Income Inequality between Formal-Informal Employees Based on Education Group

Dias Satria
Faculty of Economics and Business, Brawijaya University, Indonesia, dias.satria@gmail.com

Income Inequality between Formal-Informal Employees Based on Education Group

Riska Dwi Wulandari[a], Susilo[a], and Dias Satria[a,*]

[a]Faculty of Economics and Business, Brawijaya University, Indonesia

Abstract

Integrally, the informal sector deals with the formal sector with pro-cyclical nature or as a complementary sector. Such conditions allow for wage disparity between sectors even in the same education group. Thus, this study seeks to determine the determinants of wage inequality between formal and informal employees in skilled and unskilled workers in Indonesia in 2017 using Blinder-Oaxaca decomposition. The results showed that the discrimination factor had a greater influence than the endowment factor on wage inequality and the endowment factors that contributed to the increase in wage inequality between the two groups were age squared, experience, and job training.

Keywords: wage inequality; blinder-oaxaca decomposition; skilled-unskilled workers; formal-informal sectors

Abstrak

Secara integral, sektor informal berhubungan dengan sektor formal dengan sifat pro-siklikal atau sebagai sektor pelengkap. Keadaan demikian memungkinkan terjadinya kesenjangan pendapatan antarsektor meskipun dalam kelompok pendidikan yang sama. Sehingga, penelitian ini berusaha untuk mengetahui pengaruh karakteristik pekerja terhadap ketimpangan pendapatan antara karyawan formal dan informal pada pekerja terampil dan tidak terampil di Indonesia tahun 2017 menggunakan dekomposisi Blinder-Oaxaca. Hasil penelitian menunjukkan bahwa faktor diskriminasi berpengaruh lebih besar dibandingkan faktor endowment terhadap kesenjangan pendapatan dan faktor endowment yang berperan dalam meningkatkan kesenjangan pendapatan kedua kelompok tersebut adalah usia kuadrat, pengalaman, dan pelatihan kerja.

Kata kunci: *kesenjangan pendapatan; dekomposisi blinder-oaxaca; pekerja terdidik-tidak terdidik; sektor formal-informal*

1. Introduction

Integration between regions, countries, and cultures constantly changes the standard of human life both in absolute and relative terms through economic, social and political systems. This integration and expansion of growth are called globalization (WTO 2013).

Globalization has led to various phenomena in the world economy both positive and negative. Coulibaly, Erbao, & Mekongcho (2018) show that globalization is able to increase trade flows, investment flows, migration, and technological advances that have significantly affected global growth and development patterns since the mid-19th century. However, globalization through international trade has led to poor implications for income distribution, which increases inter-country economic dependence and income inequality that have increased significantly in many countries (Antràs, De Gortari, & Itskhoki 2017).

According to Wang, Fang, & Huang (2009), global-

Corresponding Author: Faculty of Economics and Business, Brawijaya University, Malang, 65145, East Java, Indonesia. Email: dias.satria@gmail.com.

Economics and Finance in Indonesia, Vol. 64 [2018], No. 1, Art. 2

26 WULANDARI, R.D., SUSILO, & SATRIA, D./INCOME INEQUALITY BETWEEN FORMAL-INFORMAL EMPLOYEES...

ization through trade provides two impacts, which will first lower the income premium (price effect) and will further increase the income differential in developing countries (skill incompatibility effect). The impact of globalization on the distribution of income can be explained by the income inequality between individuals who have different skills, namely high skills and low skills. When globalization takes place it means that a country can import manufactured goods at a cheaper price paid by exporting more high-tech goods, so that the income for skilled workers is likely to increase compared to the income of unskilled workers in the country.

This is caused by the emergence of technology as a factor of production is increasingly dominant in the middle of the business sector and employment and demanding good quality human resources. Many argue that technology is a disruption in the worker market because it takes over a large amount of work that is usually done by humans. Many surveys indicate that a large number of jobs do not require a human worker, but that does not mean that humans will not be needed at all. However, the greater the level of business competition in the world of work requires the quality of human resources that can compete and reliable.

In particular, Tinbergen has also emphasized that the income differential between workers is largely due to differences in educational attainment and then raises the gaps determined by demand and supply factors that can be explained by skill premiums. Furthermore, Tinbergen points out the gap as a race between education and technology (Broecke, Quintini, & Vandeweyer 2016). According to Tinbergen's views on his idea of an education race, the skill returns will increase as the rate of technological development has exceeded the growth of the skilled workforce and when educational production has surpassed technological advances. Tinbergen always assumes that the technological changes that take place will always require skills (Autor 2012) and so

the increase in the number of skilled workers will encourage technological development (Lee & Wie 2015).

Figure 1 shows the Gini ratio and inequality in Indonesia from 2002 to 2014. In 2002, the Gini ratio showed 0.329 and increased in 2014 to 0.406. Similarly, wage inequality p90/p10 in 2002 amounted to 6.0 and in 2014 increased drastically by 10.5. Thus, both measures of income inequality show an increasing trend.

Since the 1970s, Bound & Johnson (1992) and Katz & Murphy (1992) argue that the most important part of changing income inequalities is related to the growth of income premiums at higher education levels. Research from Burstein & Vogel (2017) also found that economic globalization through trade liberalization by bringing technological change can affect the income inequality based on skill premiums. This is due to technological changes favoring skilled workers and replacing tasks previously undertaken by unskilled workers.

Skills premium is one of the most prominent income inequality trends to observe in recent decades. Van Zanden (2009) explains that skill premium is the return or remuneration of human capital investment. In addition, Slavík & Yazici (2017) explain skills premiums as a substantial increase in college graduate earnings against those without higher education.

The skill premium as one measure of the income inequality can be determined by calculating the average ratio of incomes of the skilled worker to the average income of unskilled worker (Autor 2012, Bárány 2011, Sill 2002). According to Robbins & Gindling (1999), the workforce that is classified as skilled is a workforce that is a college graduate and the unskilled worker is the workforce who is a graduate of basic education (Blom & Vélez 2001).

In 2008, the income inequality between skilled and unskilled workers was 4.17, which means that
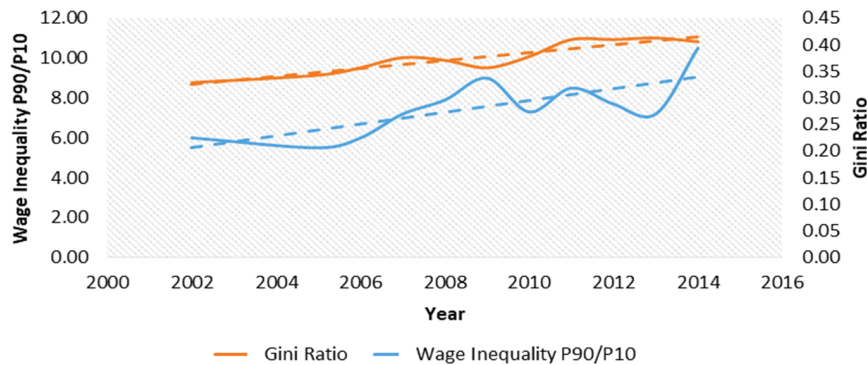
Figure 1: Gini Ratio and Income Inequality in Indonesia
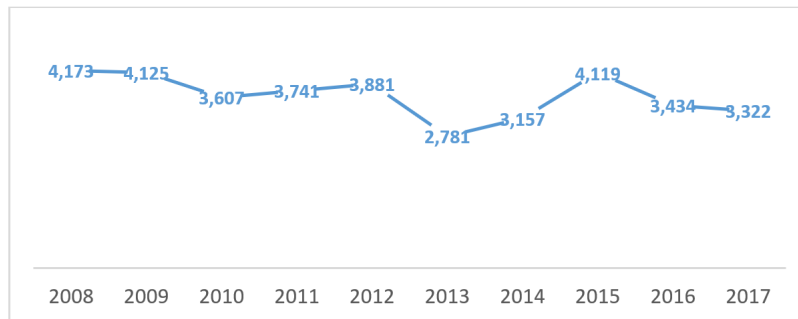Source: BPS (2017), International Labour Office (2012), Kemnaker (2015)

Figure 2: Skill Premium in Indonesia 2008-=2017
Note: Skill premium is the ratio of the average wage of high education graduate (D1-S3) workers to the average wage of unskilled workers (not schooling, elementary, and junior high school).
Source: Central Bureau of Statistics/BPS (data processed, 2017)

the average skilled worker income was 4.17 times higher than the average unskilled worker income and decreased in 2017 to 3, 32 which means that the average income of skilled worker is only 3.32 times greater than the average income of unskilled worker.

On the other hand, the use of different numbers of the worker is particularly sectoral where the more skilled workers fill the formal sector, while the unskilled worker is in the informal sector.

Based on data from BPS August 2017, a total of 12.56 million workers are skilled in the formal sector and 2.04 million workers are skilled in the informal sector. Meanwhile, unskilled workers in the formal sector amounted to 19.30 million and 53.39 million working in the informal sector.

The existence of the informal sector is a relatively permanent phenomenon in the modern economy that is integrated with its main sectors. Furthermore, the informal sector is integrally related to the formal sector which is pro-cyclical or in other words as a complementary sector. Such a striking difference allows the income inequality between sectors even though in the same education group.

Dasgupta, Bhula-Or, & Fakthong (2015) in his research aims to determine the income inequality between formal and informal workers in Thailand. The results of his research indicate that there are many heterogeneities of informal worker income. Blinder-Oaxaca test results indicate that there are statistically and statistically significant differences between incomes of formal and informal employ-
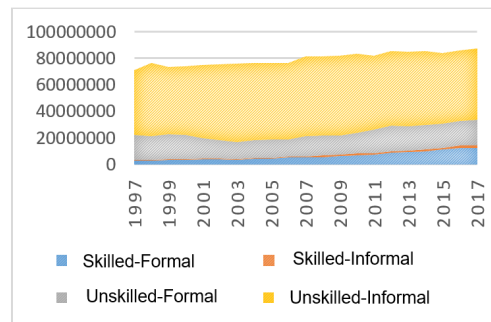
Figure 3: Distribution of Indonesian Workers in the Formal-Informal Sector
Source: Central Bureau of Statistics/BPS (2017)

ment, most of which can be explained by observed characteristics, including age, education level, industry sector, service sector, work area and occupational type of 68%, but about 28% cannot be explained in the model.

Zuo (2013) in his research aims to analyze the income difference between the formal and informal worker in urban China. The results of his research found that worker characteristics can account for 33% of the causes of the income difference, while the remaining 67% is due to the segmentation effect in which the informal female workforce is most affected by the segmentation.

Based on the description, the researcher is interested to know the magnitude of income inequality between the formal and informal sector workers in the unskilled and unskilled worker groups in Indonesia and the determinants that caused the income inequality.

This research is expected to provide information for development studies related to the influence of worker characteristics on the formal and informal wage inequality based on education groups in Indonesia that were developed using the Blinder-Oaxaca decomposition model. In addition, this research is expected to be used as a consideration and suggestion in formulating policies related to development planning in the field of employment, especially in relation to evaluation and wage policy

strategies in Indonesia.

2. Literature Review

Based on UU No. 13 of 2003, where the workforce is defined as a person who can do work to obtain goods and or services to meet their needs. In the grouping of formal and informal workers, BPS takes a special approach in determining the population working in the formal or informal sectors by virtue of employment status in the main job. According to their status, workers are self-employed, trying to be assisted by unpaid workers/unpaid workers, the free worker in agriculture, non-agricultural free worker, and unpaid family workers are categorized as informal workers. Meanwhile, workers are assisted by permanent workers/workers are paid and workers/laborer/employees are workers in the formal sector.

In Neoclassical theory (Simanjuntak 1985) it is explained that every entrepreneur will maximize profits by using factors of production in such a way that each of the factors of production is rewarded by the added value of the marginal product of the factor of production. The reward is the income given to the workers by employers.

According to Borjas (2008), the income inequality may be due to an increase in high-skilled worker

wages which is not matched by an increase in low-skilled workers' wages that result in a lower supply of low-skilled worker. In addition, it can also be caused by an increase in the number of capital goods requiring high-scaled worker, resulting in high demand for the high-skilled worker. Another cause is a large number of low-skilled workers who are not united in the union, so the worker has a low bargaining power.

According to Dumairy (1996), the income inequality can occur due to two things, namely endowment factors and development policy strategy factors. Endowment factors that show the quality of human resources. The term endowment is a measurable difference between groups in education, work experience, training, and so on. Meanwhile, the policy factor of development is a factor that indicates where the future development direction.

Based on Miller & Meiners (2000), several factors that cause income inequality include:

1. **Age**

   The real income pattern of most workers has a form like a figure 3. The picture is called an age-earning profile, in which income increases with age that will be accompanied by a decrease in income.

   There are a number of reasons behind the age-income profile form. First, young workers usually have limited skills and experience. Their marginal physical product is lower than the average physical product produced by older and more experienced workers. Second, working hours a day or a week and so on will begin to decrease after the age of forty-five to fifty-five years because of endurance and health began to decline. Productivity began to dim and reduced income until finally stopped working and their income line lost.

2. **Default Characteristics**

   The amount of income among certain workers,

such as actors and actresses is largely determined by their innate characteristics. Someone with a good looking and beautiful voice can certainly more easily generate income that multiplies than the income of others. Likewise with someone born with an IQ of over 160 would have been easier to earn an income.

3. **Courage to take risks**

   Individuals working in hazardous work environments generally earn more income. Workers who weld the steel frame of a multi-story building must have a higher income than regular welding workers. Ceteris paribus, a worker who is ready to risk his safety in a dangerous work field will certainly receive a great reward too.

4. **Uncertainty and Revenue Variance**

   Fieldwork that the results are uncertain, such as the field of marketing work would contain a greater risk. If successful completion of the work, of course, the level of income can exceed those who work in a more secure field.

5. **Exercise Weights**

   if the innate characteristics are assumed to be the same or ignored, then those who master the higher training weight definitely earn more income. The exercise can be sourced from formal education, such as lectures or through written courses, can also exercise the form of knowledge and informal experience that someone gets during his work. Even the role of on-the-job training is crucial and is one of the determinants of the age-earning profile. The more you practice, the more income you receive the more because it improves a person's skills so that he is able to produce higher marginal physical products.

6. **Inherited Wealth**

   Individuals who have inherited wealth or are born in a wealthy family environment will be better able to earn income than individuals who do not have inherited wealth, even though their
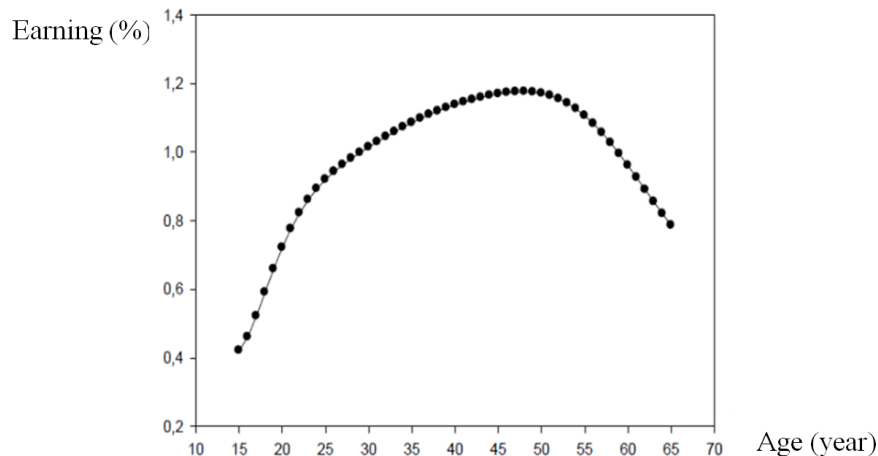
Figure 4: Age-Earning Profile
Source: Miller & Meiners (2000)

skills and education are equal. However, the influence of family wealth on one's success in earning revenue in the United States was relatively small. On the contrary, that influence is so conspicuous in developing countries that the percentage of national income for the smaller workers.

7. **Market Imperfections**

   Imperfection competition markets, minimum wage fixing, unilateral trade union policies, terms of licensing, certification and other conditions contributed to income differences among the working classes. Those who benefit from the imperfection of the market will receive a higher income, otherwise the disadvantaged will receive a lower income.

8. **Discrimination**

   The cause of the difference in wages derived from unexplained characteristics (unexplained) by Blinder (1973) is called the discrimination factor. Discrimination can occur when players in the marketplace consider the factors of race and sex in exchange in the market (Borjas 2008). The degree of discrimination cannot be measured based on the average income figures between the two groups if it is not ad-justed or taken into account by the difference or difference in the level of worker productivity.

In the theory of equalization of wage levels in which each job has a certain supply and demand that will determine the wage rate. Under perfectly competitive market conditions, wages in the worker market will flexibly adjust the balance between worker demand and supply. However, wages often do not apply flexibly to make adjustments when there is an imbalance between worker demand and supply (Mankiw 2007). This wage rigidity can be caused by government intervention on wages, union power or employer inaction in response to changes in worker market. However, in general, the concept of wages has always been associated with standards of individual characteristics of workers, human capital characteristics, regional characteristics and characteristics of the work itself:

a **Age**

   Age affects a person's work productivity. Productivity tends to be higher when workers are young. When productivity is higher, then the income received will be higher. Dutta (2005) analyzed the gap-determining factors for income earners in 1983 and 1999–2000, focusing on the sample of male earnings recipients

in the working age group (15–65). He follows the Fields method to calculate the inequality between the two samples-permanent workers and free workers. The age variable plays a stronger role in determining the income of the permanent worker.

b **Gender**

At work, men tend to have higher productivity than women. When productivity is high, then the chances of work are greater and the income received is certainly higher. Pirmana (2006) in his research explains that the income inequality between men and women is getting narrower as education gets higher. However, not all studies agree on this income inequality. Melly (2005) examined income inequality between the public sector and private sector employees in Germany in 2000 using OLS regression techniques and the Blinder-Oaxaca decomposition showed that men received lower incomes than women in the public sector. Mulyaningsih et al. (2016) also show that the proportion of women has an influence on skill premiums.

c **Experience**

Work experience shows how long an individual deepens his work. The longer the work, the workers are considered to be more skilled. The more skilled the worker, the income inequality between worker will widen.

d **Working hours**

Working hours represent the number of hours worked out by the workforce in a week. The more the number of working hours allocated, the income inequality between workers may increase.

e **Training**

The more workers attend the training, the more skilled the worker will be. Thus, such skill upgrading can lead to an inequality in worker income.

f **Residence**

The residence indicates the domicile or residence location of the worker in the village or in the city. The location of residence generally can affect the income inequality of the worker due to the difference in economic activity in each location.

g **Status of the head of the family**

The status of the household head shows the status of the workforce as the head of the family or not the head of the family. A person who is the head of a family will usually try to earn a higher income. Firdaus (2011) in his research shows the status of the head of the family has a great influence on the gender wage inequality.

Lamazi et al. (2016) in his research aims to analyze the factors affecting wage disparities among women workers in rural and urban areas in South Sumatra in 2013 using cross-section data from Susenas 2013. The method used in this study is the Mincer wage equation and the decomposition model of Blinder-Oaxaca. The results of the study found that the average wage difference between women working in urban and rural areas was 34.93%. This difference is caused by endowment variables (independent), ie education, age, working hours, non-agricultural sector, marital status, and attendance of children under the age of five have an effect of 11.82%. The remaining 88.18% is explained by other variables outside this study. Endowment variables, such as high school (SMA) education, higher education and working hours are also found to be the cause of the increasing disparity of female workers' wages in urban and rural areas.

Mulyaningsih et al. (2016) in his study explained that factors affecting skill premiums are the proportion of female workers, the proportion of free workers, and the proportion of workers with higher education. Other results also explain that the high differences in skills or quality of human resources will be followed by high-income inequality in areas

Economics and Finance in Indonesia, Vol. 64 [2018], No. 1, Art. 2

32 WULANDARI, R.D., SUSILO, & SATRIA, D./INCOME INEQUALITY BETWEEN FORMAL-INFORMAL EMPLOYEES...

where regions with large skill differences have high-income inequality.

Purnastuti, Miller, & Salim (2013) in his research which aims to show the return to schooling in Indonesia as well as explain the comparison of men to women. Data used in this research is IFLS1 data of 1993 and IFLS4 2007–08. This study uses Ordinary Least Square (OLS) and Heckman two's step method. The results of this study indicate that the return of education in Indonesia in 2007-2008 was lower than in 1993. The results showed that the rate of return on investment in education in Indonesia in 2007 was higher for female workers than for men.

Research conducted by Pirmana (2006) which aims to analyze the differences in income in Indonesia and know the difference in income seen from individual characters, experience, the location of residence, and socio-demographic-economy. The data used in the study were Sakernas 1996, 1999, 2002, and 2004. Based on the analysis it was found that human capital (school years and work experience), socio-demographic-economic character (head of household, gender, marital status, sector jobs), and location factors (rural, urban) have a significant effect on the income of individual workers in Indonesia. The result of the estimation indicates that the factors are identifying the difference in income between men and women 41,6% caused by the difference of endowment and the rest equal to 58,4% unspecified factor.

In addition, an explanation published by the Organization for Economic Co-operation and Development (2012) describes the gap-determining factors in worker income. The data used are household survey results from 32 countries in 2008. The analysis investigates its impact on part-time and full-time income from factors such as the number of hours of work, gender, age, and education level. In addition, the role of the employment sector, type of employment contract (temporary and permanent), union

membership and country of birth are explored. The results explain that educational factors, employment status, and gender can affect the income inequality between workers.

The research hypothesis used in this study are as follows:

H1: Suspected there is a positive and significant influence between the variables of age to income inequality.

H2: Suspected there is a positive and significant influence between the age squared variable on the income inequality.

H3: Suspected there is a positive and significant influence between the sex variables on income disparities.

H4: Suspected there is a positive and significant influence between the variables of experience on the income inequality.

H5: Suspected there is a positive and significant influence between the quadratic potential experience variables on the income inequality.

H6: Suspected there is a positive and significant influence between the variables of working hours to income inequality.

H7: Suspected there is a positive and significant influence between job training variables on income inequalities.

H8: Suspected there is a positive and significant influence between residential variables on income disparities.

H9: Suspected there is a positive and significant influence between the variable of the head of the household on the income inequality.

3. Method

This research uses a quantitative approach with descriptive statistics and econometric analysis techniques. The data used in the study are secondary cross-section data derived from the National Worker Force Survey (Sakernas) in 2017 in Indonesia and processed using computer tool (software) STATA 13.1. Selected sample is the workforce of junior high school graduates and higher education who receive wages. Processed data is divided into two groups, namely the group of skilled worker and unskilled worker group.

The general equation used to estimate revenues between sectors is based on the Mincerian wage equation as follows:

$$y = \ln Y = \alpha_0 + \sum_{t=1}^{n} \alpha_i X_i + \varepsilon \qquad (1)$$

Y : individual income functions
X_i : set of independent variables (X1, X2, X3, ... Xn)
α : estimated coefficient
ε : *error term*

Thus, the estimation equation used can be described as follows:

$$\ln w_i = \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3 + \alpha_4 x_4 + \alpha_5 x_5 \qquad (2)$$
$$+ \alpha_6 x_6 + \alpha_7 x_7 + \alpha_8 x_8 + \alpha_9 x_9 + \varepsilon_i$$

Information:

W_i : wage
i : sector (formal/informal)
α_i : estimated coefficient
$x1$: age
$x2$: age of squared
$x3$: sex
$x4$: experience
$x5$: experience of squared
$x6$: work hours
$x7$: training
$x8$: residence
$x9$: status of the head of the family
ε_i : *error term*

Before the estimation is made on the income equation model, it is necessary to solve the selection problem of bias because the biggest issue in estimating Mincerian function is the finding of bias in sample selection. Sample selectivity occurs because the income function is only performed on individuals who participate in the workforce and receive wages. The test that needs to be done to overcome it is the Heckman two-step procedure. The problem of selection bias as a result of limited sample selection of working individuals is known as the Inverse Mills Ratio (IMR). The coefficient of IMR is obtained by analyzing all the information of the people who work and not working in the equation by including dependent variables plus the variables that affect the decisions of people working. The probit model will be performed on this test. The main purpose of probit analysis is to know the effect of unmeasured characteristics on the sample affecting an individual's decision to have income from the worker market. The residual obtained from the probit equation is used to create the IMR variable. The probit equation used is:

$$\text{lfp} = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \varepsilon \qquad (3)$$

Information:

lfp : 1 if the individual receives a wage; 0 if not receiving wages
$X1$: 1 if single; 0 if not single
$X2$: 1 if married; 0 if not married
$X3$: number of family dependents

This equation is referred to as the selected variable equation which means that the dependent variable in the income equation can only be observed if the selection equation has a significant value in

influencing the probability of a person working.

Next is to estimate the Blinder-Oaxaca decomposition equation by including the IMR variable. The equations for the Blinder-Oaxaca decomposition are as follows:

$$\bar{y}^F - \bar{y}^I = [\alpha_0^F - \alpha_0^I] + \sum_{i=1}^{n} \alpha_i^F (\bar{X}_i^F - \bar{X}_i^I) \quad (4)$$
$$+ \sum_{i=1}^{n} \bar{X}_i^I (\alpha_i^F - \alpha_i^I)$$

Information:

$\bar{y}$: average wages

F : formal

I : informal

$\bar{X}$: average value of the independent variable

α : estimation of the average of explanatory variable coefficients through OLS estimation of the wage equation

If the results of the selection equation test show the probability value of IMR is smaller than alpha (0.05), then the work probability indicates the absence of sample selection bias error. Thus, the OLS method can be continued to be used in estimating equations of wage and decomposition Blinder-Oaxaca without adding an IMR explanatory variable.

4. Results and Analysis

4.1. Descriptive Analysis

This analysis was carried out on 37,862 skilled workers and 118,162 unskilled workers with a proportion of 75.73% of unskilled workers and 24.27% of skilled workers. This shows that the structure of the Indonesian market is still dominated by unskilled workers. In this period, the proportion of skilled workers in the formal sector was 7.71% and the informal employment sector was 92.29%. Meanwhile,

unskilled workers in the formal sector contributed 35.86% and informal workers as much as 64.16%.

When viewed by sex, the group of formal skilled workers is dominated by women, which is about 11.78% of the total workforce studied, while in the informal sector is dominated by men around 1.14% of the total workers studied. Meanwhile, in the group of unskilled workers, the formal and informal sectors are dominated by male workers.

Furthermore, based on the age of skilled labor and unskilled labor in the formal and informal sectors dominated by 30–44 years of productive age. The average age of skilled labor is 38.04 years and the average age of unskilled workers is 42.79 years.

Based on work experience, formal and informal sector skilled workers are dominated by the range of 0–15 years. The average experience of skilled workers is 9.83 years. This dominance is similar to the group of unskilled workers in the formal and informal sectors with an average time span of 9.38 years.

Furthermore, when viewed based on working hours in a group of skilled workers in the formal and informal sectors where most have working hours of more than 35 hours a week, which is about 36.91% and 28.96% of the total sample. Skilled workers in both the formal and informal sectors also have an average hour of more than 35 hours a week. The average working hours in the skilled worker group is 37.87 hours per week and the average working time of the unskilled worker group is 39.76 hours per week.

Based on labor participation in training, the formal sector skilled workforce is dominated by workers who have attended training and the informal sector is dominated by workers who have never participated in job training. Meanwhile, the group of unskilled workers in both the formal and informal sectors is dominated by workers who have never

attended job training.

Then, it is seen from the workforce residence where formal and informal sector skilled workers are dominated by urban workers. Similarly, the majority of formal sector workers who are not skilled also live in cities, while unskilled labor from the informal sector is dominated by workers who live in the village.

Based on the status of the household head, formal and informal sector skilled workers are dominated by non-household heads. Meanwhile, in the group of the unskilled worker, the formal and informal sectors are dominated by the household head.

4.2. Estimation of Blinder-Oaxaca Decomposition

In general, worker market-related studies include a correction for sample selection bias in wage equations based on Heckmann (Jann 2008). Limited samples for the working and wage worker force are the reasons for the need for bias selection tests in this study (Lamazi et al. 2016).

Table 1: Heckman Bias Selection Test Results

lambda	Coef.	Std.	z	P>z
Skilled	-0.9465	0.119757	-7.9	0.000
Unskilled	-0.34415	0.021493	-16.01	0.000

Source: Author's calculation

Based on the results of Heckman's test on the group of skilled workers, it can be seen that the probability value of the IMR after estimation using the probit model of the work probability is 0.00 which means smaller than alpha (0.05), the test results are not significant. In the group of unskilled workers, the probability value of IMR after estimating using the probit model of work probability is 0.00, which means it is greater than alpha (0.05), then the test results are not significant. This shows a sample selection bias and needs to enter the IMR variable in the next estimate.

Based on the estimation results obtained the coefficient of determination. Based on the data, as much as 35.70% of the wages of skilled workers in the formal sector is influenced by independent variables. While the remaining 64.30% is influenced by other variables not explained in this study. For groups of informal skilled workers of 18.36%, the informal sector wages are skillfully influenced by independent variables. While the remaining 81.64% is influenced by other variables not explained in this study. For formal sector workers, 26.92% of the wages of the non-skilled formal sector variables are influenced by independent variables. Meanwhile, the remaining 73.08% is influenced by other variables not explained in this study. for groups of informal workers who are unskilled, 23.05% are influenced by independent variables. Meanwhile, the remaining 76.95% is influenced by other variables not explained in this study. Low R-squared values are not a problem because the data used is cross-section data that has a high level of heterogeneity and involves several observations so that the resulting R-squared value is low (Gujarati & Porter 2010).

Furthermore, based on the test results on the four groups of workers it was found that Prob> F 0.0000 is smaller than alpha (0.05), so the analysis model has a significant effect on wages simultaneously.

Furthermore, Blinder-Oaxaca decomposition analysis is carried out to find answers to whether the determinants of income inequality are influenced by the observed characteristics (support or support factors) or influenced by unobservable characteristics and then identified by each factor that contributes to income inequality. The application of the Blinder-Oaxaca decomposition technique is done by dividing income inequality between formal sector workers and informal sector labor into two parts, the first part is explained by differences in wage determinants, namely age, potential age squared, gender, experience, experience of potential squares,

Table 2: OLS Estimation Results from Wage Equation For Formal and Informal Workers by Education Group

lnwage	Formal–Skilled Worker		Informal–Skilled Worker		Formal–Unskilled Worker		Informal–Unskilled Worker	
	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
age	0.08334	0.000	0.054283	0.00	0.02556	0.000	0.020131	0.000
agesq	-0.00074	0.000	-0.00069	0.00	-0.00038	0.000	-0.00029	0.000
sex	0.147686	0.000	0.335317	0.00	0.433139	0.000	0.403809	0.000
exp	0.0253	0.000	0.045657	0.00	0.019014	0.000	0.017204	0.000
expsq	-0.00027	0.000	-0.00085	0.00	-0.00038	0.000	-0.00038	0.000
whour	0.019014	0.000	0.008805	0.00	0.012766	0.000	0.015524	0.000
ojt	0.154051	0.000	0.029393	0.39	0.167664	0.000	0.041187	0.025
location	0.293327	0.000	0.438387	0.00	-0.0124	0.041	0.126936	0.000
KK	0.152594	0.000	0.103079	0.02	0.086602	0.000	0.068364	0.000
mills	-0.97943	0.000	-0.72693	0.05	-0.365	0.000	-0.31743	0.000
_cons	1.179.784		1.262.533		1.311.942		1.286.075	0.000
N	34942		2920		42372		75790	
Prob>F	0.000		0.000		0.000		0.000	
R-square	0,357		0.1836		0.2692		0.2305	

Source: Author's calculation

working hours, job training, marital status, place of residence, and the status of the head of the family and the second part is the difference that cannot be explained by the group.

The decomposition test results show the estimated exponential parameter number where the average income of skilled laborers every month for formal sector workers is Rp2,491,327.- compared to the average labor income each month for informal sector workers amounting to Rp1,784,570.- Based on the results of decomposition in the skilled group, the income inequality between formal and informal workers was 39.6%. This indicates that there is a difference in income received by formal and informal workers, where formal workers receive 39.6% higher income than informal workers. The income inequality between the two groups of workers can be explained by differences in characteristics (age, age squared, gender, experience, quadratic experience, working hours, job training, residence, and family head status) between formal workers and informal workers only at 4, 01%. Whereas, the unobserved factor was 35.54%. Thus, the cause of the income inequality that cannot be explained by the observed variable is 89.75%.

This finding is quite interesting because only about 10.13% of the income inequality can be explained,

namely because there are indeed differences in characteristics between skilled workers in the formal sector and informal information from the variables selected in the model.

The decomposition test results in the table also show the estimated exponential parameters in which the average non-skilled labor income per month for formal sector workers is Rp1,301,727.- compared to the average monthly labor income for informal sector workers amounting to Rp1,014,581.- . Based on the results of decomposition in the unskilled group, the income inequality between formal and informal workers was 39.6%. This indicates that there are differences in income received by formal and informal unskilled workers, where formal workers receive 28.3% higher income than informal workers. The income inequality between the two groups of workers can be explained by differences in characteristics (age, age squared, gender, experience, quadratic experience, working hours, job training, residence, and family head status) between formal workers and informal workers only at 13, 21%. Whereas, the unobserved factor was 15.09%. Thus, the cause of the income inequality is not skilled workers who cannot be explained by the observed variables by 53.32%.

This finding is quite interesting because only about

Table 3: Analysis of Blinder-Oaxaca Decomposition between Formal and Informal Workers in Skilled and Unskilled Groups

Karakteristik	Formula	Skilled Group	Unskilled Group
Wage Inequality (R)	E+C+U	39.6	28.3
Endowment	E	4.01	13.21
Coefficient	C	32.04	14.65
Shift coefficient	U	3.55	0.44
Adjusted differential (D)	C+U	35.54	15.09
Endowment as % total	E/R	10.13	46.68
Discrimination as % total	D/R	89.75	53.32

Source: Author's calculation

46.68% of the income inequality can be explained, namely because there are indeed differences in characteristics between unskilled workers in the formal sector and informally from the variables chosen in the model. These results indicate that the inequality in income between formal sector workers and informal sector workers in Indonesia based on the 2017 Sakernas data is more due to sector differences or discrimination factors compared to the differences in endowment productivity of workers. The value of endowment differences and discrimination factors in this study is based on the assumption that the wage level is only influenced by eight variables used. Similar results were also found by Zuo (2013) in his research in which the endowment factor was only able to explain the 33% cause of the difference in income, while the remaining 67% was due to the market segmentation effect.

Furthermore, the decomposition test results in Table 5 show the individual contribution from the predictor to the decomposition component, ie to see the relationship between the endowment factor and the income inequality.

Based on the results of the analysis, it is found that the probability value of each variable is 0.0000 skilled labor, which means it is smaller than alpha (0.05), except for working hours and training variables.

Meanwhile, in the unskilled labor force, all independent variables significantly affect income inequality between formal sector workers and informal sector workers. Positive and negative signals on the variable coefficients in the endowment factor are used to identify the income inequality. A positive coefficient signal shows that workers who work in the formal sector have a higher contribution than workers who work in the informal sector because of the widening income inequality. Meanwhile, a negative sign indicates that the endowment factor for workers working in the informal sector is higher than in the formal sector and that will reduce income inequality.

Age has a negative and significant influence on wage inequality. According to Messina & Silva (2018), a decrease in wage inequality caused by age can occur due to an excess of labor supply. Based on data statistics in this study, it can be seen that the age of workers is dominated by workers aged 30–44 years. The relationship between the two is seen from the number of workers aged 30–44 years more in the formal sector than in the informal sector.

Furthermore, in the long run, the number of workers in the formal sector will decrease and be lower than the number of workers in the informal sector. This is reflected in research data where formal workers aged over 60 years are 2,750 workers compared to informal workers as many as 11,901 workers. Thus, it can be said that in the long run wage inequality will increase due to the supply of workers who have experienced a decline, especially in the formal sector.

Economics and Finance in Indonesia Vol. 64 No. 1, June 2018

Table 4: Variable Endowment of Blinder-Oaxaca Decomposition on Income Inequality on Worker Based on Formal Sector and Indormal

lnwage	Skilled Worker			Unskilled Worker		
	Coef.	Std. Err.	P>z	Coef.	Std. Err.	P>z
age	-0.10338	0.02322	0.000	-0.13107	0.008935	0.000
agesq	0.120184	0.024225	0.000	0.163455	0.008165	0.000
sex	-0.04514	0.00641	0.000	0.019082	0.001198	0.000
exp	0.19027	0.027781	0.000	-0.06598	0.003087	0.000
expsq	-0.093	0.024983	0.000	0.045302	0.002437	0.000
whour	-0.00425	0.003639	0.243	0.100125	0.001972	0.000
ojt	0.00492	0.005681	0.387	0.000412	0.000188	0.029
location	-0.02015	0.004139	0.000	0.01876	0.000954	0.000
KK	-0.00992	0.004516	0.028	-0.0064	0.000782	0.000
mills	0.000624	0.00072	0.386	-0.01154	0.001123	0.000
Total	0.040154	0.017786	0.024	0.132138	0.003155	0.000

Source: Author's calculation

Based on the results of this analysis found there are three endowment variables that expand income inequality, namely the potential age squared, experience, and job training. This reflects that these variables are responsible for income inequality that occurs in workers in the formal and informal sectors. The highest endowment value of skilled workers is shown by the variable age squared of 0.12. Meanwhile, the lowest endowment value is shown by the employment training variable of 0.005.

In the group of unskilled workers, there are six endowment variables that can increase income inequality, namely age squared, gender, experience squared, working hours, job training and residence. The highest endowment value is shown by the age squared variable of 0.163, while the lowest endowment value is indicated by the employment training variable 0.0004.

Research conducted by Messina & Silva (2018) explains that experience can increase the wage inequality of workers at the beginning of time because the formal sector requires educated workers, but then can reduce the wages of workers because the experience of the worker becomes worthless especially in his research after the 2000s. This can occur due to changes in labor demand characteristics. These results are also found in the study of Xue, Gao, & Guo (2014) which sought to ex-

amine informal workers and the impact of income distribution in five Chinese cities (Shanghai, Wuhan, Shenyang, Fuzhou, and Xi'an). His research was carried out in three different periods, namely 2001, 2005, and 2010. The results of his research using Blinder-Oaxaca decomposition showed that experience variables had a positive influence on the wage inequality between formal and informal workers in 2001 and 2010. Meanwhile, in 2005 found a negative influence between experience on the wage inequality in the formal and informal sectors. This result is similar to that found in the study of Mønsted (2000) where work experience has a positive influence on the income inequality between the formal and informal sectors in urban Bolivia in 1989 and the negative influence on the quadratic experience of income disparities between the formal and informal sectors in urban Bolivia in 1994. Similar results were also found in Firdaus's (2011) study where gender income inequalitys were influenced by quadratic experiences negatively and insignificantly, especially in the formal sector.

Meanwhile, income inequality is also influenced by job training caused by job training can improve workers' skills. Based on data statistics in this study it can be seen that workers in the formal sector who have participated in more training than workers in the informal sector, namely 22,902 workers and

3,159 workers respectively. The more trained a person is, of course, will receive a higher wage and the formal sector will guarantee higher wages because of the minimum wage policy. This has resulted in increasingly wage wages between formal and informal workers. The results of this study are similar to research conducted by Almeida-Santos, Chzhen, & Mumford in Polachek & Tatsiramos (2010) who found that training can increase wage inequality, but not significantly. This can happen because training only affects young formal and informal workers. Thus, the quotation does not have a significant effect on informal workers because training is considered only to provide benefits when at the beginning of the work and will decrease over time. Similar results were also found in the research of El Badaoui, Strobl, & Walsh (2008) where job training is one of the factors influencing the wage inequality significantly in North Africa.

The estimation results for the variables of residence of educated workers are obtained by a coefficient of 0.02 which has a negative and significant effect on income disparities between formal and informal workers. This shows that if the residence of educated workers in the city, the income inequality between formal and informal workers will decrease by 0.02 units assuming other variables are considered constant (ceteris paribus).

This is possible because of the high competition of educated workers in the labor market in the city. This is reflected in the data in this study where the number of educated workers in the urban formal sector was 24,014 workers, while urban informal educated workers were 2,141 workers. In addition, the place of residence has a greater influence on educated workers in the informal sector, which is 43.83%. Therefore, an increase in educated workers living in cities can reduce wage inequality between the formal and informal sectors. This result is similar to that found by Firdaus (2011) where dwellings have a negative relationship with the in-

come inequality between male and female workers in the formal and informal sectors. These results contradict the results of Busman et al. (2016) where his research actually found a significant positive influence from location dummy variables on income inequality between agricultural and non-agricultural sector workers in Central Sulawesi in 2014.

Meanwhile, the estimation results for the variables of residence of uneducated workers were obtained by a coefficient of 0.019 which had a positive and significant effect on the income inequality between formal and informal workers. This shows that if the residence of workers is not educated in the city, the income inequality between formal and informal workers will increase by 0.019 units assuming other variables are considered constant (ceteris paribus). This happens because work in the city tends to require high skills and if workers are not educated choose to enter the labor market in cities that use technology more, then they will receive a much lower wage. Based on statistical data in this study it can be seen that uneducated workers in the urban formal sector are not more than in the informal sector. In addition, the place of residence of uneducated workers in the formal sector also has a negative influence on their wages. Therefore, uneducated workers who live in cities can increase wage inequality between sectors. This is in line with the opinion of Burstein & Vogel (2017), where the technology only likes educated workers. This result is similar to the findings of Busman et al. (2016) where dwellings have a significant positive influence on the wage inequality between the agricultural and non-agricultural sectors in Central Sulawesi.

Overall, based on the results of the Blinder-Oaxaca decomposition test, the income inequality between formal and informal worker both in the well-skilled and unskilled worker is largely influenced by discrimination factors. The same is also found in Lamazi et al. (2016) research, where 88.18% of the income inequality between women workers in

villages and in larger cities is explained by discrimination factors compared to the worker's endowment.

According to Dasgupta, Bhula-Or, & Fakthong (2015), the factor of discrimination in the income inequality between formal and informal workers can be attributed to various forms of labor market discrimination and the lack of relevant labor market institutions in promoting the bargaining power of workers. When associated with the lack of relevant labor market institutions, the opinion of Dumairy (1996) which explains the factors of development policy strategies can affect the income inequality. In addition, the results of this study in accordance with Miller & Meiners (2000) in which discrimination in the explanation is one part of the cause of the income inequality.

5. Conclusion

Based on the results of the study, the following conclusions can be drawn:

1. In the wage equation, all independent variables have a significant effect on income.
2. Income inequality between formal sector workers and informal sector workers in both skilled and unskilled work groups is more due to differences in sectors or factors of discrimination than by differences in the productivity of blessed workers.
3. The endowment variable that can increase income inequality between formal and informal workers in the skilled workers group is the age of squared, experience, and job training. Meanwhile, groups of unskilled workers are age squared, gender, experience squared, working hours, job training, and residence.

5.1. Suggestion

Suggestions can be put forward as follows:

1. To achieve equitable distribution of income, it is necessary to improve the quality of human resources in Indonesia with various programs that can make the workforce more skilled, such as:
   a Identify and provide systematic assistance to individuals who have not graduated from school, especially to achieve the 12-year compulsory education.
   b Strengthen relationships between educational institutions, schools, and households to help parents who can not afford to send their children to school.
2. Expand the opportunity for education and training institutions to apply for knowledge transfer both domestically and abroad in order to create highly skilled workers and in the long run minimize the inequality between workers who are very prominent.

5.2. Limitation of Study

1. This study cannot provide additional information related to the causes of discrimination because the data used can only see labor conditions in general.
2. This research is limited to other variables that may be included, such as company size, position, skills, and others.
3. This research only looks at income inequality between skilled and unskilled workers.

References

[1] Antràs, P., De Gortari, A., & Itskhoki, O., 2017. Globalization, inequality and welfare. *Journal of International Economics, 108*, pp.387–412.

[2] Autor, D., 2012. *Lecture 1 – The theory of skill premia.* 14.662-Spring 2012. Massachusetts Institute of Technology. https://pdfs.semanticscholar.org/8826/56b8c3df902e8fd2cb bd8d5f6a8d38a2f611.pdf.

[3] Bárány, Z.L., 2011. The Minimum Wage and Inequality – The Effects of Education and Technology. *CEP Discussion Paper No. 1076*. Centre for Economic Performance. http://cep.lse.ac.uk/pubs/download/dp1076.pdf.

[4] Blinder, A.S., 1973. Wage discrimination: reduced form and structural estimates. *Journal of Human Resources, 8*(4), pp.436-455. DOI: 10.2307/144855.

[5] Blom, A., & Vélez, C., 2001. Brazil's increasing skill premium: Growing demand and insufficient supply. Final Draft/Nov/01. Retrieved from http://web.worldbank.org/archive/website00955A/WEB/PDF/BR_SKILL.PDF.

[6] Borjas, G.J., 2008. *Labor Economics, [6th edition].* Boston: McGraw-Hill.

[7] Bound, J., & Johnson, G., 1992. Changes in the structure of wages in the 1980's: An evaluation of alternative explanations. *The American Economic Review, 82*(3), pp.371–392.

[8] BPS, 2017. *Gini ratio provinsi 2002-2018.* Retrieved 23 September 2017 from https://www.bps.go.id/dynamictable/2017/04/26/1116/gini-ratio-provinsi-2002-2017.html.

[9] Broecke, S., Quintini, G., & Vandeweyer, M., 2016. Wage inequality and cognitive skills: re-opening the debate. *NBER working paper 21965*. National Bureau of Economic Research, Cambridge. http://www.nber.org/papers/w21965.pdf.

[10] Burstein, A., & Vogel, J., 2017. International trade, technology, and the skill premium. Journal of Political Economy, 125(5), pp.1356–1412. DOI: https://doi.org/10.1086/693373.

[11] Busman, Palampanga, A.M., Djirimu. M.A., & Alam, M.N., 2016. Analysis of determinants of wage disparity for labor sector in Central Sulawesi-Indonesia. *Journal of Economics and Sustainable Development, 7*(18), pp.1–14.

[12] Coulibaly, S.K., Erbao, C., & Mekongcho, T.M., 2018. Economic globalization, entrepreneurship, and development. *Technological Forecasting and Social Change, 127*, pp.271–280. DOI: https://doi.org/10.1016/j.techfore.2017.09.028.

[13] Dasgupta, S., Bhula-Or, R., & Fakthong, T. 2015. Earnings differentials between formal and informal employment in Thailand. *ILO Asia-Pacific Working Paper Series*. Regional Office for Asia and the Pacific, International Labour Office. https://www.ilo.org/wcmsp5/groups/public/—asia/—ro-bangkok/documents/publication/wcms_436903.pdf.

[14] Dumairy, 1996. *Perekonomian Indonesia.* Jakarta: Erlangga.

[15] Dutta, P.V., 2005. Accounting for wage inequality in India. *Indian Journal of Labour Economics, 48*(2), pp.273–295.

[16] El Badaoui, E., Strobl, E., & Walsh, F., 2008. Is there an informal employment wage penalty? Evidence from South Africa. *Economic Development and Cultural Change, 56*(3), pp.683–710. DOI: https://doi.org/10.1086/533550.

[17] Firdaus, 2011. The workers gender wage discrimination in the Kabupaten. *Kajian Ekonomi, 10*(2), pp. 202–224.

[18] Gujarati, D.N., & Porter, D.C., 2010. *Dasar-dasar Ekonometrika Edisi 5 Buku 1.* Jakarta: Publisher Salemba Empat.

[19] International Labour Office, 2012. *Profil pekerjaan yang layak Indonesia.* Retrieved from http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-jakarta/documents/publication/wcms_180582.pdf.

[20] Jann, B., 2008. A Stata implementation of the Blinder-Oaxaca decomposition. *Stata Journal, 8*(4), pp.453–479.

[21] Katz, L.F., & Murphy, K.M., 1992. Changes in relative wages, 1963–1987: supply and demand factors. *The Quarterly Journal of Economics, 107*(1), pp.35–78. DOI: https://doi.org/10.2307/2118323.

[22] Kemnaker, 2015. *Indikator pekerjaan yang layak Indonesia 2010–2014.* Pusat Data dan Informasi Ketenagakerjaan, Badan Perencanaan dan Pengembagan Ketenagakerjaan, Kementerian Ketenagakerjaan R.I.

[23] Lamazi, Syamsurijal A.K, Tarmizi, N., & Sariman, TA.M., 2016. Analysis factors that influence wage disparity between female workers in urban and rural areas in South Sumatera. *Eurasian Journal of Economics and Finance, 4*(3), pp.54–63. DOI: 10.15604/ejef.2016.04.03.005.

[24] Lee, J.W., & Wie, D., 2015. Technological change, skill demand, and wage inequality: Evidence from Indonesia. *World Development, 67*, pp.238–250. DOI: https://doi.org/10.1016/j.worlddev.2014.10.020.

[25] Mankiw, N.G., 2007. *Makroekonomi, [Edisi ke-6].* Jakarta: Erlangga.

[26] Melly, B., 2005. Public-private sector wage differentials in Germany: Evidence from quantile regression. *Empirical Economics, 30*(2), pp.505–520. DOI: https://doi.org/10.1007/s00181-005-0251-y.

[27] Messina, J., & Silva, J., 2018. *Wage inequality in Latin America: Understanding the past to prepare for the future.* International Bank for Reconstruction and Development / The World Bank. http://documents.worldbank.org/curated/en/501531515414 954476/pdf/122492-PUB-Dec28-2017-PUBLIC.pdf. DOI: https://doi.org/10.1596/978-1-4648-1039-8.

[28] Miller, R.L., & Meiners, E.R., 2000. *Teori mikroekonomi intermediate.* Jakarta: PT. Raja Grafindo Persada.

[29] Mønsted, T. 2000. Wage differentials between the formal and the informal sector in urban Bolivia. *Documento de Trabajo, No. 01/00.* Universidad Católica Boliviana, Instituto de Investigaciones Socio-Económicas (IISEC), La Paz. https://www.econstor.eu/bitstream/10419/72897/1/62238161X.pdf.

[30] Mulyaningsih, T., Miranti, R., Daly, A., & Manning, C., 2016. Skill differentials and wage inequality: A study of the Indonesian labour market. *Paper presented on 2016 Indonesian Development Research Network Workshop*, 16-17 May 2016, Grand Serela Setiabudhi Bandung, Indonesia. http://www.smeru.or.id/sites/default/files/events/d2_present ation_3_tri_mulyaningsih_riyana_miranti.pdf.

[31] Organization for Economic Co-operation and Development, 2012. Inequality in labour income – What are its drivers and how can it be reduced?. *OECD Economics Department Policy Notes, No. 8*. https://www.oecd.org/eco/public-finance/49417273.pdf.

[32] Pirmana, V., 2006. Earnings Differential Between Male-Female In Indonesia: Evidence From Sakernas Data. *Working Papers in Economics and Development Studies (WoPEDS) 200608*. Department of Economics, Padjadjaran University. ceds.feb.unpad.ac.id/wopeds/200608.pdf.

[33] Polachek, S.W., & Tatsiramos, K. (eds.), 2010. *Jobs, training, and worker Well-being*. Research in Labor Economics Volume 30. UK: Emerald Group Publishing.

[34] Purnastuti, L., Miller, P.W., & Salim, R., 2013. Declining rates of return to education: evidence for Indonesia. *Bulletin of Indonesian Economic Studies, 49*(2), pp.213–236. doi: https://doi.org/10.1080/00074918.2013.809842.

[35] Sill, K., 2002. Widening the wage gap: The skill premium and technology. *Business Review, Q4*, pp. 25–32. https://pdfs.semanticscholar.org/ce82/8bc5cae13b0fa6518 adc387a5f527621b27e.pdf.

[36] Simanjuntak, P.J., 1985. *Pengantar ekonomi sumber daya manusia*. LPFE UI, Jakarta.

[37] Slavík, C., & Yazici, H., 2017. Wage risk and the skill premium. *CERGE-EI Working Paper Series No. 609*. Center for Economic Research and Graduate Education - Economics Institute (CERGE-EI), Charles University, Prague. https://www.cerge-ei.cz/pdf/wp/Wp609c.pdf.

[38] Van Zanden, J.L., 2009. The skill premium and the 'Great Divergence'. *European Review of Economic History, 13*(1), pp.121–153. DOI: https://doi.org/10.1017/S1361491609002408.

[39] Wang, M.C., Fang, C.R., & Huang, L.H., 2009. International knowledge spillovers and wage inequality in developing countries. *Economic Modelling, 26*(6), pp.1208–1214. DOI: https://doi.org/10.1016/j.econmod.2009.05.008.

[40] WTO, 2013. Trends in international trade. *World Trade Report*, p. 64. doi: 10.1596/978-0-8213-9937-8.

[41] Xue, J., Gao, W., & Guo, L., 2014. Informal employment and its effect on the income distribution in urban China. China Economic Review, 31, pp.84-93. DOI: https://doi.org/10.1016/j.chieco.2014.07.012.

[42] Zuo, H., 2013. The earnings differential between formal and informal employees in urban China. *Contemporary Economics, 7*(3), pp.115–124. DOI:10.5709/ce.1897-9254.93.