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Who Suffers the Most During the COVID-19 Pandemic? Evidence from Thailand

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Abstract

This study investigates Thailand's recent labor market disruption induced by the COVID-19 pandemic. We found that the impact varied across demographic groups. Workers that are the most adversely affected by the COVID-19 pandemic are (1) in high-risk sectors, (2) less-educated, (3) youth worker, and (4) parents. Our empirical results show that the unemployment rate is positively related to sectorial risk levels and marital status: married and public sector employees are less likely to be unemployed. Further, less occupational flexibility decreases wages, and this effect is stronger for women. Parenthood negatively affects wages, and its effect is larger for women.

Keywords: Covid-19, labor market, demographics, Thailand

JEL: J21; J24; J16; J12

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1. Introduction

The COVID-19 pandemic has been an unprecedented event worldwide and, through lockdown and social distancing measures, fundamentally affected social and economic activities. Empirical studies related to the COVID-19 pandemic and resultant labor market disruptions have increased rapidly, and most confirmed the negative effect of the pandemic on labor market outcomes, including increased unemployment, decreased working hours, and changes in work arrangements (e.g., Brodeur et al., 2020; Gupta et al., 2020). Furthermore, this pandemic has had a heterogeneous impact on the labor market by gender, race, age, education level, industry, and occupation (Adams-Prassl et al., 2020; Dasgupta and Murali, 2020; Beland et al., 2020; Mongey and Weinberg, 2020; Lee et al., 2021). For example, labor market disruption is greater among sectors with high COVID-19 risk exposure and occupations with less flexibility (ILO, 2020a; Alon et al., 2020; Dingel and Neiman, 2020, Montenovo et al., 2020).

For such research, Thailand provides an interesting case study on the impact of the COVID-19 pandemic on labor market outcomes. This is because Thailand's high level of openness to trade and tourism contributes to the severe pandemic-induced shock the country is undergoing, and this shock will worsen Thailand's existing vulnerabilities (World Bank, 2020). Paweenawat and Liao (2021) suggested that the impact of the COVID-19 pandemic is highly unequal across demographic groups and that higher-educated workers tend to be less affected. Additionally, studies show that, in relation to the crisis, a higher proportion of women is located in high-risk sectors than men, while women's occupations are more flexible than those of men (ILO, 2020a; Lekfuangfu et al., 2020).

Based on the above, this paper investigates Thailand's recent pandemic-induced labor market disruption through descriptive and regression analyses. First, we use the Labor Force Survey (LFS) data for Q3 of 2018, 2019, and 2020 to compare the recent changes in the unemployment rate, wages, and working hours and the disparity among different demographic groups by age, gender, education, marital status, and parenthood status. We also applied the ILO's "COVID-19 disruption risk assessment for employment in Thailand" considering low-, medium-, and high-risk levels of exposure and the 2-digit International Standard Industrial Classification codes to investigate the impact on the labor market. Second, we use regression analysis to assess the determinants that correlate with recent unemployment and wages using LFS Q2 and Q3 2020. Specifically, we estimate the regressions using cross-sectional models on unemployment and wages, considering sector-level risk exposure and occupational flexibility related to COVID-19.

In addition, concerning gender disparity and parenthood, as existing empirical studies have found, women tend to be more negatively affected by the crisis than men are due to childcare provision and the unequal assignment of household burdens during this time (e.g., Alon et al., 2020; Croda and Grassbard, 2021; Frodermann et al., 2020; Kristal and Yaish, 2020). We further explore the effect of parenthood (having children under 15 years old) on wages during the pandemic by employing inverse probability weighted regression adjustment (IPWRA), accounting for the selection bias related to parenthood.

Additionally, in recent years before the pandemic, the Thailand gender wage gap converged mainly due to the increase in women's education, while the wage penalty of motherhood and fatherhood increased (Nakavachara, 2010; Paweenawat and Liao, 2019). Therefore, we use the

Oaxaca-Blinder decomposition to investigate the gender wage gap among demographic groups during the pandemic. Our objective is to explore the determinants and extent to which those determinants affect unemployment and wages during COVID-19.

This study contributes to the emerging literature in three ways. First, we provide a comprehensive descriptive analysis of labor market disruption by considering different demographic subgroups and making year- and month-based pre-pandemic and pandemic comparisons. Second, we estimate the change in the unemployment rate and workers' wages, accounting for the COVID-19-related risk of sectors and occupational flexibility using comprehensive data of a large sample size. Third, we measure the Thai parenthood and gender wage gaps across the demographic groups.

2. Data

This study uses data from a nationally representative LFS conducted by the National Statistical Office (NSO) of Thailand. First, for our descriptive analysis, we use LFS data from Q3 of 2018, 2019, and 2020 for yearly comparisons and Q1 to Q3 of 2020 for monthly comparisons. Second, the empirical analysis employs data from the LFS for Q2 and Q3 2020. We restrict the sample to labor force participants aged 18 to 60 and consider their employment statuses, industrial and occupational codes, and related individual characteristics, including age, sex, household information, regions, education, marital status, working status, and residence area. We include full-time employees working for more than 35 hours per week and use their reported weekly wages

from the survey[1]. Table 1 reports the summary statistics for LFS Q2 and Q3 2020.

The three levels of sectorial risk are generated based on ILO's "COVID-19 disruption risk assessment for employment in Thailand at 2-digit sector level," which accounts for the expected effect on economic output per sector. It does this by combining the composition of exports and macroeconomic indicators from the Oxford COVID-19 Government Response Tracker covering 144 countries and territories (see ILO, 2020a for more details)[2]. Based on the assessment, the high-risk sectors in Thailand include retail trade, transport, accommodation, travel, related activities, and sports.

Next, following the mapping of the Occupational Information Network (O*NET) to ISCO by Dingel and Neiman (2020), we generate the occupational flexibility index. We do this by conducting factor analysis with O*NET COVID-19-related occupational characteristics from the Work Context Questionnaire and Generalized Work Activities Questionnaire, which capture the degree of work-from-home job flexibility during social distancing and degree of proximity with others (Mongey and Weinberg, 2020; Dingel and Neiman, 2020; Lekfuangfu et al., 2020). We use the questionnaires to measure work flexibility, including face-to-face interaction, frequency of ICT usage, and reliance on machinery (Paweenawat and Liao, 2021)[3]. The index was standardized to a zero-to-one scale.

[1] Since the working hours have declined for the overall sample but not wage, we do not use hourly wage for the analysis, as it tends to overestimate income.
[2] The risk assessment of sectors in Thailand is at 2-digit ISIC level (ILO, 2020a), where the low risk includes 01,02, 03,04,05,06,07,08,09,12,14,17,18,33–38,42,49,53,58,61, 62,63,66,69,70,71,72,73,74,80,81,82,83, 84, 85,86,87,88, 95,96,99; the middle risk includes 10,11,13,15,16,19–32,41,43,44,45,46,56,59,60,64,65,68,75,76,77, 78,90,91,92, 94, 97; and the high risk includes 47,50,51,52,55,79,93.
[3] The selected questions from the Work Context Questionnaire include 1, 2,3,4,6,7,10,17,18,21,37,48,52,55; The selected questions from the Generalized Work Activities Questionnaire include 4,8,9,11,16,17,18,19,20,22,23,24, 29,32. (Source: https://www.onetonline.org/find/descriptor/browse/Work_Activities/; https://www.onetonline.org/find/descriptor/browse/Work_Context/)

As suggested by Hicks et al. (2020) and Montenovo et al. (2020), the occupational characteristics of O*NET do not consider innovations, such as transitions from face-to-face teaching to online teaching, or risk exposure to COVID-19, such as for public sector workers in jobs characterized by high physical proximity and low levels of social distancing. Therefore, accounting for sectorial risk and occupational flexibility should capture the impact of COVID-19 on workers more comprehensively.

3. Descriptive analysis

Unlike typical economic recessions, through social distancing and lockdown measures, the COVID-19 pandemic has simultaneously hit aggregate demand, disrupted supply, and shocked financial markets (Triggs and Karas, 2020; Mohapatra, 2020). The Thai economy contracted by 1.97% in Q1 2020, 12.2% in Q2 2020, and 6.4% in Q3 2020 (%QoQ) after seasonal adjustment (see Figure 1). The GDP (%YoY) in 2020 is projected to contract by 6.6% (Bank of Thailand, 2021). Compared to the financial crises of 1997 and 2008, the COVID-19 pandemic has severely damaged the Thai economy, even though the spread of COVID-19 in the country has been contained relatively successfully.

According to the World Bank (2021), the GDPs of emerging and developing countries have contracted by a lesser degree than those of advanced economies, and in the East Asia and Pacific region, Thailand performed better than the Philippines in the first three quarters of 2020 but worse than other countries, including China, Vietnam, and Indonesia. Compared to developed countries, such as the US, which has experienced an abrupt increase in its unemployment rate from 3.5% in

February 2020 to 14.7% in April 2020 after adopting the social distancing measure (Shibata, 2020; Fairlie et al., 2020), the impact has been relatively smaller in Thailand. As shown in Figure 2, the unemployment rate rose from 1% in Q1 2020 to % in Q2 2020 and then dropped slightly to 1.9% in Q3 2020 (NSO, 2020)[4].

Figure 3 shows the change in the unemployment rate in the pre-pandemic and pandemic periods for different demographic groups. Generally, unemployment has risen significantly for all groups. The unemployment rate is higher for women than for men for 2020 (108% vs. 100%). Women in medium- and high-risk sectors, men in high-risk sectors, workers aged 45 to 49, and 50 to 54 years old are among those experiencing the highest increase in the unemployment rate. Younger workers (those aged 18 to 24 years) are experiencing the highest unemployment rate, at 5.04% in 2018, 5.84% in 2019, and 8.84% in 2020 (not shown in the figure). Highly educated workers have been affected less during the pandemic. These results are consistent with those of Lee et al. (2021), who suggested that the impact of the COVID-19 pandemic is greater for female, younger, and less-educated workers. According to ILO (2020b), globally, young workers have experienced the more severe end of the pandemic-induced labor market disruption, possibly creating a "lockdown generation." In Asia and the Pacific region, young workers are also hit hard in the labor market during this time (ILO and ADB, 2020).

Figure 4 presents the change in weekly wages within the two periods. Unlike the across-the-board increase in unemployment, the direction of change in wages differs by demographic

[4] According to World Bank (2018), Thailand ranked 9 out of 233 countries in the low-to-high unemployment rate ranking. However, the country's low unemployment rate has shown some structural problems in the labor market, including high share of informal workers and underemployment, mismatch of skills, and inactive workers (Bank of Thailand, 2019).

group. Men and women in high-risk sectors have experienced the largest decrease in wages. In contrast, those in low- and medium-risk sectors, highly educated workers, and those aged over 24 years have experienced increased wages in 2020. In addition, wages have decreased for less-educated workers (secondary and primary level) and workers aged 18 to 24 years. Single-status workers have a higher increase in wages than married workers.

For working hours, as shown in Figure 5, all the groups have worked fewer hours in 2020 than before, ranging from 3% to 4.7% fewer hours. While there is not much gender difference in the change of working hours, the largest decline appears in the 18–24-year-old workers group. Additionally, while single workers have higher drop-in hours than married workers (4.5% to 3.6% for men; 4.1% to 3.7% for women), parents have experienced a larger decrease in working hours than those without children under 19 years of age, and this decline is slightly higher for mothers (3.3–4%) than for fathers (3.3% to 3.8%). Del Boca et al. (2020) suggested that additional workload in work and household chores falls more on women than on men within couples, and mothers struggle more to balance work and family during this pandemic in Italy. Alon et al. (2021) also obtained similar findings for Europe, Canada, and the US, showing that women spend more time on childcare and decrease their productivity than men.

Lastly, we use LFS data from Q1 to Q3 of 2020 to plot the unemployment rate, wage, and working hours for each month. According to the World Health Organization (2020), the Thai government declared a state of emergency and restricted international and domestic mobility on March 25, 2020. Policies to flatten the infection curve, including lockdown and social distancing measures (e.g., closing stores, schools, and entertainment facilities), have been relatively

successful in containing the outbreak. The restrictions were gradually lifted from the first phase on May 3, 2020. From July 2020, all schools, restaurants, and entertainment were allowed to reopen, and domestic travel returned to normal; however, the second COVID-19 wave in December 2020 caused the reinstatement of some restrictions (Ministry of Public Health: MoPH, 2020). In Figure 6, the drop from March reflects the impact of lockdown and social distancing measures in increasing the unemployment rate and decreasing wages and working hours. Due to the relaxation of restriction measures and the reopening of the domestic economy, wages and working hours gradually resumed from June 2020.

To summarize, the figures highlight the negative impact of COVID-19 on employment, wages, and working hours, indicating that workers that are in high-risk sectors, less educated, young, and with young children are more negatively affected. In addition, factors show different effects on employment and wages. For example, each group in the different levels of sectorial risk has experienced an increase in unemployment, but low- and medium-risk workers experienced an increase in wages in 2020, implying that the determinants of unemployment and wage may vary, and those that remained employed may be affected more by individual characteristics than industry-level risk.

4. Regression analysis

To assess the variance of the determinants of employment and wages, target vulnerable groups, and those most in need of protection during the COVID-19 pandemic, we provide empirical analysis under different regressions.

4.1 Unemployment and wage

We employ the following regression model to investigate the factors that correlate with the labor market impact of the COVID-19 pandemic:

$$y_{ijk}^{Q} = \beta_1 Industry\_risk_j^{Q} + \beta_2 Occup\_flex_k^{Q} + \beta_3 Gender_i^{Q} + \beta_4 Child\_group_i^{Q} + \beta_5 X_i^{Q} + \varepsilon_{ijk}^{Q} \quad (1)$$

where y_{ijk} is either the employment status or the log weekly wage of individual i in industry j and occupation k, which equals 1 if individual i is unemployed and 0 otherwise. $Industry\_risk_j$ is the degree of sectorial risk related to the COVID-19 pandemic. $Occup\_flex_k$ is the standardized occupational flexibility index. $Child\_group_i$ is the indicator of the number of children that individual i has, including four groups of variables as children aged: under 5, 5 to 10, 11 to 14, and 15 to 18. X_i is a vector of covariates, including age, age squared, education, industrial groups, three levels of occupational skills[5], marital status, work status (public or private sector), residence area, and regions. We run the regression for Q=2 (quarter 2) and Q=3 (quarter 3) in 2020.

Table 2 shows the probit estimation results for the overall sample, women and men in Q2 and Q3 in 2020. Being older, married, and working in the public sector is negatively correlated with the unemployment rate, implying that older workers, married workers, and public workers have a lower probability of being unemployed. The number of children, residence area, and

[5] The occupational codes are harmonized based on the International Standard Classification of Occupations 2008 (ISCO-08) and classification of skills followed by Autor (2019).

education were generally not significantly correlated to unemployment. The level of sectorial risk plays an important role in affecting unemployment during the pandemic: workers in medium-risk sectors are approximately 1.1% (in Q2) and 2% (in Q3) less likely to be unemployed than those in the high-risk sector, and workers in the low-risk sector are 1.5% (Q2) and 2.4% (Q3) less likely to be unemployed. Regarding gender, occupational flexibility does not significantly affect the unemployment rate for women in both quarters, suggesting that flexibility does not affect women's employment. In contrast, higher flexibility tends to decrease the unemployment rate for men. Marriage and public status have a larger negative effect on the unemployment rate for men than for women.

Table 3 reports the basic OLS estimation results for the wages. In Q2 and Q3 for all groups, higher occupational flexibility increases wages, and the impact is larger for women than for men. Age, marital status, public status, education, residence area, and skills significantly affect wages. Controlling the levels of the risk sectors reflects higher wages in high-risk sectors; for example, workers in a high-risk service sector have higher wages than low-risk agricultural workers. We provide subgroup estimations for each level of sectorial risk for Q2 and Q3 in Table 4. Occupational flexibility shows a larger positive effect in higher risk sectors than in low-risk ones.

In contrast to the unemployment rate, the number of children becomes a significant factor for wages, where the number of children under 15 years of age negatively affects wages. The number of children aged 0 to 5 and 6 to 10 years old has a larger negative effect on women's wages than men's, suggesting that having younger children may affect mothers more than fathers. Therefore, we further investigate the effect of parenthood on wages.

4.2 Parenthood wage gap

Next, we employ the IPWRA approach to investigate the effect of parenthood (having children under 15 years old). The outcome variable is the log weekly wage, and the treatment variable is parenthood.

The outcome model is as follows:

$$y_i = f(x_i, \sigma) + \upsilon_i \tag{2}$$

The treatment model is as follows:

$$\Pr(\mathrm{T_i} = 0,1) = \mathrm{h}(\mathrm{x_i}, \lambda) + \omega_\mathrm{i} \tag{3}$$

where $\mathrm{y_i}$ is the log of the weekly wage. $\mathrm{T_i}$ is the treatment assignment for having children under 15 years of age. $\mathrm{x_i}$ is a vector of covariates (the same as in Eq. 1). The IPWRA estimates the average treatment effect (ATE) of having children younger than 15 years, allowing the selection of parenthood using a probit model. Wage is estimated using inverse probability weights (IPW) from the probit model (Wooldridge, 2007). ATE is obtained by comparing the means of treatment-specific predicted outcomes (Cattaneo, 2010; Cattaneo et al., 2013).

Table 5 presents the IPWRA results of the parenthood effect on wages for women, men, and the overall sample in Q2 and Q3. Consistent with the basis regression results, the ATE suggests

that women are affected more by parenthood than men in both quarters, and the effect decreases from Q2 to Q3 (-0.052 vs. -0.033; -0.047 vs. -0.022), implying that mothers with young children may experience higher pressure in their work than fathers. Parents are more likely to be affected by the COVID-19 crisis than non-parents (Hipp and Bünning, 2020). Other researchers have also suggested the fatherhood penalty in Italy due to lockdown measures, which increased fathers' engagement in childcare and household tasks (Mangiavacchi et al., 2020). The results are consistent with Del Boca et al. (2020), who found that women with children aged 0 to 5 are affected more by the pandemic and bear more of the childcare burden than men.

4.3 Gender wage gap

Lastly, to explore the gender wage gap during the COVID-19 pandemic, we employ the Oaxaca-Blinder decomposition to examine the wage differences by different demographic groups, including levels of industrial risk, levels of education, marital status, and parenthood status.

For each subgroup, we use regression models for log weekly wages separated into two groups by gender: men (M) and women (W).

$$Y_i^M = X_i^M \beta_i^M + \varepsilon_i^M \tag{4}$$

$$Y_i^W = X_i^W \beta_i^W + \varepsilon_i^W \tag{5}$$

where Y_i is the log weekly wage of individual i, and X_i is the vector of explanatory variables. The

average wage difference between the two groups is

$$\overline{Y}^{M} - \overline{Y}^{W} = \beta^{M}\left(\overline{X}^{M} - \overline{X}^{W}\right) + \overline{X}^{W}(\beta^{M} - \beta^{W}) \quad (6)$$

where the total difference in gender-based wages consists of an explained difference (the first term) and unexplained difference (the second term).

Table 6 reports the gender wage gap in each level of sectorial risk. Positive total differences for high- and medium-risk sectors suggest that men have higher average wages than women, while in low-risk sectors, it is the other way around. Specifically, higher occupational flexibility, married status, and higher education play a significant role in decreasing the total difference in each level. Occupation flexibility and education account for the largest proportion of the explained difference. Comparing the three levels, occupational flexibility has a larger effect on medium-risk sectors than on high- and low-risk sectors (-0.05 for medium, -0.03 for high, -0.01 for low), and education has a higher effect on high- and medium-risk sectors than on low-risk sectors (-0.04 for high, -0.04 for medium, -0.02 for low). Consistent with Alon et al. (2021) and Doorley et al. (2021), the representation in different sectors and occupations, as well as education, account for the unequal impact of the crisis by gender.

In addition, we apply the Oaxaca-Blinder decomposition to the analysis of the gender wage gap by demographic groups, including the three education levels, married and single statuses, and parent and non-parent statuses. Figure 7 summarizes the gender wage gap across the subgroups. Except for negative numbers in low-risk sectors and single status, which suggest that women earn higher wages than men in the same group, other groups have a positive gender wage gap.

Consistent with Figure 4, single women earn higher wages than men, with a 3% increase in wages in 2020, compared to 1.9% for single men, 1.9% for married women, and 1% for married men.

5. Conclusion and policy implication

The COVID-19 pandemic has affected the labor market abruptly and seriously. This paper provides descriptive and regression analyses to explore factors related to the recent pandemic-induced labor market disruptions in Thailand. We found that the impact of COVID-19 varies across demographic groups, indicating that those working in high-risk sectors and less flexible jobs, as well as workers who are less-educated, parents, and younger tend to be more negatively affected by the crisis. Women experienced a higher increase in the unemployment rate than men during the pandemic, and workers in high-risk sectors and those aged between 45 and 49 years experienced the highest increase in the unemployment rate among other workers. In addition, among all the subgroups, younger workers aged 18 to 24 years experienced the highest unemployment rate. For wages, men and women in high-risk sectors experienced the largest wage decrease, followed by less-educated workers and younger workers aged 18 to 24 years. Lastly, all the groups experienced a large decline in working hours in 2020.

The empirical results suggest that the unemployment rate is positively related to the levels of sectorial risk. Those who are married and working in the public sector are less likely to be unemployed. The results also show that parenthood negatively affects wages, and the negative effect is larger for women than for men. While the number of children does not have much effect on unemployment, when it comes to wages, the number of children under 15 years of age has a

significant negative effect that is stronger for women than men. Moreover, less occupational flexibility decreases wages, and the effect is stronger for women. There exists a larger gender wage gap in the high-risk sector, less-educated, married, and non-parent groups, while women outperform men in low-risk sectors and single status groups. The higher occupational flexibility accounts for the decrease in the gender wage gap. The large proportion of the unexplained difference may indicate disparities in the treatment from employees during the pandemic.

This unequal impact suggests that the government should tailor policy responses to specific groups. According to the World Bank (2020), Thailand reacted and responded to the crisis quickly with a sizable response package and broad population coverage compared to other ASEAN countries. However, the Thai government's response package to deal with the COVID-19-induced labor market disruption has mainly focused on vulnerable groups, including farmers, younger children aged up to 6 years old, the elderly, and disabled people, who can be separated into workers with social security and workers without social security (World Bank, 2020). Formal workers with social security are not eligible to receive unemployment benefits, while targeted vulnerable groups without social security can receive cash transfers. For example, the government has launched "Rao Mai Ting Gun" for workers and farmers without social security who now work less and suffer from income loss, each of which can receive 5,000 baht for three months (Bank of Thailand, 2020). Our results, however, highlight that younger workers, parents, and less educated groups require more attention from the government.

We also shed light on the diverse and significant determinants of unemployment rates and wages during this time. For employment, lower sectorial risk, married status, and working in the

public sector decrease the probability of unemployment. For wages, having children, a less flexible occupation, lower education and skills, being female, being single, and working in the private sector negatively affect wages. According to the ASEAN Youth Survey (2020), Thailand has relatively adverse remote working arrangements, with 76% of respondents expressing the difficulty of studying or working remotely compared to the regional average of 69%. Policies to provide assistance to affected sectors and increase flexibility in working arrangements will be highly valuable. Moreover, long-term recovery plans should improve workers' education and skills, providing accessible childcare services and parental benefits.

Finally, we raise a concern that there are large disparities in the gender wage gap by sectorial risk exposure, education levels, and marital status during the pandemic. Studies have suggested that women tend to be more affected by COVID-19 because of increased workload and gender-role attitudes (Del Boca et al., 2020; Reichelt et al., 2020). We show that single women and women in low-risk sectors perform better than men, but the gender wage gap remains in medium- and high-risk sectors, education levels, and married groups. Therefore, specific gender inequality measures to remedy the situations of men and women with vulnerable features should be considered.

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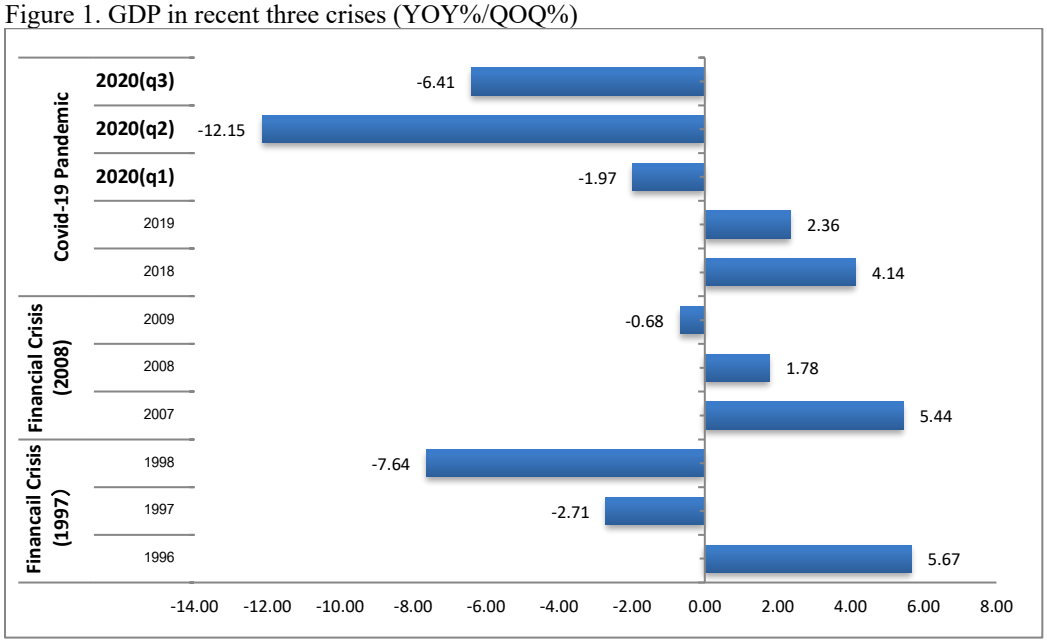
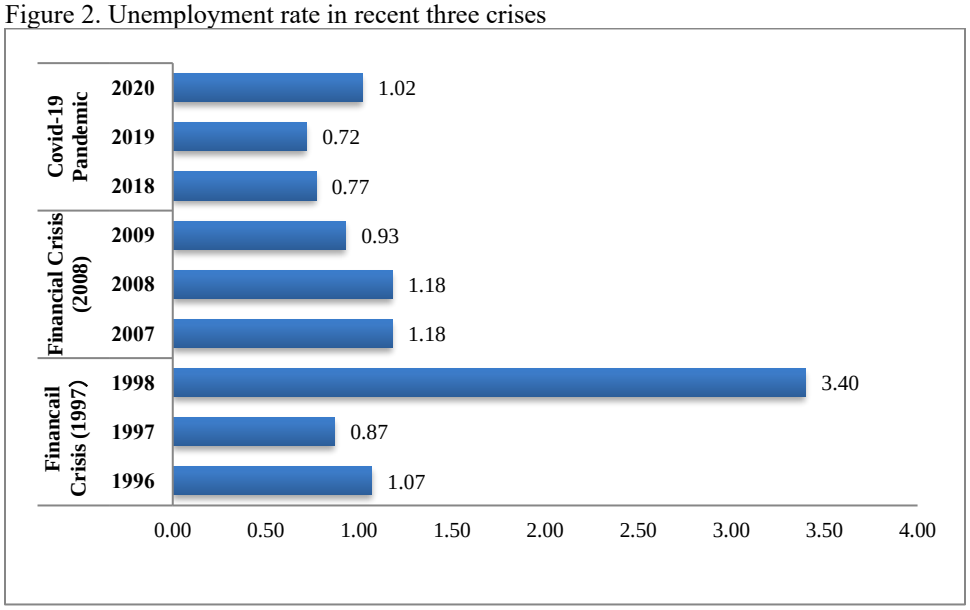
Figure 1. GDP in recent three crises (YOY%/QOQ%)



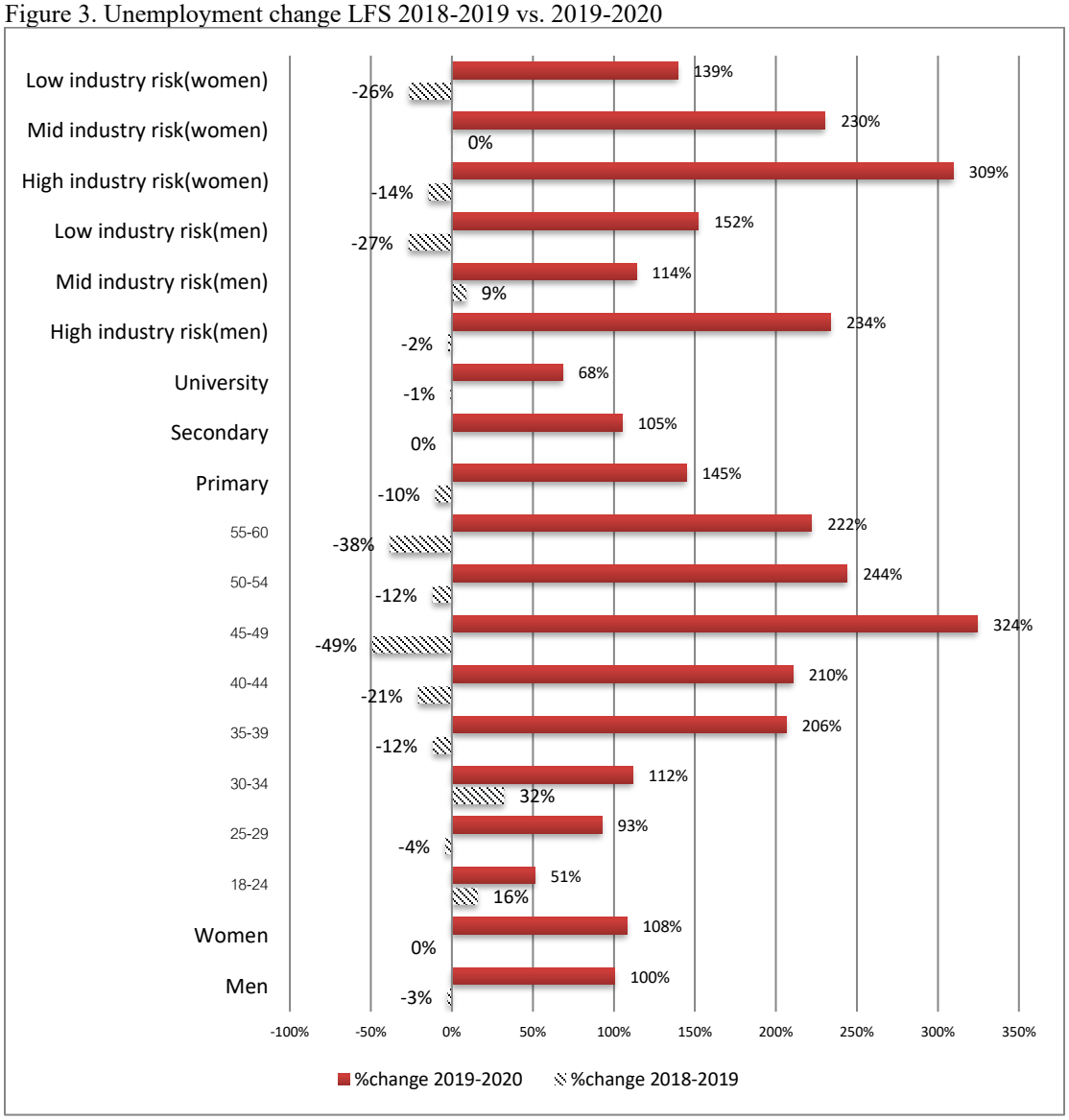
Source: Bank of Thailand (2021)

Figure 2. Unemployment rate in recent three crises



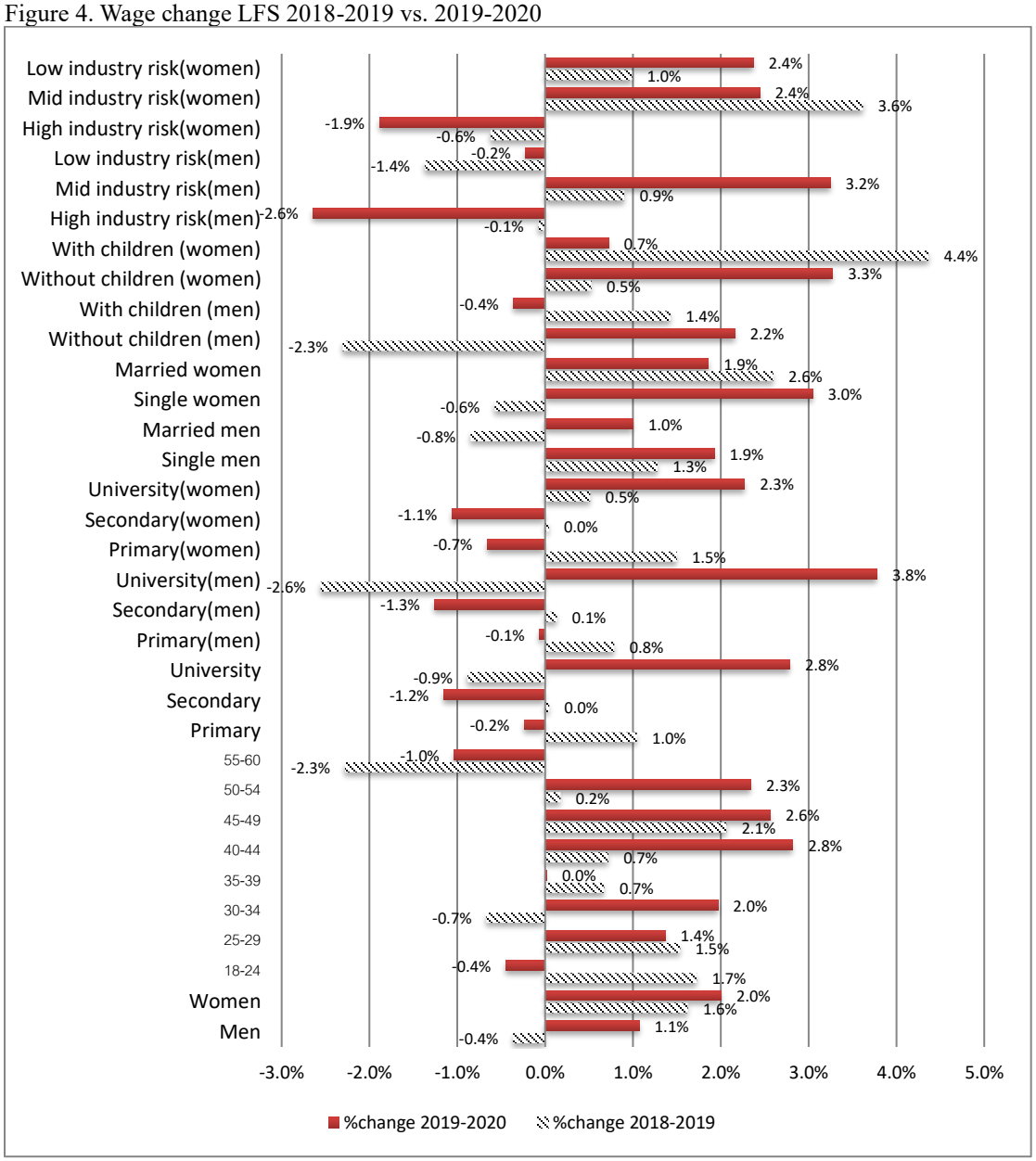
Source: World Bank (2021)

Figure 3. Unemployment change LFS 2018-2019 vs. 2019-2020



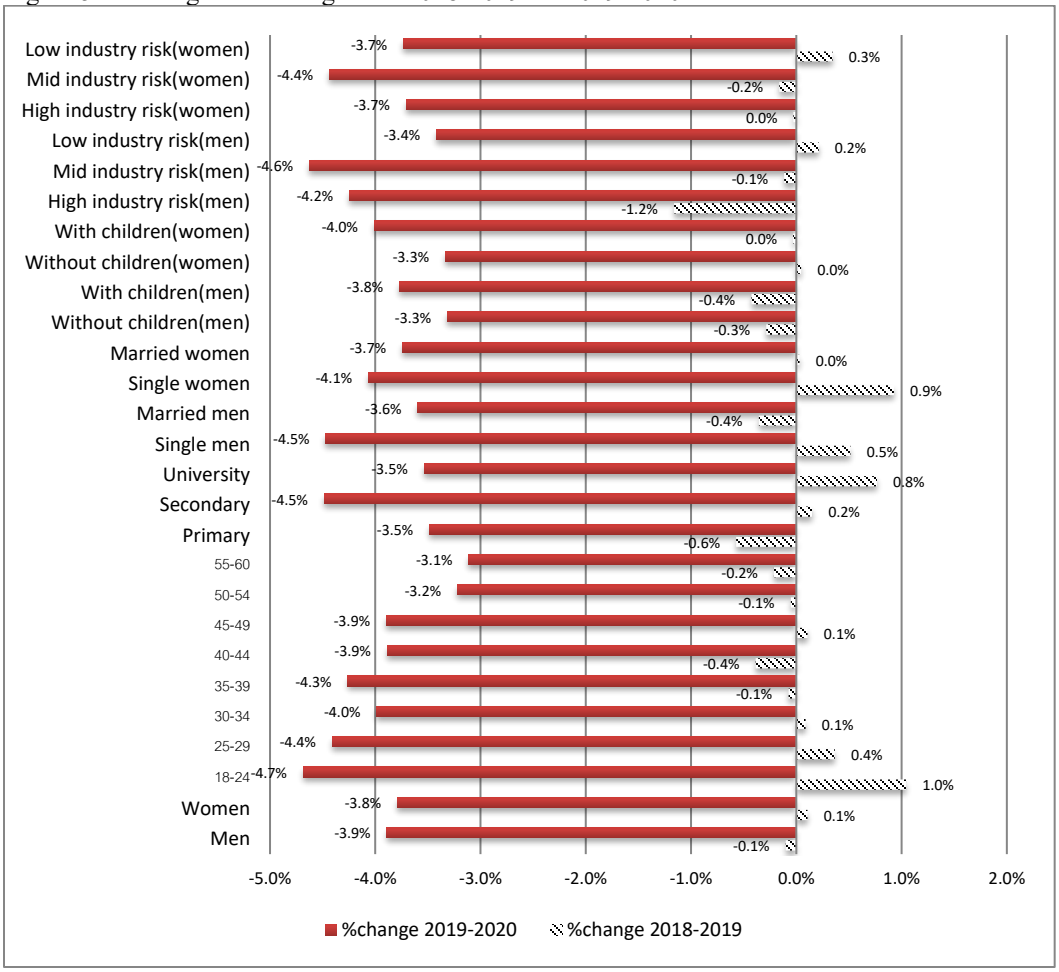
Source: Authors' calculation

Figure 4. Wage change LFS 2018-2019 vs. 2019-2020



Source: Authors' calculation

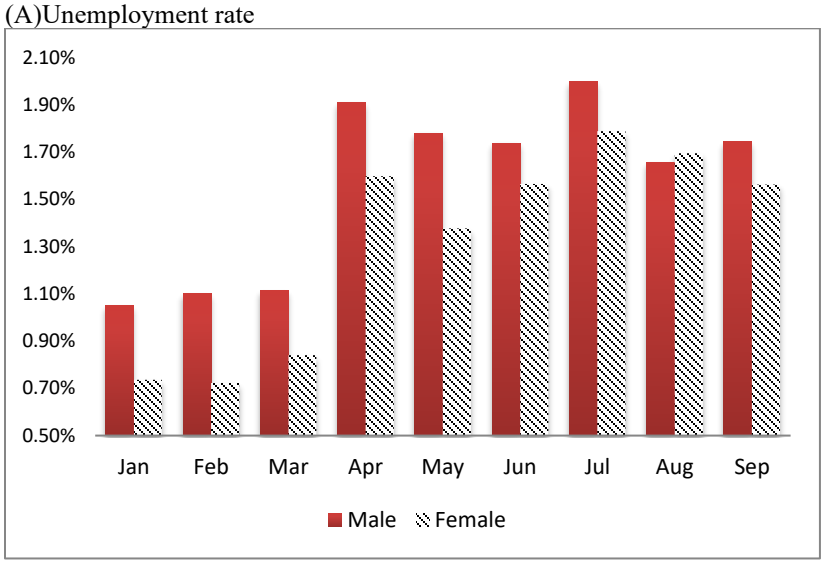
Figure 5. Working hours change LFS 2018-2019 vs. 2019-2020



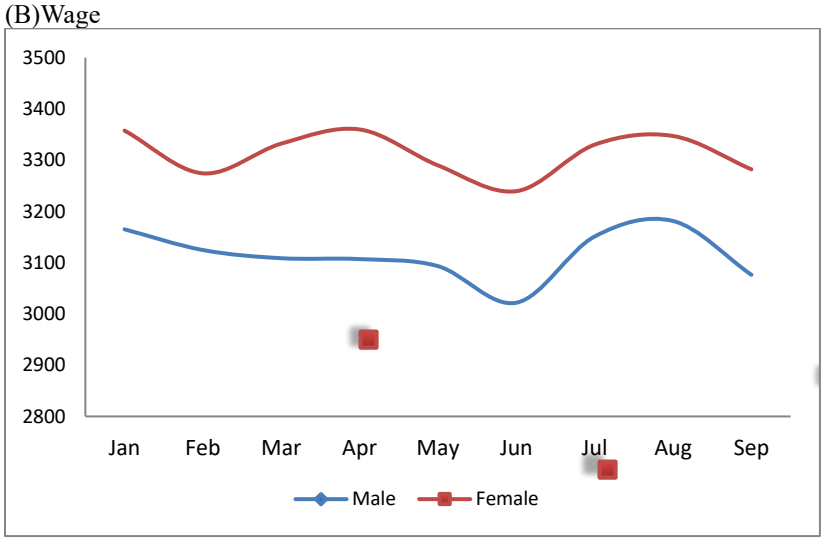
Source: Authors' calculation

Figure 6. Labor market change from LFS Jan to Sep 2020 by gender

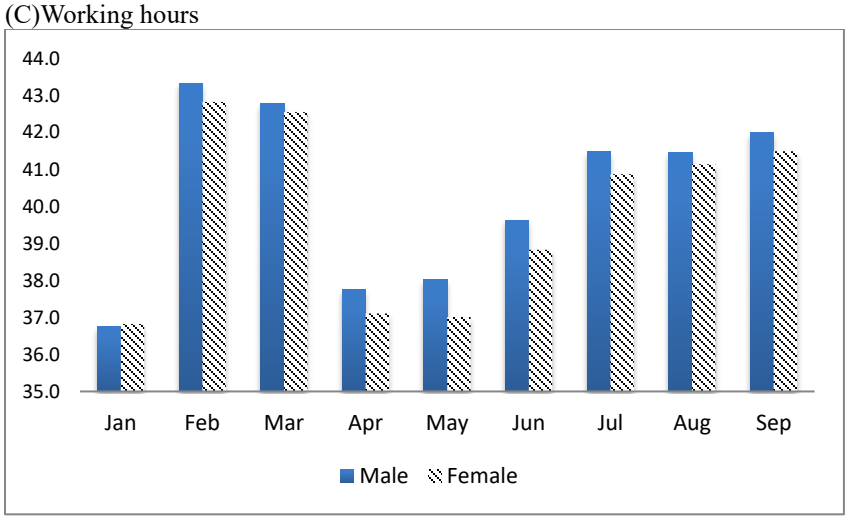
(A)Unemployment rate



(B)Wage

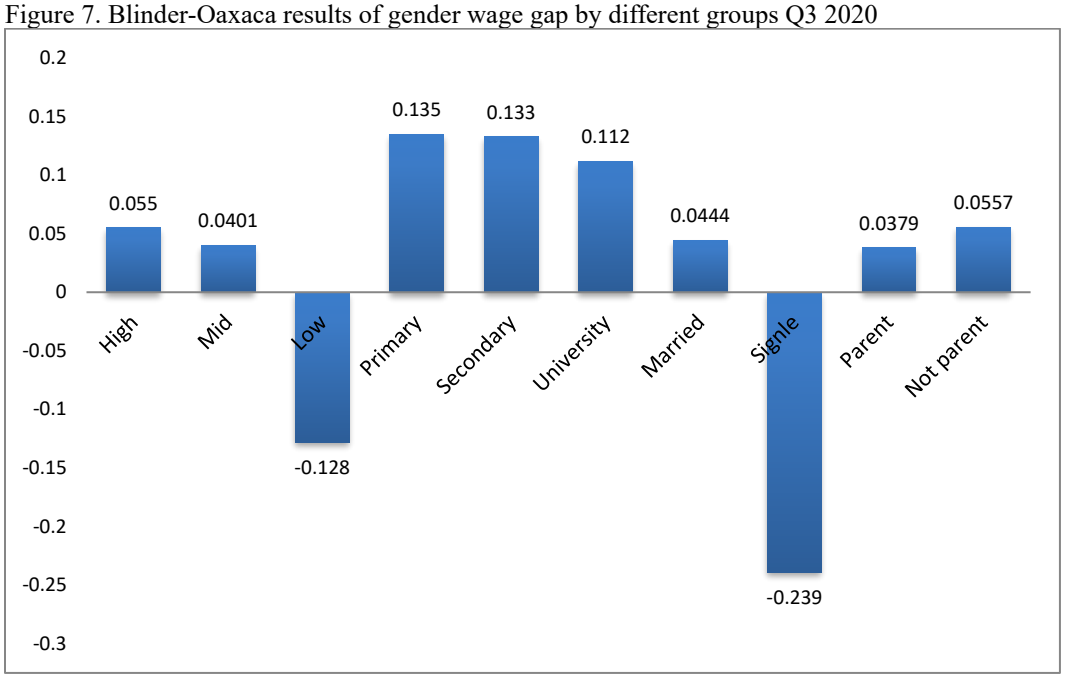


(C)Working hours



Source: Authors' calculation

Figure 7. Blinder-Oaxaca results of gender wage gap by different groups Q3 2020



Source: Authors' calculation

Table 1. Summary statistics of LFS Q2 and Q3 2020

	Q2			Q3				
	N	mean	sd	N	mean	sd	min	Max
Unemployment	62770	0.013	0.112	73040	0.014	0.115	0	1
Age	62770	41.534	11.113	73040	41.600	11.148	18	60
Level of sectorial risk	62770	2.318	0.724	73040	2.337	0.729	1	3
Occupational flexibility	62770	0.345	0.315	73040	0.344	0.316	0	1
Married	62770	0.758	0.428	73040	0.770	0.421	0	1
Sex (1=male; 2=female)	62770	1.460	0.498	73040	1.468	0.499	1	2
Public sector	62770	0.147	0.354	73040	0.141	0.348	0	1
Area (1=urban;2=rural)	62770	1.416	0.493	73040	1.421	0.494	1	2
Primary level	62770	0.363	0.481	73040	0.369	0.482	0	1
Secondary level	62770	0.425	0.494	73040	0.425	0.494	0	1
University level	62770	0.212	0.409	73040	0.206	0.405	0	1

Table 2. Determinants of recent unemployment (marginal effect of probit estimation)

Dependent: Unemployment	Q2_All	Q2_women	Q2_men	Q3_All	Q3_women	Q3_men
Age	-0.00144***	-0.00154***	-0.00148***	-0.000906***	-0.000887**	-0.00101**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Number of child 0-5	0.00163*	-3.24E-05	0.00302**	0.000212	-0.00186	0.00197*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Number of child 6-10	0.0012	-0.00102	0.00337**	0.000588	-0.000861	0.0019
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Number of child 11-14	0.00122	0.000625	0.00174	-0.000992	-0.000927	-0.00104
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Number of child 15-18	-0.000444	0.000916	-0.00179	0.000968	0.00101	0.00105
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Risk level (base-High sectorial risk)						
Mid sectorial risk	-0.0105***	-0.00676***	-0.00875***	-0.0204***	-0.0171***	-0.0115***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
Low sectorial risk	-0.0152***	-0.00870***	-0.0183***	-0.0243***	-0.0210***	-0.0174***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Occupational flexibility	-0.00385	0.000439	-0.00960**	-0.00888***	-0.00284	-0.0134***
	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
Married	-0.00742***	-0.00392**	-0.00984***	-0.00736***	-0.00341**	-0.0102***
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Female	-0.00112			-0.00227**		
	(0.001)			(0.001)		
Public	-0.0119***	-0.0167***	-0.0228***	-0.0134***	-0.0229***	-0.0239***
	(0.001)	(0.003)	(0.004)	(0.001)	(0.004)	(0.003)
Education (Base-primary level)						
Secondary level	0.00126	-0.000222	0.00246	0.00101	0.00158	0.000502
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)
University level	-0.00292**	-0.00416*	-0.00235	-0.000141	0.00108	-0.00135
	(0.001)	(0.002)	(0.003)	(0.001)	(0.002)	(0.002)
Rural area	0.000694	0.00139	-7.53E-06	0.000971	0.0012	0.000559
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	62,770	28,869	33,493	73,040	34,132	38,877

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3. Determinants of wage (OLS estimation)

Dependent: Log wage	Q2_All	Q2_women	Q2_men	Q3_All	Q3_women	Q3_men
Age	0.0106***	0.0106***	0.00917***	0.00759***	0.00894***	0.00495**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Number of children 0-5	-0.0251***	-0.0309***	-0.0246***	-0.0152***	-0.0233***	-0.0131**
	(0.005)	(0.007)	(0.007)	(0.004)	(0.006)	(0.006)
Number of children 6-10	-0.0204***	-0.0363***	-0.0101	-0.0185***	-0.0214***	-0.0157**
	(0.006)	(0.008)	(0.008)	(0.005)	(0.007)	(0.007)
Number of children 11-14	-0.0176***	-0.013	-0.0197**	-0.0137***	-0.0198***	-0.0086
	(0.006)	(0.008)	(0.008)	(0.005)	(0.007)	(0.007)
Number of children 15-18	-0.0095	-0.0164*	-0.00599	-0.00623	-0.0107	-0.00315
	(0.006)	(0.008)	(0.008)	(0.005)	(0.007)	(0.007)
Risk level (base-High sectorial risk)						
Mid sectorial risk	0.00802	-0.0173	0.0257**	-0.0162**	-0.0397***	0.00162
	(0.009)	(0.012)	(0.013)	(0.008)	(0.011)	(0.012)
Low sectorial risk	-0.0324***	-0.0916***	0.00667	-0.0728***	-0.142***	-0.0218
	(0.010)	(0.013)	(0.014)	(0.009)	(0.012)	(0.013)
Occupational flexibility	0.185***	0.303***	0.130***	0.151***	0.293***	0.0883***
	(0.012)	(0.018)	(0.018)	(0.012)	(0.018)	(0.017)
Married	0.0524***	0.0309***	0.0826***	0.0578***	0.0340***	0.0932***
	(0.006)	(0.008)	(0.008)	(0.005)	(0.008)	(0.008)
Female	-0.137***			-0.139***		
	(0.005)			(0.004)		
Public	0.105***	0.140***	0.0758***	0.125***	0.168***	0.0851***
	(0.008)	(0.011)	(0.012)	(0.008)	(0.011)	(0.011)
Education (Base-primary level)						
Secondary level	0.230***	0.222***	0.232***	0.231***	0.221***	0.234***
	(0.006)	(0.010)	(0.008)	(0.006)	(0.009)	(0.008)
University level	0.642***	0.603***	0.650***	0.661***	0.606***	0.683***
	(0.008)	(0.013)	(0.012)	(0.008)	(0.012)	(0.011)
Rural area	-0.0643***	-0.0638***	-0.0647***	-0.0680***	-0.0627***	-0.0707***
	(0.005)	(0.007)	(0.007)	(0.005)	(0.007)	(0.006)
Occupational skills (base-low skill)						
Mid skill	0.0890***	0.0828***	0.0902***	0.0801***	0.0735***	0.0829***
	(0.006)	(0.011)	(0.008)	(0.006)	(0.010)	(0.008)
High skill	0.324***	0.338***	0.299***	0.323***	0.340***	0.286***
	(0.010)	(0.015)	(0.015)	(0.010)	(0.015)	(0.014)
Observations	31,363	13,996	17,367	34,783	16,090	18,693

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4. Determinants of wage by sectorial risk (OLS estimation)

Dependent: Log wage	Q2_Low risk	Q2_Mid risk	Q2_High risk	Q3_Low risk	Q3_Mid risk	Q3_High risk
Age	0.00858***	0.0230***	0.0128***	0.00971***	0.0221***	0.0114***
	(0.003)	(0.002)	(0.004)	(0.003)	(0.002)	(0.004)
Number of children 0-5	-0.0438***	-0.0108*	-0.0131	-0.0296***	0.000282	-0.00746
	(0.008)	(0.006)	(0.012)	(0.007)	(0.006)	(0.010)
Number of children 6-10	-0.0242***	-0.0151**	-0.0267**	-0.0225***	-0.0142**	-0.00976
	(0.009)	(0.007)	(0.014)	(0.008)	(0.006)	(0.011)
Number of children 11-14	-0.0189**	-0.0157**	-0.0223	-0.0043	-0.0226***	-0.0246**
	(0.009)	(0.007)	(0.014)	(0.008)	(0.006)	(0.011)
Number of children 15-18	-0.0125	-0.0092	-0.00952	-0.00697	-0.00667	-0.0133
	(0.010)	(0.007)	(0.015)	(0.009)	(0.007)	(0.012)
Occupational flexibility	0.0883***	0.250***	0.147***	0.0106	0.229***	0.245***
	(0.022)	(0.015)	(0.035)	(0.021)	(0.015)	(0.033)
Married	0.0567***	0.0426***	0.0349***	0.0556***	0.0453***	0.0401***
	(0.010)	(0.007)	(0.013)	(0.010)	(0.007)	(0.012)
Female	-0.127***	-0.159***	-0.0943***	-0.122***	-0.158***	-0.110***
	(0.008)	(0.006)	(0.011)	(0.008)	(0.006)	(0.010)
Public	0.0536***	0.297***	0.364***	0.0803***	0.311***	0.358***
	(0.011)	(0.019)	(0.041)	(0.010)	(0.019)	(0.045)
Education (Base-primary level)						
Secondary level	0.304***	0.182***	0.184***	0.307***	0.182***	0.155***
	(0.012)	(0.007)	(0.015)	(0.012)	(0.007)	(0.014)
University level	0.895***	0.412***	0.402***	0.908***	0.447***	0.394***
	(0.015)	(0.011)	(0.020)	(0.014)	(0.011)	(0.019)
Rural area	-0.126***	-0.0134**	-0.0162	-0.119***	-0.0255***	-0.0135
	(0.008)	(0.006)	(0.012)	(0.008)	(0.006)	(0.011)
Occupational skills (base-low skill)						
Mid skill	0.0750***	0.104***	0.0173	0.0920***	0.0786***	-0.00293
	(0.014)	(0.007)	(0.018)	(0.013)	(0.007)	(0.017)
High skill	0.220***	0.459***	0.425***	0.259***	0.441***	0.346***
	(0.019)	(0.014)	(0.031)	(0.018)	(0.013)	(0.029)
Observations	13,663	14,354	3,346	15,206	15,453	4,124

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5. IPWRA analysis for parenthood wage difference

	Q2			Q3		
	Women	Men	Overall	Women	Men	Overall
ATE						
Parent vs. Not parent (children age<15)	-0.052***	-0.033***	-0.038***	-0.047***	-0.022***	-0.031***
	(0.008)	(0.007)	(0.006)	(0.008)	(0.007)	(0.005)
POmean (not parent)	7.984***	7.934***	7.955***	7.991***	7.941***	7.963***
	(0.006)	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)
Observations	13,996	17,367	31,363	16,090	18,693	34,783

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6. Blinder-Oaxaca Decomposition results by level of sectorial risk

	High risk	Mid risk	Low risk
Total Difference	0.0550***	0.0401***	-0.128***
	(0.014)	(0.008)	(0.011)
Unexplained	0.126***	0.173***	0.103***
	(0.011)	(0.006)	(0.008)
Explained	-0.0706***	-0.133***	-0.231***
	(0.009)	(0.006)	(0.009)
Explained details: Occupational flexibility	-0.0278***	-0.0524***	-0.0109**
	(0.004)	(0.003)	(0.005)
Married	-0.00171**	-0.00127***	0.00182***
	(0.001)	(0.000)	(0.001)
Public	0.00162	-0.00360***	-0.00282***
	(0.001)	(0.001)	(0.001)
Education	-0.0347***	-0.0375***	-0.195***
	(0.005)	(0.003)	(0.007)
Rural area	0.00165**	-0.00133***	-0.00457***
	(0.001)	(0.000)	(0.001)
Observations	4,124	15,453	15,206

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1