative to those without care responsibilities (Gash 2008). In a competitive market such disadvantage is likely to translate into lower pay. Finally, another possible explanation for mothers' lower pay includes employer discrimination against mothers. American research found mothers to be discriminated against. An audit study found employers considerably less likely to shortlist a mother than a non-mother for a post, with mothers perceived to be less able (Correll, Benard and Paik 2007). While the empirical analyses conducted cannot control for employer discrimination, the paper will discuss the possible impact of discrimination on findings.

The contributing factors to mothers' lower pay are broad ranging, with previous analyses often unable to engage with all the possible mechanisms behind mothers' lower pay. This paper improves on previous analyses by assessing how individual attributes and attitudes, labour market structures and institutions contribute to lower pay. As no single dataset contains all this information, this paper deploys two datasets which in combination allow us to examine these divergent features of working motherhood. We use the European Social Survey (ESS) a cross-sectional comparative dataset which in 2004 collected a module on work-life balance. This module provides us with a rich source of data on gender ideology as well as variables that allow us to operationalise compensating differentials in employment. We also use the European Community Household Panel (ECHP) a large panel dataset which allows us to determine how demographic and labour

market structures influence mothers' earnings. Moreover, the panel component of the data also allows us to control for unobserved heterogeneity, i.e. unmeasured individual attributes such as attitudes or dispositions to work. As the paper asks whether policies supporting maternal employment decrease the penalty to motherhood, this paper compares the penalty to motherhood in six countries with varying policy support for maternal employment. The United Kingdom, West Germany[i] and the Netherlands provide little policy support for maternal employment; while France, Finland and Denmark have a history of support for working mothers.

2. The penalty to motherhood, previous findings

Research on micro-level data has attributed a large portion of the penalty to motherhood to women's reduced labour force attachment in and around childbearing and rearing. Indeed the ability of researchers to convincingly account for work experience is central to much of the published literature on the topic. Waldvogel (1997), using the American National Longitudinal Survey of Youth (NLSY) (1968-1988), finds a penalty to motherhood even after controlling for work experience, working time and unobserved heterogeneity. Budig and England (2001), using more recent waves of the NLSY (1982-1993), confirm the penalty to motherhood. Joshi, Paci and Waldfogel (1999) using UK cohort data compared the wages of mothers in 1978 and 1991. They found little difference in the gross penalty to motherhood over-time; however they did find considerable differences in its composition over-time. The penalty in 1991 was found to be driven primarily by mothers with intermittent employment or in low paid part-time jobs. Mothers who were continuously employed were found to earn similar amounts to non-mothers. While the penalty to motherhood is not restricted to the United States and the United Kingdom, the penalty to working-motherhood is frequently identified as the greatest in these countries. Joshi and Davies (1992) reveal variation in lost earnings due to motherhood in France, Germany and Great Britain. They found the penalty to be the largest in the United Kingdom and the lowest in France. Similarly, Harkness and Waldfogel (2003) found the penalty to motherhood to be the worst in the UK followed by America when they used the Luxembourg Income Study (1991-1995) to examine the penalty to motherhood in America, Canada, Australia, the United Kingdom, Germany,

Finland and Sweden. While penalties to motherhood were found for all countries; Scandinavian countries had considerably lower penalties than Anglo-American countries.

What of more recent analyses on data pertinent to the late 1990s and early 2000s? While there is little evidence of a decreased penalty to motherhood using recent American data (Avellar and Smock 2003), some European analyses do suggest a shift against the penalty to motherhood. Petersen, Penner and Hogsnes (2007) document a strong decrease in the penalty to motherhood in Norway between 1980 and 1997. By the end of the 1990s they found mothers and non-mothers to earn the same wages when they worked in the same establishment. Meanwhile, other researchers using European data have found considerably less evidence of a penalty to motherhood. Using Danish data covering 1980 to 1995, Datta Gupta and Smith (2002), find no penalty to motherhood once unobserved heterogeneity is controlled for. Davies and Pierre (2005), using six of the eight waves of the ECHP (1994-1999), find a penalty to motherhood in most countries. However, the penalties they find are driven by very young mothers, older mothers tend not to earn a penalty. [ii]

A competing explanation for the penalty to motherhood argues that mothers exchange lower wages for 'mother friendly' working conditions. The theory of compensating differentials suggests that unpleasant job conditions should be compensated for with higher wages and pleasant working conditions are purchased through lower pay (Smith, 1976). This argument is used to explain women's engagement in low paid part-time work and also for their concentration in the less well paid public sector. The suggestion is that mothers (and women intending to become mothers) willingly forego the higher earnings of full-time employment in the private sector to obtain less well paid 'family friendly' employment. Nonetheless, many researchers have since contested the hypothesis of compensating differentials noting that markets do not necessarily compensate poor working conditions nor charge for pleasant ones. For instance, researchers have found job flexibility (a desired job attribute by many) to be associated with a wage premium rather than a penalty (e.g. Kruse 1992; Gariety and Shaffer 2001). There is also little evidence that unpleasant job attributes are compensated for by higher wages: job insecurity earns a

penalty (Gash and McGinnity 2007), even though it is demonstrably a disutility (Gash, Mertens and Romeo-Gordo 2007).

With the exception of working-hours few datasets contain information on job attributes; with many researchers therefore unable to discount compensating differentials as an explanatory factor of mothers' lower pay. There are, nonetheless, some notable exceptions. In their disaggregation of the sex gap in pay Kilbourne et al. (1994) find job attributes, as well as skill levels, to account for some but not all the pay gap. Women earned less if they worked in occupations that were typically 'female' as well as those with low concentrations of male workers. With no economic justification for awarding people less pay for these reasons, Kilbourne et al. attribute a portion of the pay gap to a cultural devaluation of women and their work.

Glass (2004) examines the effects of work-family reconciliation policies on wages and wage growth. *Access* to work-family reconciliation policies were not found to depress workers wages (refuting the neo-classical claim that workers buy preferred conditions). Rather, she found mothers who used policies that decreased contact hours (i.e. reduced hour employment or teleworking) earned pay penalties; though these penalties were restricted to managerial and professional workers. Mothers who used flexible schedules or childcare assistance policies, policies that ensure mothers maximise their contact hours, exhibited few to no penalties.

Finally, gendered working preferences have been used to explain the persistence of the gender gap in pay and in forms of female participation (Fortin 2005). While most countries exhibit a decrease in traditional gendered norms since the 1980s (Scott 2006), traditional norms still persist even in younger cohorts (Thornton and Young-DeMarco 2001). Might mothers have reduced preferences for work that can explain their lower pay? Preferences generally offer problematic causal explanations of outcome, with researchers increasingly revealing preferences and ideologies to be shaped by outcome. For instance, Himmelweit and Sagwala (2005) have revealed preferences to change to reflect outcome. Also, Berrington et al. (2008), using graphical chain models, establish

women to be more likely to change their attitudes than pursue market outcomes on the basis of their attitudes.

Combined these research findings reveal a history of lower pay for mothers across countries; though the drivers of the penalty remain unclear. Using the latest panel data this paper will re-investigate and compare the penalty to motherhood in six European countries. In addition to an investigation of mothers' pay, the empirical analysis will reveal whether mothers differ from non-mothers in their market attachment and skill set; it will assess whether mothers appear to cluster in occupations with job attributes supportive of work-life balance and, therefore, if they appear to pursue compensating differentials. While the research reviewed cautions against using attitudinal data as a causal account of wages; ideological differentials between mothers and non-mothers will nonetheless be examined as both a function of as well as a possible contributor to mothers' lower pay. Finally, the role of institutional context as a driver of pay penalties is rarely articulated in the literature reviewed but is presented as a pivotal explanatory mechanism for mothers' low pay here. Therefore the policies thought to structure the penalty to motherhood are reviewed below.

3. Policy support for working-mothers

Does policy support for maternal employment decrease the penalty to motherhood? The policies reviewed below are those expected to support working-motherhood and in particular to remove barriers to their equal labour force participation. In countries with no/little support for maternal employment we expect mothers to earn a penalty relative to non-mothers at the mean. We also expect policies supportive of maternal employment to remove mothers' need to pursue compensating differentials concomitant with work-life balance in employment. Table 1 provides social indicators of the countries analysed as well as indicators of policy provision for maternal/paternal workers. Rather than introduce policy variables to the statistical analysis, this paper provides a review of the policy context of each country to reveal the different policy environments facing maternal workers. We do not include policy variables in our empirical estimations as we expect

multiple policies to influence working mothers. Previous research has highlighted the risks of introducing multiple variables measuring macro-policy[iii] or macro-economic factors in statistical estimations (Russell and O'Connell 2001).

<TABLE 1 HERE>

Parental leave and benefit- Parental leave schemes are a recent welfare state development with similar rights afforded as with maternity leave. The mother, or father, has the right to return to their post after their leave period and are protected from unfair dismissal. As with maternity leave, which is not reviewed due to the similitude of entitlement across the countries analysed, these schemes ensure that the mother, predominantly, can maintain her position in the labour market despite taking time off to care for her child. The length of parental leave afforded varies considerably by country. The period is fairly short in the UK, Denmark, Finland and the Netherlands; while it is very long in France and Germany. In Denmark and Finland leave provision can be taken as an alternative to public childcare, which parents are guaranteed access to. Leave is paid but tends to be lower than maternity leave payments which for all countries, except the United Kingdom, are equivalent to the earned salary when employed. The UK provides the least support providing some of the shortest leave entitlement and no benefit provision. Increasingly, researchers conclude that short leave periods are less detrimental to a mother's career than longer periods of leave. Not only do women on longer leave periods earn less (e.g. Datta Gupta and Smith 2001) they are also more likely to drop-out of paid employment. This suggests that mothers' market engagement, and therefore their wages, should be the least affected by the shorter leave arrangements of Finland and Denmark. While the UK and the Netherlands also have short leave arrangements, the leave is unpaid – with mothers in wealthy households the most likely to avail of these policies therefore. Mothers in households dependent on their income are more likely to return to work in jobs (part-time or flexi-time) that allow them to both earn and care for their children. This situation is likely to exacerbate the penalty to motherhood, with many mothers understood to occupationally downgrade in pursuit of family friendly employment (Connolly and Gregory 2008).

Childcare- There are numerous childcare policies which can support working-mothers. These include: provision of public childcare for children of varying ages, subsidies for private childcare use as well as policies ensuring that school-hours are compatible with the average workers' working day (see Neyer 2003 for a discussion). We restrict our attention to public childcare for young children as there is more variation across countries in care provision for children of these ages. We note that Denmark, Finland and France provide universal access to childcare with children guaranteed a place in local childcare services. We expect mothers with access to childcare to engage in paid employment under similar conditions to workers without children, decreasing the penalty to motherhood in these countries.

Current fertility rates vary considerably by country with countries more supportive of working motherhood tending toward higher fertility (Esping-Andersen 1999). Table 1 confirms this: Finland, Denmark and France have the highest fertility rates and the most support for maternal employment. The UK is unusual, however, in its high fertility rates and low support for maternal employment. While labour force participation rates for women between the ages of 24-50 years are similar for the countries analysed (OECD 2001), it is worth noting that countries supportive of maternal employment tend to have lower proportions of women engaged in part-time employment (table 1). Controls for working-time will be vital in the statistical analyses therefore, and already suggest that in the absence of policy support for maternal employment mothers pursue compensating differentials in employment. Finally, Table 1 presents the mean age at childbearing in each country. The mean age of mothers at child-birth(s) is 29-31 years with little variation by country. This suggests that the exclusion of younger workers (those aged 24 and younger), as is common in much labour market research, should not have a strong impact on the interpretation of our results.

Expectations of the penalty to motherhood by country

If mothers are constrained in their market behaviour, as a result of their dual burden of paid work and unpaid care, we can expect them to earn a pay penalty. The source of the

pay penalty may be 'legitimate'; mothers may be working in jobs of lower occupational worth, they may have shorter tenure, they may be in part-time jobs. However, the legitimacy bequeathed to labour market outcome needs to be questioned. If mothers work part-time and earn a lower wage because they cannot obtain or afford childcare, we have not explained away a problematic wage differential to choice. The strength of a comparative analysis, crucially on countries that provide different options to working-motherhood, lies in its ability to determine whether mothers free to choose different market outcomes take those opportunities and display fewer penalties therefore.

- Finland and Denmark are expected to have the smallest penalties to motherhood. Both countries provide extensive public childcare services, allowing mothers to outsource childcare while in paid employment. Both countries also provide short paid parental leave schemes. Short parental leave reduces periods out of paid employment limiting skill attrition whilst maintaining mothers' previous position in the market. Under these conditions mothers are less likely to pursue compensating differentials in employment, being able to work standard jobs and manage childrearing.

- France is also expected to have smaller wage penalties relative to countries with less support for maternal employment. However, we expect the French regime to be less successful at re-integrating mothers back to paid work with its extensive three year parental leave likely to encourage labour market drop-out. If French women do on average take the full period of their leave entitlements we could expect them to earn a penalty on their return to paid employment as a result of possible skill attrition or simply lower job tenure.

- The Netherlands is classified as unsupportive of maternal employment with its largely unpaid parental leave (with the exception of the public sector) and its low investment in public childcare services. Policy support for maternal employment tends to be limited to government support for part-time work (Kenjoh 2005). This has resulted in extremely high rates of part-time employment in the Netherlands

compared with other countries. While provision for maternal employment in the Netherlands is, compared with Nordic countries and France, poor, its unusual distribution of working hours for *all women* may result in less difference between mothers' and non-mothers' earnings.

- West Germany and the UK are expected to exhibit the largest penalty to motherhood with work-family reconciliation likely to be achieved through pursuit of family friendly, and therefore less well paid, employment. West Germany provides little support for working motherhood; rather it supports mothers' retreat from paid employment with its extensive and paid parental leave schemes. Mothers are unlikely to be able to access or afford childcare services unless they are high earners. The UK provides a similar environment for working mothers though the UK does not actively support mothers retreat from paid employment with parental leave unpaid. Public childcare services in the UK are also under-developed and often prohibitively expensive when purchased in the private sector (Viitanen 2005). Mothers, therefore, are most likely to negotiate working-motherhood by obtaining (often poorly paid) part-time work in both these countries.

4. The data and research design

This paper uses two cross-national datasets. The first data source used is the European Social Survey (ESS)[iv] a multi-country cross-sectional survey. The questionnaire has a core component which asks similar questions for each round of the survey as well as a rotating component dedicated to a substantive theme. This paper uses the information from the round 2 rotating module on 'Family, Work and Well-being' which was collected in 2004. This module allows us determine whether working mothers' tend to pursue jobs with compensating differentials and whether they differ attitudinally from working non-mothers. The second data source is the European Community Household Panel Survey (ECHP)[v], a multi-country cross-national panel survey conducted in the Member States of the European Union under the auspices of the Statistical Office of the European Communities (EUROSTAT). The ECHP collected information from all respondents

within a household over the age of 16, each family or household respondent responds to an individual questionnaire which collects demographic and labour market information. The panel was not supplemented by new samples to counteract sample attrition given its relatively short data window. We use the complete panel sequence spanning an eight-year period from 1994 to 2001.

The sample selection for the analyses is similar for both datasets. We select on working women aged between 25 years and 45 years of age. This selection is a common one in the literature (e.g. Harkness and Waldfogel 2003) and is applied to ensure we do not attribute non-motherhood status to women whose children have left home. It also means that we are most likely to observe a penalty to motherhood, as previous analyses has found the penalty to decrease once the mother has returned to continuous employment (i.e. Datta Gupta and Smith 2002). For the analysis using the ECHP data we further select on women with at least two years of information on wages, we do this to ensure that our sample is constant across our ordinary least squares and fixed effects estimations. The variable measuring children is continuous though alterative specifications were tested with little effect. There is no consensus in the literature which the best measure of children on wages is, though others have measured the effect of children in this manner (i.e. Harkness and Waldfogel 2003).

Using the ESS data we are able to identify whether job attributes could be operationalised as compensating differentials and therefore used as explanations of lower pay. The first variable can be understood as an undisclosed compensating differential in the strictest sense. It allows us to determine whether the respondent values their current job more highly than another with higher pay. The questionnaire asks: *would [you] turn down another job with higher pay in order to stay with this organization (1-5 point scale varying from agree strongly to disagree strongly*). If mothers are more likely to agree with this statement we would have good cause to conclude that mothers do pursue less well paid employment that provides them with (undisclosed) compensating differentials. The second group of variables measure job attributes which could be understood to provide work-life balance for working mothers. We can imagine the coordination of childcare arrangements might be

facilitated by greater job autonomy and may therefore be actively pursued by mothers and 'purchased' through a lower wage. Job autonomy was determined by asking respondents whether they were able to *'decide how your own daily work is/was organised?',* and also whether they can *'chose or change their pace of work?'.* Both questions vary from 0-10 with 10 being equal to complete control and 0 having none and have an alpha cronbach of 0.7. A second group of questions asked if the worker worked unusual hours, hours which might be deemed incompatible with balancing work with the care of children. The precise questions asked are: How often does your work involve (a) working evenings or nights? (b) having to work overtime at short notice? and (c) working at weekends? There are seven possible categories ranging from never (1) to everyday (7). Again these variables were highly correlated legitimating the combined variable. We also examine whether mothers hold more traditional gender ideologies which may result in a weaker work orientation and therefore lower pay. Respondents who agreed that: 'women should cut down on paid work for the sake of the family', that 'men should have more right to a job than women when jobs are scarce' and that 'men should not take equal responsibility for home and children', were classified as having a traditional gender ideology. The combined variable only used variables that could equally apply to mothers and non-mothers. We therefore exclude responses to the question: 'if there are children in the home partners should stay together even if they don't get along', as the prescription of this value does not apply to non-mothers.

The research design of the paper is the following. We start by examining the predictors of working-motherhood to determine whether mothers are found in similar jobs as women without children. This analysis is followed by an examination of the penalty to motherhood using the ECHP. The ESS data did not allow multivariate wage regressions on our sub-sample of working mothers with very high missing rates on wages exacerbating small cell-size. For instance, for West-Germany and the Netherlands the number of working-mothers with non-missing values on wages was less than 50 which restricted the multivariate analyses considerably. Moreover, the proportion of the ESS samples with missing information on wages was extremely high, note figures in appendix

table A1, suggesting that the ECHP is a better dataset to investigate both wages and the predictors of working motherhood.[vi]

The wage analysis includes pooled ordinary least squares and fixed effects models. Pooled ordinary least squares both maximises on sample size and increases the sampling pool of workers analysed, with workers with intermittent periods of employment more likely to be captured in the data over time than if one year of the panel was used. This is expected to be particularly beneficial to our analysis, given the risk of intermittent employment for mothers. The fixed-effects specification is also useful as it allows us to assess the mean effect of key covariates on wages as well as allowing us to remove time constant unobserved heterogeneity. This engages with one hypothesis for the penalty to motherhood: that mothers' low pay may reflect an unobserved characteristic such as reduced motivation or weak work orientation. Nonetheless such a specification cannot account for time varying unobservables, with the suggestion that motherhood may bring about changes in attitudes towards employment. Hausman (1978) tests revealed the fixed effects specification to be superior to a random effects specification.[vii] The paper concludes with a series of tests using the ESS data. It reveals whether mothers appear to pursue compensating differentials in employment and whether mothers differ attitudinally from women without children.

The means and proportions for both samples are presented in Table A1 in the appendix. In this table both sets of data are weighted by design weights to ensure statistical generalisability. Both datasets tell a similar story within countries. Countries with poor support for maternal employment have considerably higher proportions of mothers working in part-time work (i.e. West-Germany, the Netherlands and the United-Kingdom). There is also a slight tendency across countries for working-mothers to have fewer third level qualifications than non-mothers. There are some differences in our sub-samples of working women, with non-mothers having higher mean ages than mothers in the ESS data. Alternative methods of measuring motherhood did not alter this finding. The other notable difference between both data is found in the ESS German sample where we find non-mothers to be more likely to work part-time. This finding is robust to

alternative specifications of motherhood. As this finding is counterintuitive and contrary to other published data (Eurostat 2005), we interpret the German ESS data with caution.

5. Where do mothers work and what do they earn?

<Table 2 about here>

Table 2 presents the predictors of working motherhood, an important precursor to an analysis of wages. Overall we find working-mothers to have a different, and often inferior, labour market profile to non-mothers. The most dramatic cross-national difference is found in the relative risks of working part-time hours. While mothers in each country are more likely to work part-time, with the exception of Finland, they are six to eight times more likely to do so in countries with low support for maternal employment. Working mothers are also less likely to work in highly skilled occupations in all countries, with the exception of Denmark. This tendency is most pronounced in the higher professional occupations, though in West Germany and the Netherlands, two countries with strong breadwinner ideologies, working mothers are also less likely to work in lower professional and clerical occupations.[viii] Finally, mothers in countries unsupportive of working-motherhood have shorter job tenure than non-mothers (with the exception of the Netherlands). There is no similar tendency in countries supportive of working-motherhood. Further tests, not shown, also revealed a tendency for working-mothers to have slightly lower educational levels suggesting that higher skilled mothers are also not returning to work (rather than just downgrading to lower skilled jobs). The lower educational levels of working mothers were found in each country save for Finland and Denmark. It was not possible, however, to estimate educational level and occupational status concurrently as they appeared to be collinear (though these results are available from the author on request). Nonetheless, when both were included the tendency did remain: with the exception of Denmark, working mothers are less likely to be in positions of high skill relative to non-mothers. We do not know, however, whether this is due to the incompatibility of professional posts with motherhood or due to higher skilled mothers choosing to leave paid employment. These findings could also be related

to delayed and declining fertility among highly educated women (Nicoletti and Tanturri 2005). It is most likely, however, to be a combination of these effects.

<Table 3 about here >

Table 3 presents a series of estimations of the penalty to motherhood for each national sample. This paper seeks to establish whether countries that are supportive of motherhood appear to have lower penalties to motherhood. Equation one presents the gross penalty to motherhood. We find mothers in West Germany and the UK earn less than non-mothers. In the Netherlands we find evidence of a gross premium. Countries supportive of maternal employment have no gross penalties to motherhood. Some of this effect, however, might be due to the younger age profile of non-mothers and therefore their lower work experience (see table A1 in the appendix). In equation two we add key predictors of low pay to the model such as occupational level and work experience. Additional controls are also included, see notes to table 3. Once the considerable heterogeneity between working mothers and working non-mothers is controlled for we find mothers to earn less in all countries (though the penalty is only significant at the .10 level in Finland). We also note that the size of the penalty is the greatest in the UK and West Germany two countries with poor support for working motherhood. The Netherlands, however, appears to have less of a penalty than France, which is contrary to expectation given French social policies supportive of maternal employment.

While working-hours are controlled for in equation two, the other covariates in the model may operate differently for part-time workers, with part-time work often clustered in low paid market segments (O'Connell and Gash 2000). For this reason equation three selects on full-time workers only, allowing us to focus on working-mothers in full-time jobs. This restriction results in an increased penalty to motherhood in many countries; once full-time non-mothers are the reference category the penalty increases. The UK exhibits the largest change with mothers in full-time employment clearly earning higher penalties per hour when compared with non-mothers in similar posts. A similar effect, though not as strong, is found in France and West Germany. Restricting the analysis to full-time

workers removed the penalty to motherhood in the Netherlands; Dutch mothers effectively earn less because they work part-time. However, given that 74% of our Dutch maternal sample works part-time (see Table A1) this result is pertinent to a very small proportion of its population. Equation four presents the same specification as equation three, though it is specified with fixed-effects, i.e. with time constant unobservables removed from the model. Once unobserved heterogeneity is removed the penalty to motherhood decreases to non-significance for all countries suggesting that unobserved criteria account for mothers' lower pay in full-time jobs.

A further two tests are presented. We measure motherhood as a continuous variable, yet previous research has found a tendency for a differentiated penalty according to the number of children had (e.g. Harkness and Waldfogel 2003; Davies and Pierre 2005)[ix] Equation five reveals the penalty for women with two or more children specifically. We find the supplementary penalty for multiple children holds true for West Germany and the UK. Equation six presents a similar specification as equation five, though it is specified with fixed-effects. Equation six reveals that once unobserved heterogeneity is removed from the model the penalty to motherhood decreases in West-Germany and the UK though crucially remains statistically significant. We also find that fixed-effects increased the penalty in Finland (though only at the .10 level).

In principle fixed-effects models provide us with a clearer picture of the penalty to motherhood once unobserved individual attributes, such as work orientation or attitudes, are removed from the model. While fixed-effect models improve the measurement of observed covariates we can at best guess which individual attributes are being removed from the model. A crucial component of this paper, therefore, is an investigation of what unmeasured heterogeneity may represent.

6. Compensating Differentials and Gender Ideology

<Table 4 about here>

Table four presents a series of analyses that offer alternative, and crucially revealed, explanations for the penalty to motherhood identifying whether mothers differ from non-mothers in their forms of employment and attitudinally, variables not available in the ECHP. The first series of variables measure, in different ways, whether mothers appear to have jobs with compensating differentials that may be exchanged for lower wages. Our most robust measure of compensating differentials asks respondents whether they value their current job more highly than another with higher pay. If mothers are in receipt of compensating differentials we would expect them to remain in lower paid jobs. We find little evidence that mothers choose to remain in less well paid jobs, relative to non-mothers. The only country where mothers do appear to have compensating differentials in employment is the UK. This confirms our expectation with mothers in the UK expected to pursue compensating differentials in employment given the absence of policy support for working-mothers. However, it is important to note that the significance of the finding for UK mothers was lost once a multivariate analysis was conducted. Table 4 also reveals whether mothers are more likely to hold jobs with attributes associated with work-life balance. We hypothesize, though cannot prove, that these attributes may be exchanged for lower pay. The first attribute analysed is job autonomy, which is likely to facilitate work-life balance and may, therefore, be pursued by working-mothers. We find a tendency in each country for mothers to have slightly more job autonomy than non-mothers. However, the effect is only significantly different in Denmark and also does not withstand a multivariate analysis. The second, and final, job attribute assessed was unsocial working-hours which were expected to render childcare considerably more difficult. The variable determines the frequency which workers worked: evenings, weekends and overtime at short notice. Mothers are less likely to work unsocial hours, though the significance of the difference only holds for West-Germany, the UK and Denmark. Once again, the significance of these effects are lost once multivariate analyses were conducted (not shown). In general, the ESS data established virtually no tendency for mothers to be in receipt of compensating differentials that could be attributed to their lower wages. Finally, table 4 examines whether mothers receipt of lower pay may be a

function of their weak work-orientation and traditional gender ideology. As gender traditionalism is equated with lower pay (see Polavieja this volume) there is the possibility that some of the penalty to motherhood found using the ECHP data could be a function of beliefs. The ESS data suggests that mothers are no different to non-mothers in their gender ideologies within countries. It is worth noting; nonetheless, that Nordic countries do have more egalitarian gender ideologies than is true of other countries and that the UK appears to be the least egalitarian. In total, the ESS data did not suggest that mothers vary in either their receipt of compensating differentials in employment or in their gender ideology. We are therefore no closer to empirically establishing revealed individual differences between mothers and non-mothers that could account for their lower pay.

7. Discussion

This paper sought to assess whether the penalty to motherhood operates consistently across different European countries, or whether countries which support maternal employment had lower penalties to motherhood. This papers findings engaged with a large body of research that has consistently found evidence of a pay penalty for motherhood but which has also predominantly researched countries with minimal support for maternal employment (e.g. the UK, the USA and Germany). This paper found mothers to earn less than non-mothers and found the penalty to motherhood to be greatest in countries unsupportive of working-motherhood.

The paper presented a range of competing explanations for the penalty to motherhood. At the micro-level these included mothers' decreased attachment to paid employment, mothers' pursuit of job conditions concomitant with work-life balance as well as mothers' work-orientation. At the macro-level policy support for working-motherhood was presented as an explanatory factor in mothers' pay.

Working mothers were found to occupy different market segments within each country. Though all mothers (with the exception of Finland) were considerably more likely to

work part-time; countries unsupportive of working motherhood displayed the greatest risks. In West-Germany, the Netherlands and the UK, mothers were six to eight times more likely to work part-time. Mothers also had reduced likelihoods of being employed in the skilled professions in all countries save for Denmark. It was not clear, however, whether this is due to the ongoing incompatibility of motherhood with professional posts or due to higher skilled mothers choosing to leave paid employment. Finally, mothers in countries unsupportive of working motherhood displayed weaker market attachment relative to non-mothers; with mothers having significantly lower job tenure. In total the analysis revealed mothers to hold disadvantageous market positions likely to account for their low pay. The analysis also revealed that countries unsupportive of working-motherhood placed working-mothers at the greatest disadvantage.

The analysis of the penalty to motherhood found the greatest penalties in two of the three countries unsupportive of maternal employment: West-Germany and the UK. The penalty was the largest in these countries and the most robust to alternative specifications. Countries supportive of maternal employment, as predicted, had much lower penalties. Finland had virtually no penalty to motherhood, while the penalty to motherhood was the smallest in Denmark. French mothers, however, did earn a penalty despite their access to publicly funded childcare.

Controlling for unobserved individual heterogeneity generally decreased the penalty to motherhood, completely in the case of mothers working full-time; however it remained in West-Germany and the UK for mothers of more than one child. The ESS data was deployed to examine what the potential sources of unobserved heterogeneity between working-mothers and non-mothers were. In general, the ESS data established virtually no tendency for mothers to be in receipt of compensating differentials that could explain

their lower wages. The UK was the only country where mothers did appear to accept lower pay for compensating differentials in employment. This finding confirmed our expectation that lack of public provision for maternal employment might result in mothers accepting lower pay in pursuit of work-life balance. However, the tendency for mothers to be in receipt of job attributes concomitant with work-life balance did not remain in multivariate analyses that controlled for occupational level. The final tests sought to uncover whether mothers differed attitudinally. There was no tendency for mothers to be less egalitarian than non-mothers, though Nordic women were in general more egalitarian. Finally, this paper was unable to assess whether mothers were discriminated against by employers, with maternal profiling recognised as a problem by American researchers (Correll, Benard and Paik 2007). It was also unable to empirically test whether the job attributes concomitant with work-life balance were associated with lower pay. Therefore, it would appear safe to conclude that research into the penalty to motherhood will continue until all the drivers of the penalty can be adequately measured. Until then, it is hoped, that future research will also seek to assess how macro-level variables invariably impinge on micro-level outcome. For here the role of institutional context was found to structure the forms of employment mothers engage in as well as the wages they receive.

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TABLES

Table 1. Policy Provision for Maternal/Paternal Workers and Social Indicators of Countries Analysed

	Support for Maternal Employment	Parental Leave Duration	P. Leave Benefit	Guaranteed access to publicly provided childcare (0-3yrs)	Total Fertility Rate	Mean Age at Childbearing (years)	Part-time as prop of total female employment (%)
FINLAND	High	26 weeks	43-82, flat rate plus supplement per child	yes	1.8	29.29	15.0
DENMARK	High	13 weeks both parents + 10 weeks 1 parent	flat rate	yes	1.78	30.14	24.3
FRANCE	High	3 years	flat rate if more than one child	yes (2 yrs+)	1.94	29.55	23.6
GERMANY	Low	3 years	flat rate for 24 months, then means tested	no	1.36	29.31	37.0
NETHERLANDS	Low	24 weeks both parents	unpaid	no	1.73	30.49	60.2
UNITED KINGDOM	Low	13 weeks both parents	unpaid	no	1.77	28.96	40.4

Notes: The indicators on policy provision are taken from Neyer (2003) and OECD (2001). The policies are relevant to the late 1990s and the early 2000s. The fertility rates and mean age at childbearing are from EUROSTAT and refer to 2004. The employment statistics are from OECD Employment Outlook, and also refer to 2004.

Table 2. Predictors of Working Motherhood. Logistic Regression of the probability of working-motherhood relative to working non-motherhood. ECHP Data. Coefficients presented as Odds Ratios. Robust Standard Errors are in parentheses.

	FINLAND	DENMARK	FRANCE	WEST GERMANY	NETHERLANDS	UNITED KINGDOM
Part-time	0.958	**1.597****	**1.449***	**6.072*****	**6.200*****	**8.236*****
	(0.204)	(0.272)	(0.217)	(0.832)	(0.656)	(1.049)
Higher Professional Occupation	**0.440****	0.816	**0.571***	**0.284*****	0.792	**0.551****
	(0.131)	(0.211)	(0.156)	(0.073)	(0.189)	(0.099)
Lower Professional Occupation	0.595~	1.192	0.850	**0.415*****	**0.655***	0.763
	(0.178)	(0.274)	(0.189)	(0.084)	(0.140)	(0.146)
Clerical (Ref. Skilled and Unskilled Manual)	0.690	1.066	0.874	**0.459*****	**0.641***	0.902
	(0.190)	(0.229)	(0.177)	(0.088)	(0.147)	(0.150)
Tenure in current job	1.020	**1.039***	1.005	**0.959***	0.988	**0.963***
	(0.017)	(0.017)	(0.018)	(0.016)	(0.013)	(0.015)

Key: *** p<=.0001; **p<=.001; * p<=.05; ~ p<=.01. Notes: Each model also controls for: age and its square, years in paid work, marital status, panel year, industrial sector and unemployment experience.

Table 3. Gross and Net Effects of Motherhood on Logged Hourly Pay. Using all waves of the ECHP (1994-2001). Selecting on: All Employees, Women aged between 25 and 45 years of age with a minimum of two years of information on wages and complete information on key covariates. Each Model estimation is run on the same sample for each country. Robust Standard Errors are in parentheses. Children Measured as a Continuous variable unless specified otherwise.

	FINLAND	DENMARK	FRANCE	West GERMANY	NETHERLANDS	UNITED KINGDOM
EQ1. Gross Penalty to Motherhood	0.013	0.000	0.004	**-0.028***	**0.017***	**-0.038****
	(0.010)	(0.007)	(0.014)	(0.014)	(0.009)	(0.012)
EQ2. Net Penalty (with controls)	-0.013~	**-0.016***	**-0.030***	**-0.041****	**-0.017***	**-0.042*****
	(0.007)	(0.006)	(0.011)	(0.014)	(0.008)	(0.010)
EQ3. Net Penalty, Full-time Workers Only	-0.024	**-0.016***	**-0.036***	**-0.044***	-0.013	**-0.058*****
	(0.021)	(0.006)	(0.013)	(0.018)	(0.013)	(0.012)
EQ4. Net Penalty, Full-time Workers Only, Fixed effects	-0.029	-0.004	-0.013	-0.0145	-0.008	-0.017
	(0.009)	(0.007)	(0.024)	(0.011)	(0.014)	(0.011)
EQ5. Net Penalty for Two or More Children	-0.024	-0.027	-0.032	**-0.086***	-0.025	**-0.070****
	(0.021)	(0.016)	(0.022)	(0.033)	(0.020)	(0.024)
EQ6. Net Penalty for Two or More Children, Fixed Effects	-0.028~	0.002	0.006	**-0.079****	0.020	**-0.062*****
	(0.016)	(0.007)	(0.021)	(0.024)	(0.018)	(0.015)

Key: *** p<=.0001; **p<=.001; * p<=.05; ~ p<=.01 The net penalty to motherhood controls for: age and its square, occupational level, education, years in paid work,, marital status, part-time status (except for the full-time only models), industrial sector, unemployment experience and panel year.

Table 4. Receipt of Compensating Differentials and Variation in Gender Ideology. Mean differences between mothers relative to non-mothers. ESS data (2004). Selecting on: Women aged between 24 and 45 years, with complete information on key covariates.

	FINLAND	DENMARK	FRANCE	West GERMANY	NETHERLANDS	UK
Would turn down a job with higher pay (mothers)	3.52	3.06	3.56	2.97	3.33	**3.12**
Would turn down a job higher pay (non-mothers)	3.48	3.14	3.41	3.06	3.17	3.49
Can decide work organisation and pace of work (mothers)	15.01	**15.32**	13.18	13.57	14.09	13.73
Can decide work organisation and pace of work (non-mothers)	14.80	14.41	12.42	12.87	13.68	12.61
Unsocial Working Hours (mothers)	8.28	**7.58**	6.98	**7.02**	6.75	**6.96**
Unsocial Working Hours (non-mothers)	8.55	8.49	7.44	7.84	7.12	8.24
Egalitarian Gender Ideology (mothers)	12.10	12.54	11.19	11.09	11.59	10.93
Egalitarian Gender Ideology (non-mothers)	12.38	12.47	11.56	11.20	11.56	10.90

Notes: Means in bold are significantly different at the .05 level. Higher values denote increased tendencies, i.e. mothers in the UK are less likely to turn down a job with higher pay.

APPENDIX

Table A1- Sample means and proportions. The samples exclude cases with missing values on key covariates.

		ECHP (1994-2001)		ESS (2004)	
		Non-Mother (means)	Mother (means)	Non-Mother (means)	Mother (means)
Finland	*Gross Hourly Wage (GHW)	11.13	11.02	-	-
	Age	32.3	36.21	39.1	39.2
	Part-time	0.09	0.08	0.06	0.03
	Married	0.33	0.78	0.27	0.81
	Third level	0.58	0.54	0.53	0.47
	N of cases	*1206*	*2468*	*201*	*70*
	N of cases not missing on wages			*169*	*52*
Denmark	GHW	13.07	13.52	-	-
	Age	32	35.3	39.4	37.6
	Part-time	0.07	0.14	0.15	0.1
	Married	0.27	0.68	0.26	0.77
	Third level	0.43	0.45	0.39	0.36
	N of cases	*1284*	*3111*	*124*	*74*
	N of cases not missing on wages			*101*	*57*
France	GHW	8.86	9.1	-	-
	Age	31.5	35.7	39.6	39.6
	Part-time	0.15	0.22	0.18	0.2
	Married	0.28	0.7	0.2	0.58
	Third level	0.41	0.3	0.41	0.35
	N of cases	*2501*	*4820*	*159*	*95*
	N of cases not missing on wages			*111*	*69*
West-Germany	GHW	11.8	11.07	-	-
	Age	31.7	35.1	39.9	39.3
	Part-time	0.09	0.45	0.27	0.18
	Married	0.39	0.81	0.29	0.77
	Third level	0.18	0.12	0.17	0.18
	N of cases in analysis	*3104*	*2552*	*192*	*69*
	N of cases not missing on wages			*89*	*31*
Netherlands	GHW	13.29	14.03	-	-
	Age	31.1	36.2	39.1	39.2
	Part-time	0.21	0.74	0.37	0.67
	Married	0.31	0.89	0.28	0.74
	Third level	0.17	0.15	0.31	0.33
	N of cases	*4339*	*3007*	*203*	*81*
	N of cases not missing on wages			*116*	*40*
United Kingdom	GHW	11.7	10.41	-	-
	Age	31.7	36.32	38.1	38
	Part-time	0.06	0.45	0.25	0.53
	Married	0.4	0.77	0.26	0.6
	Third level	0.58	0.44	-	-
	N of cases	*4074*	*4539*	*164*	*81*
	N of cases not missing on wages			*121*	*61*

* Notes. Gross Hourly Wages are presented as converted (ECUs) European Currency Units, with the national currency divided by purchasing Power Parties provided by Eurostat. The units are therefore comparable between countries.

[i] The statistical analyses are restricted to West Germany given the ongoing differences in the labour market performance of East and West Germany. This is a common strategy for labour market research on Germany (Gash and McGinnity, 2007). Nonetheless, as both regions have shared the same institutional systems since German reunification we do not distinguish East from West Germany when we speak of Germany's institutional structure.

[ii] It should be noted that Davies and Pierre's analysis of 'old' mothers is likely to be more typical of the 'average' mother, with the mean age of mothers at (all) birth(s) varying between 28.9 years and 30.8 years (table 1).

[iii] A macro-policy perspective purports to measure the impact of policies or institutional configurations in either a single or a series of variables introduced in statistical estimations. Examples of this work include Esping-Anderson (1999, p.136-139).

[iv] Further information can be found at: http://www.europeansocialsurvey.org/

[v] Further information can be found at:
http://circa.europa.eu/irc/dsis/echpanel/info/data/information.html

[vi] For the countries analysed, the ESS data had missing values on earnings for 27 percent of respondents. Some countries, Germany and the Netherlands, had even higher rates of missing cases. When rates of missingness on earnings were compared against those of the ECHP, which had missing rates of less than 2 percent, it was clear that the ESS data was not comparable in its suitability for earnings estimations.

[vii] Wage analyses for women tend to suffer from sample selection bias as not all women work (Blau 1991; Gorgens 2002). We note, however, that the use of pooled OLS regression should maximize our chances of observing the wages of those with intermittent spells of employment decreasing our risk of selection bias. While this paper does not control for sample selection, Heckman selection models were run on the final pooled OLS regressions to test whether the parameter estimation adequately reflect observed wages. Only two countries showed evidence of sample selection bias, the UK and West Germany.

[viii] Separate tests using the ESS confirmed mothers' tendency to work in less skilled occupations (results not shown).

[ix] Davis and Pierre (2005) found German and British mothers, who were aged 25 years or over at the age of birth, had greater penalties when they had more than one child. Harkness and Waldfogel (2003) found a similar dynamic in Germany, the UK and Finland.