

Motherhood penalty in labor markets across countries - Efrat Herzberg Druker

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Introduction

Mothers experience disadvantages in the workplace in addition to those commonly associated with gender. For example, researchers found that employed mothers in the United States suffer a per-child wage penalty of approximately 5%, on average, after controlling for the usual human capital and occupational factors that affect wages (Budig and England 2001; Anderson, Binder, and Krause 2003; Gangl & Ziefle, 2009).

The paper examines the pay gap between mothers and non-mothers, and between mothers and fathers, and will assess to what extent these gaps exist in all of the countries. Furthermore, the paper addresses other labor aspects such as labor force participation and occupation in order to better understand other complexities of the motherhood penalty.

Specifically, I present the differences in several aspects of labor (wage, participation in the labor market, employment rates and occupations) between women with children, women without children and men with children and without.

Most of the research in this area has focused on women in Western countries. In this paper I suggest comparing countries from all over the world in order to examine different patterns of motherhood penalties in distinct countries. Furthermore, the data is the most recent available for those countries. Moreover, the current paper includes comparing men and women and not only women as was previously studied

(Anderson, Binder, and Krause 2003; Budig and England 2001; Budig, Misra, & Boeckmann, 2012).

Data in the current paper was extracted from the Luxembourg Income Study (LIS), a project in Walferdange, Luxembourg that brings together comparable micro-data from a range of countries in one accessible location. I used the VIII wave for most of the countries, that is data that were collected in 2010. The analysis includes Colombia, Germany, Greece, Ireland, Italy, Slovakia, South Africa, Spain, UK, US, Japan, and Israel¹.

Gender differences in employment

Labor force participation rates² are higher among men than women. It can be seen in figure 1 that in all of the investigated countries there are designated differences. For example, in Colombia 82.1 percent of the men are participating in the labor force, however only 58.8 percent of the women participate.

¹Due to data limitations, I used an earlier wave for Japan and Israel(2007-2008).

²Participation in the labor market includes the employed and people who are looking actively for work.

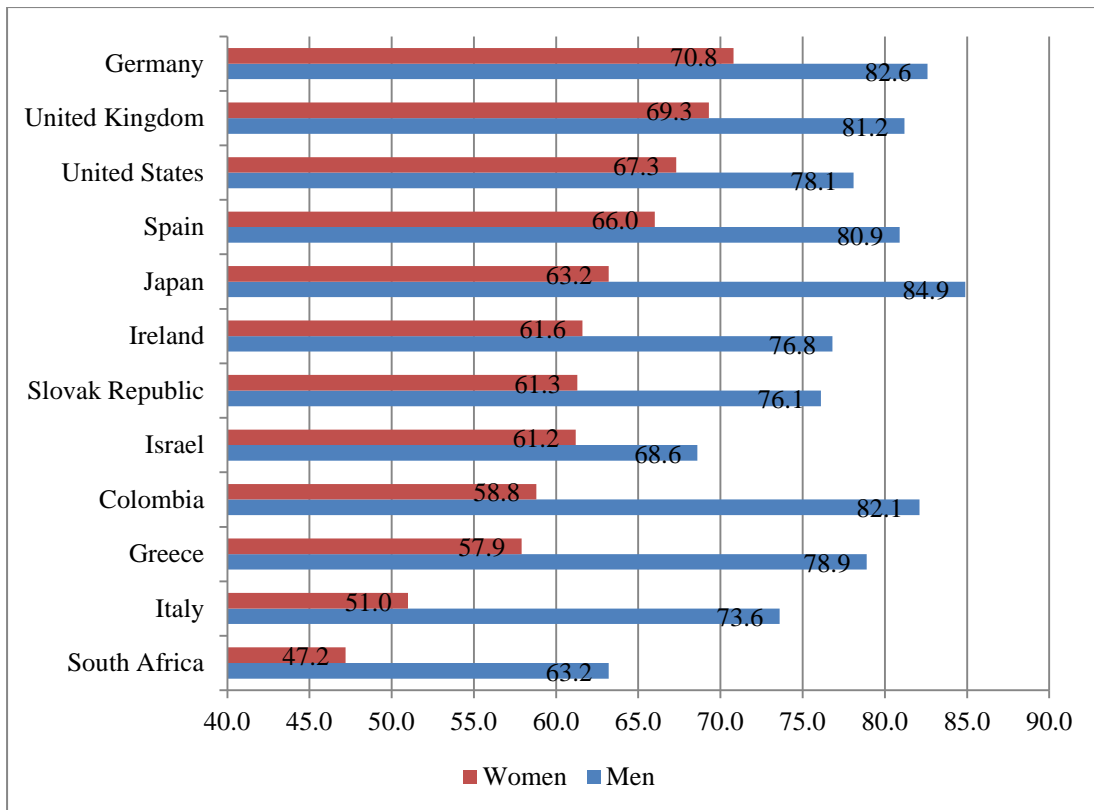


Figure 1: Labor force participation levels by gender, all countries³

Although in Colombia the gap is the highest, as can be seen in figure 2, it can be noticed that in all of the countries there is between 7 to 20 percent difference between male and female.

³Received from the world bank database:
<http://econ.worldbank.org/external/default/main?menuPK=633473&pagePK=64165395&piPK=64165418&theSitePK=469372>

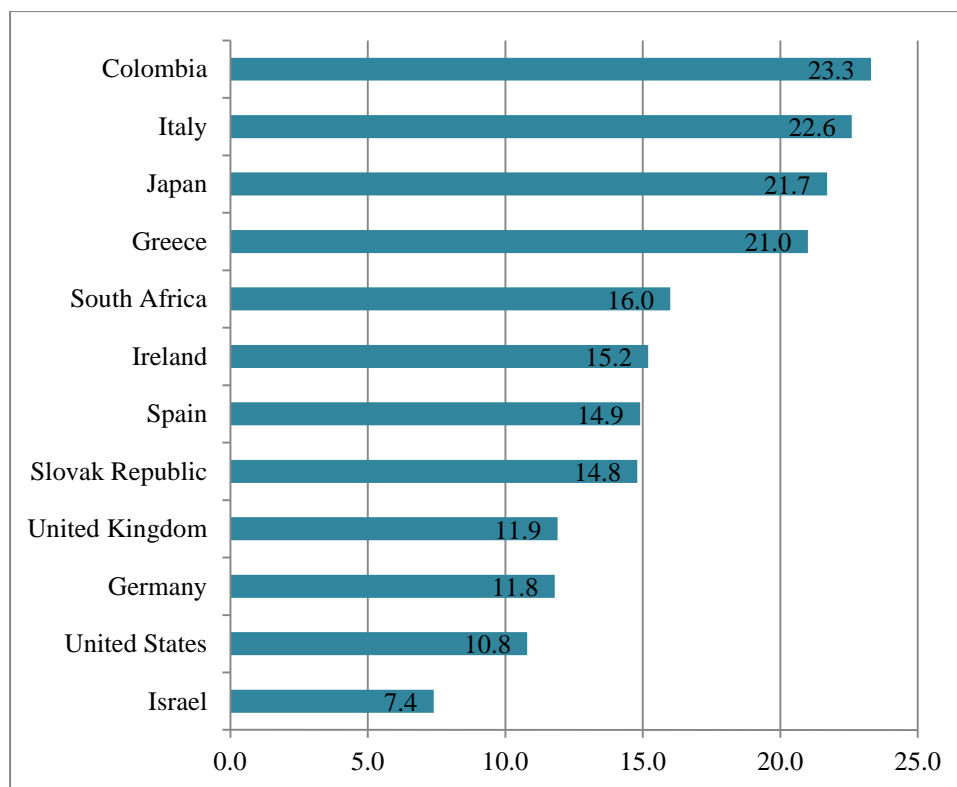


Figure 2: Gap between men and women's participation in the labor market, percent, all countries⁴

A similar trend can be found when detecting the gender composition of the labor force⁵ percent of employed from the participants in the labor market. Figure 3 describes those differences. Men are employed more than women in most of the countries. For example, in Germany the gender composition of the labor force is egalitarian. However, in Italy 58 percent of the labor force is men.

⁴Received from the world bank database:
<http://econ.worldbank.org/external/default/main?menuPK=633473&pagePK=64165395&piPK=64165418&theSitePK=469372>

⁵The Labor force includes only the employed as opposed to the participants in the labor force as was mentioned earlier.

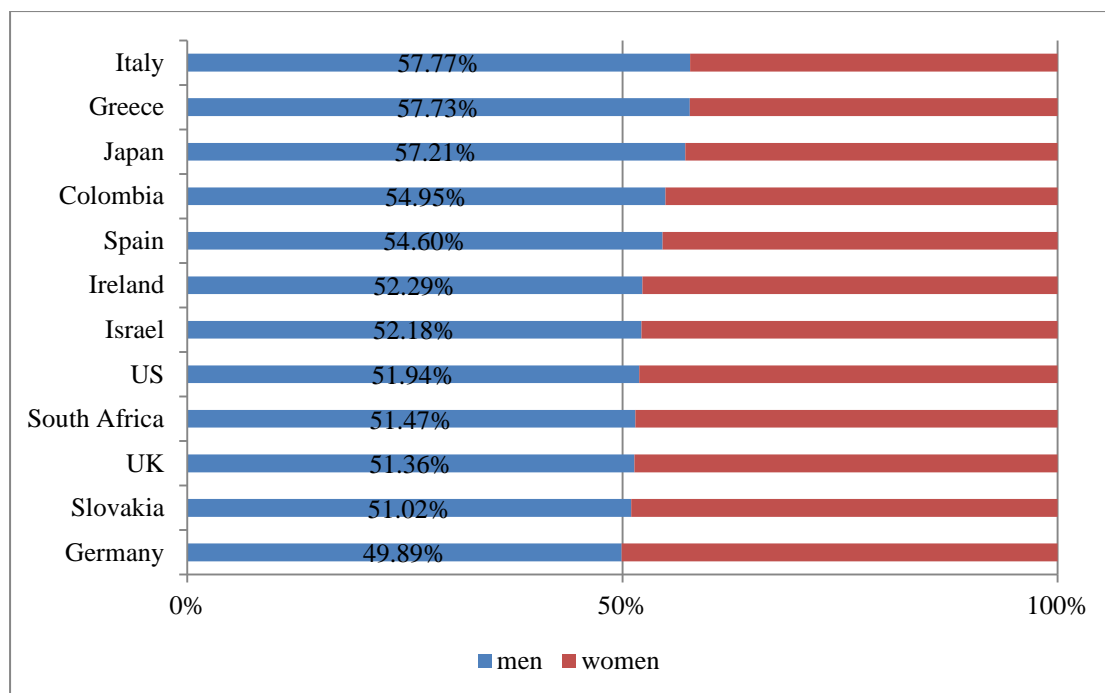


Figure 3: Gender composition of labor force, all countries

Participation rates and the composition of the labor force are important figures in the understanding of the differences between women and men in the labor market. Moreover, detecting other aspects, such as average working hours and in which occupations they are employed, are a significant contribution to understanding the disparities.

Figure 4 below describes the gender composition of the managerial and professional occupations, the most desirable and high social status occupations. In most of the countries we can find that more men than women are employed in those occupations. However, the differences are not higher than 10 percent. Worth mentioning that in South Africa and Slovakia there are more women than men in those occupations.

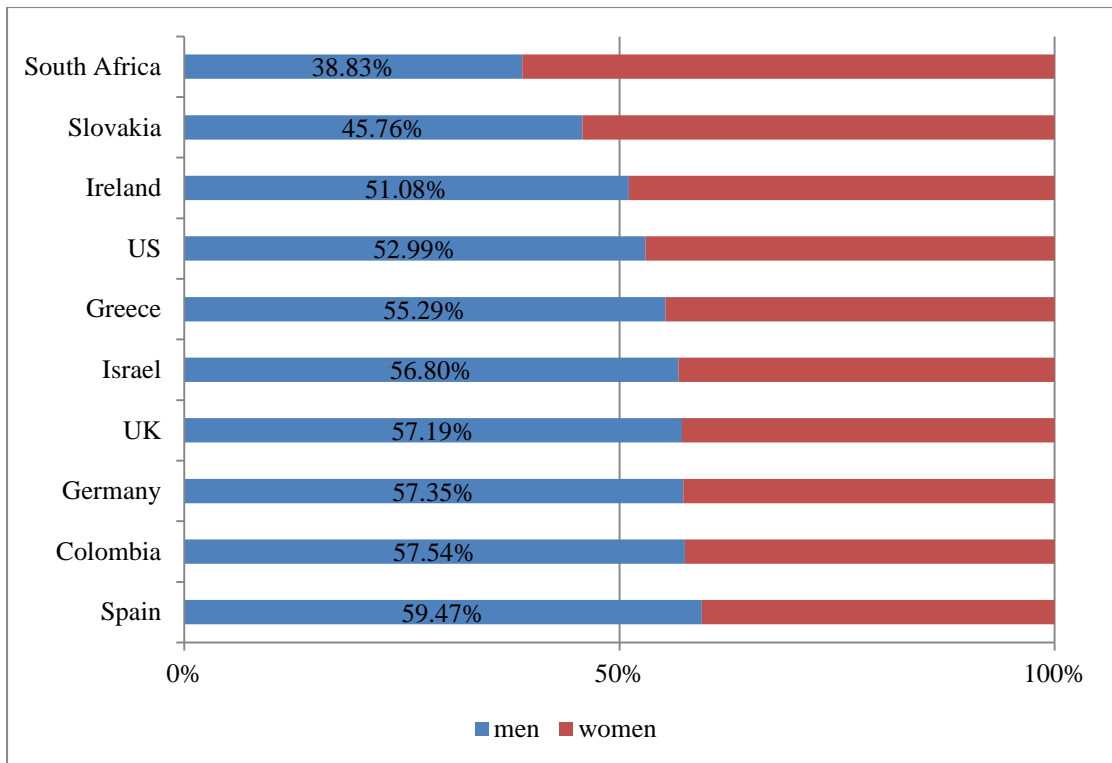


Figure 4: Gender composition of managerial and professional occupations, all countries

Figure 5 describes differences in weekly working hours between men and women who are employed in the investigated countries. In all of the countries men work more hours than women and the differences range from 1 to almost 10 hours.

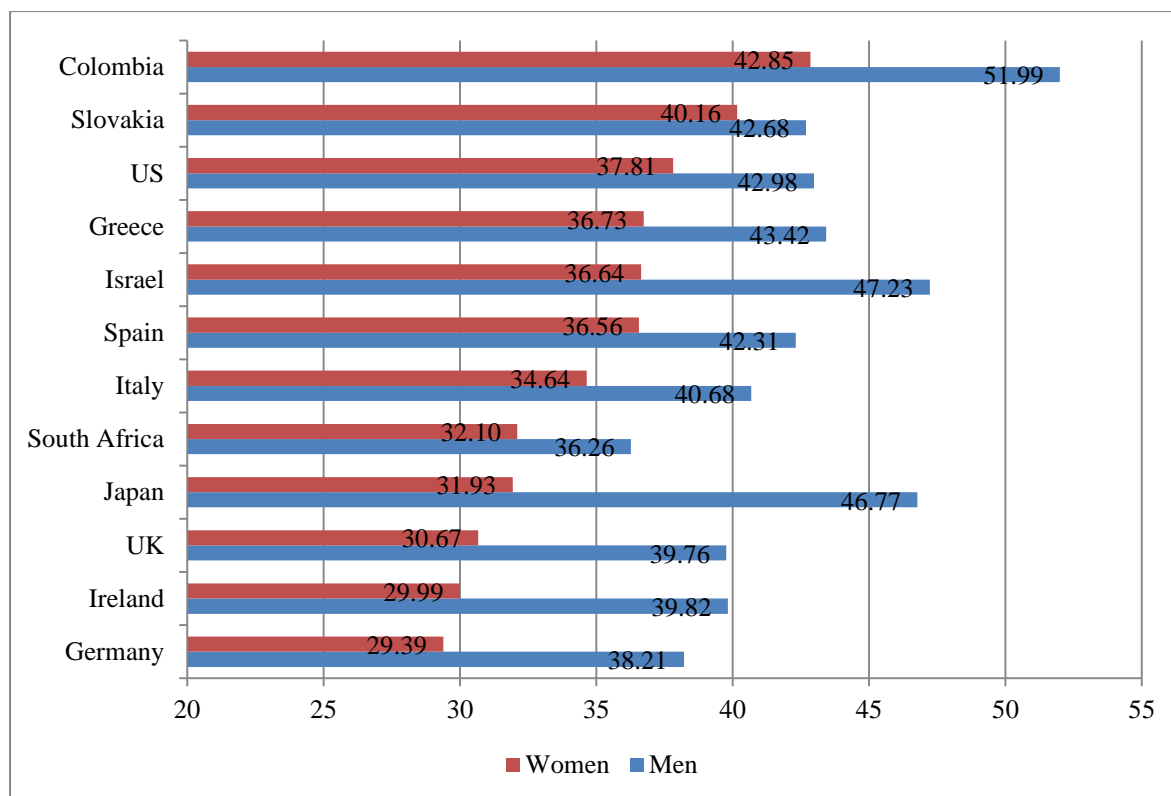


Figure5: Average weekly working hours by gender, all countries

On the one hand, it can be seen, according to figure 3 that women, have entered occupations that are considered to be high status occupations and even in several countries significantly outnumber the men in those occupations. However, men work more hours than women.

Hours of work are considered to be an important determinant in individual wage levels and therefore it can be claimed that according to the gap in the working hours between men and women, men should earn more than women. The wage ratio between men and women represents the relative share of women's wage out of men's wage. For instance, if the gender wage ratio is 0.50 that is that women's wage is 50% out of men wage. Figure 6 represents a comparison between the relative working hours of women out of men along with the relative wage of women out of men wage. In that figure, it can be noticed that the differences in the average weekly working

hours are not the entire story in explaining the gender wage gap. Figure 6, as was mentioned above, presents wage ratio, that is the relative share of women's wage of men's wage and hours ratio, that is the relative share of women's working hours of men's working hours. If the differences in wages between men and women arise mostly due to their different working hours I would expect those ratios to be quite similar in most of the countries. However, a different picture has been revealed. The wage ratio between men and women is substantially lower than the hours ratio – hence this shows that there is a higher wage gap than hour's gap between men and women. For example, in Slovakia, where men and women works almost the same average weekly hours (0.94), the wage ratio is 0.33 which means that women in Slovakia on average earn only third of what men earn on average. Although Slovakia is one of the most prominent cases, those differences can be found in all of the countries presented here.

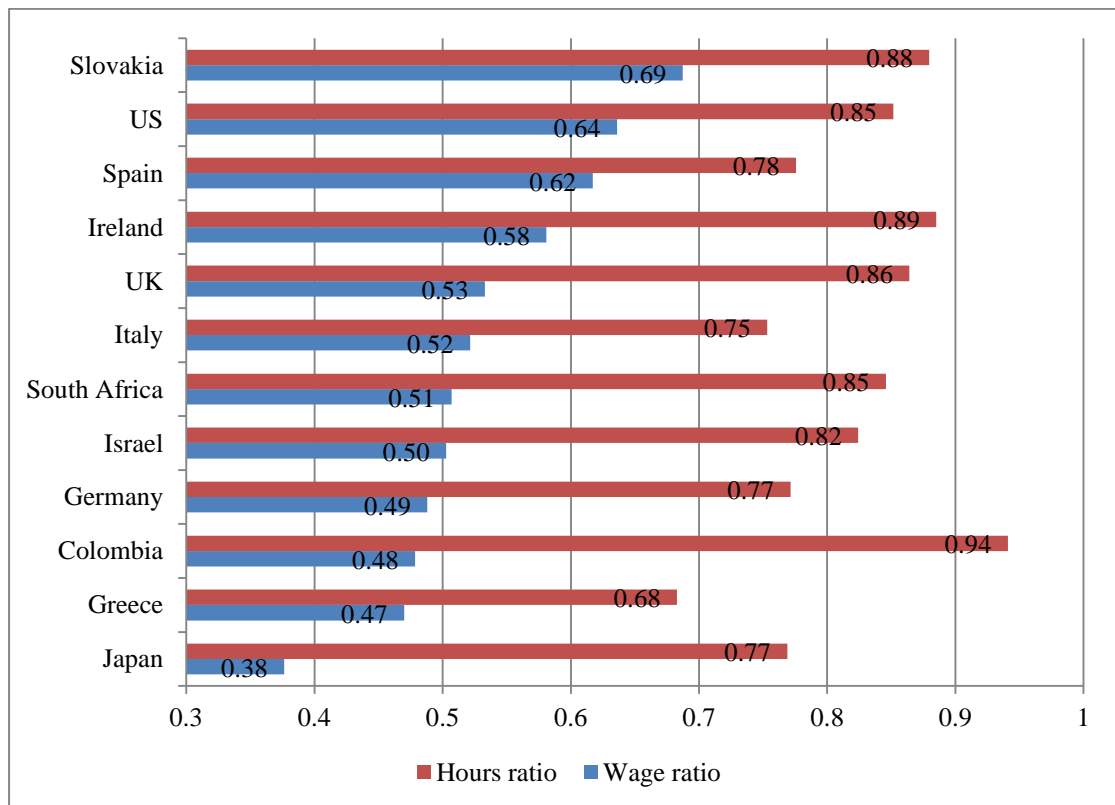


Figure 6: Wage ratio and work hours ratio, men and women, all countries

Gender disparities in several aspects of participation in the labor market were presented above. However, the purpose of the current report is to detect the motherhood penalty and therefore to compare between mothers and non-mothers as well as fathers and non-fathers. These comparisons will allow us to determine whether the penalty of motherhood is a stand-alone factor in addition to the gender bias that was described above.

Motherhood and fatherhood advantages and disadvantages

Employment rate is different by gender and when comparing mothers to non-mother and fathers to non-fathers an interesting trend revealed⁶. Figure 7 presents the employment rate among participants in the labor markets. It can be seen that in all countries men have a lower percent of employment than fathers and women have a lower percent of employment than mothers⁷. For example, in Italy more than 90 percent of the fathers in the labor force are employed and only 66 percent of men in the labor force are employed. These trends are similar among women with or without children. 57 percent of the mothers in the labor force are employed and 45 percent of the women without children are employed. In most countries men and father have higher employment rates than mothers (except Japan, Slovakia and United States), however in all of the countries including these three fathers are the most employed group. These findings suggest that, amongst participants in the labor market, mothers as opposed to women and fathers as opposed to men are more employed. In fact, there is an advantage to parents over no parents, no matter the gender.

⁶Mothers and father are defined as women and men who have children in the ages of 0 to 18.

⁷Exceptional in this case is South Africa.

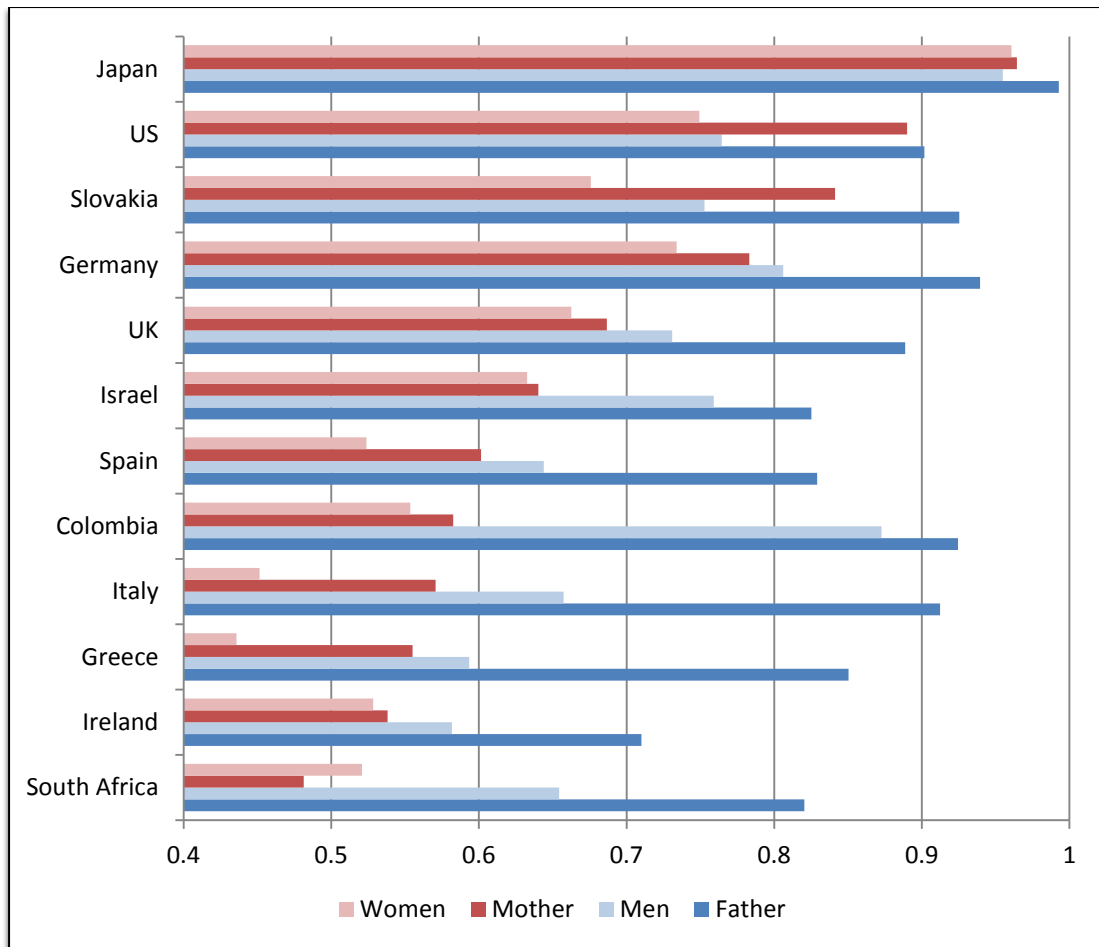


Figure 7: percent of employed amongst participants in the labor market by gender and children in the household, all countries

Employment rate is different by gender and when comparing mothers to non-mother and fathers to non-fathers an interesting trend revealed⁸. Figure 7 presents the employment rate among participants in the labor markets. It can be seen that in all countries men have a lower percent of employment than fathers and women have a lower percent of employment than mothers⁹. For example, in Italy more than 90 percent of the fathers in the labor force are employed and only 66 percent of men in the labor force are employed. These trends are similar among women with or without children. 57 percent of the mothers in the labor force are employed and 45 percent of the women without children are employed. In most countries men and father have higher employment rates than mothers (except Japan, Slovakia and United

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Occupations, as was already mentioned above are an important determinant of wage and of participation in the labor market. As was presented above (figure 4) there is an inconclusive trend among the different countries. That is still the case when detecting not only the gender but parenthood as well, as shown in figure 8.

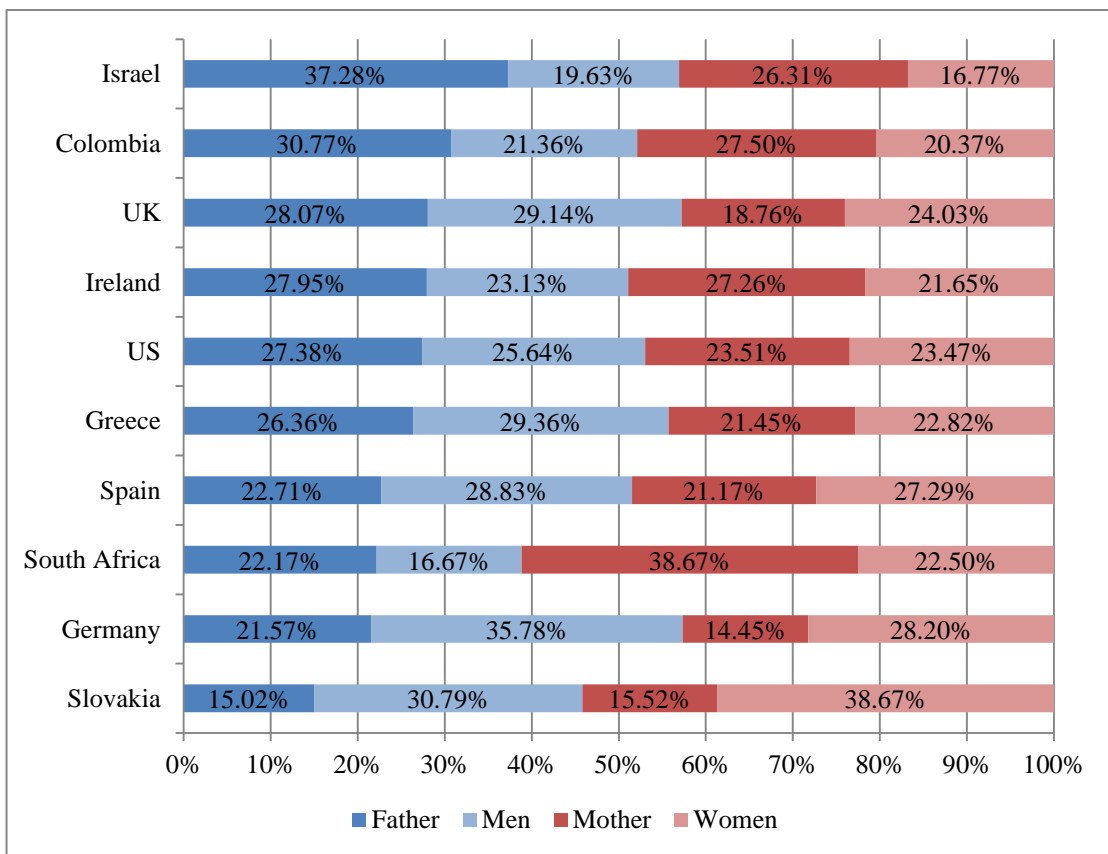


Figure 8: Percent of employed in managerial and professional occupations, by gender and parenthood

Here we can detect, among all workers that are employed in the managerial and professional occupations, how many are men, fathers, women and mothers. There is an inconsistent trend among all these countries.

Firstly, we can detect the gender bias that in most of the countries still exist. Only in Slovakia and South Africa, more women (mothers and non-mothers) are being employed in those occupations. However, in all of the investigated countries we can find that although the composition of the occupations is masculine, men are not more than 60 percent in those occupations. That is, the gender composition of those occupations is relatively egalitarian.

In this figure, we can detect several trends. There are countries in which men (parents and non-parents) have an advantage over the women (parents and non-parents). In the US for example, men have an advantage over women, however, parents have the advantage over non-parents. 27.38 percent of the managers and professionals are fathers, 25.64 are men, 23.51 are mother and 23.47 are women. However, in the UK, men have still advantage over women but non-parents have an advantage over parents. 29.14 percent of the managers and professionals are men, 28.07 are fathers, 24.03 are women and 18.76 are mothers. The same trend was found in Greece.

There are countries in which parents have an advantage over non-parents. In Israel, for example, 37.28 of the managers and professionals are fathers, 26.31 are mothers, 19.63 are men and 16.77 are women. The same trend was found in Colombia and Ireland. However, In Spain and Germany, non-parents have an advantage over parents. For example, in Germany, 35.78 of the managers and professionals are men,

28.20 are women, 21.57 are fathers and only 14.45 are mothers. This inconclusive finding might suggest different occupation markets in the different countries.

Disparities in average weekly working hours were presented in figure 5. Figure 9 presents the average weekly working hours for men, fathers, women and mothers. In all of the countries, fathers work more hours per week than men without children. However, women without children work more hours a week than mothers.

Different aspects of participation in the labor market were presented above, and the results are inconclusive. In several countries women, and especially mothers are the most vulnerable group in the labor market and in other countries mothers have a better position than women and even than men and fathers (mostly in percent of employment in high status occupations). However, wage disparities reveal similar trends in almost all of the countries.

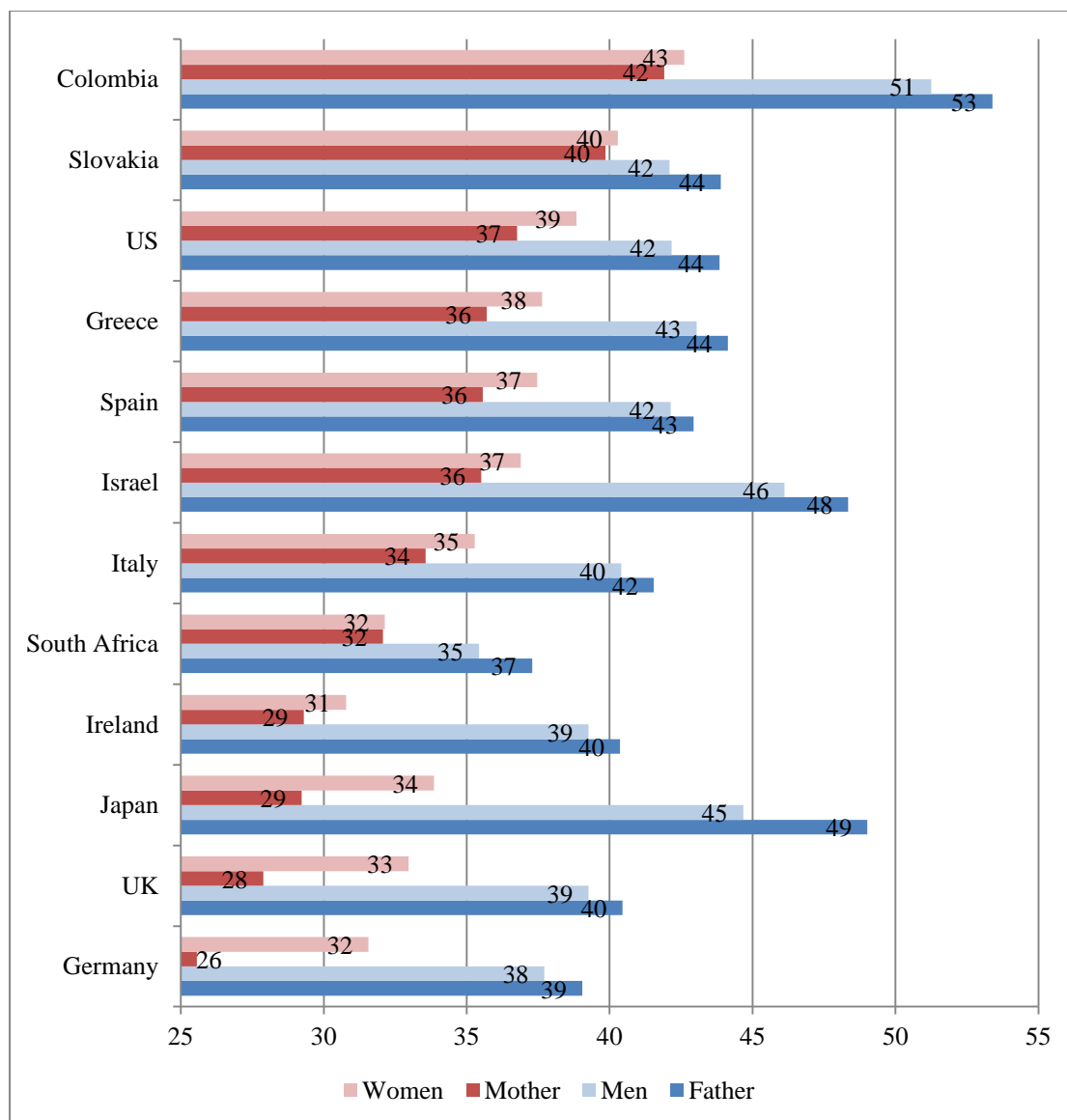


Figure 9: average weekly working hours by gender and children in the household, all countries

Gender wage gaps exist in all of the selected countries¹⁰ and actually the differences between the countries are only as regards the size of the gap and not as regards its existence. My main focus in the current paper is not the gender wage gap itself but the motherhood penalty beyond the gender gap. In order to detect the motherhood penalty I have predicted the average wage¹¹ of mothers, fathers, women

¹⁰Except Ireland, for further information see appendix 1.

¹¹Predicted wage was calculated by an OLS regression method

without children and men without children when all other determinants that might affect income are equal (education, age, experience in the labor market, working hours, occupation and immigration¹²). In figure 10 I presented the wage ratio¹³ between mothers and women, mothers and fathers and between men and women without children.

Firstly, mother/women wage ratio (The blue bars in figure 10) allows us to determine differences in wages between mothers and women when all other determinants that found to influence on wages are equal. In 8 of the 12 countries in this research there was a significant difference between mothers' average wage to women's average wage¹⁴. The difference between women's wage and mother's wage in most of the countries, although it exists, is not as large as the gender wage gap. There is a difference of 1 percent to 12 percent among mothers and women without children in the investigated countries. For example in Greece the wage ratio between mothers and non-mothers is 0.99, which is the wage of the average mother is 99 percent of the average women without children. In Ireland, however, the wage ratio is 0.88 that is the difference between an average mother wage and women without any children is 12 percent.

Secondly, the wage ratio between mothers and fathers (The red bars in figure 10) is lower than the ratio between women to men wage ratio. In other words, the disadvantage in the pay of mothers relative to fathers is greater than the disadvantage of women to men who are not parents. In all of the countries mothers' wage is at most 89 percent of fathers' wage while women's wage is can even be equal to men's who

¹²In Japan, UK, and Colombia the regression did not include immigration due to lack in the datasets. Occupation was not taken into consideration in the Japan regression as well.

¹³Wage ratio is the relative share of the average mother's wage of the average women's wage.

¹⁴The coefficient of mother was not significant in Italy, Spain, South Africa and Israel. However, the penalty women suffer from in comparison to men is relatively high in those countries.

are not parents¹⁵. For example, the highest wage ratio can be found in Italy, in which mothers earn only 88 percent of what fathers earn although all of the other determinants - that can be observed and found in past research as influencing wages - are the same. While non-parent women earn 86 percent of what non-parent men earn. In South Africa we can find the lowest wage ratio, 0.69 that is mothers earn only 69 percent of fathers on average.

Thirdly, the wage ratio between men and women without children (the green bars in figure 10) maintain the wage gap even after controlling for the other factors that might influence wage differences on average between individuals. The only country in which women do not suffer from lower wages as opposed to men is Ireland. In all of the other countries we can detect approximately 15 percent differences between men and women with the same individual characteristics. For example, in the United States women's wage (without children) is 85 percent of men's wage. In figure 6 we have seen that the wage ratio between men and women in the United States is 0.64 that is that women's wage is 64 percent of men's wage. The differences between the two figures arise from two differences between the calculations. Firstly, groups in both of the figures defined in a different way. Figure 10 includes men and women without children. However, figure 6 includes all men and women. Secondly, wage calculation is different. The wage ratio in figure 10, as was mentioned above, was based on predicted wage that was estimated by OLS regression models. In fine that means that the models controls all other factors that might

¹⁵Comparing figure 6 to figure 10 reveals the wage ratios are smaller. That it due to the fact that the wage ratio in figure 10 was based on the predicted wages that was calculated by the OLS regression results. In figure 6 the wage ration were not calculated based on predicted wage but on actual wage figures. Worth paying attention is the fact that in most countries, although all other equal, men still earn more than women with or without children (according to figure 10).

predetermine wage and detect the difference between men and women (or between mothers and fathers) as all other being equal.

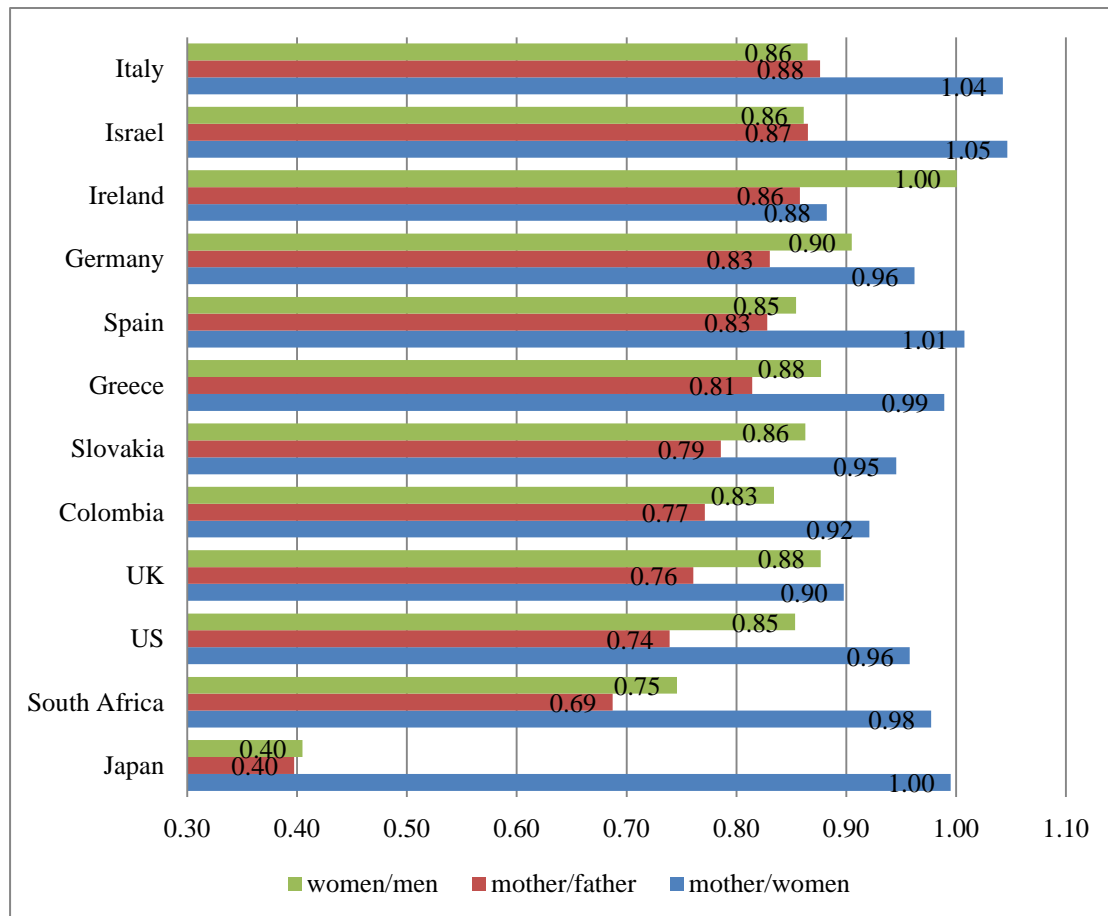


Figure 10: wage ratio mother/women, men/women and mother/father, predicted wage.

These results presented above in figure 10 imply the wage differences between men and women without children still exist (although controlling for all the observed factors available in the dataset that can determine wage). The wage gap that mothers suffer in the labor market is higher than women without children. However, the greatest gap is between mothers and fathers in the labor market, in almost all of the countries being investigated in the current research, with the exceptions of Italy and Israel. These findings correspond to previous findings. For example, Lundberg (2012) shows there is cross-national evidence that employers in many countries consider the

presence of children in the home when they decide how much to pay employees. This influence on pay is positive for fathers but negative for mothers.

Summary and discussion

Women have achieved substantial progress over the last decades in different aspect of the labor markets. They have, for example, more than doubled their participation rates in the last 60 years (England, 2006). However, in labor market's outcome, especially wage, there are still disparities that are unexplained, as was presented above.

Motherhood does not reduce labor force participation or occupational success. However, it does reduce the number of hours worked and, even more, it increases disproportionately the gap between fathers and mother's wages¹⁶. Gaps between mothers and fathers in wages are significant in most of the countries that were included in the research. The results imply that gender is still a prominent factor in wage, and in contrast to previous findings (Budig and England 2001; Anderson, Binder, and Krause 2003; Gangl & Ziefle, 2009). The most significant gap is between men and women and between mothers and fathers. However the current findings suggest there is not a significant gap between mothers and women without children.

Understanding the mechanism behind those gaps require a different strategy. The current paper did not consider any comparisons of welfare policy due to data limitations, and did not investigate the gender wage gap and motherhood penalty according to different country characteristics. Accounting for those important factors may suggest expanding the understanding of the mechanism behind those wage differences. Several scholars had detected those relationships before and found the

¹⁶As was already mention above, working hours were included in the regression model and therefore it can be said that the wage gap between men and women and between mothers and fathers exist even when both groups work equal number of hours.

importance of those factors in explaining the gender wage gap (Mandel & Semyonov, 2005) and gender differences in employment (Boeckmann, Misra and Budig, 2013).

Taking into consideration the specific country characteristic in explaining the gender wage gap and motherhood penalty had examined by Mandel & Semyonov (2005). They found that gender earnings disparities are less pronounced in countries with developed family policies. For example in Sweden, where the welfare state is family –oriented the gender wage differences are lower than in the United States where the welfare policy is less family-oriented. However, they also found that if cross-country differences in the wage structure are controlled, the underlying effect of family policy on the gender gap is exposed. Although “mother-friendly” policies enable more women to become economically active, they exacerbate gender occupational inequality. The lower earnings differentials between men and women in developed welfare states, according to the scholars, should be attributed to their more egalitarian wage structures rather than to their family policies.

Detecting employment and not wages, Boeckmann, Misra and Budig (2013) claim that more generous paid leaves publicly supported child care services for very young children, and cultural support for maternal employment predict lower differences in employment participation and working hours between mothers and childless women, while the length of job protected leave is associated with larger motherhood employment gaps.

These finding emphasized the relationship between public policy and gender wage gap and participation of women in the labor markets. In the future, when more recent data will be available (With the completion of the 8th wave of LIS) the proposed analysis will be possible and therefore will be able to draw a worldwide

contemporary picture of the motherhood penalty with better solutions for the policy makers to act for the reduction of this condition.

International policy decision makers must take into consideration those existing wage gaps between men and women and more importantly between mothers and fathers. Policy decision makers must act decisively to eradicate them in order to promote gender equality in the world.

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Mandel, H., & Semyonov, M. (2005). Family policies, wage structures, and gender gaps: Sources of earnings inequality in 20 countries. *American sociological review*, 70, 949-967.

Appendix 1: OLS regression results, LN yearly wage, all countries

	Italy	Germany	Greece	Ireland	US	Spain	Slovakia	South Africa	Colombia	UK	Japan	Israel
Female	-0.145*	-0.100*	-0.1311*	0.001	-0.159*	-0.157*	-0.148*	-0.293*	-0.181*	-0.131*	-0.904*	-0.149*
Age	0.022*	0.069*	0.063*	0.074*	0.046*	0.039*	0.021*	0.015	0.026*	0.066*	0.072*	0.031*
Squared age	-0.0002*	-0.0007*	-0.001*	-0.001*	-0.0004*	-0.0004*	-0.0002*	-0.0002	-0.0002*	-0.001*	-0.001*	-0.0003*
Married	-0.003	0.084*	0.086*	0.129*	0.088*	0.071*	0.050*	0.190*	0.047*	0.035*	-0.028	0.049*
Children	0.029	0.048*	0.063*	0.029	0.100*	0.039*	0.037	0.059	-0.004*	0.034*	0.014*	0.041
Female* Children	0.01287	-0.086*	-0.074*	-0.154*	-0.144*	-0.031	-0.093*	-0.082	-0.079*	-0.142*	-0.019*	0.004
Higher Education	0.390*	0.244*	0.285*	0.027*	0.368*	0.344*	0.241*	0.901*	0.865*	0.326*	0.011*	0.328*
Working Hours (yearly)	0.001*	0.001*	0.001*	0.001*	0.001*	0.001*	0.001*	0.0002*	0.0002*	0.001*	0.018*	0.0006*
PM Occupation	-0.041*	0.376*	0.260*	0.444*	0.288*	0.276*	0.153*	1.220*	0.477*	0.385*	-	0.384*
Immigrant	-0.246*	-0.093*	-0.246*	-0.176*	-0.123*	-0.238*	-0.328*	0.263*	-	-	-	-0.241*
Intercept	7.917*	6.57*	6.8001*	7.144*	7.781*	7.483*	7.258*	9.311*	14.613*	7.121*	12.849*	9.076*
N	4228	7836	2639	2447	66547	9074	5630	3505	6238	18567	3049	4484
R-squared	0.4636	0.6002	0.4959	0.5766	0.4281	0.4343	0.2707	0.3189	0.4699	0.4549	0.4395	0.5352

*p<0.1