Working mothers around the world

Moderating effects of social position on mothers' paid work in middle- and high-income countries

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Chapter 5

Motherhood Effects on Wages

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Abstract

This chapter studies how women's social position affects the size of the motherhood wage penalty across 13 high- and middle-income countries. Using a unique online volunteer survey, we test three competing theories that predict larger penalties for mothers in high, medium, and low social positions based on their earnings potential, time related work-family conflict, and labor market disadvantage. Results indicate that women in the lowest social positions pay the largest penalties, and that the disadvantage of low social position mothers is substantially larger in countries with greater income inequality and where enrollment in formal childcare institutions is lower.

5.1 Introduction

In societies around the world, motherhood has been intrinsically linked to caregiving (Barrientos & Kabeer, 2004). Whereas a non-negligible share of women still withdraw from paid labor after childbirth, the majority of mothers today retain some attachment to formal or informal labor markets (Gornick Meyers, & Ross, 1997; Goldin, 2014; Besamusca et al., 2015). That continued commitment to paid labor, however, has been hypothesized to be different from that of childless women and to penalize mothers for time spent on care responsibilities (c.f. Gornick & Meyers, 2004; Steiber & Haas, 2012). Numerous studies have presented evidence of American and Western European mothers' lower wages compared to their childless peers (c.f. Budig & England, 2001; Aisenbrey, Evertsson, & Grunow, 2009). A body of research has furthermore linked these wage penalties to the incompatibility of paid work and care, troublesome re-entry after career breaks, and mothers either choosing or being relegated to different, lower paid jobs than non-mothers (Lundberg & Rose, 2000; Phipps, Burton, & Lethbridge, 2001; Waldfogel, 1998).

Such evidence on the sources of the motherhood wage penalty has brought new considerations to the fore. After all, if mothers are disadvantaged largely through a weaker labor market position, their social position is likely to create intersectionalities (Choo & Ferree, 2010; Collins, 2015; Hegewisch & Gornick, 2011). Research, then, must take into account not only motherhood status, but also actors' social positions (Mandel, 2011; Milkman, 2016). So far, there is little academic agreement on neither the dynamics of these intersectionalities, nor the institutional contexts that reduce or increase differences between mothers in different social positions. Three competing theories have been advanced as to which group of women should be expected to suffer the largest penalties (c.f. Anderson, Binder, & Krause, 2002, 2003; Budig & Hodges, 2010, 2014; England et al., 2016). The *foregone career* hypothesis, which is rooted in human capital theory, argues that women in a high social position stand to gain the most from a career, and thus have most to lose (England et al., 2016; Wilde, Batchelder, & Elwood, 2010). The *time incompatibility* thesis assumes that paid labor and care-work place competing time demands on mothers. It proposes that penalties are the heaviest for mothers in a medium social position, because these mothers predominantly hold white-collar jobs that require their presence in the office without providing sufficient resources to outsource childcare (Anderson, Binder, & Krause, 2003). The *disadvantaged worker* theory expects the largest penalties to fall on mothers in the lowest social position, who are least able to deflect the wage effects of motherhood because of their weaker labor market position (Budig & Hodges, 2010; Nizalova, Sliusarenko, & Shpak, 2016).

Despite theoretical insights that intersectionalities of motherhood and social position may function differently across social contexts, research into the uneven effects of

motherhood on wages has so far focused on the United States and a small number of other highly industrialized countries (Choo, Crenshaw, & McCall, 2013; Hancock, 2007). Moreover, the majority of our current knowledge stems from single-country studies (England et al., 2016; Hegewisch & Gornick, 2011; Napari, 2010; Nizalova, Sliusarenko, & Shpak, 2016). Two of the rare comparative studies found cross-national differences for both the size of the social position effect and the most penalized group, raising the question of how social contexts affect the uneven distribution of the motherhood wage penalty (Halldén, Levanon, & Kircheli-Katz, 2016; Todd, 2001).

In this chapter, we aim to expand current knowledge by testing how women's social position affects the size of the motherhood wage penalty across much more diverse country contexts. In order to do so, we use the pooled data of the WageIndicator continuous online volunteer survey from 2012–15 (Tijdens & Osse; www.wageindicator.org). Although the dataset, as a non-probability sample, requires extensive weighting procedures, it contains a rare combination of detailed information on women's hourly wages, occupations, and a range of other work-related characteristics from a single multi-country survey. It offers a unique opportunity to study 13 high- and middle-income countries that have been under-researched in comparative designs and that differ substantially on the country-level institutions of interest.

Our study addresses two research questions. First, does women's social position affect the size of the motherhood penalty they experience; and if so, which group of mothers suffers the largest penalties? Second, does the size of the social position effect differ across countries? In Section 5.2, we examine the theoretical mechanisms that have previously been found to affect wage penalties of women in different social positions. Drawing on the three theories regarding the relative advantage or disadvantage of low, medium, and high social position mothers, we hypothesize which group can be expected to suffer the largest motherhood penalties and whether similar effects can be expected across countries. Section 5.3 outlines our methodological approach and in Section 5.4, we test the *foregone career*, *time incompatibility*, and *disadvantaged worker* hypotheses on the individual and country level. In Section 5.5 we draw conclusions and discuss avenues for further research.

5.2 The Motherhood Wage Penalty

5.2.1 The motherhood wage penalty and social position

Our study is founded on the assumption that women pay a price for motherhood (for an overview see Steiber & Haas, 2012). In this chapter, we focus on the effects of motherhood on wages, which we refer to as the motherhood penalty. We therefore observe only a subgroup of women: those who perform paid work. We recognize that both employment and

fertility decisions are complex social processes. The theorization of such selection processes, however, is outside the scope of this study (for an overview of selectivity, see for example Begall, Mills, & Ganzeboom, 2015; Brewster & Rindfuss, 2000; Hegewisch & Gornick, 2011; Mandel & Semyonov, 2005). We gratefully profit from previous work on such processes in our research design and focus on working women alone in order to explore intersectionalities of motherhood and social positions in earned wages.

The motherhood wage penalty has been studied in a range of industrialized countries and a handful of developing nations, and in a few cases from a comparative perspective (c.f. Grunow, Hofmeister, & Buchholz, 2006; Gangl & Ziefle, 2009; Misra, Budig, & Boeckmann, 2011). Studies found a 3% or 4% wage penalty for the first child and up to a 12% penalty for higher-order births among non-Hispanic white women in the United States (Budig & England, 2001; Waldfogel, 1997). Aisenbrey, Evertsson, and Grunow (2009) confirmed the existence of motherhood penalties in Germany, Sweden, and the USA. Other studies found motherhood penalties in the UK (Gangl & Ziefle, 2009), Spain (Molina & Montuenga, 2009), and Canada (Phipps, Burton, & Lethbridge, 2001). Budig, Misra, and Boeckmann (2012) found motherhood penalties in 16 of 22 countries in the Luxembourg Income Study, including penalties ranging from 10% to 18% in the Czech Republic, Hungary, Poland, Russia, and Slovakia. Nizalova, Sliusarenko, and Shpak (2016) found a 19% motherhood penalty for Ukrainian women. Adair et al. (2002) showed that Filipino mothers experienced lower wage growth than non-mothers in the period from 1983 to 1991; Piras and Ripani (2005) found a motherhood penalty in Peru and Gamboa and Zuluaga (2013) in Colombia. Whereas several studies have admittedly found diverging results (c.f. Albrecht et al., 1999; Datta Gupta & Smith, 2002; Piras & Ripani, 2005), the disadvantage of mothers versus non-mothers has started to reach a state of consensus. *We thus expect a motherhood penalty on wages to exist in our broad sample of countries (H1).*

Previous studies have noted that, in many countries, a large share of the motherhood penalty stems from the different labor market allocation of mothers and non-mothers (c.f. England, 2005; Goldin, 2014; Steiber & Haas, 2012; Waldfogel, 1998). For instance, mothers may lack access to segments of the labor market, women who intend to have children may self-select into jobs that are more family-friendly, or may adapt, or be forced to adapt, to motherhood by prioritizing the reconciliation of work and family responsibilities (Albrecht et al., 1999; Baum, 2002). Previous research has found that mothers are strongly penalized for taking employment breaks (Aisenbrey, Evertsson, & Grunow, 2009; Baum, 2002; Lundberg & Rose, 2000; Wetzels & Tijdens, 2002), reducing working hours (Bardasi & Gornick, 2008; Budig, Misra, & Boeckmann, 2012; IBD, 2008; López Bóo, Madrigal, & Pagés, 2010; Matteazzi, Pailhé, & Solaz, 2014), and being employed in more feminized industries and occupations

(Adair et al., 2002; Casal & Barham, 2013; England, 2005; Glauber, 2011; Hook & Pettit, 2015; Orbeta, 2005).

Whereas the abovementioned findings provide valuable insights into the sources of the motherhood penalty, they also call into question whether all women are equally affected by starting a family. Neither the assumption that all sub-groups of mothers have the same propensity to, for example, interrupt their careers or work part-time, nor the assumption that they would all face equivalent repercussions from such decisions, seem intuitively tenable. Indeed, scholars who have attempted to distinguish between women in different social positions concluded that mothers' relative disadvantage varies by class (Casal & Barham, 2013), educational attainment (Anderson, Binder, & Krause, 2002; Nizalova, Sliusarenko, & Shpak, 2013; Todd, 2001), skill level (Anderson, Binder, & Krause, 2003; England et al., 2016; Halldén, Levanon, & Kricheli-Katz, 2016; Wilde, Batchelder, & Elwood, 2010), and wage quintile (Budig & Hodges, 2010, 2014; England et al., 2016; Napari, 2010; Orbeta, 2005).

The abovementioned studies found contradictory results. In the most-studied country, the USA, researchers found larger penalties for the group of mothers in the highest social position (Anderson, Binder, & Krause, 2002; England et al., 2016; Wilde, Batchelder, & Elwood, 2010), the lowest social position (Budig & Hodges, 2010, 2014), and even the medium social position (Anderson, Binder, & Krause, 2003; Todd, 2001). These studies, admittedly, measured social position in many different ways, in different years, and using differently delimited samples. We argue, however, that both this study and the abovementioned work, in essence, all endeavor to distinguish between women who are more socio-economically advantaged or disadvantaged.[1] In this chapter, we relate the concept of social position to an occupation-based index of socio-economic class, which most accurately measures our theoretical mechanisms. We do draw on the abovementioned studies' findings and arguments for predicting larger penalties for low, medium, or high social position mothers in the following sections.

5.2.2 Individual-level effects of social position

The *foregone career* hypothesis is grounded in human capital theory and revolves around mothers' potential or foregone career prospects. It assumes that workers achieve a certain level of wage growth over the course of their careers and views motherhood as a disruptive event (Albrecht et al., 1999; Becker, 1964; Mincer & Polachek, 1974). Its proponents point out that women in higher social positions have much steeper wage curves and are therefore more likely to experience larger motherhood penalties, simply because they have more to lose (Anderson, Binder, & Krause, 2002; Wilde, Batchelder, & Ellwood, 2010). High social position women furthermore tend to be employed in higher skilled jobs that are associated with more perceived work effort and commitment. The effort requirement makes these

occupations more difficult to combine with care responsibilities and thus affects highly positioned mothers above and beyond the direct loss of tenure from their (often rather brief) maternity leave (Wilde, Batchelder, & Elwood, 2010). By extension, mothers in lower social positions, whose wage curves are flatter, are then less disadvantaged by motherhood; their wages would also not have been expected to grow much in the absence of a child. Both Anderson, Binder, and Krause (2002) and England et al. (2016) found larger penalties for women in higher social positions in the USA, as did Napari (2010) in Finland. Thus, according to the *foregone career hypothesis, social position is positively associated with the size of the motherhood penalty. Mothers in high social positions, whose human capital endowments and labor market allocation prepared them for a promising career, will suffer larger child penalties compared to mothers in medium and low social positions (H2)*.

A second strand of research argues that mothers will pay larger penalties depending on their ability to reconcile the competing time demands of work and care responsibilities. According to the *time incompatibility thesis*, alleviating one or the other, through flexible working hours or care arrangements, will reduce the motherhood penalty (Anderson, Binder, & Krause, 2003; Gornick & Meyers, 2004; Hook & Pettit, 2016). Following this reasoning, Anderson, Binder, and Krause (2003) posit that the motherhood penalty should be largest for women whose presence in the office is required during standard working hours, but who lack the financial resources to hire paid help. Mothers in a high social position, whose education allows them access to jobs as managers and professionals, are both better able to pay for childcare and have relatively high autonomy over their own work hours; they are thus best equipped to combine work and care (c.f. Golden, 2001; Pagnan, Lero, & MacDermid Wadsworth, 2011). At the other end of the spectrum, Presser (2003) shows how low social position mothers of young children work non-overlapping shifts with their partners, with 37% indicating childcare needs as their primary motivation for working those hours. Such shift-splitting strategies, in which parents attempt to work non-overlapping hours to provide cheaper or culturally preferred homecare for children, can help reconcile paid work and care for parents with limited access to childcare facilities (Bünning & Polmann-Schult, 2016; Pagnan, Lero, & MacDermid Wadsworth, 2011; Presser, 2003; Täht & Mills, 2012). Medium social position women, who are more likely to have medium skilled jobs, for example in offices, are caught in the middle. The jobs to which they have access yield neither the scheduling autonomy and resources of the higher social position group, nor the off-shifting opportunities of the lower social position group (Anderson, Binder, & Krause 2003). Thus, the *time incompatibility* theory predicts the largest conflict for the medium social position group, who are penalized for childcare-related absences and are often forced to downwardly adjust hours, work effort, or workplace to reconcile work and care (Hattery, 2001). The *time incompatibility hypothesis would thus lead us to expect an inverse U-shaped relation between*

social position and the size of the motherhood penalty. The medium social position group of women will then suffer heavier motherhood penalties than their low and high social position peers, because their jobs are the least compatible with caregiving (H3).

Finally, child penalties have been theorized to be dependent on women's bargaining power in the workplace (Halldén, Levanon, & Kricheli-Katz, 2016; Milkman, 2016; Todd, 2001). Like the foregone career hypothesis, the *disadvantaged worker* thesis sees motherhood in conflict with the ideal worker concept – a conflict that employers would rather avoid. Mothers who are better able to negotiate working conditions and care arrangements are partially shielded from the negative consequences of care responsibilities; those who cannot, experience the full impact of shifting priorities and employer attitudes regarding working mothers (Aisenbrey, Evertsson, & Grunow, 2009; Budig & Hodges, 2010, 2014). A superior bargaining position provides an edge to more highly positioned mothers, who are more costly to replace for employers because of earlier investments and the non-routine nature of their jobs (Budig & Hodges, 2010; Di Stasio, 2014). Low social position women, on the contrary, are more likely to work in low-wage occupations, lack access to benefits, enjoy weaker job protection, and are more easily replaced (Kalleberg, Reskin, & Hudson, 2000; Milkman, 2016). Furthermore, as low social position mothers are less able to afford institutionalized childcare, their care arrangements are more haphazard and prone to time gaps in caregiving, making it more difficult to retain jobs and impeding the acquisition of tenure (Budig & Hodges, 2010; Forry & Hofferth, 2011; Usdansky & Wolf, 2008). All these characteristics add to low social position workers' disadvantage, making them less able to negotiate arrangements to combine care with paid work, and more likely to be let go when conflicts do occur (Mandel, 2011; Matteazzi, Pailhé, & Solaz, 2014). *The disadvantaged worker hypothesis thus predicts a negative relation between social position and the size of the motherhood penalty. It would lead us to expect that low social position women will suffer heavier motherhood penalties than women in medium and high social positions because their disadvantaged labor market position makes it more difficult to bargain or pay for care arrangements that will let them retain jobs (H4).*

5.2.3 Country differences in the effect of social position

In the previous section, we outlined three hypotheses with regard to the way that mothers in different social positions interact with societal and labor market institutions. However, as scholars of stratification have convincingly proven, inequality structures are not the same across countries (Grusky, 2014; Hout & DiPrete, 2006). Differences between women in higher and lower social positions regarding their expected wage curves, access to childcare, and bargaining power should therefore be expected to differ between countries as well. As the rare comparative studies in highly industrialized countries stress, US results may not

necessarily be replicated in a broader set of countries (Halldén, Levanon, & Kircheli-Katz, 2016; Todd, 2001). In the rest of this section, we therefore elaborate on the extent to which the effects of social position as formulated in the *foregone career, time incompatibility, and disadvantaged worker* hypotheses should be expected to vary across countries.

First, the basic premise of the *foregone career* hypothesis is that women in higher social positions have more to lose from prioritizing care over career. Yet the gap between the wages of low and high position women is at least co-dependent on the degree of earnings inequality in a country (DiPrete, 2005; Mandel & Semyonov, 2005). Although higher returns to education increase the pay levels of childless women in high social positions, they also increase the potential for foregone gains (Blau & Kahn, 1992). While Budig, Misra, and Boeckmann (2016) found no effect of economic inequality on the size of the overall motherhood wage penalty in 22 OECD countries, the *foregone career* hypothesis suggests that such results might be found when differentiating between mothers in different social positions. As such, *the foregone career hypothesis would lead us to expect a larger penalty for high social position mothers in countries with higher income inequality (H5).*

Second, the extent to which medium social position mothers suffer from inflexible work schedules and limited resources depends on whether children are ordinarily cared for in formal care institutions. Comparative studies of European countries, Australia, and North America have found evidence that higher childcare enrollment, especially of children under age three, is associated with lower motherhood penalties (Abendroth, Huffman, & Treas, 2014; Budig, Misra, & Boeckmann, 2016; Gornick & Meyers, 2004). Bünning and Pollmann-Schult (2016) show that in European countries with superior availability and accessibility of formal childcare, parents are less likely to work odd hours because of the diminished conflict between the 9 to 5 work schedule and care responsibilities. Since these formal care arrangements are less likely to break down unexpectedly and reduce parents' reliance on a patchwork of childcare options, they could also indirectly improve the ability of medium social position mothers to retain white-collar jobs (Hattery, 2001; Pagnan, Lero, & MacDermid Wadsworth, 2011; Täht & Mills, 2012). *The time incompatibility hypothesis would thus lead us to expect that the motherhood penalties for medium social position women are smaller in countries where childcare enrollment is higher (H6).*

Finally, the structural labor market disadvantage of low and medium social position groups could be less extreme in countries where these employees negotiate collectively. High social position mothers may be able to hold on to jobs even in the absence of strong labor market institutions, but low social position mothers less so (Gangl, 2005). Mothers in a low or medium social position can thus be expected to benefit more from collective bargaining, which can offer both union-backed wage demands and solutions that are tailored to specific workplaces or industries (Blau & Kahn, 1992; Heery, 2006; Williamson & Baird,

2014). Dickens (2000) and Heery (2006) point toward the effectiveness of centralized, multi-employer bargaining in addressing caregivers' concerns in countries with stronger traditions of constructive industrial relations, although other authors have warned that labor unions may more actively represent the agenda of their members than those of underrepresented or marginalized groups (Milkman, 2016; Pettit & Hook, 2009) *Thus, the disadvantaged worker hypothesis would lead us to expect that penalties for the low and medium social position groups should be smaller in countries where more workers are covered by collective bargaining (H7).*

5.3 Data and Methods

5.3.1 Data

We aim to test whether social position is associated with the size of the motherhood wage penalty across a broad range of countries. In order to do so, we require a dataset that contains identical data on hourly wages, working times, and motherhood status for a diverse set of countries. Although several representative multi-country surveys and data harmonization projects have advanced to include more countries, they still lack information on either *hourly* wages (IPUMS, ESS, LIS), the geographical scope outside Europe (EU SILC, ESS), or detailed data on working hours and schedules that are measured identically in all countries (LIS, IPUMS, ISSP). For these reasons, we rely on data from the online WageIndicator volunteer survey, of which a detailed description is included in the appendix (table 5.5).

The WageIndicator dataset stems from a continuous online volunteer survey run by the WageIndicator Foundation in almost 90 countries. The websites attract large numbers of visitors (2017: 34 million unique visitors). Teasers invite visitors to complete a web survey with a lottery incentive. Respondents complete the survey in their own language, answering detailed questions about their education, jobs, and remuneration. For this study, we include data from 13 countries ranging from lower-middle-income countries (Indonesia, Ukraine) and upper-middle-income countries (Argentina, Brazil, Belarus, Kazakhstan, Russia, South Africa), to high-income countries (Belgium, Czech Republic, Germany, the Netherlands, Slovakia). We focus on women aged 15 to 54 who are employed for at least one hour per week. We pool the data of the annual releases that were collected between 2012 and 2015, yielding a dataset that contains 147,142 observations at the individual level. We drop 10,849 respondents who are still in full-time education. Using listwise deletion, we then restrict the sample to 71,874 respondents with valid data on all dependent and independent variables. The drop in respondents is mainly due to missing wage data (70,346 respondents either skipped the question or dropped out of the survey at this point). We do not impute missing wages because of concerns that this might lead to an overestimation of the motherhood

penalty (c.f. De Waal, Pannekoek, & Scholtus, 2011). Finally, we delete wages of the top and the bottom 2% earners in each country to avoid outlier effects. This results in a pooled cross-sectional sample of 70,436 individual-level observations, ranging from 1,184 observations in the Czech Republic to 12,834 in the Netherlands.

Previous research using this dataset has shown that the survey respondents are on average younger and more highly educated than the overall population, reflecting the general profile of Internet users (Steinmetz & Tijdens, 2009; Steinmetz et al., 2013). As we replicate previous research about the motherhood penalty in selecting only women under the age of 55, the most underrepresented group in web-based surveys is excluded from our analysis by design. For the respondents included in the analytical sample, we construct population weights using weighted data from the Integrated Public Use Microdata Series – IPUMS International (Argentina, Brazil, Belarus, Indonesia, and Ukraine) and the Luxembourg Income Study (Belgium, Czech Republic, Germany, the Netherlands, Russia, Slovakia, and South Africa) for three age and educational groups. For Kazakhstan, we rely on the ILO estimates (ILO, 2011) and, as only age is available, we calculate weights for three age groups.

A second potential source of bias stems from mothers' and childless women's different propensities to enter the labor market, which has been shown to be correlated with earnings potentials (Harkness and Waldfogel, 1999; Heckman, 1979). In order to adjust our estimates to take account of the hypothetical wages of the non-employed women (i.e. the wages that would have been earned, had all women elected to engage in paid labor), we apply a Heckman selection (Heckman, 1979) using the abovementioned IPUMS, LIS, and ILO EAPEP datasets (since the WageIndicator sample contains only working women). For this procedure, we run a probit regression on the probability of being employed, measuring selectivity into employment for mothers and childless women by age, education, and marital status for each country separately. The probit model returns an inverse Mills ratio, which is included as a covariate (lambda) in the analyses to correct for potential self-selection into paid labor (Harkness & Waldfogel, 1999; Korenman & Neumark, 1990; Nizalova, Sliusarenko, & Shpak, 2016).

5.3.2 Operationalization

Our dependent variable is log net hourly wages, excluding allowances or bonuses, and is measured in purchasing power parity. While the questionnaire does ask respondents for both gross wages and net wages on their last pay check, about 30% fewer respondents completed the field for gross wages than for net wages and annual incomes are not measured. We thus consider net wages the more reliable measure. In order to isolate the effect of having a child on earnings we use hourly wages, which are more independent of work effort than monthly

or annual incomes. As each person is observed only once, the data do not allow us to follow individuals over time and we measure wage levels, rather than wage growth.

We have two main independent variables. The first measures the motherhood penalty and refers to the binary variable of having a child or not (ref. no child). The second refers to the social position of respondents, which is operationalized using the European Socio-Economic Groups (ESeG_2014) classification (Meron et. al., 2014). The ESeG_2014 is a multidimensional social classification tool that maps two-digit ISCO codes and status as a dependent or self-employed worker to 31 socio-economic groups of employed people. We recode the 31 ESeG groups into three social position groups differentiating between low social position (ref.; skilled industrial employees and less skilled workers), medium social position (technicians, associate professionals, small entrepreneurs, clerks, and skilled service employees), and high social position (managers and professionals).

In order to test the mechanisms outlined in the hypotheses, we include relevant 'hypotheses-specific' individual and country level explanatory variables. For the *foregone career* hypothesis at the individual level, we include an indicator whether women have received a promotion at their current employer. At the country level, we include the country's GINI coefficient in 2013 (World Bank). The 13 countries in this study have GINI coefficients ranging from 24.6 (Ukraine) to 63.4 (South Africa), as shown in table 5.1.

For the *time incompatibility* hypothesis, we include a dummy variable for women who regularly work evenings or nights *and* perform shift work. We include three dummies for working less than 12 hours per week, for working 12–32 hours, and for working over 55 hours. For mothers with young children, we include a dummy variable that takes the value of one when at least one of their children is enrolled in a daycare facility. At the country level, we include a variable for the share of children under the age of three who are enrolled in formal childcare institutions, regardless of the number of hours or source of financing (UNESCO). The 13 countries vary from less than 5% enrollment (South Africa, Czech Republic, and Slovakia) to around 60% (the Netherlands). Finally, for the *disadvantaged worker* hypothesis, we follow Visintin, Tijdens, and Van Klaveren (2015) in using the number of times women spent a period outside of paid labor as an indicator of their bargaining power. We also include a dummy for being a member of a labor union, and an indicator for being paid in cash as a proxy for informal work and the associated lack of job security. At the country level, we use data from the 5th edition of the ICTWSS dataset to include an indicator for the share of employees covered by collective agreements in 2013 (Visser, 2015). The countries vary from 14% (Indonesia) to 96% (Belgium).

Finally, in all models, we control for the year in which the survey was completed and several variables at the individual level that are commonly included in studies on the motherhood penalty: women's age (mean centered at 36 years of age) and age squared,

a 10-point ordinal scale for firm size (mean centered at companies with between 50 and 100 employees), the self-reported share of female employees in the firm, and four broad industries (commercial services as ref.). We do not include control variables for other macro level indicators, like the female employment rate or gender egalitarianism, as they are not the focus of this study and including them would require multiple new cross-level interactions terms.

Table 5.1 Country scores on country level variables

	Gini coefficient	Share of children under 3 years that is enrolled in formal childcare institutions	Share of total employees that is covered by collective bargaining agreements
Argentina	42.3	11	63.8
Belgium	28.5	39.2	96
Brazil	52.9	9	65
Belarus	27.7	19	95.6
Czech Republic	26.6	4	50.4
Germany	31.1	23.1	58.3
Indonesia	35.6	9	14
Kazakhstan	26.4	15	74.7
Netherlands	28.7	60.6	84.8
Russia	40.9	18	22.8
Slovakia	27.3	3	24.9
South Africa	63.4	0	32.6
Ukraine	24.6	16	45.9

Sources: World Bank, UNESCO, ICTWSS

5.3.3 Estimation strategy

We are interested in the effect of social position on the motherhood wage penalty, as well as the heterogeneity of this effect across countries. Therefore, we treat respondents as nested in the 13 countries and use multilevel modeling techniques to account for the clustered nature of the data. To test whether mothers' social position has an effect on the size of the motherhood penalty they experience, and whether the size of the social position effect differs across countries, we run three sets of hierarchical two-level random effects models. We take note of recent concerns that multilevel models with few higher level clusters might not yield the most efficient coefficients for country level effects and cross-level interactions (Bates et. al., 2015; Heisig, Schaeffer, & Giesecke, 2017; Stegmüller, 2013). Since the relatively small sample sizes in the dataset impair the efficient use of two-step regression models,

we follow the procedure proposed by Heisig, Schaeffer, and Giesecke (2017): we relax the usual assumption of hierarchical modelling that individual-level effects are equal across countries by adding random slopes to all level-1 control variables, thus allowing the effects of variables like age or weekly working hours to vary across countries. We apply non-parametric bootstrapping procedures to adjust the confidence intervals, yielding more conservative significance estimates than the regular results of the Stata xtmixed package.

In the first, descriptive set of regressions (figure 5.1), we split the sample along the social position groups and test the bivariate relation between women's wages and motherhood status, accounting only for women's age, selection into employment, and the year in which the survey was completed. We first estimate this effect for the entire sample. We then estimate country-specific effects by taking the sum of the grand mean effect, representing the mean estimate across countries, and the empirical Bayes' estimates, containing the country deviation from the grand mean effect. To avoid reporting too narrow confidence intervals, we take the sum of the variances around the two estimates for significance testing (Mason, Wong, & Entwisle, 1983; Snijders & Bosker 1994).

In the next stage (table 5.3), we use the complete sample to estimate the motherhood effect on women's wages, including all the above-mentioned control variables to test hypotheses 1–4. We subsequently introduce the dummies for medium and high social position, two interaction terms between the social position indicators and motherhood status, the individual-level explanatory variables, and the interaction of these variables with motherhood status and social position. Finally, we run a third set of regression analyses that add the country-level indicators to test hypotheses 5–7 (table 5.4). In order to measure the cross-country differences of the social position effect on the motherhood penalty, we include three-way interactions between the country-level indicators, motherhood, and social position variables. To aid the interpretation of the results, we plot the significant effects of the three-way interactions by showing the marginal effect of social position on the motherhood penalty at different levels of the country-level variables (figures 5.2 and 5.3). To avoid oversaturation and due to multicollinearity (GINI correlating at -.4 with the childcare and collective bargaining coverage variables, and the latter two at .6), we test these models separately and refrain from formulating a joint model.

Finally, we perform a number of robustness checks, which we report in the results section. We run the models on gross instead of net wages, drop one country from the sample at a time, run the analyses separately for the seven countries with the highest and the six with the lowest per capita GDP, and run the analyses for the raw motherhood penalties by controlling only for age, weights, and selectivity into employment. Results from the analyses measuring gross instead of net wages are included in the appendices.

5.4 Results

5.4.1 Motherhood penalties

Roughly half (53%) of the 70,436 women in the sample are mothers. Comparing mothers' characteristics to those of childless women in the pooled sample (table 5.2), we observe that the former are on average about nine years older, more likely to have taken a career break, less likely to work night shifts, and slightly more likely to be in the low and medium social position groups.

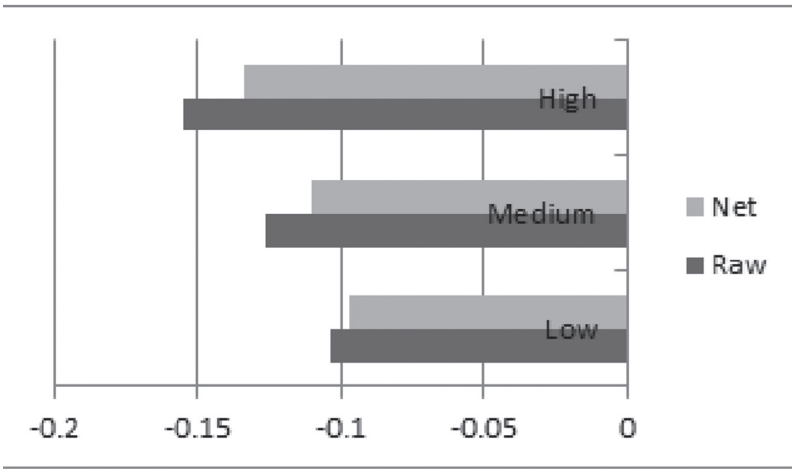
Table 5.2 Descriptive statistics childless women compared to mothers

	Non-mothers (N=33,272)		Mothers (N= 37,164)	
	Mean	Std dev	Mean	Std dev
Net hourly wage (median)	6.895	0.932	5.522	0.898
Age	30.343	8.162	39.621	8.494
Low social position	0.184	0.387	0.219	0.414
Medium social position	0.507	0.500	0.492	0.500
High social position	0.230	0.458	0.279	0.448
Had a career break	0.620	1.675	0.801	2.157
Percentage women in workplace (scale 1-5)	3.072	1.384	3.228	1.438
Contractual working hours	37.929	9.969	36.875	10.657
Promoted at current employer	0.243	0.429	0.264	0.441
Works evenings	0.228	0.419	0.186	0.389
Paid in cash	0.154	0.361	0.163	0.370

Sources: WageIndicator Global Dataset 2012-2015, country and person weights.

When splitting the sample by social position (see figure 5.1), we find a negative bivariate effect of motherhood on wages. This effect remains, regardless of social position, with or without control variables. Overall, the largest penalty (15%) is found for women in high social positions and the smallest for women in low social positions (10%). Penalties are reduced by about two percent after adding the individual-level control variables. Studying the country-specific estimates of the raw motherhood penalty (appendix, table 5.7), we find motherhood wage penalties for the medium social position group in eight countries, with non-significant results in Argentina, Belgium, Germany, Indonesia, and the Netherlands[2]. In the sample of women in low social positions, nine countries (Argentina, Belarus, Brazil, Czech Republic, Kazakhstan, Russia, Slovakia, South Africa, and Ukraine) show significant penalties; in the sample of women in high social positions, eight countries do (Argentina, Belarus, Czech Republic, Russia, Slovakia, South Africa, and Ukraine). A motherhood premium is found in the low and high social position samples from Indonesia.

Figure 5.1 Raw and net effect of children on wages for low, mid, and high social position women



Source: WageIndicator Database 2012-2015
Note: Raw motherhood penalty controlled for weights, selection into employment, age and age squared.
Note 2: Net motherhood penalty controlled for weights, selection into employment, age and age squared, sector, firm size, and share of women in the firm.

We furthermore find cross-country variation in the relative size of the motherhood penalty by social position: women in the lowest social position pay the largest motherhood penalty in Argentina, Belgium (n.s.), Kazakhstan, and South Africa; the motherhood penalty is largest for women in medium social positions in Brazil, Germany (n.s.), and Slovakia; finally, it is largest for women in the highest social position in Belarus, the Czech Republic, the Netherlands (n.s.), Russia, and Ukraine.

5.4.2 Social position and the motherhood wage penalty

Before studying the size of the social position effect on the motherhood penalty, we first establish whether the latter exists in our broad sample of countries including all social position groups (see table 5.3; for a table that includes the coefficients of all individual-level explanatory variables, see appendix V-II). Controlling for selection into employment and all other control variables outlined in the Section 5.3, we find a significant motherhood penalty of 11% (-.108, sig p<.001) (table 5.3, model 1). This is reduced to 9% (-.086, sig p<.001) when social position is taken into account (model 2). Highly positioned women earn on average 36% more than those in a low social position, whereas those in a medium social position earn 12% more. When interacting the motherhood and social position variables in model 3, we find a wage penalty of 11% (-.115, sig p<.01) for low social position mothers. In line with

findings from England et al. (2016), we find the motherhood penalty experienced by medium social position mothers is not significantly different from that of low social position mothers. However, the motherhood penalty for the high social position group, is 6% smaller (.062, sig p<.01). These results hold when controlling for the individual-level explanatory variables (model 4). They thus suggest mothers in low and medium social positions pay larger relative wage penalties. We stress here that this is a percentage gap compared to their childless peers. Because women in low and medium social positions earn lower wages than their high social position peers regardless of motherhood status, this cannot be interpreted to mean their absolute losses, expressed in dollar amounts, are also largest.

When strictly controlling for all individual-level variables though three-way interactions (model 5), penalties for mothers in medium (0.087, sig p<.05) and high social position (0.097, sig p<.1) are both significantly different from their low social position peers. The three-way interactions (see appendix V-II for coefficients), show that the larger motherhood penalty for women in low social positions is accompanied by a strong positive effect of having been promoted at their current firm (0.083, sig p<.001). This indicates both that mothers in low social positions effectively gain more from being promoted within the firm than their childless counterparts and that wage penalties are larger for mothers that are not, which confirms general expectations of the *disadvantaged worker* hypothesis. The interaction between promotions and motherhood is negative for the medium (0.079 sig p<.5) and high social position groups (0.127 sig p<.001), suggesting they have lower returns to promotion within a firm. Working less than 12 hours per week and working evening shifts are associated with larger penalties for mothers in medium social positions. Career breaks are associated with lower wages for women in high social positions, but not with larger penalties.

Table 5.3 Wage effects of motherhood and social position

	Model 1	Model 2	Model 3	Model 4	Model 5
Has (a) child(ren)	-0.108***	-0.086***	-0.115***	-0.124***	-0.190***
Medium social position		0.119***	0.161***	0.137***	0.132***
High social position		0.364***	0.343***	0.298***	0.299***
Child * medium social position			0.018	0.028	0.087*
Child * high social position			0.062***	0.062***	0.097†

Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=70,436, population weights, random intercept and random slopes.
Note 1: Model 1 through 3 controlled for survey year, age, selectivity, industry, firm size, share of women in the firm.
Note 2: Model 4 controlled for model 3 controls and part time employment, evening shifts, promotions, number of career breaks, promoted at current firm, paid in cash, and trade union membership.
Note 3: Model 5 controlled for model 3 controls and three-way interactions with social position, motherhood and model 4 controls.
*Note 4: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1*

We thus find larger penalties for the low and medium social position mothers than for the high social position mothers in the models that do not specifically test for the theoretical mechanisms (models 1-4) supporting the *time incompatibility* and *disadvantaged worker* hypotheses over the *foregone career* hypothesis. When the individual-level explanatory variables related to the three theories are included (model 5), mothers in low social positions pay the largest penalties, lending support to the *disadvantaged worker* hypothesis. Concurrently, the negative effects of working shorter hours, evening shifts, and being paid in cash, suggest that medium social position mothers whose actions take them out of 9 to 5 office jobs do pay a higher penalty, as the *time incompatibility theory* would suggest. Results that low social position mothers pay the largest penalties hold when dropping one country at a time, for the richest 7 and poorest 6 countries separately, and using gross instead of net wages (appendix, table 5.8).

5.4.3 Country differences

In table 5.4 we explore whether country differences in the social position effect can be explained by the *foregone career [model 1]*, *time incompatibility [model 2]*, and *disadvantaged worker [model 3]* theories. We subsequently include one of the country-level indicators and their three-way interaction with motherhood and social position to measure the effect of social position on the motherhood penalty across countries. We interpret the results as evidence of an association between the motherhood wage penalty and the macro level indicators, since the number of countries in the study severely limits our ability to include control variables. We continue to find substantial overall motherhood penalties when taking country differences into account, implying that a significant motherhood penalty exists in countries with mean values on the variables measuring inequality, childcare enrollment, and collective bargaining coverage. We replicate the results from the final model from Section 5.4.2, finding similar wage benefits for the high and medium social position group. Both the overall motherhood penalty and the effects of social position are similar in the three models of table 5.4.

To test whether more economic inequality is associated with larger motherhood penalties for the high social position group (hypothesis 5), we control for countries' GINI coefficients. We find no significant effect between having a child and the GINI coefficient. However, we find a significant positive effect on the three-way interaction with mothers in high social positions (.006 , sig p<.01) and a marginally significant effect for the medium social position group (.005, sig p<.1), suggesting that both medium and high social position women experience smaller child penalties than their low position peers in more unequal countries.

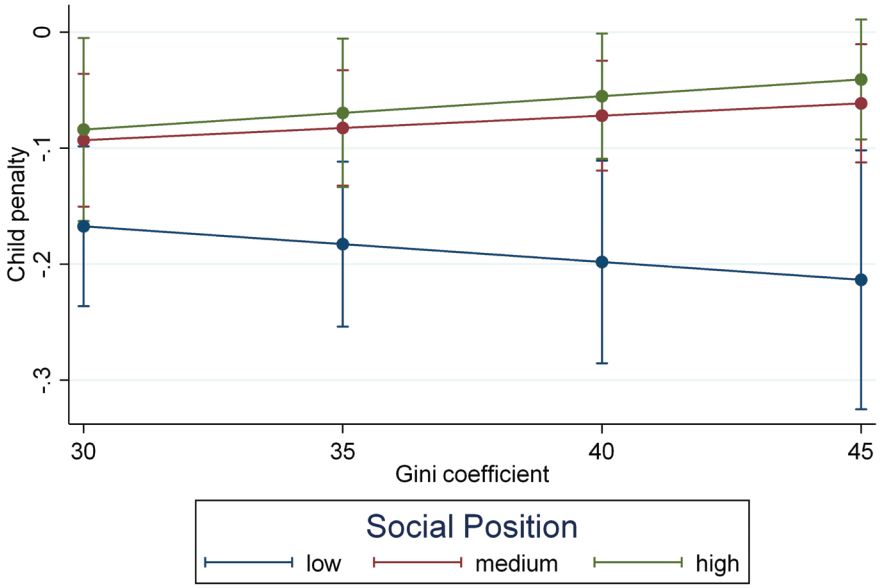
Table 5.4 Country variation in the effect of social position on the motherhood wage penalty

	Model 1	Model 2	Model 3
Has (a) child(ren)	-0.172***	-0.170***	-0.172***
Medium social position	0.128***	0.113***	0.120***
High social position	0.283***	0.260***	0.274***
Child * medium social position	0.088***	0.089***	0.096***
Child * high social position	0.093*	0.090†	0.099*
Gini coefficient	0.004		
Gini * medium social position	0.000		
Gini * high social position	0.004†		
Gini * child	-0.003		
Gini * child * medium social position	0.005†		
Gini * child * high social position	0.006**		
Child care - enrollment children under 3		0.021***	
Childcare * medium social position		-0.002†	
Childcare * high social position		-0.005*	
Childcare * child		0.001	
Childcare * child * medium social position		-0.002	
Childcare * child * high social position		-0.003*	
Collective bargaining coverage			0.009
Bargaining * medium social position			-0.001
Bargaining * high social position			-0.002*
Bargaining * child			0.001
Bargaining * child * medium social position			-0.001
Bargaining * child * high social position			-0.001

Source: WageIndicator Global Dataset 2012-2015, population weights. 13 Countries, n=70,436. Random intercept and all random slopes.
Note 1: Controlled for survey year, age, selectivity, industry, firm size , share of women in the firm, part time employment, evening shifts, promotions, number of career breaks, promoted at current firm, paid in cash, and trade union membership, and three-way interactions with social position, motherhood and controls from model 5, table 5.2.
*Note 2: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1*

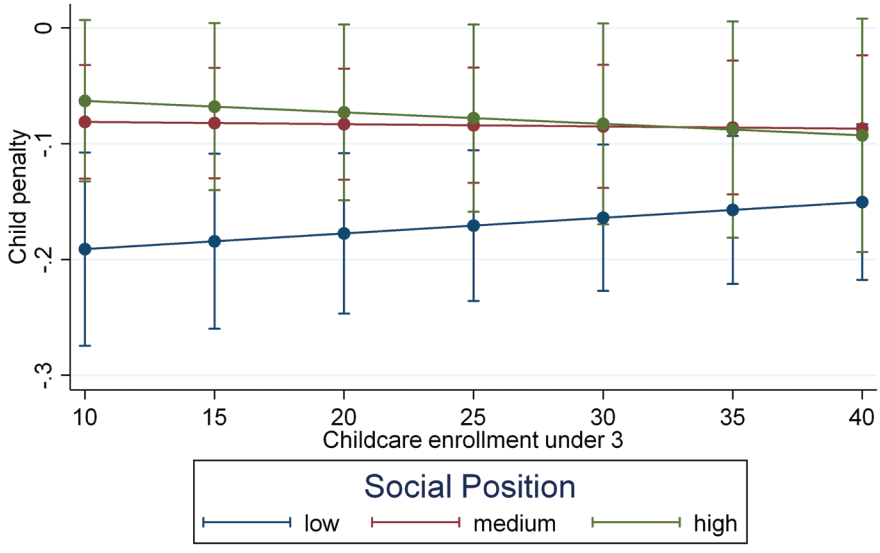
In figure 5.2, we plot the marginal effects of social position on the motherhood penalty, displaying the estimated size of the motherhood penalty (y axis) at different levels of inequality (x axis). The figure shows that low social position women have larger motherhood penalties than medium and high social position mothers. It also shows that the disadvantage of the low social position group is larger in less equal countries (at high values on the x-axis). Robustness checks show similar results for models run with minimal controls, excluding

Figure 5.2 Average marginal effects of social position on motherhood wage penalty at different levels of inequality



Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=70,436, population weights, random intercept and random slopes.

Figure 5.3 Average marginal effects of social position on the motherhood wage penalty at different levels of childcare enrollment



Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=70,346, population weights, random intercept and random slopes.

any particular country from the sample (not shown), or using gross wages (appendix, table 5.9), although effects are non-significant in the models using gross wages. The findings thus indicate that high and medium social position groups experience smaller motherhood penalties, and that this advantage is greater in less equal countries, which is inconsistent with the *foregone career* hypothesis (H5).

Model 2 measures whether higher enrollment in formal childcare institutions of children under three is associated with smaller motherhood penalties of the medium social position group (hypothesis 6). Here too, we find evidence of differences between social position groups (table 5.3, model 2). We find no overall effect of childcare enrollment on the size of the motherhood penalty, net of individual enrollment. The negative three-way interaction term for the high social group (-.003, sig p<.01), however, indicates that this group pays higher motherhood penalties in countries with higher childcare enrollment.

The interaction between childcare and the motherhood penalty is stronger, as are the two three-way interactions, when the Netherlands is dropped from the sample, but still leads to the same conclusions. Figure 5.3, indeed, shows a strong positive effect for low social position mothers and little effect for medium and high social position mothers. As such, model 2 indicates that low social position mothers pay smaller penalties than medium and highly positioned mothers in countries with higher childcare enrollment.

Finally, we test whether higher collective bargaining coverage is associated with a lower motherhood penalty for the low social position group (hypothesis 7). Here, we find no significant effects on the size of the social position effect (table 5.3, model 3). The direction of the effects indicates that wages are higher in countries with more extensive collective bargaining coverage (.009, n.s.), which is in line with expectations. The motherhood penalty for the low position group is smaller than for the other two groups in this model (-.001, n.s.). However, as these results are small and non-significant, we cannot confirm that bargaining coverage drives the cross-country results in penalties for low social position mothers. The results become significant when Indonesia, which has low collective bargaining coverage and a motherhood premium for the low social position group, is dropped from the sample, but not in any other case.

5.5 Conclusions

Examining the threefold relationship between wages, motherhood, and social position, we document a motherhood penalty on hourly wages of about 11% in our broad sample of countries after controlling for actors' observable characteristics (H1). We also confirm that the size of the motherhood penalty differs between women in different social positions. We test three theories related to actors' career potential, time conflicts, and bargaining

power to examine which group of women pays a higher penalty for becoming a mother. We find larger penalties for mothers in low social positions (19%) compared to those in medium (10%) and high (9%) social positions, thus providing support for the *disadvantaged worker* hypothesis (H4). We also find partial support for the *time incompatibility* theory in the evidence of larger penalties for medium social position mothers who adjust work patterns away from 9 to 5 office jobs (H3). Less evidence is found for the *foregone career* thesis, because penalties for taking career breaks are associated with being in a high social position, rather than motherhood (H2).

To test whether the effect of social position differ across countries, we also measure three country-level variables that are likely to make the *foregone career*, *time incompatibility*, or *disadvantaged worker* mechanism more salient. We find larger differences in the size of the motherhood penalty by social position group in more unequal countries, but do not find evidence to confirm that women with the most promising careers pay higher penalties in those countries (H5). On the contrary, inequality appears to exacerbate the disadvantage of low social position mothers. We find that more universal enrollment of children under age three does reduce the higher penalty for the lowest social position group, but not for the medium social position group, as expected based on the *time incompatibility* hypothesis (H6). Measuring collective bargaining as the share of workers in dependent employment who are covered by collective bargaining agreements (H7), we find small and non-significant effects.

We interpret these results as an indication that the size of the social position effect on the motherhood penalty is associated with social contexts, but stress that more in-depth research is needed to establish any kind of causality. For both childcare enrollment and collective bargaining, we expect more detailed indicators would allow a deeper understanding of the *time incompatibility* and the *disadvantaged worker* mechanisms. Whereas childcare enrollment in and of itself is an important indicator of the reconciliation of work and family life, the extent to which childcare is in sync with standard working hours, its flexibility, quality, price, and funding all impact on its capacity to alleviate time incompatibilities between paid work and care (Bünning & Pollman-Schult, 2016; Gornick & Meyers, 2004: Halldén, Levanon, & Kricheli-Katz, 2016). Similarly, valuable work has been done to explore the tentative relation between collective bargaining and the wages of traditionally underrepresented groups of workers, which suggests both the level of coordination and the unionization rate of marginalized workers affect the inclusion of women's and mothers' issues on the bargaining agenda (Dickens, 2000; Heery, 2006; Milkman, 2016; Pettit & Hook, 2009). Future research might explore this in more depth by pairing the social position of mothers with more detailed measurements of women's bargaining power and the childcare facilities they use.

Within the bounds of the current availability of macro indicators for a broad set of countries, however, we are able to demonstrate that the effect of social position on the

motherhood wage penalty differs across social contexts. Because the WageIndicator dataset is cross-sectional in nature, our analyses cannot provide conclusive evidence with regard to the causality of these relations, nor can they replace the detailed longitudinal surveys or even register data available in select countries. The use of this dataset, however, does allow us to take further steps toward more global analyses of the motherhood penalty on wages by exploring patterns of inequality in countries that are not usually included in sociological comparisons, thus pointing toward avenues for further research. We sincerely hope and believe that the efforts that are currently being undertaken by a number of organizations, including the WageIndicator Foundation, to collect sociologically relevant labor market micro-data from an ever wider set of countries will soon allow us to study intersectional inequalities on a more causal level.

Through this study, we mean to show that analyses that include broader sets of countries are a worthwhile endeavor and provide a number of pointers for future research. In our diverse sample, the *disadvantaged worker* hypothesis has received the strongest support. We find that the lower social position group pays higher penalties for motherhood than the medium and high social position groups. However, individual-level mechanisms theorized in the *time incompatibility* were also found to be at work. Additionally, we find evidence of country differences in the social position effect. Living in a less equal country increases the relative advantage of high social position mothers. Childcare enrollment appears to aid the low social position group more than the medium position group, and it helps both groups to catch up with their high social position peers. Our findings are thus most consistent with the *time incompatibility* and the *disadvantaged worker* logics, in which higher social position women are better able to mitigate the fallout from starting a family, even in less supportive environments.

End notes

[1] We do not draw on studies that have measured the intersection of motherhood and race or ethnicity, which we argue aim to measure multiple underlying concepts, rather than socioeconomic positionality alone.

[2] These Dutch findings are consistent with Todd's (2001) results, whereas the findings of a much larger penalty in annual earnings by Budig, Misra, and Boeckmann (2012, 2016) indicate that Dutch mothers are disadvantaged in regard to their labor market attachment rather than hourly earnings.

5.6 Appendices

Table 5.5 Description of dataset

Variable name	Variable description	Measurement	Source
wagenetppplog	hourly wage in purchasing power partity	Natural log of wages for each country after dropping the lowest and highest 2% observations	WageIndicator Global Dataset 2012-2015
chld	Motherhood status	0 = no child; 1 = one or more children	WageIndicator Global Dataset 2012-2015
eseg2014	socio-economic group	socio-economic grouping based on occupation and self-employment/dependent employment status	ESeG 2014 classification
socpos	respondent's social position	Low (EsEG 6.1 and up), medium (ESeG 3.1-5.4), High (ESeG 2.5 and down)	own calculation
age	respondent's age a time of the survey	age, mean centered	WageIndicator Global Dataset 2012-2015
surveyy	Year the survey was completed	2012 to 2015	WageIndicator Global Dataset 2012-2015
lambda	Probability of being employed	Inverse mills ratio (Ø.5, σ.3)	IPUMS, LIS
firmfema	Share of women in the firm	Self-reported share of women in the firm	WageIndicator Global Dataset 2012-2015
nace2000	Industrial sector	Four sectors. (1) agriculture, manufacturing and construction, (2) trade, transport, and hospitality, (3, ref) commercial services, (4) public sector, health care, and education	WageIndicator Global Dataset 2012-2015
firmsize	Size of the firm	Ten point ordinal scale from 0 (0) to 10 (5000 or more) employees; Ø50-100 employees	WageIndicator Global Dataset 2012-2015
jobpromo	Having received a promotion at current employer	dummy 0/1	WageIndicator Global Dataset 2012-2015
break	Number of breaks	Count variable. Number of time a respondent has taken time out of employment	WageIndicator Global Dataset 2012-2015
parttime_small	works fewer than 12 hours per week	Dummy variable for respondents reporting working hours under 12 hours per week	WageIndicator Global Dataset 2012-2015
parttime_large	works between 12 and 32 hours per week	Dummy variable for respondents reporting working hours from 12 to 32 hours per week	WageIndicator Global Dataset 2012-2015
longhrs	works more than 55 hours per week	Dummy variable for respondents reporting working hours of over 55 hours per week	WageIndicator Global Dataset 2012-2015

Table 5.5 continued

Variable name	Variable description	Measurement	Source
eveshift	works evening shifts	Dummy. Composite of working both shifts and evenings regularly	WageIndicator Global Dataset 2012-2015
cash	Paid in cash	Dummy 0/1	WageIndicator Global Dataset 2012-2015
memtrad1	Trade union member	dummy 0/1	WageIndicator Global Dataset 2012-2016
GINI	Gini coefficient	Country's GINI coefficient in 2013. Scale from 0 (total equality) to 100 (total inquality) (Ø.33, σ.11)	World Bank
CAREu3	Childcare enrollment	Share of all children under the age of three that is enrolled in formal childcare institutions (Ø.24, σ.19)	UNECSO
COLBAR	Collective bargaining coverage	Share of employees covered by collective agreements (Ø.64, σ.24)	ICTWSS

Table 5.6 Wage effects of motherhood and social position

	Model 1	Model 2	Model 3	Model 4	Model 5
Has (a) child(ren)	-0.108***	-0.086***	-0.115***	-0.124***	-0.190***
Medium social position		0.119***	0.161***	0.137***	0.132***
High social position		0.364***	0.343***	0.298***	0.299***
Child * medium social position			0.018	0.028	0.087*
Child * high social position			0.062***	0.062***	0.097+
Promoted at current firm				0.126***	0.139***
Mid social position * promoted					-0.016
High social position * promoted					-0.008
Child * promoted					0.083***
Child * mid social position * promoted					-0.079*
Child * high social position * promoted					-0.127**
Child * child in daycare					0.011
Child * mid social position * daycare					0.008
Child * high social position * daycare					0.015
Works <12 hrs				0.892***	0.841***
Mid social position * <12 hrs					0.041
High social position * <12 hrs					-0.069
Child * <12 hrs					0.137
Child * mid social position * <12 hrs					-0.165*
Child * high social position * <12 hrs					0.019
Works 13-32 hrs				0.216***	0.143**
Mid social position * 13-32 hrs					0.018
High social position * 13-32 hrs					0.075*
Child * 13-32 hrs					0.049
Child * mid social position * 13-32 hrs					-0.029
Child * high social position * 13-32 hrs					0.027
Works long hours				-0.419***	-0.397***
High social position * long hrs					0.114
Mid social position * long hrs					-0.049
Child * long hrs					-0.051
Child * mid social position * long hrs					0.056
Child * high social position * long hrs					-0.028
Works evenings				-0.019	-0.032
Mid social position * evenings					0.023
High social position * evenings					0.008
Child * evenings					0.058
Child * mid social position * evenings					-0.088**

Table 5.6 continued

	Model 1	Model 2	Model 3	Model 4	Model 5
Child * high social position * evenings					-0.064
Number of career breaks				-0.021***	-0.010
Mid social position * breaks					-0.010
High social position * breaks					-0.019*
Child * breaks					-0.007
Child * mid social position * breaks					0.009
Child * high social position * breaks					0.003
Paid in cash				-0.150***	-0.185***
Mid social position * cash					0.054
High social position * cash					0.060
Child * cash					0.051*
Child * mid social position * cash					-0.069+
Child * high social position * cash					-0.047
Member of Trade union				-0.061*	-0.058
Mid social position * trade union					-0.025
High social position * trade union					-0.027
Child * trade union					0.005
Child * mid social position * trade union					-0.016
Child * high social position * trade union					0.031
Constant	2.246***	1.903***	1.910***	1.906***	1.850***
ICC L1	0.56339	0.57731	0.59784	0.69624	0.52005
-2LL	-60069	-58428	-58420	-52646	-53013

Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=70,436, population weights, random intercept and random slopes.
Note 1: Controlled for survey year, age, selectivity, industry, firm size, share of women in the firm
*Note 2: *** p<0.001, ** p<0.01, * p<0.05, + p<0.1*

Table 5.7 Distribution of respondents across countries and social position, with associated raw and net child penalties

	Low social position			Medium social position			High social position		
	Sample size	Raw Penalty	Net Penalty	Sample size	Raw Penalty	Net Penalty	Sample size	Raw Penalty	Net Penalty
Argentina	215	0.142+	0.140+	916	-0.28	-0.034	529	-0.132+	-0.108
Belgium	365	-0.06	-0.068	947	-0.042	-0.027	478	-0.034	-0.033
Brazil	965	-0.111+	-0.110+	1,718	-0.133**	-0.118**	803	-0.074	-0.077
Belarus	1,752	-0.202***	-0.200***	4,152	-0.290***	-0.324***	3,852	-0.326***	-0.288***
Czech Republic	330	-0.153*	-0.145+	526	-0.122*	-0.184***	328	-0.288***	-0.236**
Germany	2,734	-0.019	-0.017	6,058	-0.047	-0.029	3,316	-0.004	0.009
Indonesia	363	0.232***	0.229***	1,379	0.016	0.143**	1,216	0.139*	0.121*
Kazakhstan	611	-0.157*	-0.146*	3,262	-0.096**	-0.080+	2,795	-0.090+	-0.067
Netherlands	3,226	0.031	0.047	6,639	-0.019	-0.032	2,969	-0.046	-0.041
Russia	273	-0.258**	-0.258**	970	-0.261***	-0.294***	826	-0.385***	-0.336***
Slovakia	321	-0.214**	-0.186*	543	-0.225***	-0.239***	344	-0.215**	-0.184**
South Africa	270	-0.335***	-0.316***	2,658	-0.112**	-0.212***	1,863	-0.241***	-0.208***
Ukraine	1,094	-0.246***	-0.227***	5,021	-0.278***	-0.304***	3,809	-0.317***	-0.288***
Total	12,519	-0.104*	-0.067*	34,789	-0.126***	-0.110***	23,128	-0.155***	-0.134***

Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=70,436, population weights, random intercept and random slopes.
Note 1: raw penalties are controlled for survey year, age, age squared, and selectivity into employment
Note 2: net penalties are controlled for survey year, age, selectivity, industry, firm size, share of women in the firm

Table 5.8 Wage effects of motherhood and social position – models with gross wages

	Model 1	Model 2	Model 3	Model 4	Model 5
Has (a) child(ren)	-0.124***	-0.104***	-0.170***	-0.180***	-0.245***
Medium social position		0.219***	0.175***	0.151***	0.159***
High social position		0.426***	0.362***	0.318***	0.327***
Child * medium social position			0.067**	0.072**	0.126***
Child * high social position			0.100***	0.103***	0.167***

Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=53,047, population weights, random intercept and random slopes.
Note 1: Model 1 through 3 controlled for survey year, age, selectivity, industry, firm size , share of women in the firm.
Note 2: Model 4 controlled for model 3 controls and part time employment, evening shifts, promotions, number of career breaks, promoted at current firm, paid in cash, and trade union membership.
Note 3: Model 5 controlled for model 3 controls and three-way interactions with social position, motherhood and model 4 controls.
*Note 4: *** p<0.001, ** p<0.01, * p<0.05, + p<0.1*

Table 5.9 Country variation in the effect of social position on the child penalty - models with gross wages

	Model 1	Model 2	Model 3
Has (a) child(ren)	-0.271***	-0.254***	-0.261***
Medium social position	0.155***	0.151***	0.155***
High social position	0.327***	0.323***	0.326***
Child * medium social position	0.136***	0.130***	0.127***
Child * high social position	0.168***	0.160***	0.156***
Gini coefficient	-0.001		
Gini * medium social position	-0.001		
Gini * high social position	0.003		
Gini * child	-0.002		
Gini * child * medium social position	0.002		
Gini * child * high social position	0.003		
Child care - enrollment children under 3		0.022*	
Childcare * medium social position		-0.001	
Childcare * high social position		-0.002	
Childcare * child		0.003*	
Childcare * child * medium social position		-0.000	
Childcare * child * high social position		-0.003	
Collective bargaining coverage			0.013+
Bargaining * medium social position			-0.001
Bargaining * high social position			-0.003*
Bargaining * child			0.001
Bargaining * child * medium social position			-0.000
Bargaining * child * high social position			-0.001

Source: WageIndicator Global Dataset 2012-2015, 13 Countries, n=53,047, population weights, random intercept and random slopes.
Note 1: Controlled for survey year, age, selectivity, industry, firm size , share of women in the firm, part time employment, evening shifts, promotions, number of career breaks, promoted at current firm, paid in cash, and trade union membership, and three-way interactions with social position, motherhood and controls from model 5, table 2.
*Note 2: *** p<0.001, ** p<0.01, * p<0.05, + p<0.1*