Mothers' Employment in 19 Wealthy Western Countries: How Do Cultural and Institutional Factors Shape the Motherhood Employment and Working Hours Gap?

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Married women and especially mothers have entered the labor market in increasing numbers after World War II, and contributed disproportionately to rising female employment rates across most wealthy western countries. Yet, despite change over time, mothers' employment rates and average working hours remain considerably lower compared to childless women and men, including fathers (Pettit and Hook 2009). Furthermore, there remains considerable cross-national variation in the labor market participation of women and especially mothers, both in terms of employment participation rates and in terms of working hours among the employed (Gornick, Meyers, and Ross 1996; Stier, Lewin-Epstein, and Braun 2001). Yet, the literature explaining these variations remains fairly contradictory.

Some scholars emphasize cross-national differences in human capital and household specialization as driving the cross-national variation in women's employment. Other scholars focus on the role of structural factors, such as work-family policies and economic conditions, in shaping women's and mothers' employment (Stier, Lewin-Epstein, and Braun 2001; Hook and Pettit 2005, 2009; Stryker, Eliason and Tranby 2008; Kenworthy and Hicks 2008; Tranby 2008), although certain work-family policies or constellations of policies are also seen as limiting women's employment opportunities (Hook and Pettit 2005, 2009; Mandel and Semyonov 2006; Tranby 2008). Still others suggest that economic conditions, work-family and other labor market policies are mediated by cultural contexts which play an important role in determining women's and mothers' employment rates (Pfau-Effinger 1996, 2004; Auer 2002; Misra 1998; Kremer 2007; Misra and Jude 2008; Budig et al. 2012). One challenge in this literature is the significant variability in how employment is conceptualized and studied. Analyses of employment rates often do not recognize that high levels of women's employment may be masking very low weekly employment hours (e.g. the Netherlands). At the same time, a focus on outcomes among

only the employed (such as wages, occupational gender segregation, or access to professional/managerial occupations) may miss the fact that in some countries, relatively few women and mothers are employed.

What factors affect women's decisions regarding employment and working hours? And how are these choices constrained in terms of economic and institutional structures as well as cultural norms? Using a multilevel modeling strategy we endeavor to understand whether and how institutional factors such as work-family policies and cultural understandings of women's roles shape the gaps in employment participation and working hours that exist between mothers and women without children, after taking into account individual differences such as family structure, or human capital. We first describe cross-national patterns of women's employment and difference between childless women and mothers, and then identify individual and household, institutional, cultural and structural explanations for these cross-national differences.

Motherhood, Employment and Working Hours Cross-nationally

We have earlier documented the remarkable variation in women's and mothers' employment, cross-nationally (Misra et al. 2011a, 2011b). Although there has been substantial narrowing of the gap between men's and women's employment rates, women are employed less often, and they work fewer hours than men in every country (Rubery et al. 1999; OECD 2002b; Tranby 2008; Kenworthy 2008). Figure 1 summarizes women's employment and working hours cross-nationally for the countries included in our study; we focus on women between 25 and 45 years of age. The black bars on the bottom show the percentage of women who are employed for 40 hours or more each week, the dark grey bars the percentage of women who are employed between 20 and 39.9 hours each week, the light grey bars the percentage of women who work for

less than 20 hours per week, and the white bars on top the percentage of women who are not employed.

[Figure 1 About Here]

Clearly, the stacked grey and black shaded bars show that there are dramatic cross-national differences between countries such as Sweden, Canada, the Netherlands, and Austria versus Hungary, Israel, Spain, and Italy, in terms of what percentage of women are employed. While in most countries, at least two-thirds of women between 25-45 are employed, there remain a number of countries with particularly low levels of women's employment. However, there is more to this story – as the black and grey bars suggest. For example, the Netherlands and the Czech Republic have somewhat similarly high levels of employment, yet they differ starkly in terms of the hours women work. In the Netherlands, the largest group of women work between 20 and 40 hours a week, while in the Czech Republic most women work 40 hours or more if they are employed.

Even so, childless women's and childless men's employment rates are converging, while mothers' employment rates and hours are considerably lower than childless women's and men's and fathers' employment rates and hours (Pettit and Hook 2009).[1] While there has been growth in mothers' employment, including mothers of young children (Rubery et al. 1999; England 2006; Tranby 2008; Lewis 2009), most of this growth is related to mothers' part-time employment (Blossfeld and Hakim 1997; Rubery et al. 1999; Gornick and Heron 2006; Tranby 2008; Pettit and Hook 2009). Yet, there is cross-national variation in whether mothers leave employment or cut back hours, and whether these behaviors occur only while children are young or more permanently (OECD 2002b).

[1] Among wealthy countries, the main exceptions to this are Spain and Italy, which have relatively low employment rates for childless women as well (Misra et al. 2011).

Decades of research have found an effect of children on women's employment hours. This research generally shows that greater family responsibilities affects labor market participation and employment hours for women. Women are less likely to work or work fewer hours if they have children; additional children reduce these likelihoods further; and that these effects are exacerbated with young children (usually defined as below school age) (Heckman 1974; Morgenstern and Hamovitch 1976; Smith 1980; Cogan 1980; Henkens et al. 1993; Leibowitz and Klerman 1995; Lehrer 1999; Abroms and Goldscheider 2002; Powell 2002; Omori and Smith 2010).[2] We examine this effect of children on women's employment hours, and attempt to understand how differences in individual and family characteristics among women with and without children, as well as contextual factors might be mediating the effect of children on work hours.

Preferences, Human Capital, and Household Characteristics

Individual-level explanations emphasize the importance of human capital in employment decisions, particularly for mothers. Women with less skill or education will command a lower wage in the labor market, and likely hold less rewarding jobs. The choice to work fewer hours in favor of increasing care for children should be more attractive to those with lower human capital (Heckman 1974, 1980; Morgenstern and Hamovitch 1976; Cogan 1980; Leibowitz and Klerman 1995; Powell 2002). Highly educated women have higher opportunity costs, both in terms of wages foregone and in careers potentially derailed by working part-time. Highly educated women are more likely to benefit from well-paid employment (Pettit and Hook 2005, 2009; Hicks and Kenworthy 2008), and reap not only the rewards of better pay, but are consequently in a position to pay for services like childcare even when they are not provided through the state.

[2] Although we are not able to use LIS data to explore how the effect of children differs by race, other studies suggest that white women's work hours are influenced more by the presence of children than women of other racial/ethnic groups, controlling for other factors (Figueroa and Melendez 1993; Omori and Smith 2010).

Therefore, if there are differences in women's educational attainment across countries, this might explain any variation in the effect of children on women's employment hours. From this perspective, cross-national differences in the effect of children on working hours may simply be responses to differential selection into motherhood, with less educated women being more likely to become mothers; therefore, the effect of children on hours of employment may be due to not to the effect of children, per se, but on different levels of human capital possessed by women with one or more children. Similarly, other human capital measures, such as job experience (which might be captured through a proxy such as age, or number of children/interruptions in experience), should be positively associated with women's employment (Heckman 1974, 1980; Henkens et al. 1993; Lehrer 1999; Powell 2002).[3] This makes it important to control for the effect of human capital on hours.

From a household specialization perspective, women's choices to be wage-earners may be based in economic calculations they make jointly with their partners, regarding each partner's mix of human capital and pre-existing gender differentials in pay in the relevant labor market (Becker 1981). This approach assumes that the members of the household choose to have the person who can command the highest wages doing paid labor, while the other partner does the unpaid labor necessary to maintain a household (Verbakel and de Graaf 2009). Indeed, research shows that work hours are greatly influenced by how many hours a partner *wants* the other person to work (Gerstel et al. 2007). Yet, not all women are partnered, and partnership may have

[3] Scholars who examine employment by age do note a variety of different patterns by country, but for our purposes, we focus on age as a measurement of potential experience. Since the LIS data does not provide information about the age that respondents finish their education and respectively enter the labor market, we use age as a proxy measure for potential work experience. Given that we constrain our sample to women of childbearing age (25-45), we believe this to be a reasonable approach.

varied effects, depending on the partner's resources (Abroms and Goldscheider 2002).[4] Household specialization may mean that women (particularly mothers) with partners are likely to be employed for fewer hours.[5]

In addition, women who live in households with higher levels of household income other than their own earnings may work fewer hours.[6] Scholars have suggested that having a partner who earns more will reduce the financial incentives for partners to work (Morgenstern and Hamovitch 1976; Heckman 1980; Schultz 1980; Cogan 1980; Henkens et al. 1993; Leibowitz and Klerman 1995; Lehrer 1999; Abroms and Goldscheider 2002; Bernasco et al. 1998; Powell 2002; Verbakel and de Graaf 2009).[7] Transfer income from the state also may affect women's hours. (Schultz 1980; Flood et al. 2004) The additional income from a partner, other household members, or transfer income from the state or kin may enable women to choose to spend time caring, rather than being employed or employed full-time outside the home. Finally, the presence of other adults in the household, such as grandparents who are able to provide childcare may also influence whether and how many hours mothers are employed (e.g. Lyonette, Kaufman

[4] Abroms and Goldscheider (2002) also find that work hours differs depending on whether a mother is married, or living with a relative or cohabiting partner. Similarly, Figueroa and Melendez (1993) show that for Black and Puerto Rican single mothers, having another kin household member between 16-64 increases mothers' hours.

[5] From a different perspective, Catherine Hakim's (1991, 2000) argues that different pathways reflect different preferences, categorizing women as "work-centered," "home-centered," or "adaptive." She suggests that work-centered and home-centered women are unlikely to be affected by changing structural and institutional contexts (such as childcare provision). Yet, she does not adequately theorize about how women *attain* different preferences, making her argument less clear in how it might explain variations in women's employment cross-nationally. In addition, Hakim's model is based on the assumption that women in affluent societies are able to make real choices about whether to focus on employment or unpaid care. Yet, there may be different structural and institutional contexts bounding women's opportunities, as well as their preferences.

[6] Some scholars also include measures of household assets – with the assumption that greater assets leads to reduced hours (Heckman 1974, 1980).

[7] However, studies also suggest that, although the effect of partners' income on labor market participation and hours is negative, partners' education and occupational status may have positive effects on occupational status (Bernasco et al. 1998; Verbakel and DeGraaf 2009). In addition, Abroms and Goldscheider (2002) find that the income of a cohabiting partner has weaker effects than the income of a spouse.

& Crompton 2011).[8]

We will first look to see whether cross-national differences in women's human capital (education and age serving as a proxy measure for labor market experience), their partnered status, and other household income, (non-family related) transfer income, and the presence of other adults aged 18 to 65[9] might explain the cross-national differences we see in the gap between mothers' and childless women's employment and working hours. Once we control for these individual level factors, if we still find cross-national variations in the motherhood employment and working hours gap, other institutional, structural and cultural explanations should help explain at least part of the remaining variation. Structural and institutional conditions may either weaken or strengthen women's level of engagement with employment.

Institutional Supports for Women's Employment

One set of institutional explanations focus on how welfare state policies – and in particular, work-family reconciliation policies, may affect the opportunities women have for employment. Rubery et al. (1999) note that favorable labor market conditions and work-family policies particularly affect maternal employment. Certainly, labor market and social policies in European countries have focused on increasing employment rates broadly, including women's and mother's employment. In part, this reflects a concern that welfare states will only be sustainable with high levels of employment, but it also reflects changing gender norms around women's employment (Esping Andersen et al. 2002; Kenworthy 2008). Encouraged by European Union directives, countries have adopted a number of policies meant to help increase

[8] The data does not allow us to take into account access to care by grandparents and other relatives who may live nearby. We are only able to account for other adults who live in the household. We are not counting adults over the age of 65 in order to exclude elderly relatives who may need care themselves.
[9] We count adults other than the woman and her partner.

women's employment, including policies centering on equal opportunities and equal pay for women, as well as policies focused on ensuring women have access to the labor market, and to a smaller degree ensuring that men have rights to provide care, by addressing work-family reconciliation (Orloff, O'Connor, and Shaver 1999; Stier, Lewin-Epstein, and Braun 2001; Guerrina 2002; Orloff 2002; OECD 2002a, 2002b; Pettit and Hook 2005, 2009). Jane Lewis (2009) suggests that we can conceptualize work-family policies as focused on time (e.g., working-time regulations), money (e.g., cash transfer for care through parental leaves), and services (e.g., childcare provisioning).

Welfare state policies such as maternity leave, parental leave, and childcare provisioning have shaped women's employment and mothers' employment.[10] Most of the research from a welfare state perspective considers either how a certain complex of work-family policies (visible in groups or clusters of countries) or how specific policies shape women's employment. For example, Jane Lewis' (1992) early formulation described countries as either strong male-breadwinner, modified male-breadwinner countries, or weak male-breadwinner in orientation, with associated differences in women's employment rates. Since then, the relationship between women's employment and welfare state policies, including work-family or work-life reconciliation policies have been studied by many scholars; most argue for a positive relationship between generosity of policy and employment effects (Gauthier 1996; Gornick, Meyers, and Ross 1998; O'Connor, Orloff, and Shaver 1999; Daly 2000; Korpi 2000; Stier et al. 2001; Orloff 2002; Gornick and Meyers 2003; Pettit and Hook 2005; Mandel and Semyonov 2005; Misra et al. 2007a; Kenworthy 2008).

Much scholarship supports the idea that specific reconciliation policies boost women's

[10] As Guerrina (2002, p. 63) notes, reconciliation policies, "which despite the artificial gender neutrality enshrined in the language are actually targeted at women."

employment (Pettit and Hook 2005; Kenworthy 2008). Maternity and parental leave policies may maintain women's labor market attachment; rather than quitting their jobs after giving birth, the leaves make it possible for them to return to the labor market. Well-paid parental leaves of short duration (less than one year) also help mothers negotiate the early months when infants require substantial care, without risking their jobs. Yet long leaves or leaves that are poorly compensated may have a paradoxical effect, dampening women's employment and weakening their opportunities in the labor market (Ronsen and Sundstrom 2000; Bainbridge, Meyers, and Waldfogel 2003; Morgan and Zippel 2003; Pettit and Hook 2005; Lewis 2006; Kenworthy 2008; Tranby 2008; Pettit and Hook 2009).[11]/[12] This leads us to the following expectation:

> *Hypothesis (1) Parental leave that is well paid and job protected, should help mothers keep their attachment to the labor force and their jobs. No leave entitlements and very long leaves tend to weaken women's labor force attachment. However, based on the literature it is unclear whether parental leave is related to working hours. Therefore, we do not formulate an expectation.*

There is also clear evidence that childcare provisioning, when provided not simply as half-days two or three days a week for 4 and 5 year old children, but more consistently and for younger children, has positive effects on women's employment (Korpi 2000; Pettit and Hook 2005, 2009; Stryker and Eliason 2004; Misra et al 2007a; Lewis 2009). Simply put, childcare

[11] Tranby (2008) notes that parental leave has a significant positive effect on women's employment – until controlling for part-time, when the effect becomes non-significant. Tranby also finds, unexpectedly, that longer parental leaves have *positive* effects on women's employment, though this effect also drops out when controlling for part-time employment. He suggests that this may be an indication that women combine part-time work with childcare leave (allowed in many countries).

[12] Paternity leaves, on the other hand, particularly when they are reasonably compensated can help increase women's employment, by making men appear more similar to women, and weakening employers' sense that women are "risky" employees (Korpi 2000). Certainly, there is evidence that – under the right kinds of conditions (such as Iceland's policy of one-third paid parental leave to men, one-third to women, and one-third joint), men have taken up parental leave (Lewis 2006).

allows mothers to remain employed. Childcare is exceptionally costly, and the costs for childcare, particularly for more than one child, may exceed the potential wages women (or men) might earn. Yet, when childcare is subsidized or provided by the government, and universally available, these costs go down (while also stimulating job growth through childcare workers). Public provision of childcare appears to increase women's employment rates, particularly childcare for very young children (0-2) (Pettit and Hook 2005, 2009; Tranby 2008). At the same time, market-provided childcare may also encourage women's employment, though childcare costs may suggest a trade-off in terms of childcare quality (Morgan 2005). Research has also shown that childcare costs have a significant negative impact on mothers' labor supply (Powell 2002).

Hypothesis (2) Childcare provisioning that is supported by the state should help mothers keep their attachment to the labor force and work longer hours.

In a twist in this literature, Mandel and Semyonov (2006, p. 1911), while arguing that the "the welfare state contributes to increased labor force participation, enhances the economic independence of women and mothers, and strengthens their power within the household and with society at large," also suggests that "none of [these state actions] seriously challenge the traditional division of market-family responsibilities between men and women." Although more focused on the glass ceiling that public sector employment and family policies may produce, Mandel and Semyonov (2006) examine women's labor force participation, as well as their part-time employment. They find that "well-developed" welfare states (defined by maternity leave policies, childcare, and public sector employment) have higher rates of employment, but also of part-time employment. In supplementary analyses they also note that women in these well-developed welfare states have been reducing their hours of employment (while women in

countries without a well-developed welfare state, like the U.S., have instead been increasing hours). Their arguments are worth examining more closely, yet with separate policy measures, since (as the above discussion suggests) combining measures of generous parental leave and childcare and public sector employment may make it difficult to assess what is happening, especially when these factors may have differing effects on women's employment. Mandel and Semyonov (2006) also tend to emphasize women's full-time employment as a measure of greater gender equality, yet if women adopt men's employment behaviors without a concomitant change in men's time spent on care, quality of life may suffer (Lewis 2009). We conduct a series of analyses, where we examine whether work-family policy effects are robust to the inclusion of the size of the public sector.

The Importance of Cultural Factors in Shaping Employment Levels

Yet, structural explanations may not fully explain the remarkable variation found in women's labor market participation. For example, the United Kingdom has somewhat better work-family policies than the United States, with lower levels of women's employment. In order to make sense of these variations, a number of scholars have posited the importance of cultural factors. Although structural factors, such as availability of childcare, may explain some of the variation in women's employment participation, much variation remains unexplained. Pfau-Effinger (2004; see also Misra and Jude 2008) also notes that statistically significant associations such as between childcare and women's employment) do not necessarily identify causal relationships. For example, childcare availability may go up in *response* to high levels of women's employment, rather than childcare availability driving women's employment.

Birgit Pfau-Effinger (1998, 2004) argues that there are three dimensions that affect women's employment, including the *gender culture* (values regarding work, care, and gender),

the *gender order* (welfare and labor market policies, which reinforce the gender culture), and the *gender arrangement* (the division of labor within families). Pfau-Effinger (2004) focuses on differences in West-Germany, the Netherlands, and Finland – as well as change over time in these countries – to consider how cultural traditions interact with social institutions – including the welfare state, labor market, and family – to shape women's employment and changes in women's employment.[13] For Pfau-Effinger (1998, 2004), policies do not instigate employment choices in a vacuum, instead policies (the gender order) interact with the gender culture and gender arrangement. With a similar intent, though greater focus on care, Monique Kremer (2005) suggests that welfare states promote certain "ideals of care," which define both what good care is and who provides it, arguing that these ideals are embedded in the welfare state policies. For Kremer (2005), women's employment is not merely driven by their wish to work, but by gendered cultural norms around the appropriate care for children. Indeed, Budig et al. (2012) show that work-family policies are associated with higher maternal earnings in contexts where cultural support for maternal employment is high – but have less positive or even negative relationships where cultural ideals reflect maternal care and paternal breadwinning.

> <u>*Hypothesis (3)*</u>: *Ideals of care, particularly ideals regarding maternal employment and dual employment, will condition mother's employment, as well as the number of hours worked by women. Where support for maternal employment is high, mothers will be more likely to be employed, and work longer hours.*

<u>*Economic Factors in Shaping Employment Levels*</u>

Finally, explanations for variation in women's employment rates cross-nationally may

[13] Pfau-Effinger also (2004) challenges normative assumptions about women's best interests lying in full-time employment.

include a variety of structural economic conditions, such as unemployment rates, per capital GDP growth, income inequality, service sector growth, public sector employment, and union coverage (Huber and Stephens 2000; Eliason, Stryker, and Tranby 2008; Tranby 2008; Pettit and Hook 2005, 2009). Unemployment should theoretically depress women's employment rates (though its effects on working hours are less clear), while service sector growth should stimulate it, since women are more likely to be employed in service sector jobs.[14] Public sector employment, especially public sector service delivery, is often filled by women, and therefore associated with women's employment (though the causal direction is not entirely clear (Huber and Stephens 2000; Tranby 2008; Stryker, Eliason, and Tranby 2008). While we do not examine how these economic and structural factors mediate differences in working hours between mothers and childless women specifically, we do control for level of wealth (GDP per capita), the size of the public sector (% of the labor force employed in the public sector), and women's unemployment rates to test, whether any effects of policies and cultural norms we may find holds under different economic and structural conditions.

Data & Methods

We use data from multiple sources. The individual-level data comes from the Cross-National Data Center in Luxembourg (LIS). LIS harmonizes separately collected national survey data on households, income (including transfer income), and employment. Surveys and samples are detailed in Table 1. We mainly use data LIS wave 5 (data from around 2000) for 18 countries. We examine former East and West Germany separately, due to the persistent differences in employment patterns and different policy legacies (Rosenfeld, Trappe, and Gornick 2004). This

[14] For Pettit and Hook (2009), economic growth is negatively associated with women's employment, when controlling for growth of the service sector. Without the measure of service sector growth, we would expect economic growth to be associated with higher women's employment rates.

results in 19 cases included in the analysis. For the main analysis, the sample is restricted to employed women aged 25 to 45 (prime years for childrearing), who are not in the military and not self-employed.[15]

[Table 1 About Here]

Other individual-level independent variables include relationship status (=0 if single, =1 if cohabiting or married), the presence of other adults in the household (in employment models) respondent's age (in years), educational attainment, other household income (total household earnings minus respondent's earnings), and non-family transfer income. We measure educational attainment as a set of three dummy variables indicating high educational attainment (specialized vocational education and no less than university/college education), medium educational attainment (secondary general or vocational education, and post-secondary education), and lower educational attainment (compulsory education, initial vocational education or less; = reference category). These individual-level control variables capture the factors that matter for the household specialization argument: parenthood, marriage or cohabitation, low human capital, and high other household income should all reduce the probability of employment, and of working hours.

The policy measures are taken from our own policy database, the NSF funded "Work-Family Policy Indicators," covering family leave policies, childcare coverage, working time regulations, school scheduling indicators and tax policies. The database consolidates information from numerous sources, including existing policy databases (incl. Gauthier and Bortnik 2001; Gornick and Meyers 2003; Gornick, Meyers, and Ross 1997; Jaumotte 2003). We match our

[15] The samples include respondents in dependent employment. We exclude the self-employed because the measure of working hours are not reliably included for self-employed across all the countries under study. As Budig (2006) shows, self-employment can be a solution for women who wish to be employed, but do not have access to childcare and other services. We would rather include the self-employed, yet imputing hours data for the self-employed in the countries that did not include hours data would mean that for many of our analyses, we would be working with an imputed dependent variable. We believe the better solution is to focus on the dependent employed for our equation predicting full-time employment.

policy measures to the LIS survey year for each country, generally lagging the measurement of the policies to two years prior to the survey year.[16] While the database includes a wide variety of policy measures, we focus here on publicly supported childcare for children 0-2 and 3-5, leave generosity, maximum length of job protected leave available to women.[17] Following current practice (Gauthier and Bortnik 2001; Gornick and Meyers 2003), we include measures of the policy (e.g., number of weeks of leave and benefits levels), and measures of policy usage.[18] Childcare policy includes the percentage of children age 0-2 and the percentage of children age 3-5 in publicly supported care.[19] For leaves, measures include leave generosity, i.e. the number of paid weeks of leave available to women multiplied by the level of benefits available to leave takers, and the maximum number of weeks of job protected leave available to women.[20] The country-level measures of attitudes regarding maternal and women's employment are taken from the 2002 Family and Changing Gender Roles Surveys that are part of the International Social Survey

[16] Of course, it is likely that the lagged effect is longer, especially given our measurement of motherhood. Without longitudinal individual-level data, however, we believe that this is the best approach to take.

[17] Previous research primarily uses generalized indices that group together leave, work-time, child-care, and schooling policies (Gornick and Meyers 2003) or measures of leave, child-care and public sector employment (Mandel and Semyonov 2006). We argue that combining them into one index obscures important differences.

[18] We include the percentage of children in publicly funded care, which taps the availability of government-sponsored childcare slots (for example, though subsidized childcare exists in the United States, it can be difficult to access).

[19] Ideally, these measures represent the % of children enrolled in formal publicly funded childcare for the age groups of 0-2 year olds and 3-5 year olds. However, data availability varies from country to country: age groups included may differ slightly and some sources do not distinguish between publicly and privately funded care arrangements (primarily in countries where privately funded care does not play a major role).

[20] The parental leave measure represents the number of weeks of parental leave available to women (not including weeks of maternity leave) as of two years prior to the LIS survey data. Only schemes that allow parents to take time off work completely for a period of time were included in the measure. Consequently, the Dutch scheme that allows parents to *reduce* working time for a maximum of six months was not included. The number of weeks of parental leave in Canada, for example, refers only to leave provisions under federal jurisdiction. The provisions vary by jurisdiction. Provincial regulations may exceed the federal regulation in terms of the length of leave. Parental leave benefits are often paid in form of a flat-rate. In these cases, the flat-rate is expressed as a percentage of women's median earnings. Means-tested schemes are recorded as zero.

Program (attitudes toward women's employment).[21] Although this data was collected slightly *after* our period of interest, we prefer these data to the earlier (1994) wave, since these measures of cultural values regarding women's roles changed substantially over time in some countries. We focus on two questions: the percentage preferring that a "woman should work when the youngest child is school aged"; and the percentage agreeing with the statement "Both [men and women] should contribute to household income."[22] Table A1. in the appendix presents country-level measures, including country-level control variables used in the robustness analysis.

To examine the associations between a variety of institutional, and cultural factors with the gap in average working hours between mothers and childless women, we use a multi-level modeling strategy that allows us to model individual-level and country-level characteristics simultaneously, and account for the nested nature of our data (individuals nested within countries) (DiPrete and Forristal 1994; Raudenbush and Bryk 2002).[23] Our outcome variables are a dichotomous variable indicating employment status (not employed =0), and the number of usual weekly working hours among employed women, and our independent variable of interest is a dichotomous variable indicating whether the respondent has children living at home (childless=0, parent=1).[24] We run a series of models interacting this motherhood hours gap with our country-

[21] For the Czech Republic, Italy and Canada, we use data from the 1994 survey because 2002 data was unavailable or because the survey date matched the LIS wave year more closely. These data are available through the Leibniz Institute for the Social Sciences: http://www.gesis.org/en/services/data/survey-data/issp/modules-study-overview/family-changing-gender-roles/2002/. Data for Luxembourg is taken from the European Values Study.

[22] Some of the country-level measures are not available for all our cases for the time period of interest. Taxation measures are not available for Israel. The measure of preference for full-time employment of mothers of preschoolers is not available for Luxembourg. While we include the maximum number of countries for which we have data in each of the models, we run a series of robustness analyses to see whether including and excluding certain countries changes our results.

[23] These models are also appropriate in situations where cluster sizes vary considerably, such as in our case. Individual-sample sizes range from 592 employed women in Hungary to 17,164 in the United States.

[24] Due to data limitations, only mothers with children living in their household can be identified. This likely leads to underestimation of the effects of parenthood.

level indicators to examine how country-level factors shape the motherhood gap in employment and hours.

To examine differences in employment participation between mothers and childless women, we estimate random-intercept logistic models. The limited country-level sample size does not allow us to estimate random-slopes models,[25] which would estimate the variation of the motherhood employment gap across countries and examine whether there remains significant variation in this gap after controlling for individual-level differences among women. To check, whether significant differences in employment between mothers and childless women remain after controlling for individual-level covariates, we estimate separate logistic models for each country before estimating the multi-level models. Subsequently, we estimate multilevel logistic models based on the pooled sample of all countries. These models can be written as follows:

$$\log(p_{emp\_ij}/(1-p_{empij}) = \gamma_{00} + \gamma_{10}*MOM + \boxed{\gamma_{11}Z_j*MOM} + \gamma_{01}Z_j + \gamma_{20}X_{ij} + u_{0j}+r_{ij} \qquad (1)$$

Where the dependent variable is the log-odds of women's employment, γ_{00} is the average log-odd of employment across countries, the coefficient γ_{10} associated with the motherhood dummy variable estimates the gap in employment (in log-odds) between mothers and childless women, X_{ij} and the associated coefficients is the vector of individual-level variables, Z_j and its coefficient the main effect of the country-level policy or cultural indicatory. u_{0j} and r_{ij} represent the error terms at the country-level and individual-level. To estimate how country-level factors mediate differences in employment participation between mothers and childless women, we interact the motherhood dummy variable and the country-level measure Zj. Since the interpretation of interactions in logistic models is problematic (Allison 1999, Mood 2010),[26] we estimate average

[25] These models have problems with convergence when the level-2 sample size is small.
[26] In logistic models, the unexplained variance in the (latent) dependent variable is fixed. As a consequence, an increase in the explained part of the variance by the inclusion of explanatory variables, causes the total variance, and therefore the scale of the dependent variable to increase. The coefficients

marginal effects: For each woman, we calculate her predicted employment probability treating her as a mother, leaving all other covariates at their observed values. We repeat this calculation treating her as a childless woman. The difference between the two predicted probabilities is the marginal effect for that woman.[27] This is repeated for each respondent in the sample, and finally, we calculate the average marginal effect across all respondents. For ease of interpretation, we create a series of plots showing the marginal effects and the confidence intervals around them.

To examine the how policies and cultural indicators mediate the motherhood gap in usual weekly working hours, we restrict the sample to employed women and estimate a series of multi-level random-slopes models. The individual-level and country-level equations for these models can be written separately as follows:

$$Hours_{ij} = \beta_{0j} + \beta_{1j}MOM + \beta_{2j}X_{ij} + r_{ij} \quad (2)$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01}Z_j + u_{0j} \quad (3)$$
$$\beta_{1j} = \gamma_{10} + \gamma_{11}Z_j + u_{1j}$$
$$\beta_{2j} = \gamma_{20}$$

where i indexes individual women and j indexes country. $Hours_{ij}$ represents the i^{th} individual's hours in country j. β_{0j} is the intercept, denoting mean weekly working hours across countries. Motherhood status, and its coefficient $\beta_{1j,}$ estimates the average motherhood gap in working hours across all countries. X_{ij} is the vector of other individual measures (partnered relationship

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capturing the change in the dependent variable for a one unit increase any explanatory variable will therefore also increase. In other words, the size of the coefficients depends on the degree of unobserved heterogeneity (Mood 2010). Interaction coefficients capturing group differences can only be meaningfully interpreted if we can assume that the unobserved heterogeneity is equal for the groups we compare. Since we cannot safely make this assumption for mothers and women without children, we use predicted probabilities to sidestep this problem.

[27] In effect, we compare two hypothetical populations, mothers and childless women, that are equal on all the other variables in the model (Williams 2011). We use xtmelogit to estimate the regression models, and the "margins" command implemented in Stata 11 to calculate these marginal effects, including their standard errors. A drawback of the "margins" command is that marginal effects are calculated based on the fixed effect only, i.e. we use the grand-mean intercept, rather than country-specific intercepts to calculate the predicted probabilities.

status, educational attainment, age, etc.) and β_{2j} is the vector of their coefficients. r_{ij} is the individual-level error term. In the country-level equations (3), the coefficients from equation (2) become the dependent variables. The γ coefficients represent country-level coefficients, Z_j the vector of country-level measures (policy and cultural) and u_j the country-level residuals. Note that both the equation for the intercept β_{0j} and the coefficient of the motherhood status dummy variable β_{1j} have error terms: We let both the intercept and the effect of motherhood on working hours vary across countries. All other level-1 covariates are modeled as fixed effects, assuming that the direction of their effect is the same across all countries. Since the aim of this analysis is to examine the impact of country-level measures Z_j on the motherhood slope β_{1j}, level-2 measures are entered into the equation only for the intercept and slope β_{1j}. If we substitute the level-1 coefficients in equation (2) with the level-2 equations, we arrive at a combined model which reads as follows:

$$Hours_{ij}=\gamma_{00}+\gamma_{10}*MOM+\boxed{\gamma_{11}Z_j*MOM}+\gamma_{01}Z_j+\gamma_{20}X_{ij}+MOMu_{1j}+u_{0j}+r_{ij} \quad (4)$$

In our analysis we focus on the cross-level interaction $\gamma_{11}Z_j$*MOM, indicating the effect of social policies and cultural measures on the motherhood slope, i.e. the gap in working hours between mothers and childless women. [28]

To account for differential selection of mothers into employment across countries, we use a two-step Heckman selection modeling strategy (Heckman 1979). First, we run a series of Probit models predicting the likelihood of employment among all 25-45 year old women within each country, using presence of a preschooler in the household, a dummy variable indicating that the respondent has some form of disability, high educational attainment (i.e. postsecondary education or occupational training leading to certification), age, total household earnings minus the

[28] We use restricted maximum likelihood (REML) to estimate our models, since REML provides less biased random-effects estimates than full maximum likelihood, especially in models with fewer level-2 cases.

respondents earnings (in 2000 US Dollars), and non-family transfer income (in 2000 US Dollars). Based on these models, we calculate a selection term (Inverse Mills Ratio). We include this selection term in our main models which are limited to employed women to adjust our estimates for differential selection into employment.

Our relatively small number of countries limits the number of country-level effects we are able to estimate.[29] Therefore, we enter each of the country-level measures separately. Finally, we run a set of robustness analyses to test whether our findings hold if we account for cross-country differences in economic conditions using Gross Domestic Product (in 2000US$) and female unemployment rates, as well as different labor market structures controlling for the size of public sector employment, and union coverage.

Findings

Descriptive Findings

We present means and standard deviations for our two outcome variables and individual-level control variables for mothers and childless women separately (Appendix Table A1). With the exception of Russia, Sweden and Hungary, mothers are significantly less likely to be employed. Among the employed, mothers work fewer hours on average compared to childless women, although the difference is not significant in the Russian and Hungarian data. The size of the difference in employment rates and hours varies considerable across countries: In Luxembourg, Australia, West Germany, Ireland, and Spain, mothers' employment rates are between 28 and 35 percentage points lower than childless women's rates. On the other side of the spectrum, we find differences of 10 percentage points or less in Belgium, Hungary, Sweden, and Russia. Similarly, differences in usual weekly working hours vary between ten hours or more in

[29] The small sample size at the country-level gives us limited statistical power to find significant results.

Luxembourg, Britain, the Netherlands, and West Germany, to fewer than two hours in the Czech Republic and Russia.[30] Smaller gaps in working hours among employed women with and without children tend to be found in countries with longer working hours in general, such as in the United States and Eastern Europe. Compared to other European countries in (e.g. the Netherlands, France or Sweden) working time flexibility tends to be lower and part-time work is less common, even among mothers. In all countries, mothers are more likely to be partnered and tend to be older than childless women. Childless women on the other hand are more likely to have specialized vocational education or a university (incl. college) degree or higher degree, while there is a higher proportion of mothers who have not completed more than lower secondary education or compulsory education (low educational attainment). And finally, mothers tend to live in households with more resources, both in terms of earnings from other household members and transfer income, which is likely linked to their higher likelihood to be partnered. To what extent do these individual-level characteristics account for the differences in employment participation and working hours among women? In our multivariate analysis, we first examine whether gaps in employment and working hours persist, even after accounting for differences in human capital, and household characteristics among women.

Multivariate Findings

We first fit logistic regression models separately for each country, and calculate average marginal effects. The dark shaded bars in Figure 2 show that in the majority of countries significant differences in employment probabilities between mothers and childless women remain after controlling for family structure, human capital, and other household resources. To the extent that we are able to predict employment with our individual-level covariates, the

[30] With the exception of Russia and Hungary, these differences in average working hours for mothers and childless women are statistically significant (t-tests, $p<.001$).

remaining variation in employment gaps may be at least partially explained by country-level measures.

Analogously, we examine to what extent relationship status, human capital, other household resources, and selection into employment accounts for the gaps in working hours between mothers and childless women among the employed. First, we estimate the average gross differences in working hours between mothers and childless women across countries. Adjusted for selection into employment, mothers work about 5 hours less on average across all countries, compared to childless women (Appendix Table A3). The significant random effect of the motherhood slope indicates that the effect of motherhood on working hours (adjusted for selection into employment) varies significantly across countries. The hours gap declines to below five weekly hours, once we take individual differences among women in partnered status, age, education, other household earnings and transfer income in addition to selection into employment into account. In this model, these controls generally act as expected, with higher levels of labor market experience and education showing positive effects on working hours. What is important to note is that even after controlling for individual-level variables, unexplained cross-national variation in the motherhood working hours gap remains as indicated by the statistically significant random effect of the motherhood slope. Therefore, other structural and cultural factors may be important to understanding women's employment rates.

Next, we turn to the question of how country-level factors mediate these net motherhood gaps in employment and working hours. Figures 3 through 5 illustrate, how family-policy and cultural measures mediate the size of the difference in employment probabilities between mothers and childless women, net of individual-level controls. The figures show the differences in employment probabilities (y-axis) across the observed range of values of the country-level

measures (x-axis), and the upper and lower bounds of the confidence intervals (dashed lines). Differences in predicted employment probabilities between mothers and childless women (average marginal effects using each woman's observed values on the covariates) are significant if the confidence intervals do not include zero at the observed value of the policy/culture measure.

Figure 3 shows the relationship between the number of weeks of fully paid leave (darker line) and the gap in predicted employment probabilities between mothers and childless women (net of individual-level controls), and its relationship to the maximum number of weeks of job protected leave available to women regardless of whether it is paid or not. Contrary to hypothesis 1, we do not find a curvilinear relationship between leave length and the motherhood gap in employment.[31] However, we find that leave generosity, i.e. the number of fully paid weeks of leave (length of maternity and parental leave combined, times the benefit levels attached to the leave entitlements) tends to reduce the gap in employment participation between mothers and childless women, while length of leave (including unpaid leave schemes) has the opposite relationship. The estimated gap in employment probabilities (net of individual-level controls) is 13.6 percentage points in countries with a total of 12 weeks of weeks of job protected leave (paid or unpaid). This gap increases to over 18 percentage points in countries with the longest leaves of over three years.

In Figure 4, we examine the relationship between enrollment in publicly supported childcare and the motherhood gap in employment participation (net of individual-level differences between women). We find that higher levels of publicly supported childcare for children below the age of three reduces the gap in employment. In countries with only one

[31] We test the model with a squared leave term against the model without a squared term. The model without the number of weeks of job protected leave squared fits the data significantly better (based on the Likelihoo-ratio test, as well as the BIC and AIC).

percent of very young children enrolled, the gap in predicted employment probabilities between mothers and childless women is over 18 percentage points. This gap shrinks to around 1.5 percentage points in countries with the highest observed enrollment rates. On the other hand, we do not find a similar relationship between the motherhood employment gap and the enrolment of older preschoolers, as indicated by the flat slope of the line for the enrollment of 3 to 5 year olds. This may be a result of the available measures of enrollment of preschoolers aged 3 and older. There are large differences within and across countries with regard to the time children spend in preschool. In some countries, such as the Netherlands, or the Western part of Germany for instance, enrollment rates in preschools and kindergartens are relatively high. However, opening hours of these service are often limited to a few hours a day and do not match the schedule of a regular working day (Oberhuemer and Ulich 1997). While our measure captures the number of children enrolled (or places per 100 children in the age group), a measure capturing full-time enrollment of 3 to 5 year old children may reflect better to what extent childcare and preschool enrollment meets the needs of employed mothers.

Finally, in Figure 5 we show the relationship between the gap in predicted employment probabilities (net of individual-level covariates) and the three measures of attitudes towards mothers' and women's employment participation. All three measures provide evidence for hypothesis 3, that stronger cultural support for maternal employment, and more broadly for women's employment, is associated with smaller differences in employment participation between women with and without children. For example, in countries where very few people support the idea that mothers of children younger than school age should work full-time (e.g. Australia, West Germany, Britain) , the difference in predicted employment probabilities (net of individual level controls) is estimated to be almost 20 percentage points. The gap is reduced to

less than 6 percentage points where support is highest (e.g. in Israel 27 percent support mother's full-time employment when children are below school age). We recognize that cultural norms, and public policies are interrelated, however they are not perfectly correlated with each other. For example, while the enrollment of 0 to 2 year old children is positively associated with support for maternal full-time employment of preschoolers and school aged children, there are countries with high levels of support for maternal employment, but very low levels of publicly supported child care such as Spain, Canada, or the Netherlands.

Next, we turn to differences in usual weekly working hours. In Models 1 through 7 presented in Tables 2 and 3, we examine the relationship between the motherhood hours gap and each of our country-level measures, net of individual-level controls including selection into employment. We focus on the fixed effects, in particular on the cross-level interaction between the motherhood slope and the country-level measure. The positive interaction terms in Models 1 and 2 in Table 2 indicate that higher levels of enrolment in publicly supported formal childcare are associated with smaller differences in average weekly hours between mothers and childless women. However, we only find a significant effect for the enrollment of 0 to 2 year old children, but not the older age group, holding all other variables in the models constant. This points to the central role of affordable, good quality childcare is for mother's employment outcomes. Especially for young children, affordable formal childcare options are limited in most countries. In 12 out of the 18 countries in our data set, 10 percent or less of 0 to 2 year olds were enrolled in publicly supported childcare in the year 2000. Our findings suggest that more widespread availability of formal childcare reduces the gap in working hours between mothers and childless women. Childcare for children 3-6 seems less important, but this may be related to how these "preschool" programs may, at times, be available only for partial days or include lunch breaks

(Morgan and Zippel 2005; Morgan 2007; Lewis 2009), and therefore less useful as supports for maternal employment.

Models 3 and 4 (Table 2) examine how parental leave generosity and the maximum length of job protected leave (including maternity, parental, and childcare leave schemes) is related to working hours differences between mothers and childless women. The positive and statistically significant coefficient of the interaction term between motherhood status and parental leave generosity suggests that leave schemes that not only grant the right to take time off from employment, but also attach financial benefits to these rights are a tool to reduce differences between women with and without care responsibilities for children in terms of working time. In other words, mothers are employed for longer hours in countries that provide a well-paid leave – which may allow mothers to maintain labor force attachment. In contrast, we do not find significant effects when we employ a measure for the rights to take time off. We also include a squared term of leave length in model 4 to allow for curvilinear effects. However, neither including nor excluding the squared term yields significant findings. This suggest that leaves, in and of themselves, are less important than paid leaves if the goal is to maintain maternal employment and a longer weekly working hours.

Finally, we explore associations between different measures of cultural preferences, particularly regarding care for children, and predicted probabilities of women's full-time employment. As Kremer (2005) argues, "ideals of care" may strongly influence women's choices to be employed, or to be employed full-time, even against institutional and structural supports. In Models 5, 6 and 7 we looked at three measures: the percent of respondents who prefer women's full-time employment when youngest child is below and above school age and the percent of respondents agreeing with the statemnt "Both the man and woman should

contribute to the household income." All three measures show the same substantive finding: The postive and statistically significant coefficients of the cross-level interaction between the attitude measures and motherhood status indicate, that more cultural support for women, and specifically mother's employment reduce the size of the working time differences between mothers and childless women.

Discussions and Conclusions

Existing research shows that current differences in women's employment patterns are not so much driven by *gender*, as by *gendered parenthood*, with childless women and men, including fathers employed at higher levels and mothers employed at significantly lower levels. In this paper, we focus on the cross-national variation in the gap in employment participation and working time between mothers and women who do not live with children in the same household. We show that this variation remains salient, even when we control for individual and household-level factors, such as women's human capital, and partnered status and household income. This suggests that women's, and particularly mothers' choices and preferences regarding employment remain bounded – institutional and cultural contexts shape their opportunities.

We have examined how variation in mothers' employment and working hours are correlated with their institutional, and cultural contexts. Our findings provide good evidence that these associations do matter. Yet, mothers should not be seen as simply expressing their preferences regarding employment; their preferences are shaped by the contexts in which they find themselves, even as these contexts may be shaped by mothers' preferences. Mothers' employment hours increase in contexts with supportive paid leaves and childcare policies, as well as where there is greater support for mothers' employment. While we may not be able to

untangle causal direction, we *would* argue that combinations of cultural and structural supports may provide our best answers to why mothers' employment varies so much cross-nationally, net of individual and household-level factors.

Our analyses also allow us to speak back to concerns about gendered tradeoffs: the argument that more generous welfare states may be impeding women's employment hours (Mandel and Semyonov 2006). We find, using separate measures of work-family policies, that paid leaves and public childcare for children 0-2 have positive impacts on maternal employment participation and working hours. Our findings do not suggest that either paid leaves or public childcare for children between 0 and 2 lead to higher levels of *part-time* employment, as both appear to boost maternal employment hours. Yet, Mandel and Semyonov's (2006) arguments may help explain why leaves measured simply as weeks of job protected, paid or unpaid, leaves seem to reduce maternal employment participation, and do not boost maternal employment hours. More work should be done to explore this question.

In this paper, we have tried to make arguments about how maternal employment and working hours relate to factors such as household specialization and women's human capital, structural conditions, institutional factors such as work-family policies, and cultural understandings of women's roles. With these tools in hand, we hope to continue the dialogue, and create greater support for mothers' choices regarding employment and unpaid care.

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Table 1. Origins of individual level data and sample sizes

Country	Original Data Source	Survey Year	Full LIS Sample	Sub-sample I *25-45 year olds*	Sub-sample *employed 2 45 year ol*
Australia	Survey of Income and Housing Costs	2001	13,183	2,267	1,4
Austria	European Community Household Panel (ECHP)	2000	6,845	770	5
Belgium	Panel Study of Belgian Households	2000	6,935	994	7
Canada	Survey of Labour & Income Dynamics	2000	72,850	9,745	7,8
Czech Republic	Czech Microcensus	1996	71,836	8,964	6,7
France	Household Budget Survey	2000	25,803	3,588	2,6
Germany East	German Social Economic Panel Study	2000	6,776	926	7
Germany West	German Social Economic Panel Study	2000	22,075	3,167	2,1
Hungary	Household Monitor Survey	1999	5,517	592	3
Ireland	Living in Ireland Survey / ECHP	2000	9,131	889	5
Israel	Household Expenditure Survey	2001	19,555	2,299	1,4
Italy	Survey on Household Income and Wealth	2000	22,268	2,307	1,1
Luxembourg	Socio Economic Panel	2000	6,240	973	6
Netherlands	Socio-Economic Panel	1999	12,445	2,011	1,5
Russia	Russia Longitudinal Monitoring Survey	2000	9,248	1,198	8
Spain	European Community Household Panel	2000	14,320	1,602	8
Sweden	Income Distribution Survey	2000	33,139	4,000	3,5
United Kingdom	Family Resources Survey	1999	59,010	8,181	5,6
United States	Current Population Survey	2000	128,821	17,164	12,4

Table 2. Multilevel Models Estimating the Effect of Publicly Supported Childcare Indicators, and Job Protected Leave Generosity and Length on the Gap in Working Hours Between Mothers and Childless Women Aged 25-45, Net of Individual-level Controls

	1 **Enrolment of 0-2 Year Olds**		2 **Enrolment of 3-5 Year Olds**		3 **Leave Generosity**		4 **Length of Leave**	
Motherhood Status	-6.534	***	-10.083	+	-6.233	***	-6.798	**
	(1.363)		(5.565)		(1.185)		(1.579)	
Partnered	-1.376	***	-1.374	***	-1.375	***	-1.375	***
	(.129)		(.129)		(.129)		(.129)	
Age	.046	***	.046	***	.046	***	.046	***
	(.009)		(.009)		(.009)		(.009)	
High Educ. Attainment	1.700	***	1.697	***	1.697	***	1.698	***
	(.157)		(.157)		(.157)		(.157)	
Medium Educ. Attainment	.798	***	.797	***	.797	***	.798	***
	(.135)		(.135)		(.135)		(.135)	
Other HH Income	-.008	***	-.008	***	-.008	***	-.008	***
	(.002)		(.002)		(.002)		(.002)	
Transfer Income	.000	***	.000	***	.000	***	.000	***
	(.000)		(.000)		(.000)		(.000)	
Inverse Mills Ratio	-4.299	***	-4.298	***	-4.299	***	-4.297	***
	(.221)		(.221)		(.221)		(.221)	
Enrolment of 0-2 Year Olds	-.070							
	(.054)							
Enrollment of 0-2 Yr Olds * Mom	.141	+						
	(.083)							
Enrolment of 3-5 Year Olds			-.025					
			(.047)					
Enrollment of 3-5 Yr Olds * Mom			.069					
			(.073)					
Parental Leave Generosity					-.004			
					(.031)			
Par. Leave Generosity * Mom					.081	+		
					(.044)			
Max. Length of Leave							.015	
							(.010)	
Max. Length of Leave * Mom							.023	
							(.015)	
Intercept	39.575	***	40.626	***	38.806	***	37.488	***
	(.949)		(3.635)		(.891)		(1.070)	

Note: Standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001, two-tailed test

Table 3. Multilevel Models Estimating the Effect of Attitudes Regarding Women's Employment on the Gap in Working Hours Between Mothers and Childless Women Aged 25-45, Net of Individual-level Controls

	5 **% Preferring Full-time Employment of Mothers of Preschoolers**		6 **% Preferring Full-time Employment of Mothers of School-Aged Children**		7 **% Agreeing that Both Should Contribute to HH Income**	
Motherhood Status	-10.114	***	-10.114	***	-15.724	***
	(2.676)		(2.676)		(3.792)	
Partnered	-1.348	***	-1.348	***	-1.375	***
	(.130)		(.130)		(.129)	
Age	.051	***	.051	***	.046	***
	(.009)		(.009)		(.009)	
High Educ. Attainment	1.728	***	1.728	***	1.697	***
	(.158)		(.158)		(.157)	
Medium Educ. Attainment	.817	***	.817	***	.797	***
	(.136)		(.136)		(.135)	
Other HH Income	-.008	***	-.008	***	-.008	***
	(.002)		(.002)		(.002)	
Transfer Income	.000	***	.000	***	.000	***
	(.000)		(.000)		(.000)	
Inverse Mills Ratio	-4.208	***	-4.208	***	-4.300	***
	(.223)		(.223)		(.221)	
Taxation of 2nd Earner						
Taxation of 2nd Earner * Mom						
% Preferring FT Emp of Presch. Moms	-.033					
	(.061)					
% Preferring FT Emp of Presch. Moms * Mom	.179	*				
	(.084)					
% Preferring FT Emp of Schoolage Moms			-.033			
			(.061)			
% Pref. FT Emp of Schoolage Moms * Mom			.179	*		
			(.084)			
% Agreeing that Both Should Contribute					.037	
					(.042)	
% Agr. Both Should Contribute * Mom					.158	**
					(.054)	
Intercept	39.496	***			36.188	***
	(1.967)				(2.960)	

Note: Standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001, two-tailed test

Figure 1. Percentage of Women Aged 25 to 45 Working 40 or More Hours per Week, between 20 and 39.9, below 20, and Zero Hours per Week

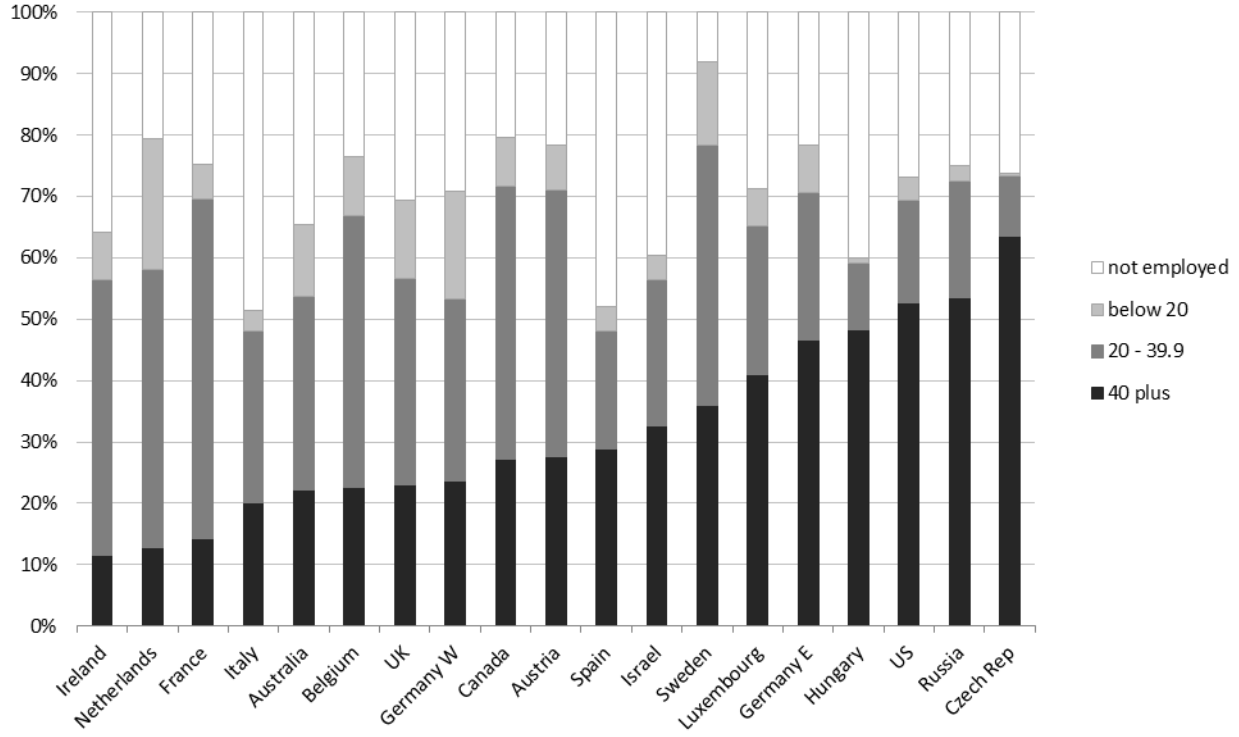
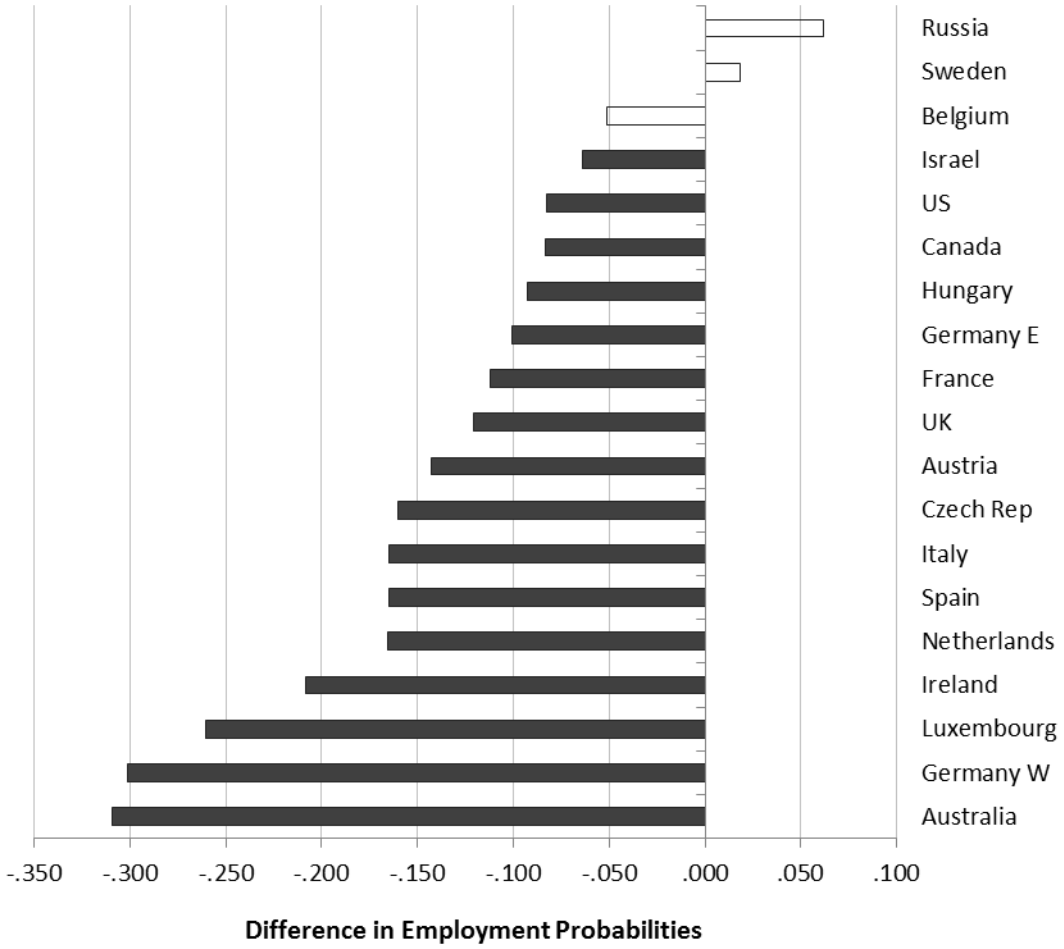


Figure 2. Difference in Predicted Employment Probabilities between Mothers and Childless Women, Controlling for Individual and Household Characteristics



Note: Significant differences ($p<.05$) are represented by solid bars.

Figure 3. Relationship between Maternity/Parental Leave Generosity and the Maximum Number of Weeks of Leave Available to Women and the Gap in Employment Between Mothers and Childless Women

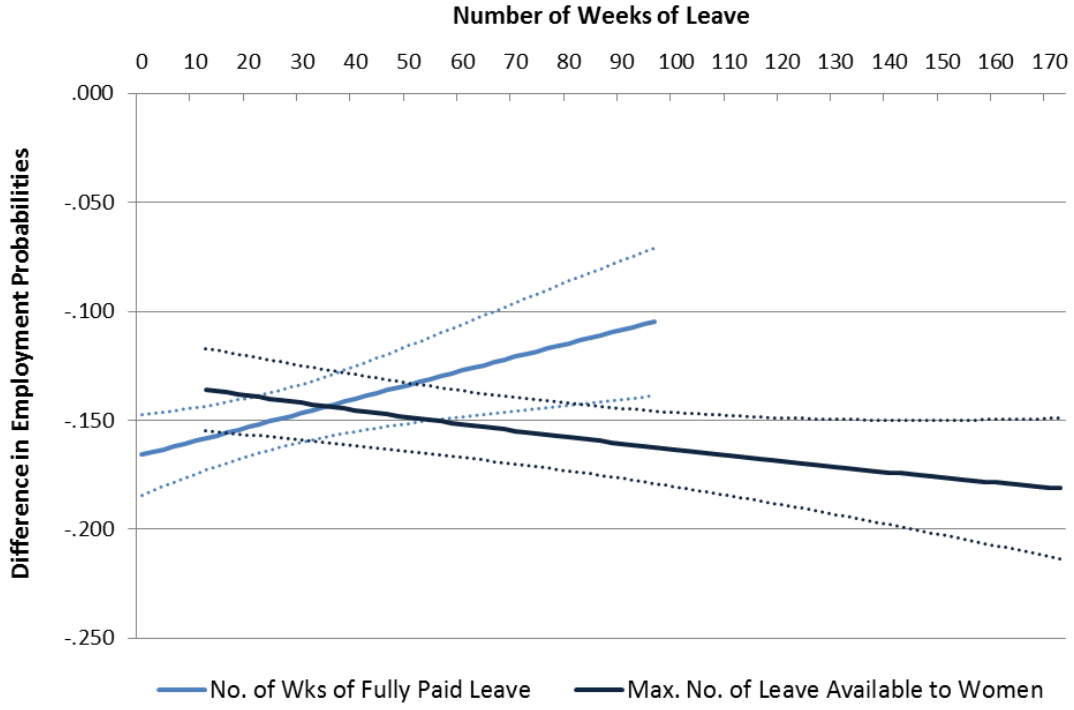


Figure 4. Relationship between Enrollment in Publicly Supported Childcare and the Gap in Employment Between Mothers and Childless Women

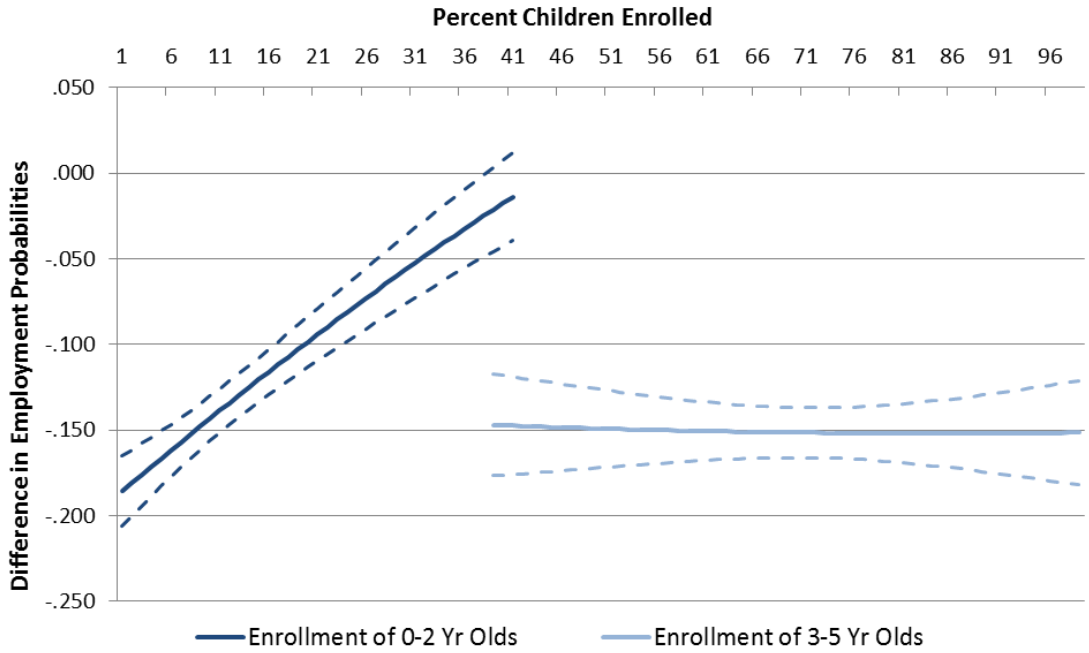
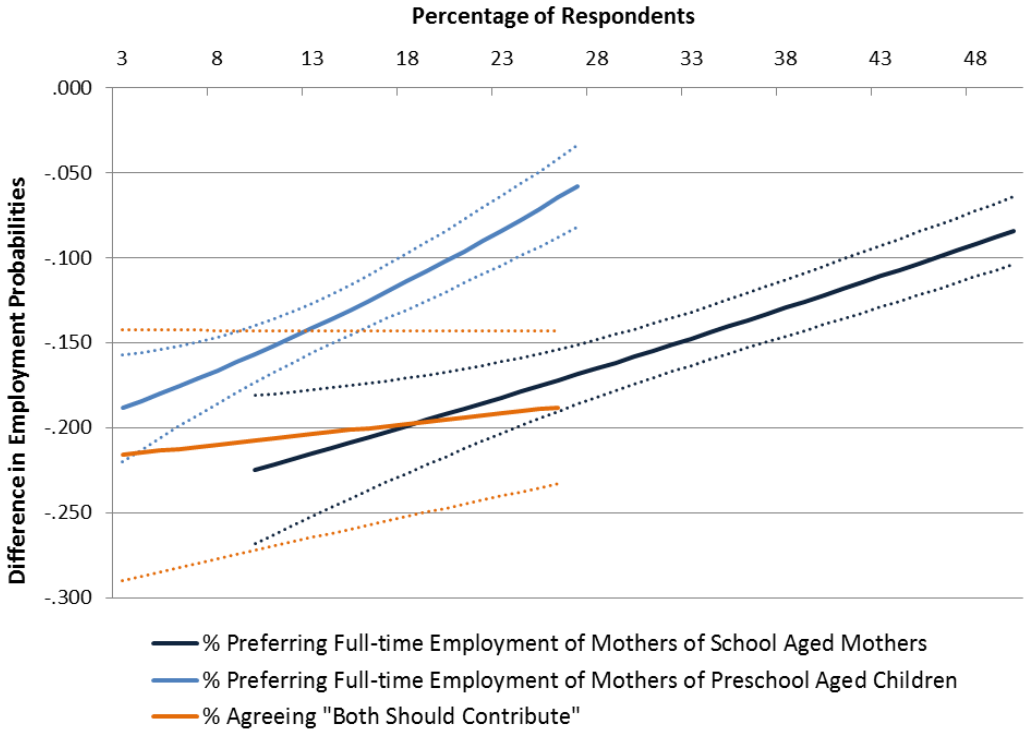


Figure 5. Relationship between Attitudes Towards Employment of Mothers of Preschoolers and School Aged Children and the Gap in Employment Between Mothers and Childless Women



Appendix

Table A1. Individual Level Variables: Means and Standard Errors (in Parentheses)

	Employment Rates		Weekly Working Hours		Partnered Relationship Status		Age		High Educ. Attainm.		Medium Educ. Attainm.		Low Educ. Attainm.		Other HH Income in 2000 US$		Transfer Income in 2000 US$	
	Moms	**Childl.**	**Moms**	**Childl.**	**Moms**	**Childl.**	**Moms**	**Childl.**	**Moms**	**Childl.**	**Moms**	**Childl.**	**Moms**	**Childl.**	**Moms**	**Childl.**	**Moms**	**Childl.**
Austria	.721	.896	29.1	39.0	.900	.590	36.7	33.5	.090	.250	.710	.670	.200	.080	19,878	13,100	5,251	1,886
	(.449)	(.306)	(11.0)	(6.8)	(.300)	(.490)	(5.6)	(6.5)	(.290)	(.430)	(.460)	(.470)	(.400)	(.280)	(14,839)	(11,902)	(4,389)	(4,567)
Australia	.563	.867	15.5	33.0	.776	.623	35.9	33.0	.150	.312	.306	.308	.543	.380	18065	14112	4,650	6,799
	(.496)	(.340)	(16.9)	(15.7)	(.417)	(.485)	(5.2)	(5.6)	(.357)	(.464)	(.461)	(.462)	(.498)	(.486)	(19592)	(16454)	(4,422)	(5,002)
Belgium	.763	.856	32.2	38.3	.890	.680	37.1	33.0	.420	.560	.360	.320	.210	.110	21,416	13,668	5,458	2,522
	(.426)	(.352)	(10.4)	(10.8)	(.310)	(.470)	(5.1)	(6.2)	(.490)	(.500)	(.480)	(.470)	(.410)	(.320)	(15,475)	(13,755)	(5,648)	(3,894)
Canada	.725	.837	33.4	37.0	.850	.620	36.6	33.7	.170	.300	.700	.610	.130	.090	24,175	16,220	3,861	1,953
	(.447)	(.369)	(11.6)	(9.5)	(.360)	(.490)	(5.5)	(6.5)	(.370)	(.460)	(.460)	(.490)	(.340)	(.280)	(26,894)	(23,109)	(5,185)	(3,506)
Czech R.	.745	.913	40.7	42.1	.880	.640	35.7	34.9	.090	.160	.390	.380	.520	.460	5,118	3,326	920	296
	(.436)	(.282)	(6.2)	(7.2)	(.330)	(.480)	(5.9)	(7.2)	(.280)	(.370)	(.490)	(.480)	(.500)	(.500)	(4,147)	(3,727)	(915)	(780)
France	.689	.844	33.0	36.5	.870	.590	36.5	32.6	.250	.490	.450	.330	.310	.180	15,157	8,934	4,733	1,755
	(.463)	(.363)	(9.7)	(9.1)	(.330)	(.490)	(5.5)	(6.4)	(.430)	(.500)	(.500)	(.470)	(.460)	(.380)	(12,870)	(10,686)	(4,843)	(3,826)
Germ. E.	.775	.886	36.3	40.1	.860	.640	37.3	33.2	.360	.410	.580	.550	.060	.040	17,207	11,150	6,116	2,536
	(.418)	(.319)	(12.1)	(12.1)	(.340)	(.480)	(5.3)	(6.7)	(.480)	(.490)	(.490)	(.500)	(.240)	(.190)	(13,909)	(12,731)	(5,110)	(4,014)
Germ. W.	.618	.913	24.3	38.7	.900	.670	36.7	33.5	.200	.310	.610	.580	.190	.100	28,160	18,478	4,722	1,443
	(.486)	(.282)	(13.2)	(11.2)	(.300)	(.470)	(5.2)	(5.9)	(.400)	(.460)	(.490)	(.490)	(.400)	(.300)	(21,313)	(20,355)	(4,098)	(3,661)
Hungary	.696	.767	39.7	41.9	.920	.680	36.3	34.9	.180	.260	.330	.320	.490	.420	2,917	1,556	1,172	933
	(.461)	(.426)	(9.6)	(8.7)	(.270)	(.470)	(5.8)	(6.9)	(.390)	(.440)	(.470)	(.470)	(.500)	(.500)	(2,633)	(1,871)	(986)	(1,202)
Ireland	.595	.881	28.2	37.5	.910	.620	37.3	32.5	.170	.480	.410	.330	.420	.190	20,215	15,920	3,572	1,949
	(.491)	(.325)	(10.7)	(8.4)	(.290)	(.490)	(5.3)	(5.8)	(.380)	(.500)	(.490)	(.470)	(.490)	(.390)	(18,003)	(15,334)	(3,959)	(3,185)
Israel	.592	.767	35.9	40.9	.890	.580	35.6	31.5	.320	.610	.460	.300	.210	.090	20,174	15,312	5,170	2,418
	(.492)	(.424)	(11.3)	(13.1)	(.310)	(.500)	(5.8)	(6.0)	(.470)	(.490)	(.500)	(.460)	(.410)	(.290)	(26,352)	(21,978)	(7,836)	(5,367)
Italy	.478	.720	33.8	36.6	.950	.650	37.6	34.8	.080	.220	.410	.500	.510	.290	10,678	7,390	932	1,791
	(.500)	(.449)	(10.7)	(10.3)	(.230)	(.480)	(5.0)	(5.8)	(.270)	(.410)	(.490)	(.500)	(.500)	(.450)	(9,263)	(8,431)	(2,985)	(4,622)
Luxemb.	.565	.922	30.4	40.4	.920	.660	35.0	31.4	.180	.420	.450	.450	.370	.130	28,012	20,222	7,693	834
	(.496)	(.268)	(12.3)	(7.4)	(.270)	(.470)	(5.5)	(5.5)	(.390)	(.500)	(.500)	(.500)	(.480)	(.330)	(18,620)	(19,148)	(6,615)	(3,570)
Netherl.	.719	.919	21.3	34.7	.920	.720	36.8	32.7	.230	.430	.520	.460	.250	.110	29,372	20,172	4,048	2,011
	(.449)	(.272)	(10.5)	(9.3)	(.280)	(.450)	(5.2)	(6.0)	(.420)	(.500)	(.500)	(.500)	(.440)	(.310)	(17,737)	(16,585)	(4,704)	(4,262)
Russia	.809	.772	41.6	43.2	.830	.540	36.6	36.3	.540	.610	.360	.280	.100	.110	964	505	322	304
	(.393)	(.421)	(13.0)	(12.6)	(.370)	(.500)	(5.8)	(7.0)	(.500)	(.490)	(.480)	(.450)	(.310)	(.310)	(1,738)	(1,200)	(1,045)	(422)
Spain	.445	.718	34.3	38.0	.950	.810	36.6	31.4	.160	.330	.280	.380	.560	.290	12,366	8,837	1,186	1,081
	(.497)	(.451)	(10.7)	(9.7)	(.210)	(.390)	(5.4)	(5.0)	(.370)	(.470)	(.450)	(.490)	(.500)	(.450)	(10,252)	(8,355)	(2,599)	(2,773)
Sweden	.871	.849	31.8	34.3	.880	.550	36.5	32.5	.270	.370	.600	.540	.120	.090	26,086	14,169	9,308	3,700
	(.336)	(.359)	(12.7)	(12.9)	(.320)	(.500)	(5.4)	(6.4)	(.440)	(.480)	(.490)	(.500)	(.330)	(.280)	(30,607)	(17,686)	(8,034)	(6,055)
UK	.635	.857	28.6	40.5	.760	.700	35.9	33.8	.130	.320	.590	.520	.290	.160	26,236	23,948	6,790	1,761
	(.481)	(.350)	(13.3)	(9.8)	(.430)	(.460)	(5.4)	(6.2)	(.330)	(.460)	(.490)	(.500)	(.450)	(.370)	(38,037)	(28,582)	(7,483)	(4,448)
US	.693	.819	37.0	41.3	.810	.600	36.1	34.7	.340	.500	.520	.420	.140	.070	38,963	27,903	2,924	2,025
	(.461)	(.385)	(10.6)	(9.6)	(.390)	(.490)	(5.7)	(6.4)	(.470)	(.500)	(.500)	(.490)	(.350)	(.260)	(49,625)	(41,004)	(5,828)	(5,910)

Table A2. Country-Level Variables

	Childcare Enrollment of 0-2 Year Olds	Childcare Enrollment of 3-5 Year Olds	Weeks of Fully Paid Leave	Maximum Length Job Protected Leave	Preference for Full-time Employment of Mothers of Preschoolers	Preference for Full-time Employment of Mothers of School Aged Children	Women and Men should contribute	Public Sector Employment	GD pe Cap
Australia	13	41	0	52	3.5	18.0	44.5	16.4	19,0
Austria	8	77	24	85	4.3	11.0	79.4	27.4	24,1
Belgium	20	99	4	28	16.7	31.1	53.7	31.2	22,0
Canada	5	53	6	25	18.4	50.5	57.4	19.0	23,5
Czech Rep.	1	76	32	162	6.4	22.6	80.9	22.2	6,0
France	22	99	53	159	12.0	31.3	73.1	29.5	22,5
Germany E.	34	87	13	161	16.9	36.0	88.2	23.2	23,1
Germany W.	5	75	13	161	3.4	9.6	63.8	22.0	23,1
Hungary	10	88	73	159	6.5	31.2	80.5	36.7	4,0
Ireland	4	56	0	14	11.8	27.6	66.0	18.0	25,3
Israel	19	79	0	64	27.3	41.5	79.3	17.0	18,4
Italy	6	85	8	48	5.1	17.1	80.7	15.5	19,2
Luxembourg	4	68	23	42	NA	NA	40.6	11.1	46,2
Netherlands	6	68	0	16	17.8	31.0	38.5	25.3	26,0
Russia	21	64	12	165	7.2	26.0	75.7	37.9	1,7
Spain	5	77	0	161	21.0	40.7	88.6	25.7	14,4
Sweden	41	86	50	64	16.4	38.1	82.5	33.7	27,2
UK	1	71	0	18	4.9	20.0	56.6	19.2	24,9
US	6	53	0	12	14.4	43.0	56.9	15.8	34,0

Table A3. Multilevel Models Estimating the Relationship between Motherhood Status and Weekly Working Hours, Adjusted for Selection into Employment and Individual-level Characteristics Among Women Aged 25-45

	Gross		+ Level 1 Covariates	
Fixed Effects				
Motherhood Status	-5.252	***	-4.859	***
	(.966)		(.975)	
Partnered			-1.374	***
			(.129)	
Age			.046	***
			(.009)	
High Educ. Attainment			1.698	***
			(.157)	
Medium Educ. Attainment			.797	***
			(.135)	
Other HH Income			-.008	***
			(.002)	
Transfer Income			.000	***
			(.000)	
Inverse Mills Ratio	-5.335	***	-4.298	***
	(.205)		(.221)	
Intercept	40.638	***	38.758	***
	(.640)		(.718)	
Random Effects				
Intercept	6.853	***	6.628	***
	(2.516)		(2.435)	
Motherhood Slope	16.208	***	16.481	***
	(5.724)		(5.815)	

Note: Standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001, two-tailed test