The Effects of Minimum Wage throughout the Wage Distribution in Indonesia

Sri Gusvina Dewi

Abstract

The global financial crisis in 2007 followed by Indonesia's largest labor demonstration in 2013 encouraged turmoils on Indonesia labor market. This paper examines the effect of the minimum wage on wage distribution in 2007 and 2014 and how the minimum wage increases in 2014 affected the distribution of wage differences between 2007 and 2014. This study employs recentered influence function (RIF) regression method to estimate the wage function by using unconditional quantile regression. Furthermore, to measure the effect of the minimum wage increase in 2014 on the distribution of wage differences, it uses the Oaxaca–Blinder decomposition method. Using balanced panel data from the Indonesian Family Life Survey (IFLS), it found that the minimum wage mitigates wage disparity in 2007 and 2014. The minimum wage policy in 2014 leads to an increase in the wage difference between 2007 and 2014, with the largest wage difference being in the middle distribution.

Keywords: labor economics, minimum wage, wage distribution, unconditional quantile regression

Abstrak

Krisis keuangan global pada tahun 2007 diikuti dengan demonstrasi buruh besar besaran pada tahun 2013 mendorong terjadinya gejolak pasar tenaga kerja di Indonesia. Paper ini membahas pengaruh upah minimum terhadap distribusi upah pada tahun 2007 dan 2014 dan bagaimana kenaikan upah minimum pada tahun 2014 mempengaruhi distribusi perbedaan upah antara tahun 2007 dan 2014. Penelitian ini menggunakan metode regresi Recentered Influence Function (RIF) untuk memperkirakan fungsi upah dengan menggunakan regresi kuantil tanpa sarat. Selanjutnya, untuk mengukur pengaruh kenaikan upah minimum pada tahun 2014 terhadap distribusi perbedaan upah digunakan metode Oaxaca-Blinder Decomposition. Dengan menggunakan balanced panel data dari Indonesian Family Life Survey (IFLS) ditemukan bahwa upah minimum mengurangi kesenjangan upah pada tahun 2007 dan 2014. Kebijakan upah minimum pada tahun 2014 menyebabkan peningkatan dalam perbedaan upah antara tahun 2007 dan 2014, dengan perbedaan upah terbesar pada tengah distribusi yang mana merupakan masyarakat yang berpenghasilan kelas menengah.

Kata Kunci: ekonomi tenaga kerja, upah minimum, distribusi upah, unconditional quantile regression

Introduction

The global financial crisis occurred in the United States in 2007 and began to spread worldwide in 2008, affecting developing countries including Indonesia. Indonesia's economy began to be depressed and marked by the slowing of economic growth, with impact on the labor market in the form of much employment termination in the formal sector and wage reduction. In 2013, Indonesia's largest labor demonstration occurred. One of the demands was the minimum wage increase. Workers who are members of the Indonesian Workers Confederation (KSPI) demanded that revising the components of decent living needs (KHL) should raise the Provincial Minimum Wage (UMP). Currently, only 46 elements included. Components of proper living needs are regulated by the Minister of Manpower Regulation no. 17 of 2005, which is considered out-dated.

Bird and Manning (2008) characterized the Indonesian labor market structure as typical for a low-income developing country. Part of the labor force works in the formal sector and seeks and stands to gain from labor regulations. The rest of the labor force is engaged in the informal sector. In the competitive market, firms are forced to decrease the number of laborers to minimize production costs, and thus, some laborers who work in formal sectors displaced to the informal sector with low income. Issues about labour and wages have multiplied worldwide, particularly in developing countries. It has long been a subject commonly studied by many scholars. The theory from the labor market curve shows indirect effects of changing minimum wage on the labor wage in informal sectors and on unemployment.

Research on the minimum wage policy's effect on wages has been fruitful in developing countries. By using individual and household level panel data of workers in Nicaragua, Alaniz et al. (2011) found that the changes in the legal minimum wage affect only those workers whose initial wage (before the change in minimum wages) is close to the minimum. For example, increases in the legal minimum wage lead to significant increases in the wages of private sector workers who had wages within 20% of the minimum wage before the change, but they have no significant impact on wages in other parts of the distribution. By using the wage equation, the authors suggest that minimum wage laws in Nicaragua are complied with in the private sector but do not have a significant impact on the wages of workers in the self-employment sector. This fact is in line with the studies on minimum wage's effect on the actual wages of formal and informal workers in Costa Rica (Gindling and Terrel, 2005). However, these results are contrary to those of Fajnzylber (2001) in Brazil. He found significant minimum wage effects across the whole wage distribution and in both the formal and the informal sectors. In his research, Fajnzylber obtained separate estimates for formal and informal sectors and used the other potential effects of minimum wages not only on wages but also on family welfare and poverty.

Most studies in Indonesia have estimated the employment effect rather than wage effects (Alatas and Cameron, 2003; Del Carpio et al., 2012; Suryahadi et al., 2003), except Rama (2001) and Hohberg and Lay (2015). Rama (2001) only estimated the effect of minimum wage on formal sectors by using individual data. He found that the minimum

wage laws had the impact of raising the average wage by less than 15% and decreasing employment by at most 5%. This result led to the conclusion that on average, minimum wages were beneficial for formal sector workers, and smaller firms, which are heavily reliant on low-skilled labor and less likely to invest in technology, disproportionately shared these effects. Meanwhile, Hohberg and Lay (2015) estimated the impact of minimum wage on the formal and informal sectors using Indonesia Family Life Survey (IFLS) panel data from 1997 to 2007. They found that minimum wage has positive effects on formal sectors, and there are no spillover effects in informal sectors.

Considering the limitation of previous research and the state of current condition of the wage distribution in Indonesia, it is necessary to assess the effects of minimum wage on wage distribution using the most recent data of the minimum wage and the individual wage. This research examines the extent to which the changes in minimum wages affect the different quantiles of the wage distribution in Indonesia, to complement the findings in previous studies.

The objective of this study is to examine the extent to which the changes in minimum wages affect the wage distribution in Indonesia in 2007 and 2014. To do so, it focuses on the following research questions: First, will the increase in the minimum wage have a positive impact on each part of the wage distribution? Second, will the 2014 minimum wage exacerbate the wage gap in real wages in 2007 and 2014?. The study addresses whether the different nominal minimum wages in each province in Indonesia impact the high inequality of wages across provinces. Then, using data on formal and informal labor employment, this study also examines the effects of minimum wage on both sectors.

This research contributes by providing sufficient empirical evidence of the impact of minimum wage on wage distribution by using the latest panel data of individual wages in 2007 and 2014. As described before, only a few studies have evaluated the impact of minimum wage on wage distribution, in both formal and informal sectors in Indonesia. The results of the research will expand the study on the effectiveness of increasing the nominal provincial minimum wage every annum. If the result of the wage effect of minimum wages in Indonesia corresponds to the results of several studies in other developing countries, it has a significant impact on the whole wage distribution with increasing wages affecting a small portion of workers. This means that the increase in minimum wage will only exacerbate inequalities in the distribution of wages in Indonesia..

Method

This empirical analysis uses data from the Indonesia Family Life Survey (IFLS), which consist of two-wave data in 2007 and 2014. The RAND CORPORATION, a nonprofit global organization with headquarters in Santa Monica, California, conducts this survey. For the fourth and fifth surveys in 2007 and 2014, the RAND cooperation collaborated with the Center for Population and Policy Studies (CPPS) of Gadjah Mada University and Survey METRE to conduct the surveys.

IFLS is a longitudinal data or panel data survey that provides continuous information

about households and socio-economic conditions in Indonesia. The sample is representative of approximately 83% of the Indonesian population and contains over 30,000 individuals living in 13 of the country's 33 provinces. These collected data of individuals, households and communities and the education facilities and health facilities they use. The data are used to observe the current behavior or condition that may require government intervention such as poverty or education. The balanced panel data include 4,088 individuals (full samples). 3,325 respondents engaged in formal sectors in 2007 and the rest, about 763 respondents, work in informal sectors. In 2014, it was about 3,400 respondents in formal sectors and 688 respondents in informal sectors.

IFLS data covered 13 provinces, which have different characteristics and different minimum wage regulations. The provinces are North Sumatera, West Sumatera, South Sumatera, Lampung, Jakarta, West Java, Central Java, Yogyakarta, East Java, Bali, West Nusa Tenggara, South Kalimantan and South Sulawesi.

The dependent variable used to estimate the wage distribution in each quantile is the real wage. The real wage is calculated by converting the IFLS data monthly nominal wage using the consumer price index (CPI) and the base year 2007 to 2014. The data used are based on a wage survey of the labor force, which is individual's aged 15 to 65. Meanwhile, the consumer price index (CPI) used is based on the city where the respondent is domiciled. The consumer price index (CPI) is only issued by 45 large cities in Indonesia, and thus, the real wage's calculation requires knowledge of the large city closest to each respondent's domicile. By the following research by Sara Lemos in 2004 and recent common practice in the analysis of wage distributions, this study uses the log of real individual wages as a main variable of the estimation.

IFLS divides the types of work into eight categories, and based on the formal and informal definitions of the sector, these eight categories are grouped into two job sectors: (1) Formal Sectors (self-employed with permanent worker, government worker and private worker) (2) Informal Sectors (self employed, self-employed with unpaid family worker/ temporary worker, casual worker in agriculture, casual worker not in agriculture, unpaid family worker. For the full sample model, these work categories are included as dummy variables (formal or informal sectors), whereas for the four sub-sample models, the work category is not included.

The real minimum wage as the main independent variable is obtained based on the calculation of the nominal minimum wage and consumer price index (CPI) in the city where the respondent is domiciled, as performed on the real individual wage calculation. The nominal minimum wage has 13 variations, which correspond to the minimum wage values applicable in the 13 surveyed provinces. The nominal minimum wage only applies directly to the formal sector, but it indirectly affects the minimum wage in the informal sector; therefore, the estimation is still conducted in the informal sector in the full sample model or informal sub-sample models.

To control for household variation, this paper uses three kinds of characteristics as other covariates in the model: (1) individual Information (age, education, gender, religion

and ethnicity) (2) Location Characteristic (rural/ urban) (3) Job Characteristics (work hours, labour union membership or non-membership, formal/ informal sectors

This study employs estimation for a full sample model and two sub-sample models in both years. The model is based on the work type status in 2007 and 2014. It consists of estimation for formal sectors in 2007, informal sectors 2007, formal sectors 2014 and informal sectors 2014. The method used in the study follows two steps: first, unconditional Quantile Regression (UQR); and second, Oaxaca–Blinder Decomposition.

Unconditional quantile regression (UQR), based on the approach of Firpo et al. (2009), is more generalizable and intuitive to interpret because of its straightforward implementation. In UQR, the estimated marginal effect at each percentile expresses the marginal effect of covariance and can be used more straightforwardly for the Oaxaca-Blinder decomposition.

The Oaxaca-Blinder procedure provides a way of: first, decomposing changes or differences in mean wages into a wage structure effect and a composition effect; and second, further dividing these two components into the contribution of each covariate. In this study, this method is used to measure the effects of the 2014 minimum wage on the wage difference between 2007 and 2014 by dividing the explained and unexplained effects into the contribution of each covariate.

$$\Delta Q_\theta = Q_\theta(Y_{2014}) - Q_\theta(Y_{2007})$$
$$= E\big[RIF(Y, q_\theta, F_y)_{2014}\big] - E\big[RIF(Y, q_\theta, F_y)_{2007}\big]$$
$$= \big(\Delta \bar{X}\beta_{2014,\theta} + \Delta \bar{X}\Delta\beta_\theta\big) + \Delta\beta_\theta \bar{X}_{2007}$$

Then, $\Delta \bar{X}\beta_{2014,\theta}$ is the wage structure effects, $\Delta \bar{X}\Delta\beta_\theta$ is the interaction effects, and $\Delta\beta_\theta \bar{X}_{2007}$ is the coefficient effects. Wage structure and interaction effects represent the explained part, and coefficient effects represent the unexplained part.

Result and Discussion

The result shows that on average the log real wage slightly increased from 2007 and 2014, with a mean difference of -0.492. The mean difference is 0.492, which is positive and significant at the 0.1% level. Meanwhile, the mean difference of work hours, middle-level education, and non-Javanese ethnicity is negative and significant at the 0.1% level. This means that on average, the number of people in the labor force who have education reaching the middle level and a non-Javanese ethnicity decreased from 2007 and 2014. The number of work hours also decreased from 2007 to 2014. The highest mean difference is age, reaching approximately 6.684, and this is positive and significant at the 1% level. This means that in 2014, the individuals categorized as part of the labor force were older than the individuals in 2007. (See Table 1).

In this section, we examine the effects of the log real minimum wage on wage distribution and changes over the period from 2007 to 2014 in the selected quantiles. Here, we discuss the results obtained by the unconditional quantile regression methods using the recentered influenced function (RIF) proposed by Fortin et al. (2011).

Table 1. Summary Statistics

Variables	2007			2014			Mean Diff.
	Obs	Mean	St Dev	Obs	Mean	St Dev	
Log Real Wage	4,088	5.795	0.403	4,088	6.286	0.419	0.492 ***
Log Real Minimum Wage	4,088	5.929	0.093	4,088	6.214	0.132	0.285 ***
Work Hours (Hours/ a week)	3,458	38.269	13.276	3,459	36.918	13.283	-1.351 ***
Age (year)	4,072	33.669	9.629	4,042	40.353	9.357	6.684 ***
Gender_Female	4,087	0.33	0.47	4,087	0.33	0.47	0
Educ_middle	4,002	0.342	0.475	4,006	0.319	0.466	-0.024 ***
Educ_High	4,002	0.227	0.419	4,006	0.258	0.438	0.03 ***
Formal sector	4,088	0.813	0.389	4,088	0.832	0.374	0.018 ***
Religion_nonislam	4,088	0.101	0.301	4,088	0.101	0.301	0
Ethnic_nonjavanese	4,088	0.529	0.499	4,088	0.492	0.499	-0.037 ***
Loc_Urban	4,088	0.689	0.463	4,088	0.741	0.438	0.053 ***
Labour Union Membership	4,087	0.156	0.363	3,909	0.187	0.39	0.031 ***

*legend: * p<.05; ** p<.01; *** p<0.001*

In 2007, the minimum wage had positive effects until the 70th quantile. The highest impact is in the middle quantile (50th quantile) with the magnitude of 0.663. This effect is not evenly distributed between the quantities and shows fluctuations. Change in the minimum wage affects an increase until the 20th quantile; then it decreases to the 40th quantile, increases to the 50th quantile, finally decreases until the 70th quintile. (Details can be seen in Table 2).

Table 2. Results of the Full Sample Model Unconditional Quantile Regression, 2007

Outcome: Log Real Wage	Q10	Q20	Q40	Q50	Q70	Q90
Log Real Minimum Wage	0.553 ***	0.606 ***	0.558 ***	0.663 ***	0.495 ***	0.089
Work Hours	0.016 ***	0.012 ***	0.008 ***	0.006 ***	0.004 ***	0.002 *
Age	0.054 ***	0.047 ***	0.037 ***	0.032 ***	0.037 ***	0.007
Age_squared	-0.0007 ***	-0.0006 ***	-0.0004***	-0.0003 ***	-0.0003 ***	0.00006
Gender_Female	-0.283 ***	-0.256 ***	-0.186 ***	-0.127 ***	-0.122 ***	-0.091 ***
Educ_MiddleSchool	0.143 ***	0.159 ***	0.223 ***	0.252 ***	0.267 ***	0.118 ***
Educ_HighSchool	0.206 ***	0.219 ***	0.323 ***	0.375 ***	0.546 ***	0.395 ***
Sector_Formal	0.336 ***	0.236 ***	0.152 ***	0.118 ***	0.102 ***	0.045 **
Religion_nonIslam	0.095 **	0.111 ***	0.066 **	0.039	-0.005	-0.015
Ethnicity_nonJavanese	-0.026	-0.052 *	-0.010	0.015	0.056 **	0.056 **
Urban	0.087 **	0.074 **	0.056 **	0.017	0.027	0.042 **
Labour union Membership	0.143 ***	0.160 ***	0.166 ***	0.184 ***	0.199 ***	0.087 **

Whereas for control variables such as age, there is an increase until the 80th quantile, the age variables are positive and significant with almost the same magnitude for several quantiles. For the age-squared variable, the minimum wage effect is negatively significant until the 70th quintile. This means that wages begin to diminish at a certain age. Similar results are also seen in the female gender variable and ethnicity_non-Javanese variables, where the number of female workers negatively affects the wages in all quantiles. Likewise, the number of workers with Java ethnicity has a significant and negative effect on wages in all quantiles.

In 2014, this effect was positive and significant until the 80th quantile. The impact of log real minimum wage on log real wage also peaks at the 50th quantile. Similar to the 2007 data, the minimum wage effect is uneven in each quantile, with an increase to the 20th quantile, a decline to the 30th quantile, a peak of 0.492 in the 50th quantile, and a decline until the 80th quintile (See Table 3).

Table 3. Results of the Full Sample Model Unconditional Quantile Regression, 2014

Outcome: Log Real Wage	Q 10	Q 20	Q30	Q 50	Q 60	Q 80
Log Real Minimum Wage	0.404 **	0.491 ***	0.365 ***	0.492***	0.473 ***	0.206 **
Work Hours	0.021 ***	0.019 ***	0.009 ***	0.006***	0.004 ***	0.001 *
Age	0.017	0.039 **	0.039 ***	0.025***	0.026 ***	0.013 *
Age_squared	-0.0002	-0.0004 **	-0.0004 ***	-0.0002**	-0.0002 ***	-0.00004
Gender_Female	-0.412 ***	-0.461 ***	-0.259 ***	-0.131***	-0.095 ***	-0.048 **
Educ_MiddleSchool	0.142 ***	0.229 ***	0.199 ***	0.245***	0.238 ***	0.173 ***
Educ_HighSchool	0.298 ***	0.381 ***	0.331 ***	0.415***	0.468 ***	0.478 ***
Sector_Formal	0.332 ***	0.252 ***	0.143 ***	0.113***	0.115 ***	0.059 ***
Religion_nonIslam	0.144 ***	0.100 **	0.038	-0.0002	-0.065 *	-0.045
Ethnicity_nonJavanese	0.007	0.033	0.017	0.061***	0.058 ***	0.072 ***
Urban	0.056	0.074 *	0.059	0.051***	0.025	0.002
Labour union Membership	0.111 ***	0.186 ***	0.145	0.162***	0.166 ***	0.128 ***

For the effects of other covariates, it is seen that the impact of age factor and age squared is similar to the fact in 2007, where the age factor is positive and significant from the 20th quantile to the highest quantile. The age squared is substantial for all quantiles except for the 10th and 80th quantiles. Another notable result is the effect of ethnicity_nonJava, which is positive on wages for all quantiles. Minimum wage impact is diminishing (2007–2014) from the lowest quantile (10th quantile) to the 70th quantile.

In sub-sample A, the model for formal sectors employees 2007, the effect is positive and significant until the 70th quantile. The magnitude shows highest in the middle quantile, about 0.561 in 50th quantile. In sub-sample B, the model for informal sectors 2007, the effects of the minimum wage are also positive and significant for all quantiles, with the highest effects are in 80th quantile, by the magnitude 1.129. In sub-sample C, the model for individuals who works in formal sectors 2014 shows that the minimum wage effects are positive significant until 80th quantile with the highest effects also in the middle quantile, it's about 0.468. Whereas, in the last model, sub-sample D, informal sectors model 2014, shows that the effects are positive, but not significant at the 10th, 50th, and 60th quantile. The largest effect is at 30th quantile, by the magnitude 0.909. The results for complete sub-sample analyses are shown in Appendix (Table A.1, A.2, A.3, and A.4).

This section examines the impact of the 2014 minimum wage policy on wage difference in each quantile. This study employs the Oaxaca decomposition to obtain the results. This method only employs the full sample analysis, because there is some transition of individuals job sectors between these two periods.

By using full sample data, this study found that the 2014 minimum wage policy

aggravated the wage difference in the 50th quantile (middle-income people). This shows that the wage difference is positive and significant for all quantiles. The result for Oaxaca decomposition is shown in Table 4.

Table 4. Oaxaca Decomposition Result

|	Q10	Q20	Q30	Q40	Q50	Q90
WAGE DIFFERENCE	0.458 ***	0.445 ***	0.468 ***	0.463 ***	0.509 ***	0.448 ***
TOTAL EXPLAINED	25.36% **	38.58%	32.40% ***	38.95% ***	38.81% ***	20.05% ***
Log Real Minimum Wage	23.09% **	28.93% ***	20.44% ***	24.37% ***	25.31% ***	8.34% *
Individual Characteristics	4.49%	11.11%	11.95%	14.06%	12.64%	10.80%
Location Information	0.65%	0.88%	0.67%	0.79%	0.53%	0.31%
Job Characteristics	-2.86%	-2.34%	-0.66%	-0.28%	0.33%	0.60%
TOTAL UNEXPLAINED	74.64%	61.42%	67.60% ***	61.05% ***	61.19% ***	79.95% ***
Log Real Minimum Wage	-192.55%	-152.40%	-269.43%	-162.72%	-198.31%	70.83%
Individual Characteristics	-144.44%	-7.41%	-1.86%	8.09%	-13.65%	-89.91%
Location Information	-4.58%	-0.07%	-3.14%	1.96%	4.41%	-2.28%
Job Characteristics	32.37%	58.79%	-31.08%	-9.38%	-5.66%	-14.78%

Figure 1. Percentage of Explained and Unexplained Effects on Wage Difference
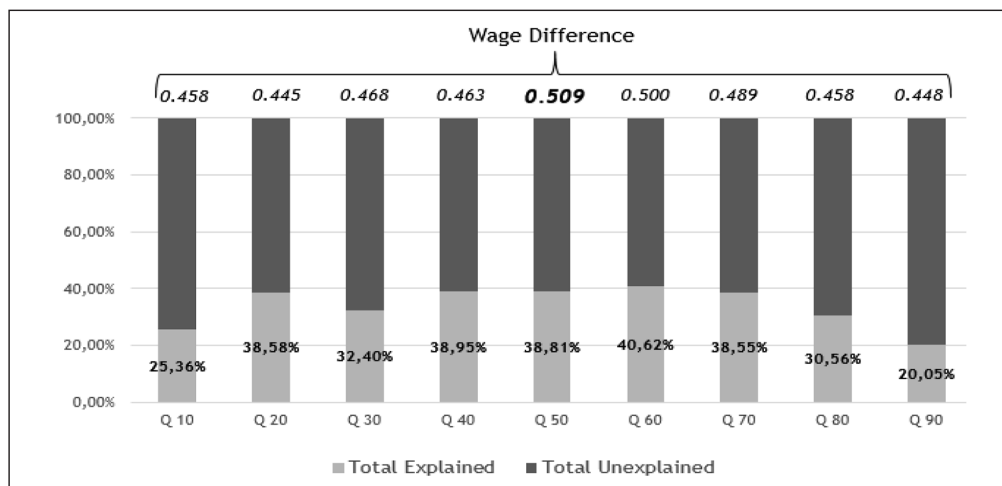
Explained effects include wage structure effects and interactions. The total defined impact is positive and significant for all quantiles, but there is no effect on the 20th quantile. The greatest effect is on the 40th quantile, with a contribution of 38.95%. This shows that the minimum real wage log effect accounts for almost a quarter of the total explained effect with a significant positive effect across all quantiles. (Details in Figure 1)

The contribution of log real minimum wage as explained effects on wage distribution is the largest if compared than other covariates in all quantile, by the highest contribution at 20th quantile, accounted for 29%. The second most significant contribution is individual characteristics, which consist of age, education, gender, religion, and ethnicity. This contribution is also positive in all quantile. Meanwhile, the job characteristics affect negatively on wage distribution in all quantile. (See Figure 2)

Figure 2. Explained Effects on Wage Distribution
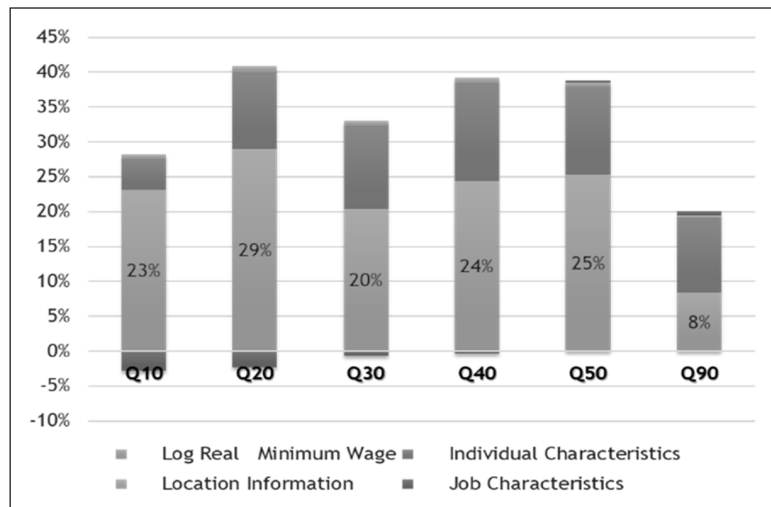
The total unexplained effect accounts for the largest proportion of total effects on the wage difference. This means that most wage differences are caused by outside factors that cannot be captured by the data. These influences can be business competition or macro-economic factors such as inflation or investment.

Conclusions

The minimum wage mitigates wage disparity in 2007 and 2014. However, for the separated sample, the effects of the minimum wage on the formal sector are more even across quantiles in both 2007 and 2014. This shows that the direct effects of minimum wage on the formal sector are more dominant than the indirect effects on the informal sector. The minimum wage policy in 2014, lead to an increase of the wage difference between 2007 and 2014. The largest wage difference in the 50th quantile overall. It means that 2014's minimum wage gives the highest impact on the changes in the wage of the middle-income people rather high or low-income people.

The minimum wage policy in 2007 is more effective in increasing labor welfare than the minimum wage policy in 2014, fulfilling the primary purpose of Indonesia's minimum wage policy. However, this minimum wage policy has only a small positive impact on the income of the poor people, the primary target of Indonesia's minimum wage, and the most significant results affect the middle class.

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Appendix

Table A.1. Sub sample A: Model for Formal Sectors (2007)

Outcome: Log Real Wage	Q 10	Q 20	Q 30	Q 40	Q 50	Q 60	Q 70	Q 80	Q 90
Log Real Minimum Wage	0.529***	0.534***	0.502***	0.512***	0.561***	0.507***	0.299*	0.073	0.05
Work Hours	0.0136***	0.014***	0.009***	0.007***	0.006***	0.005***	0.004***	0.003***	0.003***
Age	0.048**	0.056***	0.0431***	0.041***	0.035***	0.033***	0.034***	0.017**	-0.002
Age_squared	-0.0006**	-0.0007***	-0.0005***	-0.0005***	-.0004***	-0.0003***	-0.0002*	-0.00002	0.0002*
Gender_Female	-0.233***	-0.249***	-0.160***	-0.133***	-0.117***	-0.109***	-0.112***	-0.090***	-.082***
Educ_MiddleSchool	0.1653***	0.245***	0.266***	0.248***	0.260***	0.271***	0.300***	0.188***	0.112***
Educ_HighSchool	0.190***	0.317***	0.346***	0.338***	0.392***	0.473***	0.591***	0.486***	0.357***
Religion_nonIslam	0.107***	0.094**	0.061**	0.056**	0.022	-0.002	-0.013	-0.022	-0.016
Ethnicity_nonJavanese	-0.054	-0.050	-0.014	0.005	0.024	0.056***	0.069***	0.073***	0.064***
Urban	0.059	0.059*	0.030	0.017	0.013	0.028	0.025	0.032	0.047**
Labor union Covered	0.139***	0.215***	0.171***	0.160***	0.162***	0.173***	0.216***	0.148***	0.075**
Constant	0.753	0.671	1.385*	1.502**	1.359**	1.752**	2.986***	4.877***	5.573***

Table A.2. Sub sample B: Model for Informal Sectors (2007)

Outcome : Log Real Wage	Q 10	Q 20	Q 30	Q 40	Q 50	Q 60	Q 70	Q 80	Q 90
Log Real Minimum Wage	0.784**	1.004**	0.677**	0.694***	0.748**	0.803***	1.004***	1.129***	0.652*
Work Hours	0.008***	0.014***	0.011***	0.008***	0.009***	0.007***	0.004***	0.004***	0.004***
Age	0.039*	0.061**	0.050***	0.038***	0.042**	0.026**	0.018	0.017	0.017
Age_squared	-0.0005*	-0.0008**	-0.0007***	-0.0005***	-0.0005**	-0.0003*	-0.0002	-0.0001	-0.0002
Gender_Female	-0.265***	-0.414***	-0.362***	-0.345***	-0.476***	-0.345***	-0.304***	-0.228***	-.154***
Educ_MiddleSchool	-0.033	0.039	0.075	0.087	0.099	0.045	0.033	0.054	0.048
Educ_HighSchool	0.143	0.232	0.284	0.337*	0.391**	0.308**	0.320*	0.237	0.311
Religion_nonIslam	0.116**	0.066	0.038	0.079	0.138	0.086	0.058	0.081	0.210*
Ethnicity_nonJavanese	-0.022	0.012	0.025	-0.006	-0.007	-0.015	-0.002	-0.025	0.031
Urban	0.068	0.078	0.099*	0.104**	0.169***	0.113**	0.155***	0.136***	0.092*
Labor union Covered	0.048	0.146*	0.166***	0.241***	0.080	-0.114	-0.045	0.034	-0.026
Constant	-0.573	-2.287	0.089	0.468	0.013	0.232	-0.742	-1.377	1.5825622

Table A.3. Sub sample C: Model for Formal Sectors (2014)

Outcome : Log Real Wage	Q 10	Q 20	Q 30	Q 40	Q 50	Q 60	Q70	Q 80	Q 90
Log Real Minimum Wage	0.304*	0.379***	0.362***	0.432***	0.468***	0.416***	0.293***	0.169*	0.133
Work Hours	0.017***	0.015***	0.009***	0.007***	0.005***	0.003***	0.002**	0.001**	0.0006
Age	0.043*	0.047***	0.039***	0.037***	0.027***	0.023***	0.019**	0.00009	-.014*
Age_squared	-0.0005*	-0.0005***	-0.0004***	-0.0004***	-0.0002**	-0.0002*	-0.0001	0.0001	0.0002**
Gender_Female	-0.357***	-0.359***	-0.202***	-0.159***	-0.101***	-0.097***	-0.060***	-0.058***	-0.068***
Educ_MiddleSchool	0.213***	0.296***	0.255***	0.259***	0.279***	0.258***	0.201***	0.152***	0.081***
Educ_HighSchool	0.321***	0.399***	0.371***	0.438***	0.474***	0.509***	0.492***	0.399***	0.286***
Religion_nonIslam	0.115***	0.086**	0.068**	0.033	-0.024	-0.025	-0.035	-0.039	-0.059*
Ethnicity_nonJavanese	0.017	0.030	0.047*	0.083***	0.074***	0.048*	0.056**	0.076***	0.040*
Urban	0.059	0.049	0.055*	0.073***	0.029	0.039*	0.036*	-0.0006	0.035*
Labor union Covered	0.114***	0.162***	0.163***	0.149***	0.179***	0.121***	0.093***	0.109***	0.065**
Constant	2.205*	1.897**	2.449***	2.132***	2.285***	2.837***	3.824***	5.131***	5.905***

Table A.4. Sub sample D: Model for Informal Sectors (2014)

Outcome : Log Real Wage	Q 10	Q 20	Q 30	Q 40	Q 50	Q 60	Q 70	Q 80	Q 90
Log Real Minimum Wage	0.377	0.679**	0.909**	0.761*	0.213	0.265	0.346*	0.463**	0.482**
Work Hours	0.018***	0.012***	0.014***	0.012***	0.006***	0.005***	0.005***	0.004***	0.003**
Age	-0.009	-0.008	-0.002	0.008	0.014	0.011	0.022	0.014	0.016
Age_squared	0.00009	.00004	-0.00004	-0.0001	-0.0002	-0.0002	-0.0003	-0.0002	-0.0002
Gender_Female	-0.358**	-0.484**	-0.593***	-0.608***	-0.370***	-0.286***	-0.229***	-0.179***	-0.125***
Educ_MiddleSchool	-0.107	-0.084	-0.046	-0.022	0.065	0.066	0.065	0.083	0.039
Educ_HighSchool	0.222	0.125	0.155	0.126	0.019	-0.006	-0.031	0.069	0.144
Religion_nonIslam	0.248*	0.114	-0.083	-0.054	-0.034	-0.031	-0.013	-0.023	-0.091
Ethnicity_nonJavanese	0.011	0.060	0.128*	0.057	0.047	0.016	0.064	-0.009	0.033
Urban	-0.079	-0.003	0.074	0.136*	0.127**	0.073	0.059	0.063	0.012
Labor union Covered	-0.009	0.196	0.027	0.213	0.149	0.100	0.152	0.089	0.073
Constant	2.823	1.405	-0.015	0.839	4.339***	4.217***	3.542**	3.089**	3.006**