



# **Does a Motherhood Penalty Exist in the Post-apartheid South African Labour Market?**

By

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## Abstract

Do working mothers earn less than non-mothers in the South African labour market? This study examines whether there exists a motherhood (or child) penalty for Black African female employees in post-apartheid South Africa using two cross sections from the National Income Dynamics Study (NIDS) data between 2008 and 2014. NIDS is the first nationally representative survey in South Africa to include comprehensive child birth history. Restricting analysis to women aged 20 to 49, the Mincerian regression model results indicate that a motherhood penalty does exist, *ceteris paribus*. Moreover, the study uses unconditional quantile regressions (RIF-OLS) to examine the wage returns of mothers versus non-mothers along the wage distribution. The study finds that there exists a motherhood wage penalty at lower wage levels, but this effect wanes in prominence at higher wage quantiles. At higher wage levels, mothers earn higher wages than their child-free counterparts, especially if they are married. The study then applies Oaxaca-Blinder type decompositions within the RIF framework to decompose changes in the motherhood wage gap along the distribution into explained and unexplained contributions related to a range of factors. The decomposition results indicate that at 10<sup>th</sup> and 90<sup>th</sup> quantiles, the wages of mothers minus wages of non-mothers is negative, but positive everywhere else. Moreover, the majority of the wage differential between mothers and non-mothers is due to unexplained characteristics. This implies that there are additional relevant factors such as societal norms, selection effects into employment and behavioural characteristics should be considered when analysing women's wage outcomes. The prevalence of migrant work is an important element when considering the economic decisions of Black women with biological children compared to women without children in the South African labour market.

Keywords: Motherhood wage gap; child penalty; wage differential; Mincerian regression; recentered influence function (RIF); decomposition; South Africa

# 1. Introduction

Currently, women in South Africa represent 45.1% of the employed<sup>1</sup> population (QLFS, 2017). While women have come a long way in terms of gains in the labour market, they are still less likely to have successful careers than men (Bhorat & Goga, 2013), more so if they have children. Globally, women who participate in the labour market are susceptible to social norms and prejudices both inside and outside the workplace. As more women enter the labour force, topics such as childbearing and how the workplace adjusts to childbearing and child-caring matter.

Although many studies have investigated the gender wage gap in South Africa (Bhorat & Gogga, 2013; Bosch, 2015), none have analysed the motherhood wage gap, or penalty. There seems to exist a gap between the earnings of women with children versus the earnings of women without children. It is postulated that women with children tend to earn less than women without children. The motherhood pay gap is also known as the family or child wage gap, reflecting the fact that sometimes it measures the pay gap between mothers and non-mothers but, in most econometric studies, measures women without dependent children (Grimshaw & Rubery, 2015). The incidence of mothers earning less than non-mothers pulls the average earnings of women relative to men down, meaning that as long as working women bear children, one cannot expect the gender gap to narrow. Consequently, there is a growing tendency globally for career-minded and highly skilled women to postpone or even forgo child-bearing for the sake of career progression.

The presence of children can affect the household dynamic for all members, but women tend to change their labour-market behaviour more drastically in response to a change in family/children size than men (Angrist & Evans, 1998). The case of South Africa is unique due to the high labour migration rates across provinces. Posel and Van der Stoep (2008) posit that motherhood affects women whether they co-reside with the children or not. Migrant worker females may respond to childbirth in a range of ways; for example, they might leave children in the care of relatives. Hence, outcomes of motherhood for Black South African women in particular tend to be nuanced.

Using the 2008 and 2014 National Income Dynamics Study (NIDS) data, this study combines detailed wage decompositions with quantile regressions to analyse differences in wage outcomes for employed mothers and non-mothers (child-free women). This study is

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<sup>1</sup> Narrow or strict definition of employment.

henceforth structured in the following manner: Section 2 provides a review of pertinent international and South African literature on women's labour market outcomes. Section 3 discusses the data and presents the methodology. Section 4 presents trends in women's labour market characteristics with graphical illustrations of key variables of interest. Section 5 provides the model estimation results: firstly, the Mincerian (Mincer, 1974) regression is applied to understand the average magnitude of the motherhood wage penalty. Secondly, the linear Recentered Influence Function (RIF-OLS) regressions models wage returns for mothers and child-free women along the wage distribution. Thirdly, using the Blinder-Oaxaca method on the RIF regressions, the section decomposes the wage gap between mothers and non-mothers into explained and unexplained parts along the distribution. Section 6 discusses key findings of the study, flagging some important limitations. Section 7 concludes.

## **2. Literature Review**

According to the United Nations (UN) report on gender and work (2015), on average, women spend three hours more per day than men on unpaid work such as childcare in developing countries and two hours more per day than men in developed countries. It is widely documented internationally that female employees without children earn higher wages than female employees with children, even after controlling for measurable characteristics related to their productivity. There are various possible explanations for why mothers are more likely to earn lower wages than other women. According to the rationalist economics (human capital) approach, time spent at home for childcare interrupts work experience; and mother-friendly jobs offer lower wages (Budig & England, 2001). Under the sociological approach, employers may hold stereotypes that mothers are distracted or less productive at work due to exhaustion from childcare during leisure hours; so employers may just blatantly discriminate against mothers (ibid.). The third framework is a comparative institutionalist approach which aims to identify the societal specific causes of inter-country patterns in motherhood pay gaps, paying attention to gender relations and intersections with welfare, education and employment institutions (Grimshaw & Rubery, 2015). Most studies regarding the motherhood penalty focus on a combination of the rationalist economist and sociological approaches.

The motherhood pay gap may be related to a productivity differential, or statistical discrimination. In the context of the former case, Becker's worker effort hypothesis claims

that firms aim to maximize worker effort per hour given earnings subject to their production functions (Becker, 1977). On the other hand, workers maximize utility by allocating time and effort to different activities, subject to their household production functions. Women with children will either choose to pay for childcare or take care of children themselves during leisure hours at home. The preference or choice may be contingent on the wage levels they earn. Due to this energy split between parenting and work, motherhood might be expected to reduce women's productivity on the job, thus affecting pay. In the latter case of discrimination, employers might deem mothers less productive assuming the generic parenting arrangement where women bear childcare over men. Women with children may therefore incur a penalty in terms of employment and/or wages. The motherhood pay gap may be due to various other reasons. Many mothers respond to competing demands of employment and childrearing by relaxing their attachment to paid work (Gornick, et al., 1998). For example, they may engage in part-time employment, or reduce working hours or change occupations completely.

The estimates in most studies refer to an adjusted wage gap, i.e. the size of the motherhood wage gap controlling for differences in characteristics important for productivity (such as age, education, industry, occupation, firm characteristics, etc.) (Staff & Mortimer, 2012). Staff and Mortimer (2012) shed some light on the motherhood wage penalty early in women's occupational careers using fixed effects analysis on longitudinal data for 486 women followed from ages 19 to 31 in the Minnesota Youth Development Study. They observe that accumulated months out of the labour force and also not enrolled in school explain to some extent the residual pay gap of approximately 5% between mothers and non-mothers (ibid.). Nicodemo (2009) estimates family gaps along the wage distribution in the case of European households. The author finds that the reason for the family gap is that, when married, wives and husbands have the same characteristics but wives suffer from two types of discrimination with respect to husbands: a lower wage for the same work and also primary responsibility for children. Likewise, Budig and England (2001) use longitudinal data with a fixed effects model over the 1982 to 1993 period in the United States to find a motherhood wage penalty of 7% per child. The authors also discover in their analysis that penalties are larger for married women than for unmarried women.

The fact that a woman has a child implies that she may have taken some time off work, meaning that she may be negatively affected in the long run due to work experience foregone to take care of children. Using random effects and fixed effects regressions, Jia and Dong

(2013) investigate how the economic transition has affected the wage gap between mothers and childless women in urban China using panel data for the period 1990–2005. The results reveal that on average, mothers earned considerably less than childless women during that period. More precisely, motherhood decreased women's hourly wages by 45.1% (statistically significant at the 5% level) over the Chinese market-oriented economic reform period.

Vinkenburg et al. (2012) study the motherhood bias which is the phenomenon where those making hiring and promotion decisions in organisational settings hold lower expectations regarding the professional commitment and competence of mothers. The authors conduct an experiment and discover that although women face a penalty for having children, their results uncover a wage premium for fathers (Grimshaw & Rubery, 2015) as they tend to be expected to work even harder than before in order to provide for their growing family. Moreover, applying the quantile regression and decomposition approach along the wage distribution on the National Longitudinal Survey of Youth (NLSY), Waldfogel (1998) finds that in the United States between 1980 and 1991, having children had positive or no effects for men, but very strong negative effects for women. The author alludes to the idea that the family penalty disadvantages women more than men. To some extent, this explains why women with children tend to earn less than women without children.

Motherhood has a varying impact on women's career along their lifecycle (Kahn, et al., 2014). Analysing longitudinal survey data, Kahn et al. (2014) find that motherhood has the strongest negative labour market outcomes for women when they are younger and then attenuates when they are older (around age 50). However, for women with 3 or more children, the negative impacts persist across their life course. However, it should be kept in mind when considering these results that women who are married and have access to a husband's sizable income may face different incentives for labour force participation and career advancement than do women who are unmarried or have low-earning husbands (ibid.).

The penalty is usually heavier the younger the child. Using country fixed effects on women from 21 developing countries, Aguero et al. (2012) discover that the motherhood penalty diminishes as children age for low-skilled mothers. The authors stress the fact that amongst these lower educated mothers, effort and selection into different types of jobs, occupations and work intensity fully explain the family gap.

Applying the Oaxaca-Blinder wage decomposition into explained and unexplained components on two British cohort studies, Joshi et al. (1999) discover that amongst full-time

employees, women who put their employment on hold due to childbirth are subsequently paid less than childless women. In contrast, mothers who maintained employment continuity are as well paid as childless women, but neither are as well remunerated as men. Likewise, Gamboa and Zuluaga (2013) use the Nopo approach (an alternative to Oaxaca-Blinder) to decompose wage gap between mothers and non-mothers in Colombia into four components – three observable and one unexplained part of the gap. Results by the authors show that once schooling is included as a matching variable, the unexplained components of the gap narrow and become insignificant. This effect could speak to childbearing lowering further educational attainment for women and thus leading to lower wages.

The motherhood bias may have a negative impact on women at various wage and skills levels. In other words, the size of the penalty may vary depending on the competency and commitment of the particular mother. A penalty may exist even towards high skilled (high wage) and career-oriented mothers. Using unconditional quantile regression models with person-fixed effects, England et al. (2016) find that women with high skills and wages experience the highest total penalties for motherhood. The authors suggest that wage penalties can prevail just as much at low skill, low wage levels as at high wage levels.

The sociological approach to understanding the motherhood pay gap argues that some employers may build into their hiring and promotion decisions traditional stereotypical expectations of the burdens imposed by families on mothers' time and energy. This consequent undervaluation of women's work means that skill and experience in female-dominated occupations and workplaces tend to be rewarded unfairly (Grimshaw & Rubery, 2015). To demystify the question regarding whether motherhood actually affects workplace productivity and performance, Kalist (2008) investigates the motherhood penalty using panel data for a natural experiment on professional female golfers. He finds that productivity levels of women who eventually become mothers tend to increase in the years before giving birth and then declines thereafter. These results support the human-capital explanation and Becker's effort hypothesis of the family gap.

In spite of the productivity motivation for paying mothers less, a portion of the motherhood penalty still remains unexplained. Various authors have conducted behavioural studies to try explain workplace discrimination against mothers. Normative discrimination in particular is a form of bias which occurs when employers discriminate against mothers because they believe unconsciously, paid labour market success signals stereotypically masculine qualities such as

assertiveness or dominance (Benard & Correll, 2010). This status-based discrimination occurs when individuals violate gendered expectations that mothers should prioritise family over paid work. Benard and Correll (2010) determine whether mothers face normative discrimination by conducting a laboratory study where job applications for a high-status, highly paid professional position are evaluated by participants. Their findings show that given identical résumés, mothers were significantly less likely to be recommended for hire or promotion, offered marginally significantly lower starting salaries, and held to higher performance and punctuality standards (ibid.). Such biases influence the econometric analyses of women's wage outcomes.

Using population surveys from affluent countries and also conducting a survey experiment similar to that conducted by Benard and Correll (2010), Oesch et al. (2017) also find an unexplained wage penalty of 4% to 8% per child. This penalty is worse for younger mothers below the age of 40 and disappears for older mothers with older children or mothers in low income or low status jobs. This experiment corroborates the findings of Benard and Correll (2010). Likewise, using data from the 1968-88 National Longitudinal Survey of Young Women, Anderson et al. (2003) observe that human capital inputs and unobserved heterogeneity explain 55-57% of the gap between mothers and women without children.

Statistical discrimination starts from the idea that employers think membership in a given group sends a signal about the individual's productivity (Cahuc, et al., 2014, p. 488). Statistical discrimination takes the form of stereotyping based on group membership that results from imperfect information (ibid.). For example due to this type of discrimination, women who intend to have children may start to believe that their return to education is lower than for the other group. This belief can incentivise these workers not to acquire education or a certain skills level. This affects the type of occupations and industries women enter. Thus a self-fulfilling prophecy may arise since employers anticipating women with children to be less skilled discourages women's effort to be more efficient workers (Cahuc, et al., 2014, p. 493).

Existing literature on the motherhood penalty in Sub-Saharan Africa (SSA) is still scarce. In an overview of the South African labour market since 2008, amongst the youth aged 15 to 34 years, unemployment continues to have a strong gender dimension. As a result, unemployment rates amongst Africans and women remain above the national mean



(Development Policy Research Unit, 2012). The statistics are even worse for mothers in this age group, majority of whom are entitled to paid maternity leave (ibid.).

Ntuli and Wittenberg (2013) use survey data to analyse African women's participation in the labour force over the period of 1995 to 2004. The authors observe that married women might have less economic need compared to single women. Furthermore, fertility increases wife's value of time at home, negatively affecting prospects of labour market participation (ibid.). Their results indicate non-labour income, marriage, fertility and geographical variation in economic development persistently stifled participation over the ten-year period. The probit regression results prove Black women aged between 35 and 44 years are the most likely to participate in the labour force. These could be women whose children are older and more independent. Even and Macpherson's (1993) decomposition results for non-linear models reveal that marriage significantly reduces probability of a woman to participate in the South African labour market over the period, whilst divorce raises chances of participation.

In South Africa, many women are mothering from a distance. In other words, many women migrate to other regions for work, leaving children behind. This has implications on how women manage family life when migrating to impoverished urban communities (Amoateng, Heaton, & Kalule-Sabiti, 2007). According to Baker's (2010) qualitative study, domestic arrangements, perceptions of support, occupational requirements and ideas about "good mothering" affect women's wage outcomes and vary according to context. For instance, due to high migrant labour rates in South Africa, one cannot immediately assume that mothers live with their children. Women with fewer or older children are likely to migrate to more economically thriving regions, which has implications for wage outcomes. Posel and van der Stoep (2008) use a probit model and discover that females who are not co-resident mothers are significantly more likely to be labour force participants. Moreover, Posel and van der Stoep (2008) find that more than 45% of mothers, and almost 70% of non-mothers, are residents in households with children who are not their own. Even amongst these non-mothers, living with children lowers positive labour market outcomes.

New conceptions of motherhood thus take into account the fact that a good mother is not only one who is physically present daily, but is also the one who makes sacrifices to meet the financial needs of the child (Ntsoane, 2015). With rising rural to urban migration rates in post-apartheid SA, destination households of parents may be crowded or not child-friendly, so most parents that migrate do not bring their children to live with them in their destination

household. Instead, children are left in the care of other family members. According to Arendell (2000), only a small percentage (14%) of migrants' children who are members of the parental origin household are also members of the parental destination household.

This particular study on the child penalty is the first study in South Africa focusing specifically on wage differentials amongst women by biological parenthood status. Moreover, the use of the National Income Dynamics Study (NIDS), a nationally representative household survey with birth history data, provides a more detailed explanation of women's wage outcomes.

### **3. Data and Methodology**

#### **3.1 Data and variables**

The data for this study comes from the nationally representative National Income Dynamics Study (NIDS) carried out by the Southern Africa Labour and Development Research Unit (SALDRU) at the University of Cape Town (UCT), which is publicly available. In the 2008 survey, about 7,296 households and 31,144 individuals were interviewed. In 2014, 11,895 households and 49,540 individuals were interviewed. We restrict the sample for this study to Black/African<sup>2</sup> women aged 20 to 49 who are not currently in schooling.

According to Budlender et al. (2001), the 20–39 age group has the highest proportion of both men and women with children under the age of seven years. Nonetheless, very few labour market surveys have birth history information, let alone link mothers to their children. Dorrit Posel (2011) corroborates these details from her observation that studies on female labour force participation in South Africa (SA) have not been able to match women to their children. Even the datasets deemed most nationally representative household surveys in South Africa do not contain detailed birth history information. Fortunately, NIDS allows us to link women to their biological study for more comprehensive analysis of the motherhood penalty in SA.

#### **3.2 Model Specification**

All four ordinary least squares (OLS) models in this study follow first from Mincer's (1974) human capital wage equation in which individuals' log hourly wages are a function of their demographic characteristics, work experience, household characteristics, and educational attainment. To determine whether there exists a wage penalty for having additional children

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<sup>2</sup> Black and African will be used interchangeably.

in the two sectors, a dummy variable for motherhood is included in these Mincerian equations, similar to the methodology employed in Casal and Barham (2013). The specifications are semi-logarithmic linear and additive models inspired by Budig and England (2001) and Wadfogel (1998). The dependent variable,  $\ln w_i$ , is the natural logarithm of the real hourly wage of women. Motherhood is the main independent variable. The indicator variable married and an interaction term (Mother\*married) are incorporated to model the potential wage gains or losses of marriage. The work experience variable is age minus years of education minus early childhood (6 years). The work experience variable may overestimate actual work experience if women take any time off work to bear and raise children (Anderson, et al., 2003).

$$\ln w_i = \alpha + \beta \text{mother}_i + \gamma_1 \text{edu}_{i1} + \gamma_2 \text{married}_i + \gamma_3 \text{experience}_i + \gamma_4 \text{experience}_i^2 + \gamma_5 \text{occupation}_i + \gamma_6 \text{married}_i * \text{mother}_i + \gamma_7 \text{province}_i + \gamma_8 \text{unionmember}_i + \varepsilon_i \quad (1)$$

The 2nd specification is inspired by Piras and Ripani (2005) who study of the effects of motherhood on wages in the developing countries of Bolivia, Brazil, Ecuador and Peru, taking into account children's age:

$$\ln w_i = \alpha + \gamma_1 \text{edu}_{i1} + \gamma_2 \text{experience}_i + \gamma_3 \text{experience}_i^2 + \gamma_4 \text{occupation}_i + \gamma_5 \text{unionmember}_i + \gamma_6 \text{ChildrenUnder7yrs}_i + \gamma_7 \text{Children7to18yrs}_i + \gamma_8 \text{province}_i + \varepsilon_i \quad (2)$$

The 3rd specification is motivated by analysis done by Agüero et al. (2012) where they posit that the penalty on wages increases as the number of children grows:

$$\ln w_i = \alpha + \gamma_1 \text{edu}_{i1} + \gamma_3 \text{experience}_i + \gamma_4 \text{experience}_i^2 + \gamma_5 \text{occupation}_i + \gamma_6 \text{unionmember}_i + \gamma_7 \text{twotofourchildren}_i + \gamma_8 \text{fiveormorechildren}_i + \gamma_9 \text{province}_i + \varepsilon_i \quad (3)$$

Taking into account that many women are migrant women who leave their children behind, interested in understanding the penalty on wages as the number of co-resident children increases:

$$\ln w_i = \alpha + \gamma_1 \text{edu}_{i1} + \gamma_2 \text{experience}_i + \gamma_3 \text{experience}_i^2 + \gamma_4 \text{occupation}_i + \gamma_5 \text{unionmember}_i + \gamma_6 \text{ChildrenUnder7yrsinHH}_i + \gamma_7 \text{Children7to18yrsinHH}_i + \gamma_8 \text{province}_i + \varepsilon_i \quad (4)$$

The variable `children_under_7_in_hh` is the row total of children under seven residing in the household. The variable `children_7_to_18_in_hh_wm` is the row total of children aged seven to eighteen residing in the same household as the mother.

All four model results for the years 2008 and 2014 will be presented in the empirical results section.

### 3.3 Going beyond the mean – RIF and reweighting

The relationship between wages and motherhood status may vary by income level. Consequently, this study runs unconditional quantile (RIF-OLS) regressions to understand the effect of motherhood along the wage distribution. The recentered influence function (RIF) estimates the impact of changing the distribution of explanatory variables, on the marginal quantiles of the outcome variable, log of hourly wages,  $\ln W_i$  (Firpo, et al., 2007). The influence function (IF) for the  $\tau^{\text{th}}$  unconditional quantile of the distribution of  $W$ ,  $W(q_\tau)$ , is expressed as:

$$IF(W; q_\tau) = \frac{\tau - I(W \leq q_\tau)}{f_w(q_\tau)} \quad (4)$$

$f_w$  and  $I(\cdot)$  represent the marginal density function of the wage distribution and an indicator function, respectively. The RIF and  $\tau^{\text{th}}$  quantile is:

$$RIF(W; q_\tau) = q_\tau + IF(W; q_\tau) \quad (5)$$

The  $\tau^{\text{th}}$  quantile RIF regression aggregates to unconditional quantile of interest and allows one to decompose the gap into endowment and unexplained effects related to the explanatory variables (Firpo, et al., 2007). The procedure provides a clear presentation of exactly where along the distribution the motherhood penalty has its greatest impact.

### 3.4 Oaxaca Blinder decomposition

Furthermore, this study uses a relatively more rigorous approach to the Oaxaca-Blinder decomposition by combining it with the Recentered Influence Function (RIF) regression in order to decompose the log wages of working mothers and non-mothers by earning quantiles, rather than merely at the mean. Within labour economics literature, discrimination is usually defined as the presence of different wage rates for workers with the same productivity or ability but with different personal characteristics (motherhood status in this case). The Oaxaca-Blinder procedure provides a way of 1) decomposing changes or differences in wages into a wage structure (unexplained) effect and a composition (explained) effect, and 2)

further dividing these two components into the contribution of each covariate (Kwenda & Ntuli, 2015):

$$\ln\bar{W}_{nm} - \ln\bar{W}_m = (\bar{X}_{nm} - \bar{X}_m)\hat{\beta}_{nm} + (\hat{\beta}_{nm} - \hat{\beta}_m)\bar{X}_m \quad (6)$$

The procedure divides the wage differential between mothers and non-mothers into one part that is explained, and a residual part that is usually seen as a measure of discrimination, but also includes effects of group differences in unobserved predictors (Jann, 2008). The study applies the technique based on Firpo et al.’s (2009) recentered influence function (RIF) regressions. This methodology divides the motherhood wage differential at each unconditional quantile into a ‘composition effect’ (attributable to differences in observable characteristics) and a ‘price effect’ (attributable to unobservable differences). The method determines the partial contribution of each covariate to these components as well. Moreover, decomposition using RIF-regressions helps in understanding which variables are most important in understanding the wages of women and how much the wage differential between mothers and non-mothers remains unexplained at various points of the wage distribution.

## 4. Descriptive Stats

The South African labour market experienced almost a 1 million (826 000 to be more specific) increase in number of employed women from 2001 to 2014, albeit rising unemployment rates (Statistics South Africa , 2014). Moreover, some legal progress has been made in the South African labour market to protect the rights of pregnant women (van Klaveren, et al., 2009).

This section presents a descriptive profiling of participation, employment and wages of mothers versus non-mothers over the 2008-2014 time period. In order to understand key and relevant trends, the descriptive statistics focus primarily on the key explanatory variables used in the regression estimates. Table 1 below outlines the trends in labour market outcomes of women.

**Table 1: Characteristics of African women, 2008 and 2014**

<b>Has no biological children</b>	<b>Has children who do not co-reside with her</b>	<b>Has co-resident biological children only</b>	<b>Has both co-resident AND non-resident children</b>
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	2008	2014	2008	2014	2008	2014	2008	2014
<b>Age</b>	30.44	32.83	32.21	33.31	31.48	31.59	38.68	38.86
	<i>0.9295</i>	<i>0.9739</i>	<i>0.34032</i>	<i>0.2789</i>	<i>0.1692</i>	<i>0.1309</i>	<i>0.2354</i>	<i>0.21099</i>
<b>Years of schooling</b>	9.28	9.55	9.47	10.84	9.86	10.73	8.07	9.26
	<i>0.3953</i>	<i>0.4219</i>	<i>0.1463</i>	<i>0.0981</i>	<i>0.0726</i>	<i>0.0435</i>	<i>0.1243</i>	<i>0.1092</i>
<b>Married</b>	0.2704	0.1899	0.4217	0.3252	0.4046	0.3071	0.5941	0.5254
	<i>0.0493</i>	<i>0.0434</i>	<i>0.0214</i>	<i>0.0162</i>	<i>0.0111</i>	<i>0.0079</i>	<i>0.0155</i>	<i>0.0147</i>
<b>Urban</b>	0.5862	0.5168	0.6342	0.6984	0.5728	0.5717	0.50295	0.5539
	<i>0.05472</i>	<i>0.0555</i>	<i>0.0208</i>	<i>0.0159</i>	<i>0.0112</i>	<i>0.00842</i>	<i>0.01573</i>	<i>0.0147</i>
<b>Household size</b>	5.51	5.49	2.96	2.35	6.17	6.28	4.97	4.59
	<i>0.4951</i>	<i>0.5835</i>	<i>0.105</i>	<i>0.0727</i>	<i>0.07696</i>	<i>0.059</i>	<i>0.0854</i>	<i>0.0731</i>
<b>Connected to Electricity</b>	0.8376	0.865	0.726	0.887	0.81	0.888	0.718	0.856
	<i>0.0418</i>	<i>0.0379</i>	<i>0.01988</i>	<i>0.01097</i>	<i>0.0091</i>	<i>0.0054</i>	<i>0.01437</i>	<i>0.0104</i>

Source: NIDS 2008 and 2014

Notes: standard errors in italics

In 2008, 2% of the women in the sample have no biological children. Also, most African women in the sample. In 2008, 2.3% no have biological children all. 15% have non-resident children. 54.5% of women have biological children who all reside with them. 28.2% have both co-resident and children who do not live with them. In 2014, 1.5% no have biological children all. 15.1% have non-resident children only. 62.5% of women have biological children who all reside with them. 20.8% have both co-resident and children who do not live with them. For this reason, to understand the motherhood penalty in this study, mothers are defined as women with at least one biological child residing with them. Non mothers, or childless women, are those with no biological children residing with them. This would include women with no children at all and mothers who do have children but due to migration or other factors, do not live with the child(ren). This is also based on assumption that children are not expected to constrain the labour force activity of mothers who are not living with their children. Endogeneity of child-bearing: childbearing is not expected to constrain the labour force participation of mother's who are not co-resident with their children because they are not involved in day-to-day childrearing activities (Ntsoane, 2015).

In 2008, 81.5 percent of African women of working age are mothers. As the tabulated numbers indicate, most African females in the labour market between the ages of 20 and 50 are mothers. In 2014, 81.93 percent of African women of working age consisted of mothers. Table 2 below shows the number of women who have resident children under seven and those with co-residing children under 18. As the tabulated numbers indicate, most females in the labour market between the ages of 20 and 50 are mothers who co-reside with their children.

**Table 2: Breakdown of no. of children for working mothers with resident children**

No. of Children	2008				2014			
	Under 7		Under 18		Under 7		Under 18	
0	1,406,864	<i>41.26</i>	1,325,917	<i>38.88</i>	1,371,330	<i>45.35</i>	1,103,052	<i>36.48</i>
1	1,567,525	<i>45.97</i>	1,313,845	<i>38.53</i>	1,354,806	<i>44.81</i>	1,291,664	<i>42.72</i>
2	394,195	<i>11.56</i>	526,634	<i>15.44</i>	258,046	<i>8.53</i>	527,263	<i>17.44</i>
3	38,478	<i>1.13</i>	177,584	<i>5.21</i>	39,029	<i>1.29</i>	76,634	<i>2.53</i>
4	2,855	<i>0.08</i>	53,906	<i>1.58</i>	505	<i>0.02</i>	22,260	<i>0.74</i>
5			12,031	<i>0.35</i>			2,256	<i>0.07</i>
6							587	<i>0.02</i>

Source: NIDS 2008 and 2014

Notes: Percentages in italics. Data are weighted to present the entire population.

**Table 3: Educational of outcomes of employed mothers and non-mothers**

2008	Grade 0 to 8	Grade 9 to 11	Grade 12	Diploma	Degree	Higher Degree
	Mother	613,089	699,090	405,430	85,512	308,573
<i>Percent</i>	<i>29.01</i>	<i>33.08</i>	<i>19.19</i>	<i>4.05</i>	<i>14.6</i>	<i>0.07</i>
Non-mother	151,880	217,896	139,303	37,207	41,389	0
<i>Percent</i>	<i>25.84</i>	<i>37.08</i>	<i>23.7</i>	<i>6.33</i>	<i>7.04</i>	<i>0</i>

2014	Grade 0 to 8	Grade 9 to 11	Grade 12	Diploma	Degree	Higher Degree
	Mother	475,931	1,217,028	568,172	321,291	438,564
<i>Percent</i>	<i>15.74</i>	<i>40.25</i>	<i>18.79</i>	<i>10.63</i>	<i>14.51</i>	<i>0.08</i>
Non-mother	123,983	344,274	195,715	163,516	124,802	2,366
<i>Percent</i>	<i>12.99</i>	<i>36.06</i>	<i>20.5</i>	<i>17.13</i>	<i>13.07</i>	<i>0.25</i>

Source: Own calculations using NIDS 2008 and 2014.

Notes: Results are for Black women between the ages of 20 and 50. Weights have been applied to the summary statistics.

Over the years 2008-2014, a greater proportion of non-mothers have a matric or higher educational qualification compared to mothers. With that being said, mothers have been gaining more ground over the years in acquiring higher educational attainment levels. Focusing on the most recent year (2014), 50.95% of child-free women have matric or higher qualification, versus 25.22% of mothers.

Higher educational attainment is associated with more positive employment outcomes in the South African labour market. Table 4 below describes the labour market status of women in 2008 and 2014.

**Table 4: Labour Market Status of Women in South Africa – 2008 and 2014**

NEA	2008			NEA	2014		
	Discouraged	Unemployed	Employed		Discouraged	Unemployed	Employed

Mother	1,328,042	542,409	1,294,366	2,115,551	2,070,857	99,994	1,412,305	3,023,716
<i>Percent</i>	<i>25.15</i>	<i>10.27</i>	<i>24.51</i>	<i>40.06</i>	<i>31.32</i>	<i>1.51</i>	<i>21.36</i>	<i>45.74</i>
Non-mother	233,478	61,096	296,041	587,675	266,235	21,612	210,430	954,656
<i>Percent</i>	<i>19.81</i>	<i>5.19</i>	<i>25.12</i>	<i>49.88</i>	<i>18.26</i>	<i>1.48</i>	<i>14.43</i>	<i>65.47</i>

Source: Own calculations using NIDS 2008 and 2014.

Notes: Strict definition of employment applied

In terms of labour market status, mothers dominate the Not Economically Active (NEA) category over child-free women. More mothers or caretakers than child-free women are unemployed. Non-mothers also have higher employment rates than mothers. The fact that most mothers are unemployed or not economically active is an important issue which requires attention. Childbearing is not expected to constrain the labour force participation of mother's who are not co-resident with their children because they are not involved in day-to-day childrearing activities (Ntsoane, 2015). In South Africa, the remaining sample of co-resident mothers is likely to be a non-random sample of all mothers who are less likely to be labour force participants. A co-residency requirement is therefore likely to bias the estimated relationship between motherhood and labour force participation in South Africa (Ntsoane, 2015, p. 41).

Posel and Stoep (2008) find that women who are not biological mothers are significantly less likely to be labour force participants if they live in households with children, consistent with the fosterage of children in extended households. Mothers who do not reside with their children are more likely to be participate in labour force, which speaks to the prominence of labour migration. For the sake of assessing the motherhood wage penalty, the rest of the study focuses on employed females in particular

Most Black women in the NIDS dataset are low and medium skill level workers. It is useful to look at more labour market trends of women and observe whether there are any significant differences in the observable traits. Table 3 below displays the means, standard deviations and t-test differences between the estimated means of the labour market variables of employed mothers and non-mothers.

**Table 5: Labour Market Characteristics of Employed Women – 2008 and 2014**

	2008				2014			
	Mother		Non-mother		Mother		Non-mother	
<b>Age</b>	36.4*	0.00518	32.8*	0.00997	35.8*	0.00434	34.6*	0.0079
<b>Years of education</b>	9.76	0.00258	9.76	0.00454	10.82*	0.00170	11.08*	0.003
<b>Weekly hours</b>	37.65*	0.01428	39.84*	0.02132	39.44*	0.00879	42.54*	0.0152



<b>Experience</b>	20.7*	<i>0.00634</i>	17.1*	<i>0.01208</i>	18.98*	<i>0.00498</i>	17.52*	<i>0.0088</i>
<b>Hourly wages</b>	30.6*	<i>0.03416</i>	22.8*	<i>0.04738</i>	43.54*	<i>0.03599</i>	36.75*	<i>0.0444</i>
<b>Married</b>	0.49197*	<i>0.00034</i>	0.4141*	<i>0.00064</i>	0.39*	<i>0.00028</i>	0.32*	<i>0.0005</i>
<b>Household Head</b>	0.397*	<i>0.00034</i>	0.49*	<i>0.00065</i>	0.47*	<i>0.00029</i>	0.67*	<i>0.0005</i>
<b>Fulltime worker</b>	0.74466*	<i>0.00040</i>	0.83166*	<i>0.0006</i>	0.79951*	<i>0.00027</i>	0.88727*	<i>0.0004</i>

Source: NIDS 2008 and 2014

Notes: Weights have been applied. Standard errors in italics. The Hours variable includes both hours worked by part-time and full-time workers. The asterisk (\*) denotes a significant difference between mean estimates for mothers and non-mothers at the 5% level. Data is weighted. Earnings data have been deflated to September 2014 for comparability.

The results in Table 5 above suggest that, on average, more mothers compared to non-mothers are married. Although child-free women have higher educational attainment levels than mothers, mothers seem to have higher mean wages than non-mothers. The tabulated results above imply that on average, mothers work fewer hours per week than non-mothers. In terms of work experience, mothers in the sample are older so they tend to have more years of work experience compared to their childless counterparts. Some mothers/caregivers may have taken breaks in between their career for maternity leave which may affect their total years of experience. This may potentially bias the results. More mothers than non-mothers are married.

According to the Time Use Survey, on average women did eight times as much care work as men (32 minutes and 4 minutes, respectively) per day. On average, employed women also spent more than five times as much time as men in care work (44 minutes per day compared to 5) at home (Budlender, et al., 2001). Thus employed women spend far more time than men working (paid plus unpaid labour), but less of their time doing paid work. Correspondingly, working women in the South African labour market are over-represented in part-time employment, which has been an important feature of the feminisation of the labour force (Posel & Muller, 2007). The statistics above are important when considering the amount of hours mothers and non-mothers spend at the workplace.

From the women who are employed, in 2008, 31.6% of mothers were union members and 16.92% of non-mothers (26.29% and 18.76% respectively in 2014). In 2008, 49.41% of non-mothers are household heads. 39.72% of mothers are household heads. Still focusing on those who are employed, table 6 below shows percentages of women in different occupations.

**Table 6: Occupational & Geographical Status of Mothers & Non-mothers: 2008 and 2014**

---

2008

2014

	<b>Mother</b>		<b>Non-mother</b>		<b>Mother</b>		<b>Non-mother</b>	
<b>Private households</b>	287,438	<i>21.98</i>	130,913	<i>32.87</i>	382,109	<i>16.77</i>	168,389	<i>20.37</i>
<b>Agriculture, hunting, forestry &amp; fisheries</b>	61,713	<i>4.72</i>	25,894	<i>6.5</i>	69,850	<i>3.07</i>	55,019	<i>6.66</i>
<b>Mining and quarrying</b>	9,629	<i>0.74</i>	0	<i>0</i>	35,707	<i>1.57</i>	4,272	<i>0.52</i>
<b>Manufacturing</b>	124,068	<i>9.49</i>	52,221	<i>13.11</i>	154,196	<i>6.77</i>	74,582	<i>9.02</i>
<b>Electricity, gas and water supply</b>	5,504	<i>0.42</i>	0	<i>0</i>	11,838	<i>0.52</i>	4,485	<i>0.54</i>
<b>Construction</b>	20,330	<i>1.55</i>	4,910	<i>1.23</i>	48,563	<i>2.13</i>	9,542	<i>1.15</i>
<b>Wholesale and retail trade</b>	267,862	<i>20.48</i>	41,812	<i>10.5</i>	511,765	<i>22.46</i>	186,493	<i>22.57</i>
<b>Transport storage &amp; communication</b>	4,904	<i>0.38</i>	7,053	<i>1.77</i>	43,931	<i>1.93</i>	9,586	<i>1.16</i>
<b>Financial intermediation, insurance, real estate &amp; business services</b>	56,797	<i>4.34</i>	58,217	<i>14.62</i>	214,781	<i>9.43</i>	117,327	<i>14.2</i>
<b>Community, social &amp; personal services</b>	469,408	<i>35.9</i>	77,195	<i>19.39</i>	805,920	<i>35.37</i>	196,762	<i>23.81</i>

Source: NIDS 2008 and 2014

Notes: Percentages in italics. Data is weighted.

Table 6 above paints a clearer picture of the occupations that women tend to opt into, by motherhood status. Overall, most women work in the services industry and private households (e.g. domestic worker). Many studies do mention how women dominate in occupations such as clerks and domestic workers (Bhorat & Goga, 2013) in South Africa. Non-mothers dominate most occupations more than the mothers, excluding the community, social and personal services. As motivated by international literature, it is possible that women with children may have anticipated in the past that they want to have kids and therefore self-select into more flexible occupations. For the case of low-skilled women in South Africa today, occupation selection is based on what jobs become available. Table 7 below provides a breakdown of the distribution of employed women across the nine provinces of South Africa.

**Table 7: Geographical Status of Mothers & Non-mothers: 2008 and 2014**

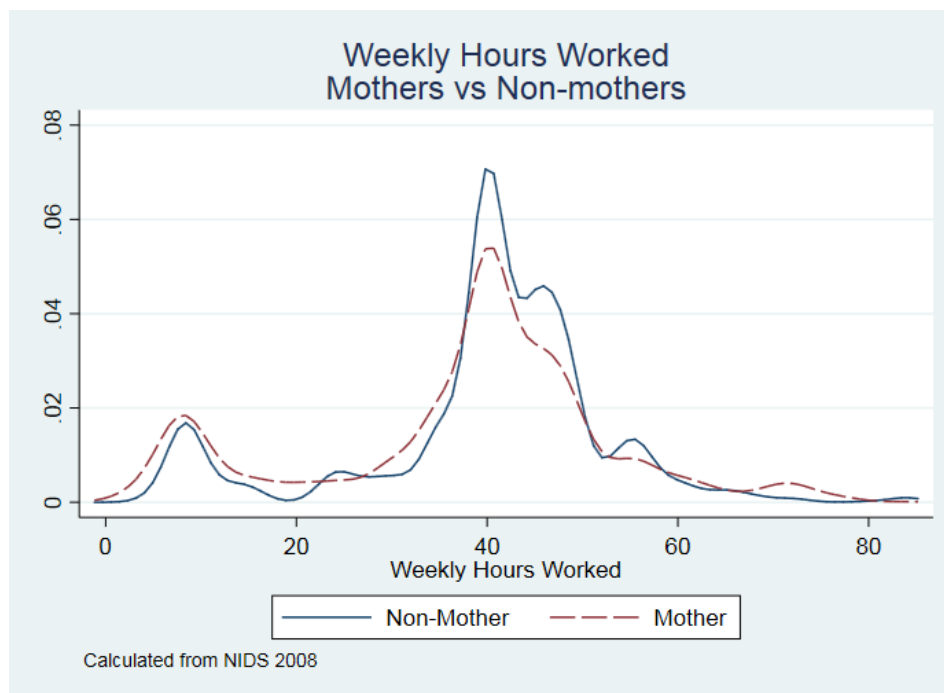
	<b>2008</b>				<b>2014</b>			
	<b>Mother</b>		<b>Non-mother</b>		<b>Mother</b>		<b>Non-mother</b>	
<b>Western Cape</b>	87,403	<i>4.13</i>	27,702	<i>4.71</i>	205,035	<i>6.78</i>	65,496	<i>6.86</i>
<b>Eastern Cape</b>	211,201	<i>9.98</i>	38,390	<i>6.53</i>	322,508	<i>10.67</i>	108,323	<i>11.35</i>
<b>Northern Cape</b>	29,628	<i>1.4</i>	7,019	<i>1.19</i>	47,319	<i>1.56</i>	13,758	<i>1.44</i>
<b>Free State</b>	157,785	<i>7.46</i>	25,137	<i>4.28</i>	217,698	<i>7.2</i>	29,342	<i>3.07</i>
<b>KwaZulu-Natal</b>	492,701	<i>23.29</i>	123,655	<i>21.04</i>	539,693	<i>17.85</i>	242,044	<i>25.35</i>
<b>North West</b>	100,849	<i>4.77</i>	44,609	<i>7.59</i>	156,108	<i>5.16</i>	34,605	<i>3.62</i>
<b>Gauteng</b>	604,146	<i>28.56</i>	222,616	<i>37.88</i>	907,259	<i>30</i>	302,150	<i>31.65</i>
<b>Mpumalanga</b>	242,058	<i>11.44</i>	47,885	<i>8.15</i>	315,421	<i>10.43</i>	85,366	<i>8.94</i>
<b>Limpopo</b>	189,780	<i>8.97</i>	50,662	<i>8.62</i>	312,675	<i>10.34</i>	73,572	<i>7.71</i>

Source: NIDS 2008 and 2014

Notes: Percentages in italics. Data is weighted.

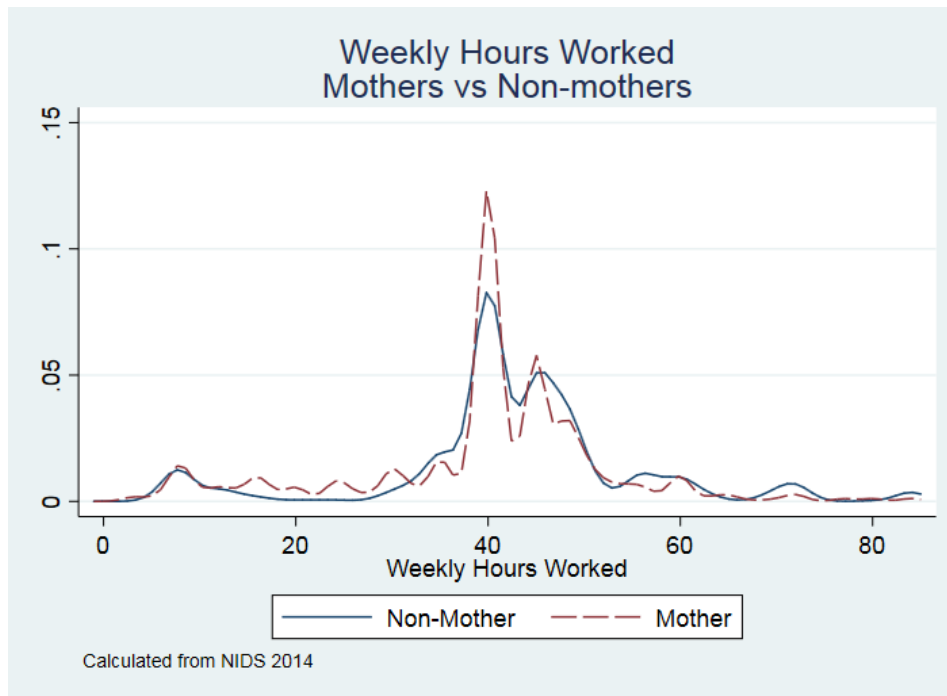
Table 7 above provides information on the provinces in which women reside. Most employed Black women are based in Gauteng, a city full of migrant workers, of whom non-mothers dominate over mothers. During both years, the Eastern Cape, Free State, North-West, Mpumalanga and Limpopo contain more working mothers than non-mothers compared to the remaining provinces (Western Cape, KwaZulu-Natal and the Northern Cape). The distribution of women in various provinces may speak to the occupational types which prevail in each province. Some women are willing to migrate to certain regions in order to participate in these industries.

**Figures 1 (a) and (b): Weekly hours worked by women – 2008 and 2014**



Source: Own calculations using NIDS 2008

Notes: Coding adapted from (Wittenberg, 2012) Stata practical notes. Earnings data have been deflated to September 2014 for comparability. Data are weighted.



Source: Own calculations using NIDS 2014

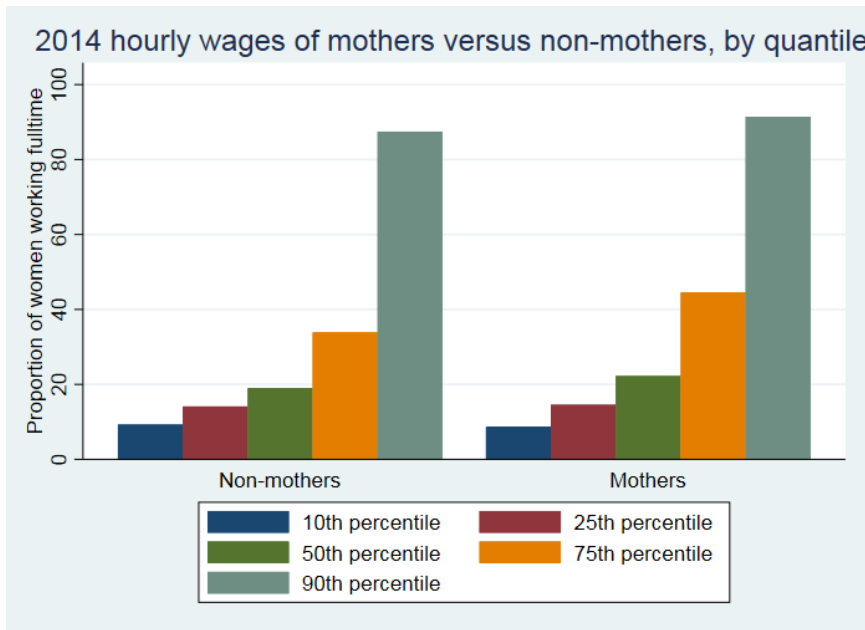
Notes: Coding adapted from (Wittenberg, 2012) Stata practical notes. Earnings data have been deflated to September 2014 for comparability. Data are weighted.

The kernel densities in Figures 1 (a) and (b) inspect the difference in the number of workplace hours worked by women over the three years. As confirmed by the graphs above, in 2008 and 2014, the distribution of hours for non-mothers is shifted more to the right than for mothers, meaning that women without children consistently work longer hours than mothers/caregivers. In 2008, more non-mothers work 45 or more hours per week compared to mothers. Along the 2008 distribution, it is clear that at longer much hours (60 or more hours per week), mothers dominate. This could be the case in highly demanding occupations. Additionally, mothers who can afford child-care are more likely to work longer hours, especially where their children are older. There may also be a sibling effect<sup>3</sup> at play, where the older siblings take care of the younger ones, allowing the mother to work required hours.

Before modelling the wage returns of mothers/caregivers and childfree women, it is useful to evaluate the difference in earnings levels between the two groups over the years. The figures presented below illustrate the difference in real earnings of women at various points along the wage distribution. A distinction has been made between the hourly wages of full-time working women versus those who work part-time (less than 35 hours per week).

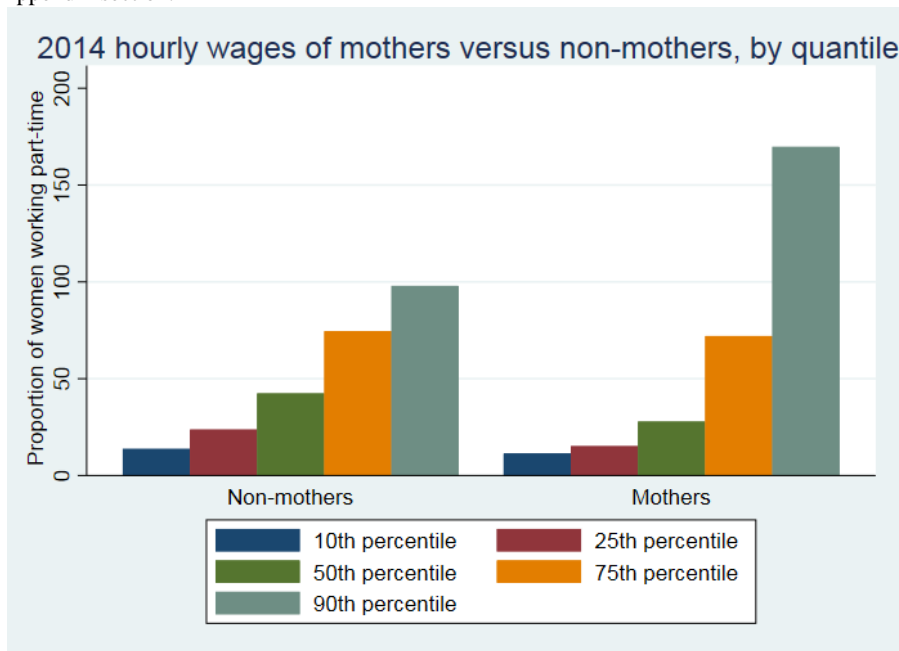
<sup>3</sup> The sibling effect is the case where older siblings take care of younger siblings whilst parents are not home.

**Figures 2 (a) and (b): Hourly wages for Full-time and Part-time female workers, 2014**



Source: Own calculations using NIDS 2014

Notes: Earnings data have been deflated to September 2014 for comparability. The Data is weighted. Results for 2008 are included in the Appendix section.



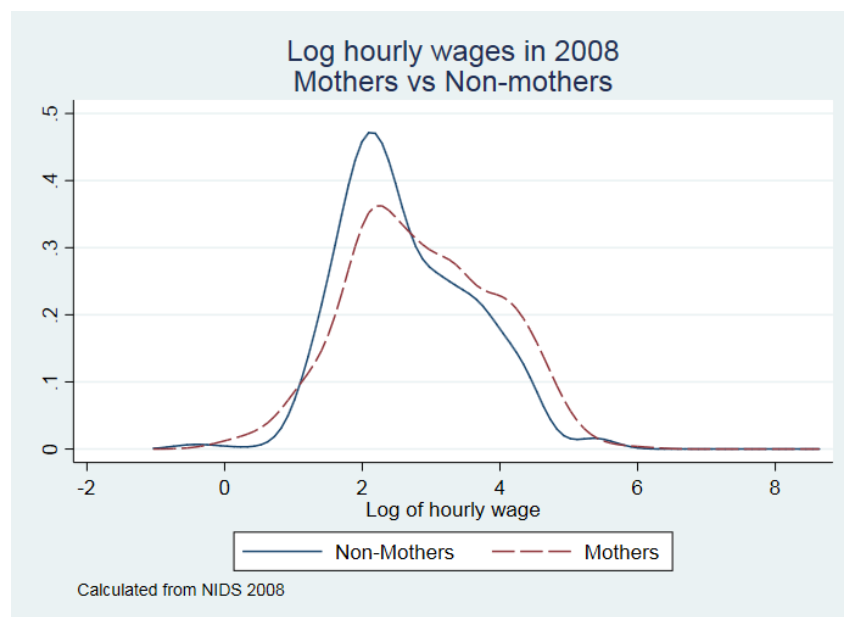
Source: Own calculations using NIDS 2014

Notes: Earnings data have been deflated to September 2014 for comparability. The Data is weighted. Results for 2008 in the Appendix section

The graphical results in Figures 2 (a) and (b) above imply the following: the fully employed, non-mothers earn more than mothers at the 10<sup>th</sup> and 25<sup>th</sup> quantiles in 2014. For part-time employees, non-mothers earn more hourly wages than mothers at the 10<sup>th</sup>, 25<sup>th</sup> and 50<sup>th</sup> (mean) quantiles. Using fixed effects on the LFS 2001-2004, Posel and Muller (2007) find

evidence of a significant wage premium to female part-time employment. The authors refer to the presence of a wage floor existing below which wages for part-time workers are not allowed to fall as an explanation. Since mothers are more likely to work part-time compared to non-mothers could explain to an extent these illustrated wage outcomes. The bar graph results for 2008 display a similar conclusion and are included in the appendix section.

**Figures 3 (a) and (b): Kernel Density Estimates of Wage<sup>4</sup> Distributions for Mother and Non-mothers – 2008 and 2014**

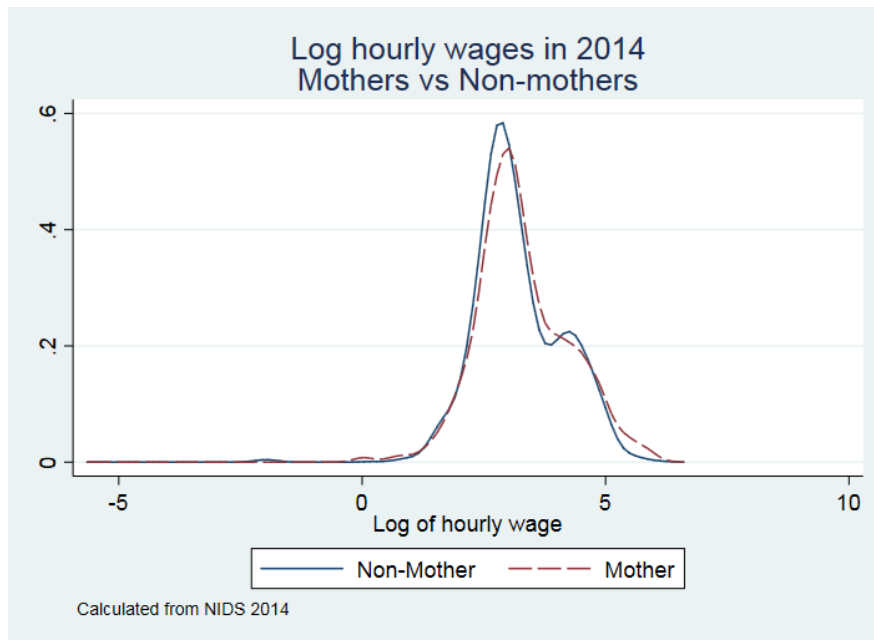


Source: NIDS 2008

Notes: Data is weighted. Coding to plot graph adapted from (Wittenberg, 2017) Stata practical notes. Earnings data have been deflated to September 2014 for comparability.

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<sup>4</sup> The detailed information from NIDS on individual earnings and hours worked per week in the primary job is used to construct gross hourly wages deflated to September 2014 values using the consumer price index for comparability between years.



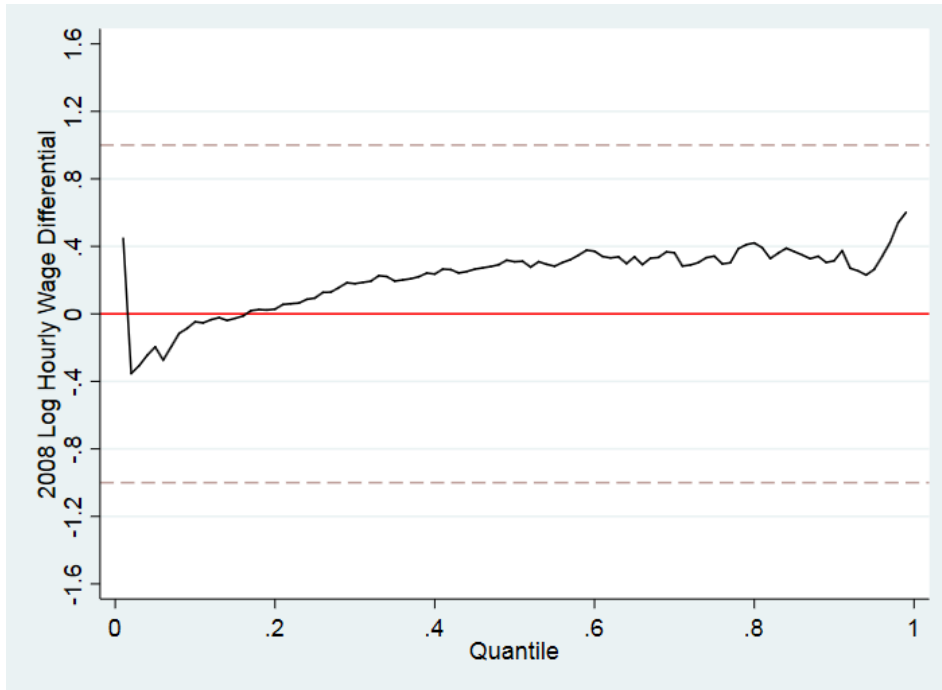
Own calculations using NIDS 2014

Notes: Coding to plot graph adapted from (Wittenberg, 2017) Stata practical notes. Earnings data have been deflated to September 2014 for comparability. Data is weighted.

The discussion thus far proves that the wage difference between mothers and non-mothers varies according to where along the wage distribution one observes. Scrutinizing the kernel densities in figures 3 (a) and (b) above verifies that at the lower quantiles, the log wages for non-mothers are shifted more to the right than mothers. At higher quantiles the opposite relationship prevails.

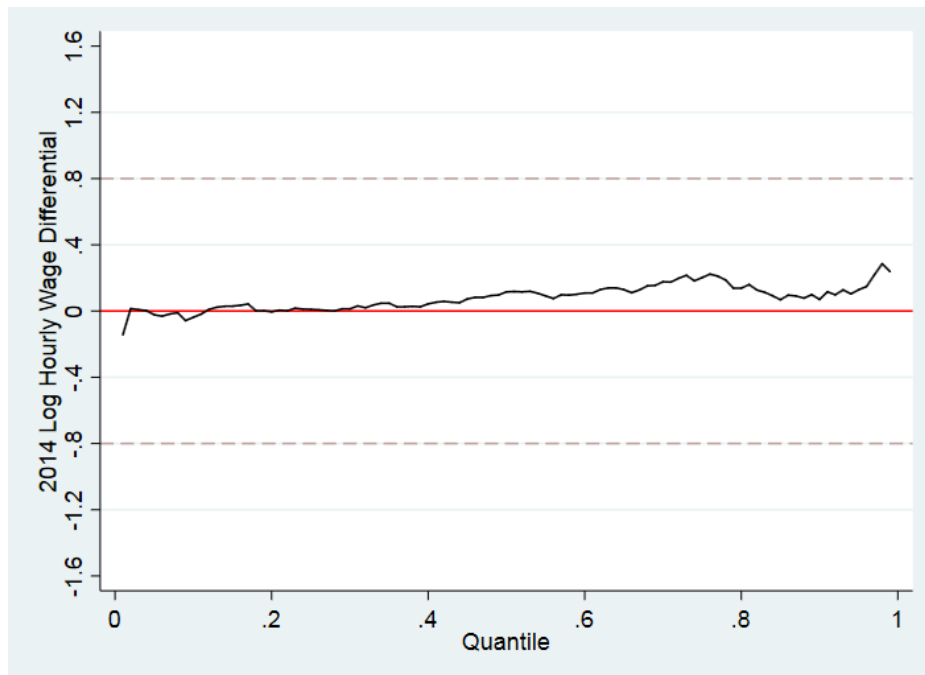
Disaggregating further, we analyse wage differences at various quantiles of the wage distribution. Figures 4 (a) and (b) below illustrate the wage gap or wage differential between mothers and non-mothers at various quantiles along the wage distribution in 2008 and 2014. The curves represent the log hourly wage of mothers minus the log hourly wages of non-mothers for the three years (2001, 2005, and 2007).

**Figures 4 (a) and (b): Difference in log hourly wages of mothers versus non-mothers by quantile – 2008 and 2014**



Source: Own calculations using NIDS 2008 dataset

Notes: Coding retrieved from Stata journal by (Cox, 2004). Earnings data have been deflated to September 2014 for comparability. Data is weighted.



Source: Own calculations using NIDS 2014

Notes: Coding retrieved from Stata journal by (Cox, 2004). Earnings data have been deflated to September 2014 for comparability. Data is weighted.

The graphs below depict the mother's earnings minus non-mothers' earnings at every quantile of the wage distribution. In 2008, mothers earn less than non-mothers up until the 20<sup>th</sup> quantile. In 2014, the wage differential between mothers and non-mothers at all quantiles



is narrower than that of 2008. Mothers earn less than non-mothers until around the 20<sup>th</sup> quantile, then the gap narrows until mothers start earning more around the 30<sup>th</sup> quantile. Around the mean, as corroborated by previous graphs and tables, mothers earn more than non-mothers for both years. At higher quantiles (60<sup>th</sup> and up), mothers earn significantly more than non-mothers. Contrastingly, the 2014 dataset shows that the wage gap between mothers and non-mothers narrows around the 80<sup>th</sup> and 90<sup>th</sup> percentiles. Clearly then, wage differential trends by motherhood status vary depending on certain factors.

## **5. Estimating the Motherhood/Child Wage Gap**

Under Mincer's human capital framework, various factors affect earnings. Pre-market factors such as education are useful to consider in the analysis of wage differentials. The wage estimations in this section contain experience variables instead of age dummies. As can be seen from Table 8 below, *ceteris paribus*, women in the sample exhibit positive wage returns to education. Weichselbaumer and Winter-Ebmer (2005) indicate that the marital status of an individual can be interpreted as a productivity indicator. The results under model specification (1) indicate that *ceteris paribus*, mothers earn 8.2% more than non-mothers in 2008 (3.1% in 2014), albeit statistically insignificant. Furthermore, marriage is related to negative wage outcomes for mothers in 2008 (but positive earnings in 2014), although not statistically significant.

Under model (2), the OLS results also confirm the assumption that the negative impact of children who reside with the mother become more significant as children grow: women with older children (aged 7 to 18) suffer a larger wage penalty than those with children under 7. Under model (3), the result is similar: having older children (both resident and non-resident with the mother) weighs a heavier burden than having children more children aged under 7.

Under model specification (4), holding all else constant, women with two or more children carry a heavier wage penalty than those with one child only. Mothers with 5 or more children suffer a very significant wage penalty.

Union members consistently earn more than non-union members. Domestic workers, majority of whom are child-free, earn the least compared to all other occupations except for wholesale and retail trade in model specification (1). These effects are consistent over the two years. In terms of experience, wages increase positively with experience (at an increasing rate at lower quantiles and at a decreasing rate at higher quantiles) in 2008. Contrastingly in 2014, wages increase negatively with experience (at a decreasing rate at lower quantiles and at an increasing rate at higher quantiles).

**Table 8: OLS Results – 2008 and 2014**

VARIABLES	2008				2014			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Years of Education	0.135*** (0.0178)	0.112*** (0.0113)	0.113*** (0.0113)	0.115*** (0.0113)	0.155*** (0.0142)	0.137*** (0.00964)	0.136*** (0.00965)	0.138*** (0.00970)
Agriculture, hunting, forestry and fisheries	-0.135 (0.137)	-0.0597 (0.108)	-0.0881 (0.109)	-0.0700 (0.110)	0.194* (0.108)	0.175** (0.0888)	0.160* (0.0902)	0.167* (0.0886)
Mining and quarrying	-0.0642 (0.263)	0.857*** (0.153)	0.818*** (0.154)	0.845*** (0.155)	0.439*** (0.165)	0.780*** (0.114)	0.762*** (0.115)	0.775*** (0.114)
Manufacturing	-0.0492 (0.160)	0.209** (0.101)	0.180* (0.102)	0.212** (0.102)	-0.257* (0.152)	0.162 (0.100)	0.147 (0.101)	0.156 (0.100)
Electricity, gas & water supply	0.803 (0.699)	0.498** (0.232)	0.459* (0.237)	0.496** (0.238)	-0.0761 (0.329)	0.555*** (0.182)	0.538*** (0.183)	0.550*** (0.182)
Construction	0.476* (0.278)	0.302** (0.145)	0.264* (0.146)	0.289** (0.147)	-0.0201 (0.220)	0.183* (0.100)	0.163 (0.102)	0.181* (0.0995)
Wholesale and retail trade	-0.0731 (0.141)	0.210* (0.112)	0.190* (0.112)	0.217* (0.113)	-0.0782 (0.103)	0.0190 (0.0891)	0.00866 (0.0898)	0.0161 (0.0890)
Transport storage and communication	-0.549 (0.361)	0.380** (0.185)	0.342* (0.186)	0.364* (0.187)	0.102 (0.260)	0.454*** (0.110)	0.436*** (0.112)	0.451*** (0.109)
Financial intermediation, insurance, real estate & business	0.256 (0.198)	0.370** (0.150)	0.344** (0.149)	0.357** (0.152)	0.0506 (0.121)	0.148 (0.0995)	0.135 (0.100)	0.142 (0.0991)
Community social and personal services	0.231 (0.147)	0.640*** (0.108)	0.617*** (0.108)	0.646*** (0.109)	0.152 (0.104)	0.271*** (0.0921)	0.261*** (0.0927)	0.267*** (0.0920)
Married	0.0800 (0.142)	0.116* (0.0619)	0.116* (0.0616)	0.0994 (0.0622)	-0.119 (0.112)	0.0757* (0.0459)	0.0757* (0.0458)	0.0632 (0.0455)
Experience	0.0214	0.0245**	0.0269**	0.0241**	-0.00884	-0.0122	-0.0111	-0.0128

	(0.0175)	(0.0120)	(0.0121)	(0.0120)	(0.0137)	(0.00879)	(0.00893)	(0.00881)
Experience Sq.	-3.00e-05	-0.000136	-0.000182	-0.000119	0.000664**	0.000624***	0.000597***	0.000669***
	(0.000429)	(0.000286)	(0.000287)	(0.000286)	(0.000338)	(0.000223)	(0.000226)	(0.000223)
Mother	0.0818				0.0309			
	(0.114)				(0.0754)			
Married mother	-0.0347				0.142			
	(0.173)				(0.134)			
Union Member	0.527***	0.270***	0.261***	0.269***	0.467***	0.432***	0.429***	0.433***
	(0.0986)	(0.0663)	(0.0662)	(0.0666)	(0.0800)	(0.0505)	(0.0506)	(0.0506)
Resident children < age 7		-0.0949				-0.0929**		
		(0.0754)				(0.0377)		
Resident children aged 7-18		-0.0695*				-0.00912		
		(0.0399)				(0.0338)		
Biological children < 7			-0.0509				-0.0457**	
			(0.0349)				(0.0181)	
Biological children aged 7-18			-0.0501**				-0.0129	
			(0.0202)				(0.0159)	
2-4 children				0.0656				0.0394
				(0.107)				(0.0816)
5 or more children				0.249***				0.0990
				(0.0870)				(0.0752)
Constant	1.041***	1.065***	1.075***	0.819***	1.274***	1.538***	1.556***	1.428***
	(0.386)	(0.228)	(0.230)	(0.244)	(0.224)	(0.152)	(0.152)	(0.165)
Observations	755	1,828	1,828	1,828	1,790	3,924	3,924	3,924
R-squared	0.432	0.370	0.373	0.372	0.358	0.320	0.321	0.319

Source: Own calculations using NIDS 2008 and 2014 data.

Notes: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The dependent variable is log of real hourly wages. The base category for occupation categories is private households. The province results have been omitted from the table and are available on request. Data are weighted.

### 5.1 RIF-OLS regression results

The OLS regression results indicate that holding all else equal, there does exist a motherhood penalty. With that being said, it is useful to understand these correlations at different points of the wage distribution. Table 9 below displays the RIF<sup>5</sup> estimates for women from the 10<sup>th</sup> to the 90<sup>th</sup> wage quantiles. In both 2008 and 2014, child-free women experienced higher returns to education than mothers only at the 10<sup>th</sup> and 25<sup>th</sup> quantiles. Mothers experience higher returns to schooling overall. The results for years of work experience are peculiar: from the 50<sup>th</sup> quantile and up, women experience negative returns to experience. This result is significant only at the 75<sup>th</sup> quantile for mothers, and at the 25<sup>th</sup> quantile for child-free women. Although insignificant, married non-mothers experience lower wage returns than their unmarried counterparts at all wage quantiles. Ceteris paribus, at the 75<sup>th</sup> quantile, mothers experience a ‘marriage wage premium’. At all quantiles (excluding the 25<sup>th</sup> for non-mothers), women who are union members earn more than non-union members.

<sup>5</sup> Unconditional Quantile regression gives heteroscedasticity robust standard errors (Melly, 2004).

Higher incomes in some professions, such as medicine, may provide strong incentives to remain employed after the birth of a child, whereas lower paid female-dominated professions may not offer similar incentives. Higher incomes may also offer greater financial resources to purchase high quality childcare.

The RIF-OLS results above confirm that the effect of motherhood may differ amongst lower and higher wage workers. Women in elite, male-dominated professions are likely qualitatively different than women in other professions in ways that cannot be measured (Buchmann & Mcdaniel, 2016), which may affect the results. The unconditional or marginal quantile regression model (UQR) decomposition will help in testing whether penalties or rather wage inequalities differ by skill and wage level (observable traits) or by unobservable factors instead.

**Table 9: Recentered Influence Function-Ordinary Least Squares (RIF-OLS) results, 2014**

VARIABLES	10th Quantile		25th Quantile		50th Quantile		75th Quantile		90th Quantile	
	Mother	Non-Mother	Mother	Non-Mother	Mother	Non-Mother	Mother	Non-Mother	Mother	Non-Mother
<b>Years of Education</b>	0.0809*** (0.0189)	0.0971*** (0.0314)	0.0771*** (0.0118)	0.0958*** (0.0192)	0.119*** (0.0102)	0.0830*** (0.0153)	0.272*** (0.0192)	0.216*** (0.0355)	0.248*** (0.0240)	0.190*** (0.0408)
<b>Agriculture, hunting, forestry &amp; fisheries</b>	-0.0201 (0.146)	-0.674*** (0.241)	0.0671 (0.0840)	-0.637*** (0.147)	-0.000344 (0.0716)	-0.490*** (0.120)	-0.356*** (0.112)	-1.377*** (0.255)	-0.182 (0.111)	-0.781*** (0.244)
<b>Mining &amp; quarrying</b>	0.278 (0.200)	0.378* (0.212)	0.131 (0.133)	0.0528 (0.164)	0.0554 (0.117)	-0.341** (0.139)	0.144 (0.202)	-1.060*** (0.281)	0.280 (0.170)	-0.372 (0.271)
<b>Manufacturing</b>	0.115 (0.230)	-0.0866 (0.170)	0.280** (0.116)	0.222 (0.161)	0.586*** (0.125)	0.249* (0.151)	0.609 (0.382)	1.532*** (0.284)	0.340 (0.519)	-1.636*** (0.362)
<b>Electricity, gas &amp; water supply</b>	0.113 (0.146)	-0.0802 (0.180)	0.00795 (0.0994)	-0.0208 (0.122)	-0.284*** (0.0841)	-0.485*** (0.128)	-0.907*** (0.150)	-1.491*** (0.264)	-0.482*** (0.143)	-0.916*** (0.294)
<b>Construction</b>	-0.0634 (0.542)	0.241* (0.130)	0.225 (0.262)	0.235** (0.117)	-0.00165 (0.295)	0.217 (0.329)	-0.195 (0.531)	-0.862 (0.839)	-0.506 (0.653)	-0.728* (0.386)
<b>Wholesale &amp; retail trade</b>	0.0532 (0.303)	-0.0222 (0.526)	-0.0170 (0.193)	-0.438 (0.368)	0.141 (0.183)	-0.468* (0.254)	-0.444* (0.267)	-0.984* (0.537)	-0.184 (0.228)	-0.589** (0.281)
<b>Transport storage</b>	0.0933	-0.00629	0.160**	-0.117	-0.0674	-0.207*	-0.742***	-1.432***	-0.506***	-0.776***

<b>&amp; communication</b>	(0.108)	(0.128)	(0.0651)	(0.102)	(0.0651)	(0.106)	(0.113)	(0.251)	(0.110)	(0.272)
<b>Financial intermediation, insurance, estate &amp; business</b>	0.396***	-0.509	0.368***	-1.231***	0.0847	-0.809***	0.292	-1.282*	-0.197	-1.261***
<b>Community, social &amp; personal services</b>	(0.0893)	(0.783)	(0.0916)	(0.339)	(0.147)	(0.307)	(0.341)	(0.717)	(0.394)	(0.452)
<b>Married</b>	0.346***	0.200*	0.328***	0.0164	0.246***	0.0403	-0.424**	-0.911***	-0.436**	-0.404
<b>Experience</b>	(0.0940)	(0.102)	(0.0682)	(0.110)	(0.0857)	(0.127)	(0.169)	(0.338)	(0.172)	(0.391)
<b>Experience Sq.</b>	0.0739	-0.0442	0.0653	-0.0961	0.0248	-0.114	0.244***	-0.0769	0.145	-0.232
<b>Union Member</b>	(0.0747)	(0.126)	(0.0464)	(0.0905)	(0.0468)	(0.0802)	(0.0877)	(0.157)	(0.0976)	(0.187)
<b>Constant</b>	0.0144	0.00114	0.0186	-0.0340**	-0.00717	-0.0230	-0.0430**	-0.0201	-0.0184	-0.0281
	(0.0197)	(0.0268)	(0.0123)	(0.0161)	(0.0112)	(0.0152)	(0.0199)	(0.0316)	(0.0194)	(0.0342)
	-0.000121	0.000374	-0.000218	0.00118***	0.000473*	0.000794**	0.00185***	0.00144*	0.00146***	0.00181**
	(0.000526)	(0.000736)	(0.000316)	(0.000453)	(0.000279)	(0.000393)	(0.000476)	(0.000828)	(0.000470)	(0.000888)
	0.301***	0.0272	0.343***	-0.00509	0.502***	0.238***	1.189***	0.504**	0.673***	0.925***
	(0.0721)	(0.102)	(0.0486)	(0.0890)	(0.0553)	(0.0916)	(0.120)	(0.207)	(0.131)	(0.272)
	0.414	1.300***	1.118***	1.786***	1.342***	2.239***	0.444	1.982***	1.409***	2.678***
	(0.332)	(0.492)	(0.189)	(0.315)	(0.163)	(0.293)	(0.292)	(0.738)	(0.337)	(0.837)
<b>Observations</b>	1,379	411	1,379	411	1,379	411	1,379	411	1,379	411
<b>R-squared</b>	0.078	0.155	0.156	0.254	0.284	0.313	0.387	0.375	0.220	0.266

Source: Own calculations using NIDS 2014

Notes: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The sample includes all Africans between 20 and 49 who are employed and have non-missing wages and hours of work data, and the data are weighted using September 2014 Census weights. The dependent variable is log of real hourly wages. The standard errors are shown in brackets below the estimates. The base category for occupation is private households. The province results have been omitted from the table and are available on request.

## Decomposition Results

RIF (unconditional quantile regression framework) decomposition regression analysis builds on the pre-existing discrimination literature which was focused on the mean, rather than specific percentiles of the wage distribution. If one assumes that childless women are compensated fairly and mothers are undercompensated, one would use the non-mothers' coefficients as reference coefficients, and vice versa (Jann, 2008). Table 10 below displays the decomposition results for 2007, using the mother coefficients as the reference coefficients.

**Table 10: RIF Decomposition Results of the Motherhood Earnings Gap, 2014**

	Gap		Explained		Unexplained	
10th quantile	0.0965	(0.0787)	0.00964	(0.0434)	0.0868	(0.0845)
25th quantile	-0.00919	(0.0579)	0.0181	(0.0398)	-0.0273	(0.0581)
50th quantile	-0.119*	(0.0624)	-0.00591	(0.0466)	-0.113**	(0.0504)
75th quantile	-0.0673	(0.162)	-0.126	(0.115)	0.0585	(0.135)
90th quantile	0.0346	(0.159)	-0.0930	(0.0984)	0.128	(0.150)

Observations	7,222	7,222	7,222	7,222	7,222	7,222
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Source: Own calculations using NIDS 2014

Notes: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The sample includes all Africans between 20 and 50 who are employed and have non-missing wages and hours of work data, and the data are weighted. The dependent variable is log of real hourly wages. 2008 results included in the appendix section.

The motherhood pay gap is widest at the 50th quantile, with mothers earning more than non-mothers at this point. This result is statistically significant. Only at the 10<sup>th</sup> and 90<sup>th</sup> quantiles do non-mothers earn more than mothers, and this result is statistically insignificant. The motherhood pay gap is narrowest at the 25th quantile, where mothers earn more than non-mothers. The unexplained proportion of the wage gap is higher than the explained proportion of the gap at all quantiles except the 75<sup>th</sup> quantile. This implies that at most wage levels, a greater proportion of the motherhood pay gap is explained by unobservable characteristics such as discrimination with regard to earnings between the two groups, rather than by differences in observable characteristics like educational levels. At the 10<sup>th</sup> quantile for instance, unobserved traits account for 90% of the gap. In other words, the results suggest that productive characteristics account for less of the wage gap. This outcome actually corroborates findings in a similar study conducted by Anderson et al. (2003).

## 6. Discussion

In their comparable study amongst White women in the United States, Budig and Hodges (2014) discover that mechanisms contributing towards the penalty vary by earnings level. Consequently, they posited that family resources, work effort and compensating differentials<sup>6</sup> account for a greater portion of the penalty amongst low earners (ibid.). For high wage earners, personal and intrinsic factors might be contributing towards the direction and magnitude of the gap. Results for Black South African women are more nuanced compared to international studies. Most Black women lie at the lower end of the income distribution. Clearly there exists a penalty for motherhood, but when analysing the two groups separately (mothers versus non-mothers), the penalty seems less obvious or rather prominent only at lower income quantiles.

Even for women in high-wage occupations, survey data analysis in the United States by Buchmann and Daniel (2016) confirms that mothers are paid less than childless women,

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<sup>6</sup> A compensating differential is the additional amount of income that a given worker must be offered in order to motivate them to accept a given undesirable job (Cahuc, et al., 2014).

however the negative penalty is less in low-wage female dominated occupations. Where the motherhood/child penalty is stark and prominent in other studies, in the case of South Africa only women at very low income levels experience this negative phenomenon more noticeably.

The decomposition results imply that most of the wage gap is due to unexplained characteristics. For instance, in her decomposition analysis of women's labour force participation rates in South Africa, Ntuli (2007) finds that the differential in wages cannot be fully explained by differences between mothers and other women in work experience and job characteristics. Considering mothers' high non-participation and unemployment rates, the findings exhibit that female participation responds positively to education which has been the prime factor for positive employment and wage outcomes. Amongst high skilled (education) wage earners, motherhood might have a less pronounced effect on earnings difference. Furthermore, non-labour income, marriage, fertility and geographical variations may have an effect on the decomposition results.

Motherhood affects women whether they co-reside with their children or not (Posel & van der Stoep, 2008). Authors find that co-residency upwardly biases negative effects of motherhood in instances where labour force participation includes migration to places of employment. Not co-resident mothers more likely to be participate in labour force. There exists weak legal or statutory support for work-care arrangements in South African organisations; especially at lower income levels (Dancaster & Baird, 2016). Trade unions in South Africa have not bargained to any great extent on work-care issues historically. However, authors do predict that a greater female presence in trade unions, particularly in leadership positions, will influence the adoption of work in future (ibid.).

### **Limitations**

Historically, most South African studies have dealt with selection problem by using the Heckman procedure to account for selection effects. Here, the earnings function is modelled on the characteristics of earners conditional on the fact that these earners are a subsample of all the employed, which is in turn a subsample of potential participants (Bhorat & Goga, 2013). More recently, in line with the international literature, more studies have cited the difficulty of applying appropriate exclusion restrictions. In addition, the selection procedure may result in a problem of measurement error since an estimate of the expected value of the error term is used in the second stage of the procedure. In previous South African studies

where selection has been accounted for, the female selection bias correction terms were largely insignificant (Ntuli & Wittenberg, 2013). This study does not apply these correction measures, which presents the first limitation to the study.

Secondly, The Oaxaca-Blinder decomposition strategy assumes three identifying assumptions (Cahuc, Carcillo, & Zylberberg, 2014, p. 507): firstly, the set of explanatory variables influencing wage levels should be the same for both men and women. Second is the conditional mean assumption (distribution of unobservable characteristics independent of group membership conditional on observable characteristics). This assumption may not hold considering that group membership such as union membership may be endogenous based on unobservable traits. Thirdly is the assumption of the invariance of the conditional distributions, which excludes the possibility of equilibrium effects and self-selection into groups based on unobservable traits. Considering the sample being studied, this condition may not be satisfied.

Thirdly, because the motherhood penalty calculations are based on wages only, it is difficult to debate differentials in bonuses and non-pecuniary work benefits amongst females. Unobservable factors such as the timing of child-bearing and even sibling effects may complicate modelling impact of motherhood on labour market outcomes. Moreover, some childfree women might have to take care of elderly parents or grandparents (England, et al., 2016), which may affect their wages. The study cannot control for unobservable factors such as network effects either. It is also useful to take into account the difference in the characteristics of women who stay behind to take care of children versus those who migrate to other provinces for work. Some of these traits may not be represented by available survey data variables. For this reason they could not be controlled for in estimation, in spite of their relevance.

Finally, to calculate a motherhood pay gap between mothers and non-mothers presupposes that motherhood does not affect the pay of non-mothers. This in turn suggests that pay discrimination is separate from and not linked to women's roles as mothers, except when women are actively engaged in motherhood (Grimshaw & Rubery, 2015). This is why behavioural studies are pertinent in understanding dynamics surrounding motherhood wage gap. For example, Kricheli-Katz (2012) conducts a hiring experiment in a laboratory in Israel to distinguish between discrimination-based and productivity-based explanations of the motherhood penalty. The author finds normative discrimination against mothers. Bedi et al.



(2017) discover parallel results in India for a similar study. The penalty is worse in cultures of patrilineal<sup>7</sup> origin in India. Societal norms therefore affect nature and extent of labour market discrimination against women in general.

## 7. Conclusion

This study has investigated the motherhood wage differential amongst women in South Africa using 2008 and 2014 cross-sectional data from the National Income dynamics Study. Even at the level of labour market status, mothers are less likely to participate in the labour force, let alone gain employment compared to childless counterparts. Evidence from this study confirms that the motherhood penalty does exist, especially at lower wage levels. After controlling for observable labour characteristics, the results verify that the family penalty is prominent both when a woman's children are young and also older. The women most vulnerable to wage penalties for having child dependents are those at the lower end of the wage distribution. Contrary to international studies such as that of Budig and England (2014), in the case of South Africa, marriage has positive wage effects for mothers at higher wage quantiles.

The RIF-OLS results confirm that at lower wage quantiles, mothers earn less than women who do not have children while at higher quantiles, the reverse is observed. This effect may indicate that high-skilled women with children might experience more favourable employment conditions. These findings lead to the conclusion that less skilled women tend to suffer a heavy penalty for motherhood. This highlights the value of higher education for women. Some discrimination due to motherhood may still exist at higher wage levels; but as substantiated by the decomposition results, a better understanding of the unobservable traits is a requirement.

The decomposition results confirm that a large component of the wage gap between mothers and non-mothers is unexplained by the model. By focusing on the experiences of working women alone, past studies and this study have ignored the selectivity into employment and have not considered how motherhood may influence employment decisions. Selection into certain occupations may affect the unexplained difference between the groups.

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<sup>7</sup> Patrilineal means patriarchal norms shape the image of the "ideal" mothers

Labour market policy which accommodates women with children at lower wage levels could have positive results for labour market outcomes. More educational attainment opportunities for women are crucial for improved labour market outcomes for mothers and non-mothers alike. Considering the low participation and employment rates of mothers, it would be beneficial for future research to conduct behavioural studies to understand better this substantial unexplained portion of the motherhood wage gap in the South African labour market.

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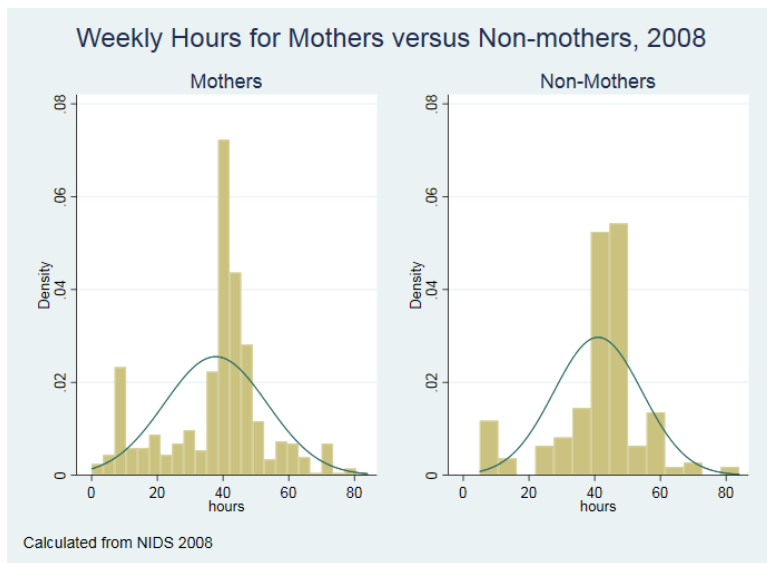
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## Appendix A

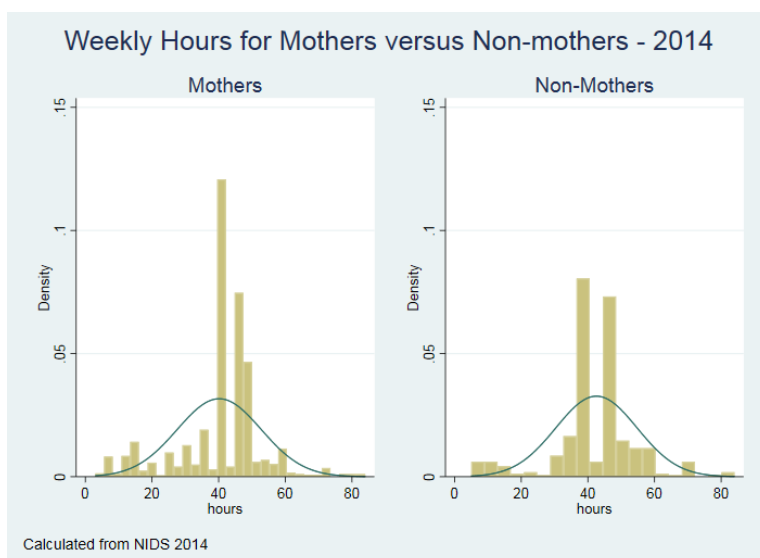
**Figure 1A:** Histogram and Distribution of Hours Worked – 2008



Source: Own calculations: NIDS 2014

Notes: the sample includes all Africans between 20 and 50 who are employed and have non-missing reported wage and work hours. The data are weighted.

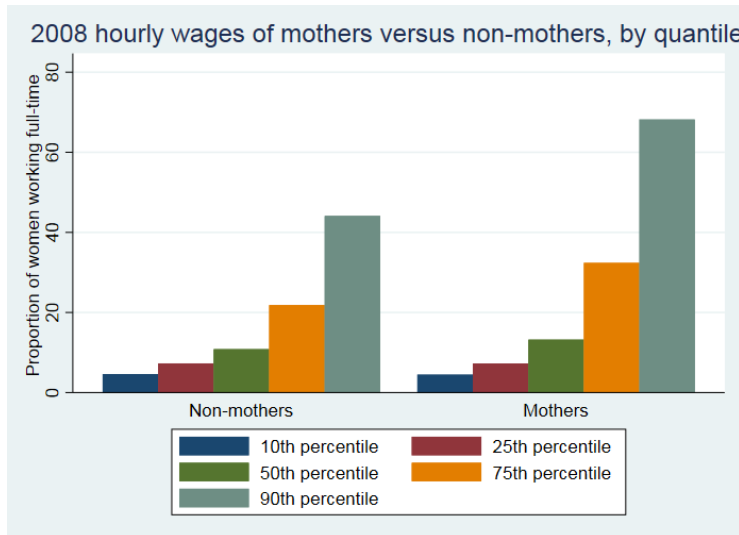
**Figure 2A:** Histogram and Distribution of Hours Worked – 2014



Source: Own calculations: NIDS 2014

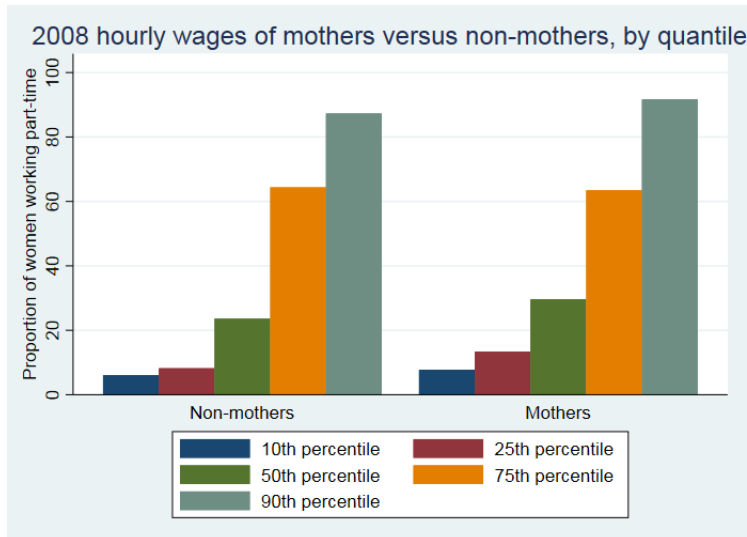
Notes: the sample includes all Africans between 20 and 50 who are employed and have non-missing reported wage and work hours. The data are weighted using 2001 Census weights.

**Figures 3 (a) and (b): Hourly Wages for Full-time and Part-time Female Workers, 2008**



Source: Own calculations using NIDS 2008

Notes: Earnings data have been deflated to September 2014 for comparability. The data are weighted.



Source: Own calculations using LFS 2001

Notes: Earnings data have been deflated to September 2016 for comparability. The data are weighted.



**Table 2A: Recentered Influence Function (RIF) -Ordinary Least Squares (OLS) results, 2008**

VARIABLES	10th Quantile		25th Quantile		50th Quantile		75th Quantile		90th Quantile	
	Mother	Non-Mother	Mother	Non-Mother	Mother	Non-Mother	Mother	Non-Mother	Mother	Non-Mother
Years of Education	0.169*** (0.0492)	0.0536 (0.0341)	0.149*** (0.0261)	0.132*** (0.0415)	0.168*** (0.0283)	0.104* (0.0539)	0.229*** (0.0332)	0.0683 (0.0580)	0.123*** (0.0346)	0.108** (0.0538)
Agriculture, hunting, forestry and fisheries	0.224 (0.279)	0.0238 (0.227)	-0.239 (0.198)	0.357 (0.405)	-0.632** (0.281)	-0.554 (0.470)	-0.512* (0.294)	-1.042** (0.517)	-0.252 (0.221)	-0.872* (0.462)
Mining and quarrying	0.0388 (0.560)	-0.0851 (0.584)	-1.080*** (0.225)	-0.372 (0.548)	-0.723*** (0.229)	-0.575 (0.596)	-0.337 (0.245)	-1.136** (0.569)	0.0491 (0.225)	-0.669 (0.469)
Manufacturing	0.412 (0.335)	0 (0)	-0.136 (0.377)	0 (0)	0.258 (0.480)	0 (0)	-1.129** (0.463)	0 (0)	-0.707** (0.282)	0 (0)
Electricity, gas, & water supply	0.289 (0.230)	-0.312 (0.362)	0.00705 (0.172)	-0.0487 (0.473)	-0.656** (0.294)	-0.160 (0.579)	-0.898*** (0.259)	-0.930 (0.615)	-0.265 (0.263)	-0.328 (0.570)
Construction	-0.0615 (0.154)	0 (0)	-0.776 (0.681)	0 (0)	-0.306 (0.815)	0 (0)	1.207 (0.999)	0 (0)	2.997** (1.264)	0 (0)
Wholesale and retail trade	0.754* (0.389)	0.173 (0.427)	0.429 (0.332)	-0.970** (0.464)	0.368 (0.475)	-0.608 (0.533)	-0.0740 (0.563)	-0.749 (0.619)	0.503 (0.711)	-0.315 (0.507)
Transport, storage and communication	0.126 (0.212)	-0.288 (0.225)	0.0211 (0.136)	0.264 (0.408)	-0.416* (0.241)	-0.284 (0.506)	-0.943*** (0.249)	-0.889 (0.638)	-0.235 (0.255)	-0.601 (0.391)
Financial intermediation, insurance, real estate and business services	-1.818 (1.477)	-1.644* (0.974)	-0.366 (0.650)	-0.530 (0.678)	-1.176*** (0.280)	-1.179 (0.761)	-0.888*** (0.340)	-0.864 (1.010)	-0.406* (0.232)	0.593 (1.262)
Community, social & personal services	-0.0467 (0.404)	-0.182 (0.259)	-0.105 (0.261)	0.156 (0.408)	0.106 (0.360)	-0.102 (0.480)	-0.208 (0.522)	0.627 (0.726)	0.211 (0.670)	0.109 (0.831)
Married	0.183 (0.147)	0.577*** (0.213)	-0.0917 (0.103)	-0.00439 (0.153)	-0.0187 (0.165)	0.0724 (0.246)	0.0874 (0.184)	0.358 (0.259)	0.160 (0.184)	0.490 (0.300)
Experience	-0.00514 (0.0383)	0.0718 (0.0535)	0.00879 (0.0224)	0.00695 (0.0430)	0.0389 (0.0400)	0.0531 (0.0556)	0.0444 (0.0378)	0.0745 (0.0718)	-0.000383 (0.0286)	0.156** (0.0688)
Experience Sq.	0.000679 (0.00108)	-0.00147 (0.00128)	0.000518 (0.000563)	0.000351 (0.000944)	-0.000175 (0.000961)	-0.00111 (0.00130)	-0.000145 (0.000930)	-0.00188 (0.00167)	0.000328 (0.000670)	0.00293* (0.00163)
Union Member	0.149** (0.0746)	0.229** (0.0981)	0.129** (0.0576)	0.206* (0.111)	0.370*** (0.111)	0.282** (0.137)	0.266* (0.142)	0.724*** (0.239)	0.119 (0.143)	0.113 (0.180)
Constant	-0.855 (0.884)	0.984* (0.571)	0.444 (0.508)	0.485 (1.028)	0.708 (0.728)	1.967 (1.329)	1.017 (0.847)	4.325*** (1.501)	3.340*** (0.946)	2.640 (1.643)
Observations	583	195	583	195	583	195	583	195	583	195
R-squared	0.160	0.223	0.332	0.316	0.357	0.326	0.339	0.466	0.130	0.280

Source: Own calculations using September round of LFS 2001

*Notes:* Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The sample includes all Africans between 20 and 50 who are employed and have non-missing wages and hours of work data, and the data are weighted using 2001 Census weights. The dependent variable is log of real hourly wages. The standard errors are shown in brackets below the estimates. The base category for occupation is managers. The ‘Other’ category is excluded from the estimation. The province results have been omitted from the table and are available on request.

Table 3A: RIF Decomposition Results of the Motherhood Earnings Gap, 2008

	<b>Gap</b>		<b>Explained</b>		<b>Unexplained</b>	
10th quantile	-0.0218	(0.114)	-0.00572	(0.0710)	-0.0160	(0.117)
25th quantile	-0.194**	(0.0763)	-0.0207	(0.0486)	-0.174**	(0.0775)
50th quantile	-0.362**	(0.163)	-0.139	(0.131)	-0.223	(0.140)
75th quantile	-0.520**	(0.247)	-0.199	(0.220)	-0.320*	(0.174)
90th quantile	-0.454	(0.289)	-0.101	(0.254)	-0.353	(0.237)
Observations	4,309	4,309	4,309	4,309	4,309	4,309

Source: Own calculations using NIDS 2014

*Notes:* Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The sample includes all Africans between 20 and 50 who are employed and have non-missing wages and hours of work data, and the data are weighted. The dependent variable is log of real hourly wages. 2008 results in the appendix.