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**The Impact of Globalization on Gender Wage Gap in Indonesia:
A Sub-National Level Analysis**

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Abstract

This thesis examines whether a developing country like Indonesia experienced reduction on gender wage gap as the country continue to open its economy. By focusing on the male-female wage difference in narrowly defined occupations as a measure of the gender wage gap, this thesis is conducted in sub-national level of Indonesia from the year 2001 to 2010 by using various globalization proxies. Empirical analysis shows that various proxies of globalization have a significant narrowing effect on gender wage gap. In addition, by differentiating type of required skill level among occupations this thesis enables to investigate the effect of globalization in clearer ways. Results have shown that in a developing country like Indonesia, globalization mainly reduce gender wage gap in low-skill occupations.

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Chapter 1

Introduction

“One of the hardest questions I have been asked is ‘How will you manage the army if you are having menstrual cramps?’ I have also been asked if I will have the courage to face criminals. My answer is that courage is not a matter of gender.”

- Josefina Eugenia Vázquez Mota -

As the largest economy in Southeast Asia, according to numerous literature sources, Indonesia has experienced a remarkable increase in real per capita income during the last 30 years and is currently considered one of the most rapidly developing emerging market economies in the world. Even though the Asian financial crisis significantly affected Indonesia in 1997, the real per capita income has more than doubled from 1980 to 2011 (IMF, 2011). In 2011, the Indonesian economy demonstrated considerable resilience in facing the mounting uncertainties of global economy, depicted in even stronger growth performance and steady economic growth that reached 6.5%—an all-time high for the last decade. Moreover, macroeconomic stability was prudently managed, as inflation rate was a mild 3.79% (BI, 2011). This robust performance was also accompanied by improvement in quality of growth, evident in the falling poverty and unemployment levels, substantial role of exports and investment in the economy as sources of economic growth and improvement in growth distribution across Indonesia’s sub-nations. The openness of Indonesia clearly helped minimize the impact of the global turmoil on the country’s economy. Indonesia has gone a long way in catching up with globalization trend.

Since 1980s, there has been a universal trend toward economic liberalization, deregulation, and privatization that provided Indonesia with additional source of inspiration to open its economy. In addition to the expanding role of foreign direct investment, diversification of export markets reflected by growth in intra-regional trade within Asia has also supported Indonesia’s economic resilience. The first major trade reforms in Indonesia took place in 1985 and other trade reforms that followed provided a further tariff reduction and opened more sectors for foreign investment. In response to the financial crisis in late 1990s, the Indonesian Government has accelerated its trade reform that resulted in bold trade liberalization. Over recent decades, trade barriers have declined due to consecutive reform

efforts that made Indonesia one of East Asia's most liberal trade regimes, outside Hong Kong and Singapore (DFAT, 2000).

However, together with remarkable increase in real per capita income during the last 30 years, rapid economic growth and impressive socio-economic development, there is still room for improvement. In the last few years, a number of development experts have stressed the importance of observing growth quality instead of focusing solely on the rate of economic growth. Thus, the issues that should be taken into account are: who benefits from growth, whether the growth is distributed equally across all income groups, whether the growth share only benefits certain sectors or the entire community, whether growth plays a positive or negative role in achieving equality in regional incomes, and how are the growth benefits distributed between genders (SMERU, 2005).

1.1 Problem Statement and Contribution

The presence of greater openness of Indonesian economy that supports its economic stability against global uncertainties should have its own effect toward gender inequality. The idea of globalization, which refers to the impact of integration in a large economy, has inspired governments to undertake market-oriented reforms that can support them in maintaining high and sustainable export rates needed for economic growth. However, it is estimated to have different effects on male and female wages, causing a significant gap. The aim of this study is to observe gender inequality in Indonesia in terms of gender wage gap and analyze its relation to globalization. Despite numerous studies that analyzed the distributional impact of globalization across rich and poor countries, urban and rural regions, and high- and low-skill workers, there is marked paucity of research focusing on the impact of globalization across male and female workers. Therefore, a study of the linkage between globalization and gender inequality would address this gap in the extant knowledge in this field.

The association between globalization and gender income gap is not as clear as the relation between economic development and gender wage gap—globalization may have both narrow and widening effect. There are several reasons behind the narrowing effect caused by globalization on the gender wage gap. The main theoretical foundations stem from the Hecksher-Ohlin and Stolper-Samuelson theory or Becker's theory of taste-based discrimination. Both theories imply that open market leads to a reduction of gender income gap. According to the Hecksher-Ohlin and Stolper-Samuelson theory, production will shift to those sectors that intensively use the relatively plenteous factor of production. In case of

developing countries, where low-skilled labor is plentiful relative to high-skilled labor, the demand for the former should increase, increasing its price accordingly. Gender wage gap may decrease through this mechanism, since female workers' stereotypes are attached to the image of low skilled labor. According to Becker's theory, the taste-based discrimination may set additional cost on the firm. When firms operate in competitive markets with zero profits, profits will become negative (i.e. turn to losses) when discrimination exists. The presence of open market increases competition, since foreign producers will enter domestic markets, decreasing profits in the national market, causing domestic firms to lower their costs and improve their productivity in order to stay competitive. Consequently, resources that create wedge between female and male wages will be removed, as the high discrimination cost will no longer be sustainable. This mechanism will lead to the reduction of gender wage gap. Moreover, according to World Bank (2001), increasing trade will stimulate economic growth, i.e. there will be more investment in infrastructure, more public services with better quality, and higher household incomes. In general, these improvements mean that gender inequality in human capital will decline along with the economic development, and the gender wage gap will narrow.

However, the impact of globalization on gender wage gap may also have unfavorable outcomes. First, trade theory predicts that trade will unfavorably affect the compensation paid to the relatively scarce production factors in the economy (Oostendorp, 2004). If women in developed countries tend to have lower skill levels compared to men, their wages will be more negatively affected by trading with developing countries than those of male workers, thus increasing the gender wage gap. Second, bargaining power of workers, particularly female workers, may be weakened by the pressure of strong competition and thus push them to become "cheap labor". According to United Nation Report on Gender (1999), if open market means an increase of firm's ability to relocate all or some divisions of its production across borders, the workers' wage in the affected industries will be pushed downward. Third, the relationships between traded sectors, market economy, and the unpaid household economy are complex, in particular, as women are the main actors (Fontana & Wood, 2000). If open market leads to more occupational segregation or a reduction in female workers' leisure time, then gender gap will increase since now women will be less motivated to maintain career.

Extant empirical studies about the impact of globalization on gender wage gap yielded inconsistent results. For example, Arcetona and Cunningham (2002), Black and Breinard (2002), and Zweimüller, Winter-Ebmer, and Weichselbaumer (2007) reported findings

indicating that globalization has negative effect on gender wage gap. Meanwhile, Berik, Rodgers, and Zveglic (2004), Reilly and Dutta (2005), and Balamoune-Lutz (2006) found widening effect of globalization on gender wage gap. There are also studies that yielded mixed results, such as Oostendorp (2004) and Neumayer and Soysa (2007). For instance, Oostendorp (2004) found that globalization is not always has narrowing effect on gender wage gap, especially in poorer countries, as the widening effect of foreign investment on high skill occupational gender wage gap was revealed in this work.

Arora (2012) examined gender inequality in relation to economic development and state level openness in the different states of India. She argued that, at disaggregate and sub-national level, the results of country or national level studies could differ, as social and economic characteristics at the sub-national level could considerably vary from that at the national level. Supported by Arora's argument, this study will be conducted at sub-national level of Indonesia.¹ Oostendorp (2004, 2009) concluded that, for richer countries, globalization has a narrowing effect on the gender wage gap, with little evidence of this effect in poorer countries. Hence, this work will aim to answer if his conclusion could still be held at a province level in a developing country such as Indonesia. There are several studies that examine gender wage inequality issue in Indonesia at the national level, such as Feridhanusetyawan, Aswicahyono, and Perdana (2001), Pirmana (2006), Sakellariou (2009), and Matsumoto (2011). However, literature review has failed to identify any Indonesian studies that have examined the relationship between gender wage gap and globalization. Therefore, this study is likely the first of its kind in the Indonesian context, as the focus is on the relationship between gender wage gap and globalization at the sub-national level. In that respect, this study contributes to the literature on gender wage gap, or gender inequality in general, and globalization.

1.2 Scope of Research

The data used in this study was sourced from the National Labor Force Survey (SAKERNAS) that was conducted from 2001 to 2010 in 26 provinces of Indonesia, covering all employees older than 15 years of age, with the exception of the own-account workers, who were excluded because their reported income seems to be net of input cost. As it is not possible to unambiguously check what the reported income figures represent in the SAKERNAS (Matsumoto, 2011), it was deemed best to exclude this group from that

¹ The terms of province level is used to describe the terms of sub-national level. In Indonesia, province is the second highest level after national level.

subsequent analyses. As the proxy of globalization, I use trade ratio, trade openness indicator and foreign direct investment (FDI) net inflow for each province. For trade openness indicator, the indicator proposed by Marjit, Kar, and Maiti (2007) is used in this work.

In order to evaluate the effect of globalization on the gender wage gap, the model proposed by Oostendorp (2009) is used. Since SAKERNAS as the main data source provides data about type of occupations in narrowly defined categories, occupational gender wage gap can be used as a dependent variable. The independent variables, such as interaction terms between regional income and level of occupational skill, and between the three globalization proxies and occupational skill level, are used to determine the effect of globalization on gender wage gap. In addition, I employed Blinder-Oaxaca decomposition and compared the resulted residual gender wage gap to the occupational gender wage gap. The dependent variable is the logarithm of the hourly wage income, which is deflated by estimated GRDP deflator for each of 26 provinces, with 2000 used as the reference year. The explanatory variables for the purpose of deriving decompositions at the mean, as well as for conducting counterfactual decompositions, include socio-demographic characteristics, level of education, potential experience, and occupational affiliation.

This thesis shows that there is a significant positive association between regional income and gender wage gap. This finding contradicts most of the earlier empirical studies but supports studies made by Boserup (1970), Dollar and Gatti (1999), Seguino (2000), Seguino (2006), and Mitra-Khan and Mitra-Kahn (2008). A convex relationship found is likely imply that none of Indonesia's provinces have yet reached the economic development threshold required for a more pronounced reduction in the gender wage gap. Moreover, this thesis shows that sector expansion is the channel through which the three globalization proxies reduces the gender wage gap in Indonesia. Therefore, more job creation could be suggested.

The remainder of the thesis is organized as follows. In the next chapter, I will discuss the theories pertinent to this work and summarize the prior studies that are related to gender inequality and the effect of globalization on it. A descriptive analysis of the gender inequality in Indonesia for each province is also described this chapter. The data and the research methodology are explained in Chapter 3, whereas Chapter 4 discusses the empirical findings of the occupational gender wage gap analysis and the impacts of globalization on the gender wage gap. The study conclusions are given in Chapter 5, which also contrasts and compares the current findings with those from other studies, notes some limitations of the study and identifies issues to be pursued in the future studies of this type.

Chapter 2

Indonesia, Gender Inequality, and Globalization

Discrimination at the workplace, as pointed by Arrow (1972), refers to valuing one worker based on personal characteristics, such as age, race or gender, that are unrelated to productivity. When discrimination is based on gender, it is referred to as gender inequality. Gender inequality exists in most part of the world, and an unequal sharing of the adversities burden between male and female has characterized the world we live in.

Taste-based and statistical discrimination are the two frameworks that allow us to understand the nature of discrimination that causes female workers to earn less than their male counterparts. Taste-based discrimination is based on prejudice, while statistical discrimination is based on the imperfect information possessed by employers related to the true productivity value of individual employees. Becker (1971) distinguished three types of taste-based discrimination: employer prejudice, co-worker prejudice, and customer prejudice. In these prejudice models, employers, co-workers, and customers hold a “taste for discrimination”, which means that they have preference for male workers. Consequently, employing, working with, or buying from female workers is considered disadvantageous. The higher the level of inconvenience (or the higher the discrimination coefficient), the lower the number of females being hired will be. Consequently, female workers will have to give compensation in order to offset the inconvenience, either by being more productive at a given wage level or by accepting a lower wage for the same productivity level as that offered by male workers.

Along with taste-based discrimination, statistical discrimination could also make women earn less, as it is based on the assumption that firms have limited information about the true productivity of job applicants (Aigner & Chain, 1977). Because of this limited information, workers are judged by easily observable characteristics or by characteristic of groups to which workers belong. Gender stereotypes are thus often attached to female workers, whereby the image of a typical good leader tends to be associated with male traits, such as the ability to employ quality workforce, influence others, and implement change (Kulich, Trojanowski, Ryan, Haslam, & Renneboog, 2010). This perceived productivity causes female workers not to be hired or, if hired, to be paid a lower wage than their male colleagues.

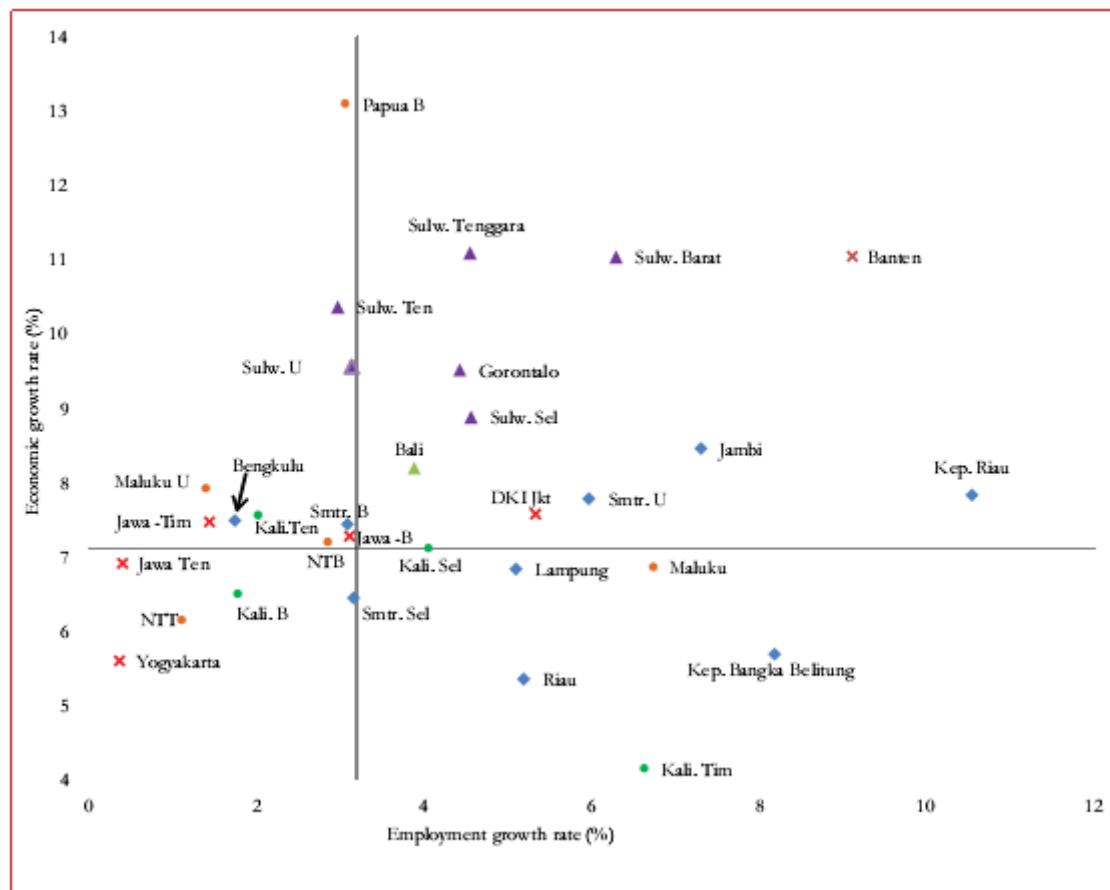
According to the 2010 Asia-Pacific Human Development Report, Indonesia, along with other countries in the Asia and the Pacific region, has not completely succeeded in interpreting its economic progress into amelioration on gender disparities. Indonesian women still have limited access to property asset ownership, political representation, and labor market. Stereotypes associated with traditional gender roles and characteristics, and status of men and women in Indonesia are limiting women's ability to reach their full potential. For Indonesia itself, instead of being viewed through the lens of potential economic consequences, gender disparities issues are generally still viewed as women's issues and considered an aspect of social discrimination. Consequently, Indonesia has very limited local capacity in mainstreaming gender into policies and programs both nationally and within the provinces (Nethercott, Marianti, & Hunt, 2010).

2.1 Indonesian Employment and Inequality of Gender

As noted above, labor issues still persist and are thus essential to address if Indonesia is to prosper. Inability of Indonesian economy to absorb labor force has created a labor surplus. In 2010, unemployment rate has increased by 16.39% compared to the level reported for 2000. During this decade, the highest level of unemployment rate occurred in 2005, thought to be caused by the crisis suffered by Indonesia due to the increases of import and international oil prices. This crisis caused Indonesian currency to depreciate significantly and elevated inflation rate for 2005, which resulted in lower employment levels. On a positive note, Indonesian government efforts in stabilizing the economy also resulted in labor market improvements. Since 2006, Indonesia's job growth has been back on track and unemployment rate has maintained a downward trend.

However, developments in Indonesian provinces do not always follow the national trends, including the job growth. For instance, between 2006 and 2010, when labor market performance improved generally, Banten and Kepulauan Riau experienced the highest job growth, while no change was observed in province of Jawa Tengah and DI Yogyakarta. It seems that job growth in Indonesian provinces cannot be guaranteed only by economic growth. Figure 2.1 depicts annual economic and employment growth rate of Indonesian provinces during 2006 to 2010.

Figure 2.1. Annual Economic and Employment Growth Rates (%) by Province 2006-2010



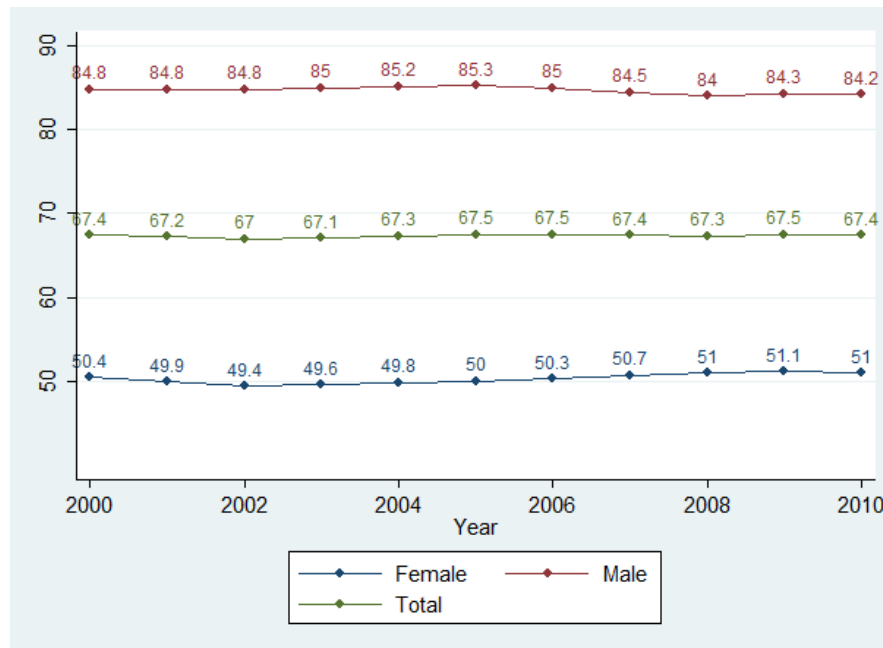
Source: Statistics Indonesia, International Labour Organization 2012

Mixed interconnection between economic growth and employment noted in Indonesia is induced by the differences in the composition of industry and intensity of capital among its provinces. Some provinces rich in natural resources generally experienced high economic growth, yet moderate increase in employment rates. Provinces characterized by significant involvement in labor-intensive sector due to the presence of industry hubs in their region, such as Kepulauan Riau and Banten, tend to experience high economy and employment growth. Provinces with high employment expansion, but a low economic growth, realized a loss in productivity and had an unfavorable effect on working conditions as a whole.

Although Indonesia has experienced improvement in its labor market and has stabilized its job growth since 2006, some groups of workers, such as women, are still challenged by difficulties in accessing the labor market. One of the labor issues that already attracted attention from experts and Indonesian Government is gender inequality in

employment. Figure 2.2 shows Indonesia's labor participation rate as percentage of population aged 15 years and above.

Figure 2.2 Labor Participation Rate of Indonesia (%) by Gender 2000-2010



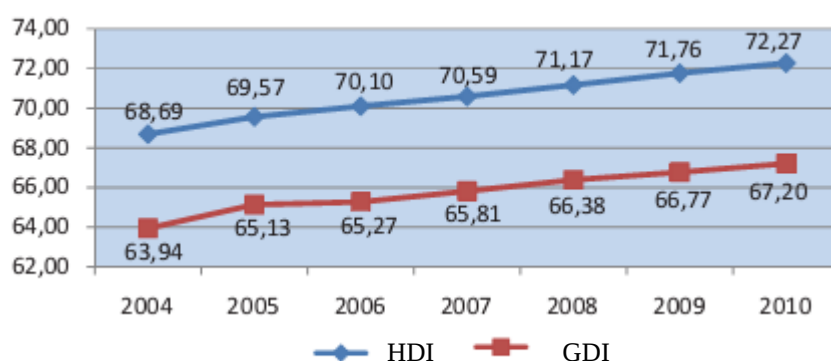
Source: World Bank, World DataBank

Figure 2.2 shows that gender gaps in labor participation rate remain significant. Female labor participation rate was 34.4% and 33.2% lower than that of their male counterparts in 2006 and 2010, respectively. Moreover, despite the reduction in unemployment rate since 2006, which was also experienced by female workers, women still face higher unemployment rates than men. Government intervention through policy making and raising public awareness in order to narrow the gender gaps in Indonesia's labor market seems to be needed (ILO, 2012).

Although Indonesia has not completely solved its gender disparities problem, some evident improvements have been made. According to the World Development Report 2012, like most developing countries, Indonesia has made important progress in improving health outcomes among women and girls and has also managed to increase women's access to finance and justice. According to Human Development Report published in 2011, Indonesia was classified into 'medium human development' category with Human Development Index

(HDI)² value of 61.7 in 2011. Based on this HDI value, Indonesia is 124th out of 187 countries. This HDI value is below the average for countries in East Asia and the Pacific, as well as below the average of 63.0 for countries in the medium human development group. In addition to the HDI, Gender-Related Development Index (GDI)³ may also present some important points related to disparities between male and female workers. Since GDI uses the same indicators as the HDI, the two indicators are related. In other words, the greater the gender disparity in basic human development, the lower a country's GDI relative to its HDI. In 2010, Indonesia's value of GDI was 67.20 and although it increased since 2004, the gap between HDI and GDI in the same period was relatively similar, with a tendency to become wider. In 2004, the relative disparity was 4.75, and increasing to 5.07 in 2010. According to those figures, we may conclude that the disparity between male and female workers in Indonesia is on the rise. Figure 2.3 shows the development of HDI and GDI in the six-year period from 2004 to 2010.

Figure 2.3. Trends in HDI and GDI value of Indonesia 2004-2010



Source: Statistics Indonesia, Human Development on Gender Basic 2011

In 2001, Indonesia experienced a considerable policy and institutional change due to the decentralization reform, whereby the decision-making regarding the provision of basic social services and key areas of economic development was transferred from national to district level. The decentralization also included a large scale fiscal reform and has stimulated a rapid increase in the number of Indonesia's administrative districts. Some authors claim that decentralization has the potential to offer opportunities, while others believe that Indonesian

² The HDI is a summary measure for assessing long-term progress in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. However, as it is also measure of average achievements, it masks differences in human development between men and women.

³ GDI is an additional measurement of HDI used to assess a gender-sensitive dimension on it. It is defined as a distribution-sensitive measure that accounts for the human development impact of existing gender gaps.

women will be faced with other challenges that would stem from it. Nevertheless, representation of women in public decision-making, whether at a district or national level, is still limited. As pointed out in 2010 Asian Development Bank report on gender equality, the absence of Indonesian women as parliamentarians' representatives is due to their limited capabilities as well as society's traditional perspective toward the female role. In addition, the restoration of conventional religious views related to gender roles in society, which was caused by decentralization in some related areas, has also led to local discrimination practices against women. Inequality in access to education and to credit and financial services are largely borne by the poor and those living in rural areas, and it varies among provinces.

Table 2.1 shows the percentage gap between HDI and GDI in all 33 provinces of Indonesia during the 2004 – 2010 period. It can be seen that the gap is positive in every province, indicating that the GDI value is lower than the HDI, i.e. that gender inequality exists in every society.⁴ More alarmingly, during the 2004-2010 period, gender inequality in Indonesia has become wider, even though the value of its GDI and HDI is increasing. However, at the province level, the findings suggest that, although gender inequality does exist, there has been improvement, marked by the narrowing gap in every province. Clearly, results reported at a regional level may be different from those at the country level (Arora, 2012).

Table 2.1. Percentage Gap between HDI and GDI from 2004 to 2010 by Province

Province	2004	2005	2006	2007	2008	2009	2010
Aceh	13.67	14.12	14.13	10.73	9.38	9.75	8.93
Sumatera Utara	13.58	14.34	13.06	8.35	6.03	6.63	6.15
Sumatera Barat	11.58	12.49	12.07	8.21	7.54	7.76	7.16
Riau	15.29	16.88	16	14.24	12.89	13.28	13.62
Jambi	16.39	17.41	16.4	14.5	13.2	13.54	12.95
Sumatera Selatan	18.04	18.84	17.71	12.61	10.06	10.52	9.53
Bengkulu	10.91	12.36	10.35	8.76	7.06	7.18	7.04
Lampung	15.15	15.76	14.24	13.44	11.55	12.11	11.79
Bangka Belitung	21.93	23.17	22.17	19.3	17.32	17.23	17.16
Kepulauan Riau	22.16	23.72	22.1	17.89	15.75	15.75	15.43
DKI Jakarta	10.69	11	10.78	6.91	5.62	5.64	5.48
Jawa Barat	15.77	16.77	14.96	14.01	13.09	13.68	13.71
Jawa Tengah	13.26	14.3	13.45	10.18	9.69	9.81	9.24
DI Yogyakarta	4.58	5.31	4.75	5.19	4.51	3.97	4.3
Jawa Timur	12.99	15.08	13.7	13.3	10.53	10.67	9.09

⁴ The value of HDI and GDI will be similar if there is no gender disparity. The greater the gender disparity in human development, the smaller GDI value relative to its HDI value.

Banten	16.42	17.59	15.93	14.85	11.78	11.66	10.78
Bali	6.89	7.85	5.81	6.42	5.49	6.07	6.18
Nusa Tenggara Barat	14.01	16.53	14.5	14.3	13.29	13.83	14.08
Nusa Tenggara Timur	6.51	7.85	8.07	6.21	4.1	4.29	3.94
Kalimantan Barat	11.41	12.54	12.34	9.67	7.91	8	7.14
Kalimantan Tengah	15.24	16.96	15.12	8.42	7.54	7.37	7.13
Kalimantan Selatan	9.03	9.99	8.78	8.54	7.16	7.49	6.94
Kalimantan Timur	24.88	25.69	25.06	23.28	22.01	21.83	20.1
Sulawesi Utara	12.72	13.62	12.73	11.62	10.43	10.27	10.67
Sulawesi Tengah	17.32	18.8	17.5	13.76	12.37	12.31	12.26
Sulawesi Selatan	16.14	16.4	16.58	15.25	13.07	13.67	13.45
Sulawesi Tenggara	11.38	12.47	11.5	10.13	9.45	9.54	8.76
Gorontalo	23.19	25.59	23.1	22.13	20.26	20.17	18.92
Sulawesi Barat	6.68	8.55	8.29	6.08	6.37	6.58	6.22
Maluku	10.24	10.6	10.32	7.66	5.16	5.47	5.87
Maluku Utara	10.18	10.98	10.68	10.79	7.79	7.66	6.69
PapuaBarat	19.36	20.72	20.4	16.62	15.58	15.33	14.87
Papua	5.76	7.54	6.61	6.48	4.06	4.09	4.56
INDONESIA	6.93	8.15	7.13	7.49	6.73	6.95	7.02

Source: Menegpp, Statistics Indonesia, Author's Calculation

Among the 33 provinces, Kalimantan Timur recorded the greatest gap of 25% in 2004, which decreased by 0.2% in 2010. The province with the smallest gap in 2004 was DI Yogyakarta, with 4.6%, which also narrowed by 0.06% by 2010. In 2002, there were 16 provinces categorized by a small GDI value and 14 with moderate GDI value. However, in 2004, no province was categorized as having a small GDI value and only 3 provinces had moderate GDI value in 2010.⁵

There are various measurers of gender inequality and the gap between HDI value and GDI value is one of them. Another measure can be obtained by examining the wage distribution between male and female workers. Surprisingly, the conclusions yielded by the comparison between GDI and HDI are different from those provided by the wage ratio between the two genders. Several studies about gender wage gap in Indonesia show that the wage differential has been declining. For instance, Feridhanusetyawan, Aswicahyono, and Perdana (2001) found that, during the 1986 - 1997 period, female workers' wages had rapidly increased relative to those of male workers and that wage gap between male and female workers tended to decline over time. Pirmana (2006) and Matsumoto (2011) provided the

⁵ A country is categorized as small GDI value if the value is less than 50 and categorized have moderate GDI value if it has less than 60.

same conclusions when they conducted studies focusing on different time periods, namely 1994-2004 and 1996-2009, respectively.

In accordance with other studies conducted in different countries, research on gender wage gap in Indonesia also concluded that education is the main factor that causes the wage gap between female and male workers to narrow. Feridhanusetyawan et al. (2001) showed that the main factor contributing to the narrower gender wage disparity was the reduction in discrimination through reducing the number of uneducated women. Pirmana (2006) found an “inverted U” pattern in which wage gap between men and women narrowed as educational attainment increased, after which it tapered off. Sakellariou (2009) found that wages of female workers were increasing more than those of male workers, indicating that education could explain about three-quarters of this trend, implying that increasing education attainment particularly important for women. Matsumoto (2011) mentioned that the main drive for the declining gender wage gap throughout the 2000s is the endowment composition change through education between men and women, which had narrowed the gap.

2.2. The Link Between Globalization and Gender Wage Gap

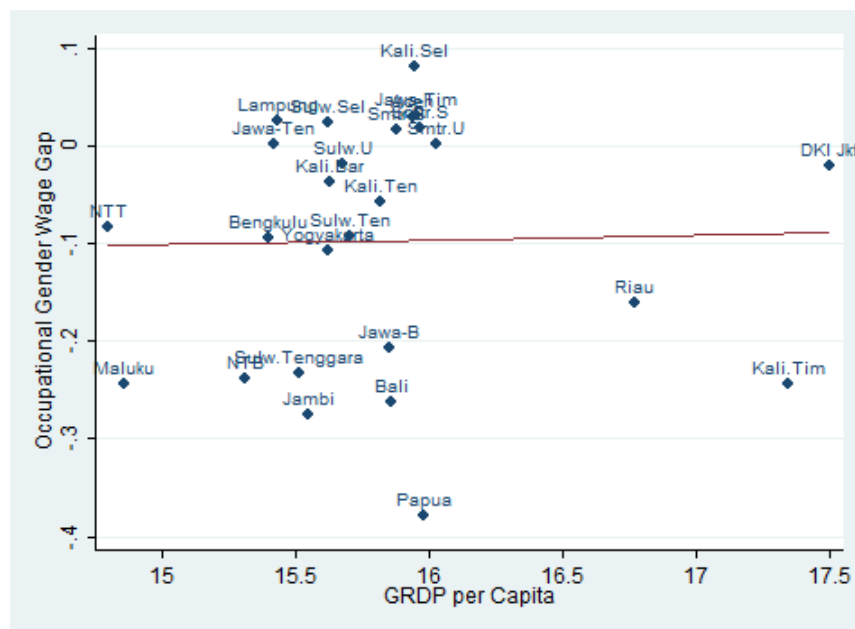
Findings of a significant number of studies reveal that gender inequality and economic growth are negatively related, whereby higher per capita income generates higher gender equality. Moreover, women can contribute to economic growth through three channels: accumulated physical and human capital, participation in labor market, and increased savings (Arora, 2012). In addition, women’s roles are also linked to the change of fertility pattern, as indicated in endogenous growth literature sources, e.g. Galor and Weil (1996). Women’s role improvement is reflected in a reduction of maternal mortality, maternal care improvements, improved child nutrition and education, reduction of fertility, and changed attitudes towards female offspring. Discrimination toward having a daughter may result in lowering status of women and further lead to poor social and economic outcomes (Shen & Williamson, 1999). Sen (2001) noted, “Gender inequality is not one homogeneous phenomenon, but a collection of disparate and inter-linked problem” (p. 466). According to the author, gender inequality could be expressed in terms of natality inequality; mortality inequality; special-opportunity inequality, such as unequal access to professional training and access to higher education; basic facility inequality, such as unequal access to schooling for girls; inequality of assets ownership; and inequality within household in the division of labor. Gender inequality also exists in the workplace, and is referred to as professional inequality,

which includes unequal treatment of men and women in case of promotion and wage. In this study, gender inequality is defined as gender wage inequality.

Most cross-country studies that examine the association between gender wage disparity and economic growth also supported those findings. Dollar and Gatti (1999) showed that gender wage equality is lower in developing countries and higher in developed countries. Gümbel (2004), who observed the influence of gender wage disparity on economic growth in democratic industrialized countries, also concluded that a high per capita income has negative relationship with gender inequality. Furthermore, Dollar and Gatti (1999) noted that inequality in access to education could be the main driver of professional discrimination women experience. Excluding women from education and labor market is unfavorable to development and growth, as their potential remains unexplored. Struggling reducing gender inequality, including gender pay gap, is beneficial for equity consideration and at least not negative for economic growth (Schober & Winter-Ebmer, 2011).

However, Seguino (2000), Seguino (2006), and Mitra-Khan and Mitra-Kahn (2008) came to different a conclusion. They found that, to some extent, there will be a positive association between economic growth and gender inequality. Consequently, before presenting the regression results, I attempted to draw a raw correlation between level of development and gender wage gap. Here I use occupational gender wage gap as the gender wage disparity proxy. Figure 2.4 shows the occupational gender wage gap for 26 provinces by the development level measured as GRDP per capita logarithm in constant 2000 Rupiah. For each province, the year with most reported occupational gender wage gaps is selected. The association between gender inequality and level of development is positive. Although the upward slope is not too steep, Figure 2.4 reveals a positive trend, indicating that, as Indonesian development level increased, gender gap become wider. It seems that Indonesian economic growth has not been beneficial for equality of gender. For Indonesia—a middle-income country that still in the transformation process toward shifting to manufacturing—female workers' discrimination and their low wages may be useful in the early development stages, since it is a growth-promoting through investments or exports.

Figure 2.4. Occupational Gender Wage Gap and Level of Development, by Province



Source: SAKERNAS, Author's calculation

Authors of empirical studies that attempted to analyze the relation between globalization and gender equality report mixed findings, indicating that we cannot generalize the impact of globalization on men's or women's welfare across countries or across industries within a country. Arcetona and Cunningham (2002) examined the gender wage gap across manufacturing sector in Mexico over the trade liberalization period. The authors found that trade liberalization reduced the gender wage gap, particularly in those sectors in which firms were forced to become competitive. This finding is in accordance with Becker's theory, which indicates that trade liberalization may be beneficial to women, since it decreases wage disparity. Nevertheless, improving female workers' skills is also necessary if they are to compete the new competitive market brought by liberalization. Zweimüller, Winter-Ebmer, and Weichselbaumer (2007), who explored the relation between market orientation and gender wage gap in international data, also found a negative association between higher level of competition and gender wage gap. Black and Breinard (2002) reported similar findings, indicating that trade liberalization may bring advantages for women by decreasing firms' ability to discriminate. However, the authors also noted that the gender wage disparity narrowed faster in concentrated industries that experienced a trade shock when compared to competitive industries.

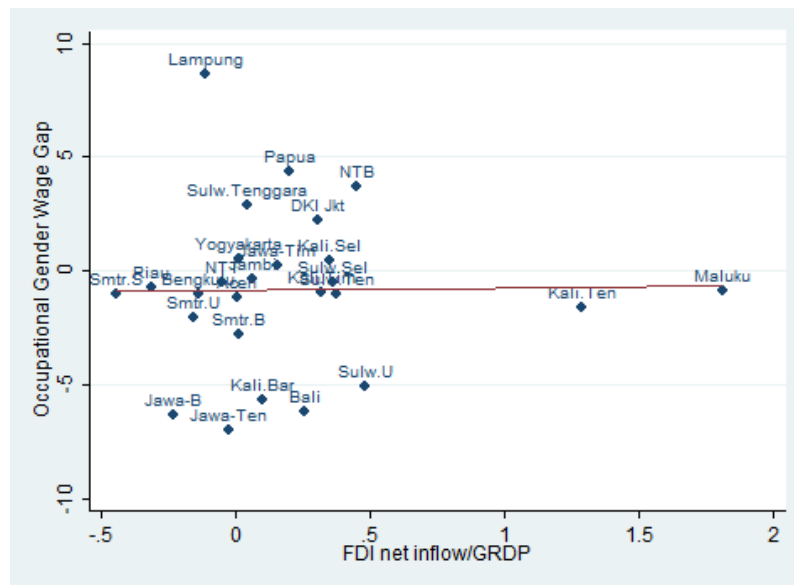
Oostendorp (2004) analyzed the impact of globalization on occupational gender wage gap across countries using data from International Labour Organization October Inquiry,

reporting mixed results. The author found that the occupational gender wage gap does not necessarily narrow with increasing economic development and trade. Globalization may not reduce the gender wage gap, since the widening impact of FDI net inflows on the high skill occupation gender gap in developing countries was found. This might be due to the presence of skill complementarities in developing countries. Neumayer and Soysa (2007) found that trade liberalization is beneficial for women but there was little evidence that the same was true for FDI. They argued that the type and source of FDI was important and thus required further analysis.

Reilly and Dutta (2005), who analyzed the magnitude of the gender wage discrimination in India and its relationship to a set of trade liberalization measures, found only marginal evidence of positive relationship between trade and female wage advantage. Balamoune-Lutz (2006) examined the effects of globalization and growth on gender inequality. She found that higher international market integration brought by globalization and growth caused gender inequality to increase. These results indicate that trade reforms and growth-promoting policies should be accompanied by policies that promote the welfare of women. In 2004, Berik, Rodgers, and Zveglic who studied the same topic in Taiwan and Korea, also found a positive association between competition from open trade in concentrated industries and gender wage disparity, contradicting the theory provided by Becker.

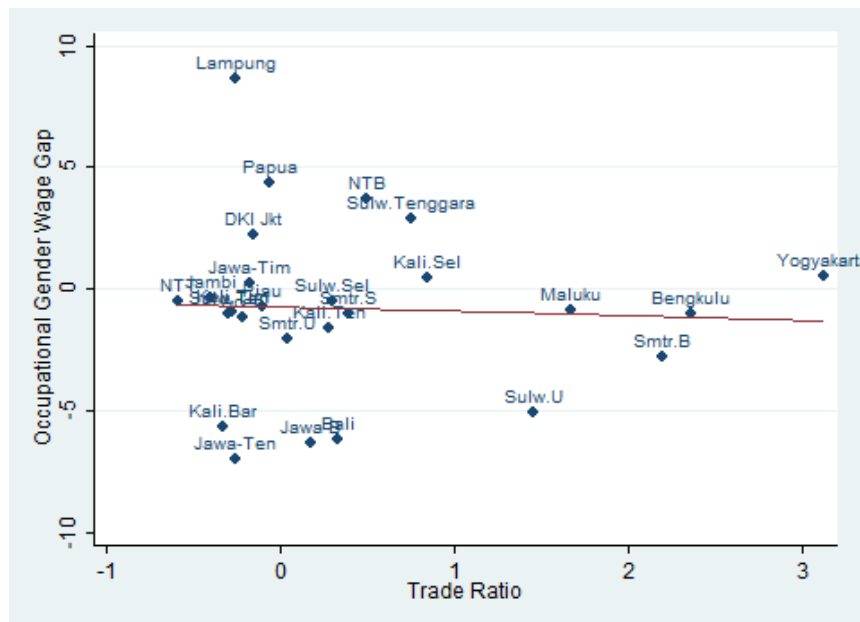
In addition to the mixed findings about globalization impact on gender gap, the globalization-gender gap association between national or cross-country level and sub-national level may also differ, due to inter-regional disparities. The sub-national units do not establish direct trade relation with other countries because they have no sovereignty and lack independent status. Nevertheless, as mentioned by Arora (2012), the firms and industries located across regions within a country that manufacture goods contribute to the aggregate national trade the most. Hence, trade policies applied at the national level could differently affect different regions and the people working in the industries within those regions. This study, hence, aims to examine the impact of globalization on gender wage gap at sub-national level. Again, I attempted to first draw a raw correlation between globalization and gender inequality using occupational gender wage gap as a gender gap proxy. Again, for each province, the year with most reported occupational gender wage gaps is selected. Figure 2.5, 2.6, and 2.7 show the correlation between occupational gender wage gap and the three proxies of globalization—FDI net inflow, trade ratio, and openness index from 2001 to 2010.

Figure 2.5. Occupational Gender Wage Gap and FDI Net Inflow, by Province



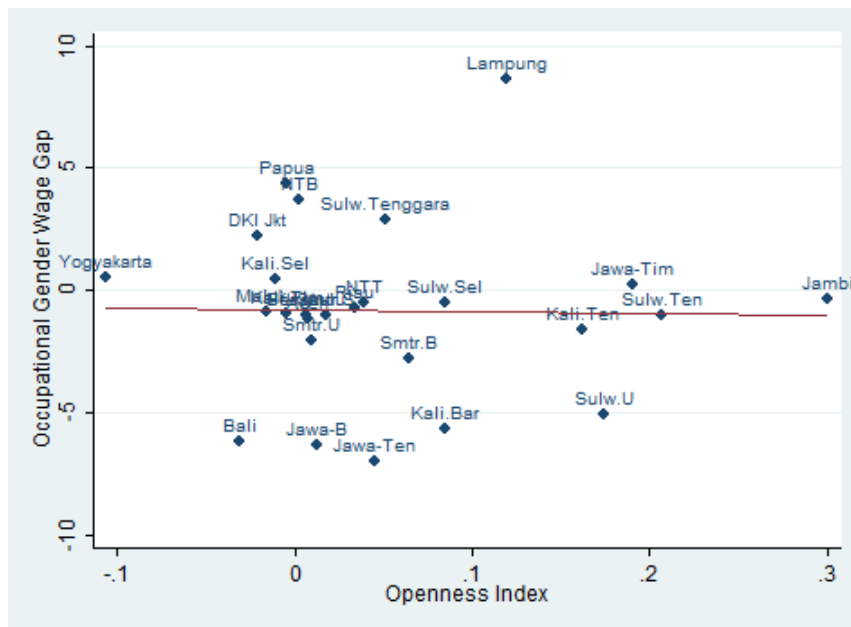
Source: SAKERNAS, Author's calculation

Figure 2.6 Occupational Gender Wage Gap and Trade Ratio, by Province



Source: SAKERNAS, Author's calculation

Figure 2.7. Occupational Gender Wage Gap and Openness Index, by Province



Source: SAKERNAS, Author's calculation

From the three figures, it is evident that only the graph depicting FDI net inflow shows a positive association, while the remaining two graphs corresponding to trade ratio and openness index show a negative association. This negative association implies that globalization could be beneficial for gender equality. As I intend to investigate this association further in this study, in the next sections, these associations will be examined further through a regression analysis.

Chapter 3

Research Methodology

The methodology and the data used in this study are described in this chapter. The first two sections explain the econometric methodologies and present the regression specification. Mechanism employed for constructing the indicators of gender wage gap used in this study is discussed in the first section. The model describing the relationship between globalization and the gender wage gap is provided in the second section, including the description of globalization proxies. Finally, the description of data sample used in the empirical analysis, including the data resource, is given.

3.1 The Indicator of Gender Wage Gap

3.1.1 Occupational gender wage gap

Oostendorp (2004) proposed an indicator that can be used to describe gender wage inequality, named ‘occupational gender wage gap’. This indicator could be used as an alternative proxy of gender wage gap to the commonly used Blinder’s (1973) raw wage gap and Oaxaca’s (1973) residual wage gap. Occupational gender wage gap is a female-male wage difference within an occupation. The equation below shows how occupational gender wage gap is measured.

$$occ = \sum_{o=1}^O P_o^f - \left(\frac{\overline{\ln W_o^f}}{\overline{\ln W_o^m}} \right) \dots \dots \dots (3.1)$$

where occ is occupational gender wage gap, superscripts m and f stand for male and female workers, P_o^f refers to the female workers’ occupational distribution with $o = 1, 2, 3, \dots, O$ occupations, $\sum_{o=1}^O P_o^f = 1$; and $\overline{\ln W_o^m}$, $\overline{\ln W_o^f}$ are the average log wages of male and female workers within the occupation o . In this study, occupational gender wage gap is calculated for a given province and year across narrowly defined occupations.

The occupational gender wage gap as an independent measure of the relative female wage position that abstracts from occupational segregation and is described by the equation below:

$$\overline{\ln W^m} - \overline{\ln W^f} = \sum_{o=1}^O P_o^f (\overline{\ln W_o^m} - \overline{\ln W_o^f}) + \sum_{o=1}^O (P_o^m - P_o^f) \overline{\ln W_o^m} \dots \dots \dots (3.2)$$

Through the identity above, the occupational gender wage gap and the raw wage gap are related. Moreover, $\overline{\ln W^m}$ and $\overline{\ln W^f}$ are the average log wages of male and female workers; P_o^m refers to the occupational distribution of men with $o = 1, 2, 3, \dots, O$ occupations and $\sum_{o=1}^O P_o^m = \sum_{o=1}^O P_o^f = 1$. The first term on the right side of the equality describes the average occupational wage difference, while the second term on the same side describes an inter-occupational component. Therefore, Equation (3.2) signifies that raw wage gap is equal to the average occupational wage gap and an inter-occupational component. Inter-occupational component is the part of the raw wage gap that stems from the differences in the distribution of male and female workers across a particular occupation. If there is no occupational segregation, which means that male and female workers are distributed across population similarly, the raw and occupational wage gap will be similar, otherwise it will differ.

3.1.2 The residual wage gap

Since the raw wage gap typically measures the gender wage differential for broad occupational categories (while occupational wage gap measures the gender wage differential for narrowly defined occupation categories), it tends to overstate the actual gender wage gap because it does not control for gender differences in human capital. Therefore, many studies have turned to residual wage gap, which is the male-female wage differential that remains when gender differences in human capital are removed. The Blinder-Oaxaca decomposition can be used to calculate how much of the raw wage gap can be explained by observed skills or characteristics, such as education or work experience (Jann, 2008).

The Blinder-Oaxaca decomposition technique segregates the gender earnings into two parts: the endowment gap and the residual gap. The endowment gap is explained by the differences in the observed characteristics of males and females, while the residual gap, which is also called the unexplained gap, is accounted for by the pay mechanism differences faced by males and females. Some scholars interpret the residual gap as an indicator that reflects gender discrimination. Using Blinder-Oaxaca, I depart from the parametric earning equations pertaining to males and females as follows:

$$\begin{aligned} \ln W_{pjt}^m &= x_{pjt}^m b^m + e_{pjt}^m, \\ \ln W_{pjt}^f &= x_{pjt}^f b^f + e_{pjt}^f \dots \dots \dots (3.3) \end{aligned}$$

where m and f are the superscripts indicating male and female workers, $\ln W$ is log earning of a worker, p denotes province, j denotes group of occupations, t denotes year and x is the vector of workers' observable attributes. In this study, these attributes include socio-demographic characteristics (age, age squared, and marital status), level of education (the highest level of education attainment), and work experience (potential experience and potential experience squared). After the least-square estimates of b^m and b^f are obtained from regressing Equation (3.3),⁶ the mean earnings of male and female workers can be estimated using these coefficients and the average worker characteristics⁷ (Nakavachara, 2010). The following equation expresses Equation (3.3) after taking the difference between the two groups at the mean:

$$\Delta \overline{\ln W} = \overline{\ln W^m} - \overline{\ln W^f} = \overline{x^m} b^m - \overline{x^f} b^f \dots \dots \dots (3.4)$$

The decomposition mechanism requires a reference wage structure,⁸ also referred to as the nondiscriminatory wage structure in the early literature. The reference wage structure is a pay mechanism that generates “ideal society” conditions, where everyone is subject to the same pay mechanism regardless their gender. In their original work, both Blinder (1973) and Oaxaca (1973) used either male or female wage structure as the reference. Since their approach was subsequently found to be arbitrary, several later studies attempted to propose a non-arbitrary reference wage structure estimator. For example, Neumark (1988) extended the original theoretical model of discrimination proposed by Becker (1957) and Arrow (1972) and proposed a non-arbitrary reference wage structure estimator by using an index that is estimated from the regression coefficient of the entire sample (pooled regression). Cotton (1988) chose to use a simple weighted average of the group-specific parameter vectors as the reference point. As time goes by, Kassenböhmer and Sinning (2010) proposed a period in time as the reference. This is useful to compare the ‘unexplained’ part of Blinder-Oaxaca decomposition over two periods in time. However, since the focus of this work is not on the growth and the change of decomposition over time, I choose to use the coefficients from a pooled model as the reference, in line with Neumark (1988). Neumark (1988) method is widely recognized among scholars and it yielded the smallest estimated errors for every estimated differential (Oaxaca & Ransom, 1994).

⁶ The intercept terms are included in b^m and b^f

⁷ Note that $\overline{\ln W^m} = \overline{x^m} b^m$, and $\overline{\ln W^f} = \overline{x^f} b^f$

⁸ The beta coefficients b^m and b^f also called male and female wage structure

With the pooled wage structure b^A , the terms $\overline{x^m}b^A$ and $\overline{x^f}b^A$ are added and subtracted from Equation (3.4), yielding the following expression:

$$\begin{aligned}\Delta \overline{\ln W} &= \overline{\ln W^m} - \overline{\ln W^f} = (\overline{x^m} - \overline{x^f})b^A + \overline{x^m}(b^m - b^A) + \overline{x^f}(b^A - b^f) \\ &= \Delta \overline{x}b^A + \overline{x^m}\Delta b^m + \overline{x^f}\Delta b^f \dots\dots\dots(3.5)\end{aligned}$$

The above equation shows that the total wage gap is decomposed into the portion explained by the observable characteristics differences (first term on the right-hand side) and the residual gap (the remainder term on the right-hand side). Here, the residual gap also consists of two terms: the male advantages (second term on the right-hand side) and the female disadvantages (third term on the right-hand side). Since the observable characteristics included in the equations are assumed to be beneficial to productivity, the positive sign of the two last terms indicates that males are being more favorably and females are being less favorably compensated compared to the reference pay structure (Nakavachara, 2010). Next, the Blinder-Oaxaca decomposition will be conducted for each province in Indonesia during the 2001 -2010 period.

3.1.3. *Between the two proxies*

As an alternative gender inequality proxy, occupational gender wage gap is not an inferior indicator for gender wage gap, when compared to the residual wage gap. The occupational gender wage gap will provide a direct measure of the residual wage gap if male and female workers in an occupation that defined narrowly have similar skills. Therefore, it is important to see if the gender human capital difference within occupations is relatively narrow. Up to this point, in order to measure the skill differences within a particular occupation, and in order to compare occupational and residual gender wage gap, I adopted the method proposed by Oostendorp (2009), who calculated raw wage gap with Blinder-Oaxaca decomposition. Next, I calculated how much of the raw wage gap can be explained by skills, if occupation is controlled for by including a dummy variable.

3.2 The Wage Gap and Globalization

The occupational wage gap obtained from the aforementioned calculation will then be used in a regression model that was originally proposed by Oostendorp (2009). This will

enable the analysis of whether or not globalization has a narrowing effect on the gender wage gap. The following expression describes the Oostendorp's model after some modifications:

$$occ_{pot} = \beta_1^k D_o^{LS} GRDP_{pt} + \beta_2^k D_o^{HS} GRDP_{pt} + \beta_3^k D_o^{LS} GLOB_{pt} + \beta_4^k D_o^{HS} GLOB_{pt} + \alpha_p^k + \alpha_o^k + \alpha_t^k + \varepsilon_{pot}^k \dots \dots \dots (3.6)$$

where *occ* is the occupational gender wage gap, *p* is province, *o* is occupation, *t* is year, $k \in \{\text{low/lower middle income provinces, high/higher middle income provinces}\}$, D_o^{LS} and D_o^{HS} are dummy variables for low- and high-skill occupations, *GRDP* is Gross Regional Domestic Product per capita,⁹ *GLOB* is the proxy of globalization; α_p , α_o and α_t are provincial, sectorial and year fixed effect, and ε is an error term. Equation (3.6) includes the year dummy variables in order to subsume any time pattern between the occupational wage gap and globalization.

The differentiation between low- and high-skill occupations in combination with the differentiation between poorer and richer regions is an important issue, since trade may have different effects on the gender disparity depending on the development level of the region or average skill level of the occupation. If the reduction of gender disparity is particularly generated through the increasing relative demand for female labor, then trade would create a narrowing effect on the low skill gender disparity in poorer countries and high skill gender disparity in richer countries. In contrast, if the reduction of gender disparity is particularly generated through the increasing competition through imports, then trade would create a narrowing effect on the high skill gender disparity in poorer countries and low skill gender disparity in richer countries (Oostendorp, 2009). Consequently, I categorize the occupation into low-skill and high-skill groups, with the former consisting of jobs in the bottom half, and the latter comprising the top half of the wage distribution within a province.

3.2.1 The proxies of globalization

Globalization has many dimensions and various proxies, but the measurers of globalization being used most in many studies are trade and Foreign Direct Investment (FDI). In this study, both will be used as the globalization proxies. In terms of FDI, since this study is conducted at the sub-national level, the globalization is measured by FDI net inflows of a province as a percentage of its GRDP. In terms of trade, trade/GDP ratio is often used as the

⁹ Real GRDP per capita is calculated in Indonesian Rupiah and year 2000 is used as the base year

indicator of globalization, and is typically calculated as the value of imports and exports divided by total country's output. However, several authors have questioned the rationale of using trade/GDP ratio as the globalization indicator (Birdsall & Hamoudi, 2002). Birdsall and Hamoudi (2002) argued that a high trade/GDP ratio may reflect relative commodity prices, rather than trade liberalization policies. In addition, low trade/GDP ratio may indicate country's dependence on certain commodities. As the prices and world demand for those commodities vary independently of trade liberalization policies, this approach is flawed. Marjit et al. (2008) constructed regional level trade openness index by taking into account industry output in each region and matching its exports at the national level. Basically, the authors argued that the region with a larger share of an item in its production set will approximately have a larger share in national exports too. This study will thus use Marjit et al. (2008) trade openness index as a trade proxy of globalization.

3.3 Data

3.3.1 National Labor Force Survey as the Data Bank

The data used in this study is sourced from the National Labor Force Survey (SAKERNAS), which is the main source information of Indonesian labor force and is carried out in all provinces of Indonesia. SAKERNAS data collection is one of the main activities of the Manpower Statistics Division in the Central Bureau of Statistics Indonesia (ANU, 2010). It is conducted in order to generate three main information sets, namely:

- a. Data about labor based on education, hours of work, industry classification and type of main job
- b. Data about unemployment based on individual characteristics and the effort generated in order to gain employment
- c. Data about working age population not in the labor force because they are still in education or working within the household

This survey includes only family members 10 years of age or above. SAKERNAS uses questionnaire that includes items pertaining to labor force characteristics. The collected information includes household characteristics, activities during a week prior to the survey, region in which the respondent works, job status, payment received, and other information related to the respondent looking for a job. The questionnaire not only uses the same concepts, but is also based on the same definitions for the labor force data since 1976, except for employment status and unemployment rate, which have been extended in 2001.

3.3.2 Sample

This study is conducted using the data pertaining to the 10-year period from 2001 to 2010, covering all employees aged 15 years and above.¹⁰ The number of survey respondents changed from 2001 to 2010. In 2001, there were 65,539 workers aged 15 and above; 118,276 workers in 2002; 123,978 workers in 2003; 127,119 workers in 2004; 106,939 in 2004; 106,939 in 2005; 108,613 workers in 2006; 495,295 workers in 2007; 512,206 workers in 2008; 514,039 workers in 2009 and 534,022 workers in 2010 from all province in Indonesia.

Occupations, which refer to the type of work carried out by a particular respondent, are defined narrowly in SAKERNAS. For example:

Midwifery associate professionals. Labor in this group accompany and help doctor or midwifery professional, provide care during pre- and post-delivery and give instruction about nursing a baby. (BPS, 2002)

Statistical and finance clerks. Labor in this group have tasks to collect, arrange and calculate statistics or financial data or conduct clerk tasks which are related to transaction in bank or other financial companies. (BPS, 2002)

Occupations have been classified differently in the 2001-2006 and 2007-2010 periods. From 2001 until 2006, Indonesia used KBJI (Classification of Occupation) 1982, while KBJI 2002 has been used since 2007. In KBJI 2002, there are 407 types of occupation, all of which are narrowly defined and categorized into 10 broader groups. On the other hand, there are around 334 types of occupation in KBJI 1982, also broadly categorized into 10 groups. Coding system and structure of KBJI 2002 refer to International Standard Classification of Occupation (ISCO) 1988 by considering the types of occupations in KBJI 1982. Therefore, data based on KBJI 2002 is comparable to that referring to KBJI 1982 (BPS, 2002).

Although the occupations are listed, not all occupations can be found in the data corresponding to each year. For instance, if in a particular year there is no respondent working as a dentist, then the data for that profession will not be available. The number of female respondents is lower than that of the male survey participants in each year. Moreover, as not all listed occupations have information on female workers, only the occupations in

¹⁰ Although many sources mention that the working age population in Indonesia is 15-64 years old, but according to Central Bureau of Statistics Indonesia the working age population in Indonesia is them who are 15 years old and over.

which both females and males work will be used in the analysis. In addition, I exclude occupations that only have less than 3 percent female respondents each year. For instance, in 2010, for the occupation ‘ship engineer’, there was only one female respondent, which corresponds to 1.6% of all respondents for the occupation. Similarly, civil engineers only had 2.8% of female respondents; there were only 1.6% female firefighters, etc. As a result, the occupations used in this study as a sample cover about 92% of female respondents each year. Table 3.1 below describes the percentages corresponding to occupation types being used in this study in terms of their participation in the broader category and Table 3.2 presents the number of occupations used as the data sample.

Table 3.1. Number of Sample Occupations in Major Categories

2001-2006		2007-2010	
Occupational Classification 1982	%	Occupational Classification 2002	%
Major Group 0/1: Professionals, Technicians and Related Workers	14	Major Group 1: Legislators, Senior Officials and Managers	2
Major Group 3: Executive Officials, Administrative Staff and Related Workers	10	Major Group 2: Professionals	10
Major Group 4: Business and Sales Workers	8	Major Group 3: Technicians and Associate Professionals	4
Major Group 5: Service Workers	18	Major Group 4: Office Clerks	8
Major Group 6: Agriculture, Plantation, Animal Husbandry, Fishery, Forestry Workers and Hunters	14	Major Group 5: Service Workers and Shop and Market Sales Workers	14
Major Group 7/8/9: Transport Production Operators and Blue Collar Workers	36	Major Group 6: Skilled Agricultural and Fishery Workers	20
		Major Group 7: Craft and Related Trades Workers	22
		Major Group 8: Plant and Machine Operators and Assemblers	4
		Major Group 9: Elementary Occupation	

Source: Author’s calculation

Since the wage data provided in SAKERNAS is reported monthly, I converted the monthly income into hourly earnings by dividing the reported figure by the reported hours of work on the main job conducted during last week and multiplying this by 30.5/7.¹¹ Since 2003, SAKERNAS also collects additional information about the number of working days required to earn monthly wage income. This additional information may be useful to estimate hourly wage income better. However, the number of observation drop more than a half when

¹¹ I follow Matsumoto (2010) for the converting method, where 30.5 is assumed to be the middle number of days in a month (between 30 and 31) and 7 refers to the number of days in a week.

Table 3.2. Number of Occupations by Province and Year

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Aceh	11	28	30	30	41	44	157	159	159	138	797
Sumatera Utara	35	67	54	70	71	83	187	171	177	188	1103
Sumatera Barat	18	41	29	32	42	39	155	169	152	155	832
Riau	13	31	28	35	42	71	168	162	154	167	871
Jambi	14	29	27	33	33	31	87	104	104	114	576
Sumatera Selatan	25	46	39	40	51	46	148	142	143	157	837
Bengkulu	11	17	21	19	20	22	93	106	98	111	518
Lampung	15	32	37	30	36	36	96	91	114	120	607
DKI Jakarta	136	163	195	173	89	104	166	194	172	187	1579
Jawa Barat	95	113	81	88	112	159	220	254	249	259	1630
Jawa Tengah	70	88	90	94	105	103	234	227	213	232	1456
DI Yogyakarta	39	79	49	53	64	72	112	109	106	116	799
Jawa Timur	89	104	94	97	134	121	249	267	250	260	1665
Bali	52	68	72	62	74	83	139	131	148	145	974
Nusa Tenggara Barat	23	35	30	31	48	49	114	107	117	121	675
Nusa Tenggara Timur	12	23	14	23	30	24	124	122	134	138	644
Kalimantan Barat	20	33	34	37	40	39	94	114	121	106	638
Kalimantan Tengah	13	20	28	28	24	26	101	106	120	115	581
Kalimantan Selatan	24	35	33	40	40	42	127	125	136	121	723
Timur Kalimantan	11	35	23	45	46	55	138	151	149	150	803
Sulawesi Utara	20	31	37	38	38	40	153	145	149	164	815
Sulawesi Tengah	13	28	19	25	30	30	113	111	105	133	607
Sulawesi Selatan	18	40	20	23	47	49	138	178	179	184	876
Sulawesi Tenggara	9	23	10	15	29	24	116	133	126	141	626
Maluku	13	38	19	25	28	26	100	101	107	117	574
Papua	19	25	10	22	40	25	104	103	111	124	583
Total	818	1272	1123	1208	1354	1443	3633	3782	3793	3963	22389

Source: SAKERNAS, Author's Calculation

attempt was made to estimate the hourly wage using the reported number of working days. When I looked through the SAKERNAS data, not all occupations provided data about the number of working days required. Moreover, even when an occupation reported both the number of working days and the number of working hours, the observations for the number of working days is fewer than the observations for the number of working hours. For instance, while there are 334 observations in “cashier” occupation that reported the number of working hours, there are only four observations in the occupation that reported the number of working days in 2004. Because of this difference, I chose the reported number of working hours to estimate the hourly wage. Monthly wage income is obtained by adding reported monthly wage in the form of cash income and the reported income values. While 2000 is used as the reference year, this monthly wage income in each province is deflated by estimated Gross Regional Domestic Product (GRDP) deflator. For this purpose, I use the published and unpublished real and nominal GRDP figures from Central Bureau of Statistics Indonesia to derive the GRDP deflator.

Since 1997, the number of Indonesian provinces has increased to include Kepulauan Riau, Bangka Belitung, Banten, Gorontalo, Sulawesi Barat, Maluku Utara, and Papua Barat. Due to consistency, the number of provinces used in this study is equal to the number of Indonesian provinces that existed in 1996, whereby the breakaway provinces are coded using their original province identifier. Kepulauan Riau is thus counted as Riau, Bangka Belitung as Sumatera Selatan, Banten as Jawa Barat, Gorontalo as Sulawesi Utara, Sulawesi Barat as Sulawesi Selatan, Maluku Utara as Maluku and Papua Barat is counted as Papua. As a result, there are 26 provinces in the sample. The 1996-equivalent 26 provinces are also used in calculating GRDP deflator. Next, in order to analyze the impact of globalization on occupational wage gap, these 26 provinces are grouped into low/lower middle income provinces and high/higher middle income provinces, as shown in Table 3.3.

Table 3.3. Province Grouping by Income

High Income Province	Upper Middle Income Province	Lower Middle Income Province	Low Income Province
Jawa Barat Riau DKI Jakarta Jawa Timur Sumatera Selatan Jawa Tengah	Kalimantan Timur Sumatera Utara Papua Aceh Sulawesi Utara	Sumatera Barat Kalimantan Barat Kalimantan Selatan Bali DI Yogyakarta	Maluku Nusa Tenggara Barat Kalimantan Tengah Jambi Sulawesi Tengah Nusa Tenggara Timur Sulawesi Tenggara Bengkulu

Source: Statistics Indonesia, Author's calculation

Chapter 4

Results and Analysis

This chapter provides the estimation results for the econometric specifications used in analyzing the impact of globalization to the extent of gender wage gap. It is divided into two main parts, whereby the first part, consisting of three sections, will be dedicated to the main analysis performed as a part of this study. The first section will explore the impact of the three globalization proxies on the occupational wage gap, as the proxy of gender wage gap between high and low income provinces. In the second section, the results pertaining to the comparison between the high- and low-skill jobs will be discussed. Finally, the robustness check will be provided, concluding the first part of this chapter. In the second part, the occupational variable in Blinder-Oaxaca decomposition method is presented, in order to compare the two proxies of gender wage gap—occupational and residual wage gap.

4.1 The Impact of Globalization on the Occupational Wage Gap

Before estimating the effects of the three globalization proxies on the occupational gender wage gap, I conducted the Hausman test in order to assess whether the inclusion of year, provincial and occupational fixed effect terms is necessary. The test results indicate that the null hypothesis, which stated that the difference in the coefficient is not systematic, is clearly rejected with a p-value of 0.0000. Consequently, it is evident that occupational fixed effects should be included in all regression analyses. The inclusion of year, provincial and occupational dummy variables in the regression analysis subsumes any time, provincial and occupational patterns and controls for possible occupation-specific differences in the occupational gender wage gap.

4.1.1 The three proxies of globalization, the two groups of provinces and the occupational gender wage gap

Table 4.1 provides the estimates of FDI net inflow, trade to regional income ratio, and openness index, indicating their effects on the occupational gender wage gap. These values reveal the impact of globalization on the gender wage gap from 2001 to 2010 at a province level. The estimates are calculated separately for all provinces, high/higher income provinces, and low/lower income provinces. The impact of trade ratio, FDI net inflow, openness index, and

income may differ with the level of development, since the gender wage gap may vary with development level. The numerical values in Table 4.1 refer to the type of globalization proxy used in this study, with 1 corresponding to FDI net inflow, 2 to trade ratio, and 3 to the openness index. I expect trade and openness index to have the same direction of impact on the gender wage gap because both proxies are measured based on goods produced and are closely related to the export and import levels. On the other hand, FDI essentially refers to different types of investment; hence, FDI production may also include services. Therefore, there is possibility that FDI will have different impact direction on the gender wage gap from the other two proxies.

The estimation results in Table 4.1 indicate positive relationship between GRDP and the occupational gender wage gap, irrespective of whether the sample includes all provinces, high/higher income provinces, or low/lower income provinces. By using FDI as the globalization proxy, an increase of 1 percentage point in income will result in 3.55 percentages point increase in the gender wage gap in high/higher income group of provinces and 3.28 percentages point in low/lower income group. When using trade ratio, 1 percentage point increase in income will lead to 6.26 percentages point and 3.16 percentages point increase in the gender wage gap in high/higher and low/lower income group of provinces, respectively. Finally, when using openness index, 1 percentage point increase in income will respectively lead to 5.04 percentages point and 3.18 percentages point increase in the gender wage gap in high/higher and low/lower income group. These relationships are all statistically significant.

The rows 2-4 of Table 4.1 report the FDI net inflow coefficient, trade ratio and openness index variables in the regression on the occupational gender wage gap. Although the effect of trade and openness index is generally negative, the results pertaining to the low income group of provinces are not statistically significant. More specifically, 1 percentage point increase in the trade to GRDP ratio results in a 13.3 percentages point decrease the gender wage gap for the group of high/higher income provinces and 8.97 percentage points for the group of low/lower income provinces. In terms of openness index, 1 percentage point increase of the globalization proxy will lead to a 6.45 percentages point reduction in the gender wage gap in all provinces, which is significantly lower than the 12.4 percentages point decrease measured for the group of high/higher income provinces. Again, the results are not significant in the case of poorer provinces. I find a different pattern in the result using FDI net inflow. Namely, although there is

Table 4.1. Estimation Results of the Effect of Globalization Proxies on the Occupational Gender Wage Gap, by Province Income

	All province			High/higher middle income provinces			Low/lower middle income provinces		
	1	2	3	1	2	3	1	2	3
GRDP	0.0355*** (3.52)	0.0429*** (4.18)	0.0411*** (4.1)	0.0355* (2.15)	0.0626*** (3.54)	0.0504** (3.08)	0.0328* (2.39)	0.0316* (2.29)	0.0318* (2.32)
FDI net inflows (percent GRDP)	0.0254*** (3.46)			0.0768*** (5.57)			-0.0104 (-1.48)		
Trade (percent GRDP, current price)		-0.0887** (-2.87)			-0.133*** (-3.57)			-0.0897 (-0.72)	
Openness Index			-0.0645* (-2.18)			-0.124** (-3.02)			0.0187 (0.35)
Occupation fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observation	15477	15477	15477	9416	9416	9416	6061	6061	6061

Note: t-statistics are in parentheses. *Coefficient for the variables for which both interaction terms for low- and high-skill occupations are jointly significant at 10 percent, **5 percent, or ***1 percent

without substantial economic growth. Although in this study I presented two groups of provinces (those with upper middle income and lower middle income, respectively), at a global level, Indonesia is a developing country and it seems reasonable that a further reduction in gender gap will follow its economic growth in the future.

Throughout the analysis, separate estimations are performed for each globalization proxy adopted in this study. The reason for this segregation is that the main focus is on the impact of globalization on the gender gap, which is best understood by using each proxy to capture globalization. Moreover, if the aim is to identify a proxy that best explains the gender wage gap, including all measurers simultaneously would be a more prudent approach. Here, when the estimation consisting of GRDP and all globalization proxies together was conducted, it revealed the same association between all the variables and the occupational gender wage gap. The results of this analysis are included in the appendix. However, as identifying the measurer that explains the gender gap the best is not within the scope of this work, in the subsequent analyses, separate estimation for each globalization proxy will be conducted. A further investigation of the potential specification bias in the results will be provided in the following sections.

4.1.2 Specification bias: occupational heterogeneity, globalization proxies and the gender wage gap

Globalization may affect gender wage gap across occupations differently (Oostendorp, 2004). The greatest impact of globalization may be expected in occupations where the gender wage gap is the greatest, as greater potential for reduction is available. In addition, as each occupation has its own characteristics, such as those pertaining to the industry and workers, it is likely that the effects of globalization will differ. If globalization does indeed reduce the gender wage gap, the presence of different occupational characteristics, such as required skill level, may also provide additional information about the mechanism through which the impact is generated. Table 4.2 provides the estimation results of the effect of income and a number of globalization proxies on the occupational gender wage gap. Again, FDI net inflow, trade to regional income ratio, and openness index are used in order to observe the impact of globalization on the gender wage gap from 2001 to 2010 at the province level. In line with the previous regression, the estimation is performed separately for all provinces, high/higher income provinces, and

low/lower income provinces. However, here, we can also see that there are two categories of occupation skill level for each variable—the high-skill level, comprising the occupations within the upper half of the occupational wage distribution in a province, and the low-skill level, including the lower half. The numerical values used in Table 4.2, as was the case with Table 4.1, correspond to the type of globalization proxy used in Equation 3.6, with 1 referring to FDI net inflow, 2 to trade ratio, and 3 to openness index.

According to the estimation results, there is positive relationship between province income and the gender wage gap. This positive relationship can be seen in all estimations irrespective of the globalization proxy used. In the regression using FDI net inflow as globalization proxy, for all provinces, 1 percentage point increase in GRDP correspond to the 5.38 percentages point increase in the occupational gender wage gap for low-skill occupations and 1.42 percentages point for high-skill occupations. In the regression using trade ratio, for all provinces, increasing the GRDP by 1 percentage point will increase the occupational gender wage gap by 5.93 percentages point and 2.32 percentages point for low-skill and high-skill occupations, respectively. Similarly, when using openness index in the regression for all provinces, 1 percentage point increase in GRDP will respectively result in 5.41 percentages point and 2.53 percentages point increase in the occupational gender wage gap for low- and high-skill occupations. Thus, the positive association between GRDP and occupational gender wage gap remains irrespective of the occupational skill level. However, although most of the positive impact is statistically significant, this is not the case for high skill occupations in the low/lower income group of provinces.

Turning to the analysis of the globalization impact on the gender wage gap, a positive and statistically significant relationship is also identified between FDI net inflows and the occupational gender wage gap. It implies that the presence of FDI is not beneficial for reducing the gender wage discrimination. More specifically, for low-skill occupations, the occupational gender wage gap will increase by about 0.984 percentage point for each 1 percentage point increase in FDI net inflow in all provinces. The positive impact remains for the high-skill occupations in all provinces, as well as for both occupational skill levels in the high/higher income group of provinces. However, in the group of poorer provinces, the FDI impact is opposite. Moreover, this negative association between FDI net inflow and the occupational gender wage gap for low-skill occupations in this group is statistically significant, as 1

Table 4.2. Estimation Results of the Effect of Globalization Proxies on the Occupational Gender Wage Gap, by Province Income and Occupational Skill Level

	All province			High/higher middle income provinces			Low/lower middle income provinces		
	1	2	3	1	2	3	1	2	3
GRDP									
*Low skill	0.0538*** (5.2)	0.0593*** (5.68)	0.0541*** (5.27)	0.0522*** (3.31)	0.0752*** (4.32)	0.0676*** (4.2)	0.0548*** (3.71)	0.0556*** (3.69)	0.0425** (2.66)
High skill	0.0142 (1.39)	0.0232 (2.25)	0.0253* (2.44)	0.0161 (0.94)	0.0459* (2.53)	0.0279 (1.65)	0.00782 (0.57)	0.00525 (0.38)	0.0178 (1.28)
FDI net inflows (percent GRDP)									
*Low skill	0.00984 (1.31)			0.0585*** (4.31)			-0.0190* (-2.29)		
*High skill	0.0443*** (4.62)			0.103*** (6.2)			0.000496 (0.05)		
Trade (percent GRDP, current price)									
*Low skill		-0.111*** (-3.57)			-0.149*** (-4.02)			-0.175 (-1.32)	
High skill		-0.0723 (-2.30)			-0.122** (-3.23)			0.0209 (0.17)	
Openness Index									
*Low skill			-0.049 (-1.42)			-0.192*** (-4.01)			0.088 (1.45)
High skill			-0.0886 (-2.38)			-0.0514 (-0.96)			-0.0561 (-0.81)
Occupation fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observation	15477	15477	15477	9416	9416	9416	6061	6061	6061

Note: t-statistics are in parentheses. *Coefficient for the variables for which both interaction terms for low- and high-skill occupations are jointly significant at 10 percent, **5 percent, or ***1 percent

percentage point increase in FDI net inflow reduces the occupational gender wage gap by 1.9 percentage point.

In general, the impact of trade ratio and openness index on the gender wage gap move in the same direction, with the exception of the low/lower income group of provinces. More specifically, the two globalization proxies have negative effect on the occupational gender wage gap in high/higher income group. For high-skill occupations in all provinces, a 1 percentage point increase in trade ratio and openness index reduces the occupational gender wage gap by 7.23 percentage point and 8.86 percentage point, respectively. For low-skill occupations in the high/higher income group of provinces, a 1 percentage point increase in trade ratio and openness index respectively result in a 14.9 percentage point and 19.2 percentage point decrease in the occupational gender wage gap. In contrast, in the group of poorer provinces, for low-skill occupations, 1 percentage increase in the trade ratio will decrease occupational gender wage gap by 17.5 percentage point, but the same increase in the openness index will yield an 8.8 percentage point increase for high-skill occupations. However, no results in the low/lower income group of provinces are statistically significant.

In summary, five findings in particular should be highlighted. First, the positive impact of GRDP on the gender wage gap found in the previous estimation remains. Second, there is negative impact of trade and openness index on the gender wage gap for low-skill occupations both in high/higher and low/lower income groups of provinces. The only exception is noted for the openness index impact in poorer provinces, though the result is not significant. Third, the impact of trade and openness index for low-skill occupations also holds for high-skill occupations, except for the trade impact in poorer provinces though the result is not significant. Fourth, there is a positive effect of FDI net inflows on the gender wage gap for both high- and low-skill occupations in richer provinces. However, the same is not true for low-skill occupations in poorer provinces. Fifth, in terms of the impact of GRDP on the occupational gender wage gap, the low-skill workers are affected the most by the widening effect. In terms of the impact of globalization proxies, although the two occupational skill levels move in a same direction (except in the poorer provinces), the low-skill occupations experience greater reduction impact than the high-skill occupations (with the notable exception of the insignificant results of the openness index).

The statistically significant positive impact of FDI net inflows in the group of high/higher income provinces may be due to the increasing demand for highly skilled workforce. Driffield and Taylor (2000) indicated that FDI may increase the use of relatively more skilled workers in the domestic companies and increase wage inequality by the domestic market entry of multinational enterprises, as well as the technology spillovers from foreign to domestic companies. Oostendorp (2004), who notes that the technology embodied in the foreign investments may stimulate the need to employ better-qualified highly skilled workers, also points out this mechanism. This condition may be more beneficial for male workers, since female workers in the same occupation are subject to stereotypes that harm their position in labor market. Therefore, this disparity in the benefits gained by workers of different genders would lead to a wider gender wage gap. As an alternative explanation, Neumayer and Soysa (2007) mentioned that the type and source of FDI is also important factor in the wage gap. For a developing but resource-rich country like Indonesia, with a rather high FDI stock to GDP, it is likely that it's the government may suffer resource curse and fail to make adequate investments in modernization of the economy, including those aimed at the improvements in labor market conditions. Unfortunately, in this study, segregating the types of Indonesian FDI is not possible, as the supporting data is lacking.

Related to the fifth point raised previously, although the results pertaining to both skill levels within each group of provinces are move in the same direction (except in the group of poorer provinces), some distinctions can still be made. As shown in Table 4.2, for all of the three globalization proxies, when the results indicate negative relationship, low-skill occupations experience greater reduction in the wage gap. Moreover, in the case of the positive impact of FDI net inflows, the gender wage gap increases less for low-skill occupations than that of high-skill occupations. If the gender wage gap reduction in a developing country mainly comes from low-skill occupations, we can expect that the presence of sector expansion is the primary source of this reduction. Therefore, it seems that globalization may be beneficial through sector expansion or, conversationally, through increasing relative demand for female labor, even though it also suggests that female workers would be restricted to stay in lower paid jobs as the high-skill occupations are subject to more gender-based discrimination.

In Chapter 3, it was noted that SAKERNAS used different occupation classifications for different periods, namely the 1982 and 2002 occupation classification. This is important for the

present study, as within the 10-year study period, the 2001-2006 period was based on the 1982 classification, while for 2007-2010 the 2002 classification was used. Although the two occupation classifications are comparable, as we can see in Table 3.2, the number of samples for 2007-2010 is more than twice that pertaining to the period before 2007. More specifically, the period from 2007 to 2010 accounts for approximately 74% of the total study sample. Thus, the impact of globalization on the gender wage gap is estimated here using the sample covering only the 2007-2010 period. Table 4.3 provides the results of the estimation.

Table 4.3 reveals that the associations between GRDP, trade ratio and openness index and the occupational gender wage gap, respectively, remain unchanged, even though the sample was reduced from 2001-2010 to 2007-2010 only. However, the results of the FDI impact show some differences. More specifically, FDI has statistically significant negative impact on the gender wage gap for low-skill occupations in all provinces and statistically insignificant negative impact for high-skill occupations in the low/lower income group of provinces. Nothing these exceptions, the remaining results are in line with those reported for the 2001-2010 period. Since the result for FDI is not robust, I conducted the robust regression, whereby the previous regression performed on the 2001-2010 sample was weighted and reweighted in order to overcome the presence of vertical outliers in the FDI data. I found that there are 876 observations that are considered as outliers. I also conducted the robust regression for the other variables, and the associations remain robust. The FDI estimation results are presented in Table 4.4, indicating that, indeed, there are negative associations between FDI and the gender wage gap for low-skill occupations.

4.2. The Presence of Occupational Dummy Variable in the Mincerian Wage Regression for Blinder-Oaxaca Decomposition

In this section, a comparison between the occupational and the residual gender wage gap is presented. The notion behind this analysis is that, when male and female workers in narrowly defined occupations have similar skills, the occupational gender wage gap provides a direct measure of the residual gender wage gap (Oostendorp, 2009). However, this presents an important problem, as there are several measures of skill, such as age, work experience, level of education, tenure, etc. In addition, there is no clear indication of a skill measure that provides

Table 4.3. Estimation Results of the Effect of Globalization Proxies on the Occupational Gender Wage Gap, by Province Income and Occupational Skill Level for 2007-2010 samples

	All province			High/higher middle income provinces			Low/lower middle income provinces		
	1	2	3	1	2	3	1	2	3
GRDP									
*Low skill	0.0665*** (3.95)	0.0702*** (4.11)	0.0639*** (3.81)	0.0632** (2.97)	0.0747** (3.3)	0.0775*** (3.57)	0.0677** (2.63)	0.0740** (2.85)	0.0524 (1.88)
High skill	0.0302 (1.81)	0.0353 (2.07)	0.0372* (2.18)	0.0317 (1.46)	0.0460* (1.99)	0.0367 (1.65)	0.0235 (0.93)	0.0263 (1.04)	0.0396 (1.57)
FDI net inflows (percent GRDP)									
Low skill	-0.0156 (-2.32)			0.00644 (0.56)			-0.0216* (-2.45)		
*High skill	0.00804 (1.08)			0.0363** (2.96)			-0.00401 (-0.42)		
Trade (percent GRDP, current price)									
Low skill		-0.0885 (-2.16)			-0.103* (-2.18)			-0.0769 (-0.47)	
*High skill		-0.0487 (-1.17)			-0.0734 (-1.51)			0.104 (0.66)	
Openness Index									
*Low skill			-0.0442 (-0.96)			-0.191*** (-3.39)			0.139 (1.72)
*High skill			-0.0913 (-1.75)			-0.0254 (-0.37)			-0.0698 (-0.74)
Occupation fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observation	10324	10324	10324	6092	6092	6092	4250	4250	4250

Note: t-statistics are in parentheses. *Coefficient for the variables for which both interaction terms for low- and high-skill occupations are jointly significant at 10 percent, **5 percent, or ***1 percent

Table 4.4. Robust Estimation Results of the Effect of FDI net inflows (percent GRDP) on the Occupational Gender Wage Gap, by Province Income and Occupational Skill Level

	All provinces	High/higher middle income provinces	Low/lower middle income provinces
GRDP			
*Low skill	0.0353*** (4.1)	0.0233 (1.74)	0.0446*** (3.94)
*High skill	0.00212 (0.25)	-0.00503 (-0.38)	0.00391 (0.34)
FDI net inflows (percent GRDP)			
*Low skill	-0.0151*** (-3.49)	-0.00948 (-1.47)	-0.0124 (-1.96)
*High skill	0.00476 (1.02)	0.0136 (1.89)	-0.00457 (-0.70)
Occupation fixed effect	Yes	Yes	Yes
Provincial fixed effect	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes
Number of observation	15477	9416	6061

Note: t-statistics are in parentheses. *Coefficient for the variables for which both interaction terms for low- and high-skill occupations are jointly significant at 10 percent, **5 percent, or ***1 percent

more reliable results than the others. Thus, the Blinder-Oaxaca decomposition may be a useful method that can be applied in order to assess the impact of the observable skills, such as age, work experience, level of education, tenure, and other worker characteristics on the explained part of the total raw wage gap. Therefore, I first calculated this impact on the explained part for each of the 26 provinces by using observable skills, such as age, working experience, level of educational attainment, and marital status. Next, I calculated the impact of the presence of occupation on the entire decomposition between male and female workers. In order to do that, I included occupational control in the Mincerian wage regression by adding occupational dummy variable in order to evaluate how much of the raw wage gap can be explained by the addition of the occupational dummy variable.

The result obtained through this analysis are given in Table 4.5 and are in line with those reported by Oostendorp (2009), i.e. human capital differences presented by the observable skills can only explain a small part of the total raw wage gap. Hence, a sizable residual gender wage gap reflected by the unexplained part of the raw wage gap still remains. Table 4.5 includes both the raw wage gap and the explained part of the raw wage gap, with and without the existence of

Table 4.5. Raw Wage Gap and the Explained Part of Blinder-Oacaxa Decomposition with and without Occupational Dummy

	2002	Occupational dummy		2004	Occupational dummy		2006	Occupational dummy		2008	Occupational dummy		2010	Occupational dummy	
Province	Raw wage gap	Yes	No	Raw wage gap	Yes	No	Raw wage gap	Yes	No	Raw wage gap	Yes	No	Raw wage gap	Yes	No
Aceh	0.3663	0.0244	0.081	0.3604	0.0878	0.1165	0.2795	-0.0011	0.0245	0.1723	-0.0077	0.0127	0.1413	-0.0871	-0.0493
North Sumatra	0.338	0.0061	0.049	0.2255	-0.0076	0.0158	0.3009	0.03	0.0428	0.2437	0.0268	0.0297	0.1936	-0.0363	-0.0127
West Sumatra	0.2823	-0.0909	-0.0063	0.1212	-0.0885	-0.0689	0.1865	-0.0837	-0.0688	0.1306	-0.0027	-0.0012	0.1235	-0.1247	-0.0954
Riau	0.0697	0.0274	0.0404	0.2811	0.0741	0.0602	0.2532	0.0356	0.0222	0.2669	0.0828	0.0755	0.1826	0.0199	0.0207
Jambi	0.2113	-0.0451	0.0101	0.3888	0.0675	0.071	0.242	0.0068	0.0095	0.1855	0.0439	0.0428	0.302	0.0172	0.0219
South Sumatra	0.2497	-0.0039	0.0218	0.2756	0.0221	0.043	0.2472	0.0222	0.031	0.3066	0.02	0.0203	0.2422	-0.0037	0.0045
Bengkulu	0.2249	-0.1002	-0.0283	0.2664	-0.0414	-0.0026	0.3294	0.0457	0.0801	0.3281	-0.0095	0.0035	0.2153	-0.0592	-0.0262
Lampung	0.1842	-0.0687	-0.0122	0.1992	-0.0019	0.0204	0.163	0.0062	0.0356	0.0944	-0.0181	-0.0057	0.1075	-0.0926	-0.0558
Jakarta	0.316	0.094	0.1292	0.2847	0.1257	0.1363	0.2701	0.113	0.1281	0.2844	0.1612	0.1754	0.2138	0.0796	0.1068
West Java	0.2818	0.0626	0.0662	0.3185	0.0596	0.0709	0.247	0.0433	0.0515	0.1996	0.0967	0.0819	0.2242	0.0024	0.0228
Central Java	0.3599	0.0463	0.0447	0.3652	0.0889	0.0943	0.3161	0.0677	0.0752	0.3665	0.0525	0.0582	0.2888	0.0281	0.0387
Yogyakarta	0.3901	0.0351	0.0314	0.2659	0.0817	0.0874	0.3095	0.0639	0.0916	0.439	0.0904	0.084	0.2679	0.0511	0.0534
East Java	0.3477	0.0589	0.0652	0.3531	0.0945	0.1108	0.327	0.0871	0.0973	0.2979	0.0438	0.0488	0.265	0.0205	0.043
Bali	0.4604	0.0946	0.0768	0.3771	0.1223	0.1187	0.3733	0.1128	0.1125	0.3727	0.135	0.1051	0.3743	0.108	0.1042
West Nusa Tenggara	0.36	0.1329	0.0738	0.4528	0.1882	0.178	0.3582	0.152	0.1642	0.3944	0.1248	0.0673	0.3947	0.1162	0.1007
East Nusa Tenggara	0.268	-0.0075	0.0169	0.3289	-0.0158	0.0674	0.1364	-0.0982	-0.0282	0.1821	0.0613	0.0412	0.1934	-0.0282	0.0157
West Kalimantan	0.2747	0.0076	0.035	0.3099	0.0121	0.0255	0.2235	-0.0171	0.0005	0.2459	-0.0083	-0.0106	0.2019	-0.0003	0.0044
Central Kalimantan	0.0462	-0.0113	0.0267	0.221	-0.0182	-0.0041	0.1834	0.0174	0.0162	0.1381	0.0208	0.0158	0.185	-0.0112	-0.0039
South Kalimantan	0.473	0.0541	0.0616	0.2731	0.0439	0.0528	0.3586	0.046	0.0614	0.3237	0.0657	0.0655	0.3322	0.016	0.0218
East Kalimantan	0.4243	0.0639	0.0821	0.3336	0.0617	0.0695	0.3339	0.0663	0.0782	0.2362	0.0033	0.0251	0.2268	-0.0496	-0.018
North Sulawesi	0.0986	-0.1607	-0.0669	0.0517	-0.2176	-0.1647	-0.1064	-0.2286	-0.1437	-0.1986	-0.1098	-0.0712	-0.0266	-0.2027	-0.1447
Central Sulawesi	0.2004	-0.0711	0.002	0.0173	-0.1369	-0.0843	0.0242	-0.149	-0.0692	0.0217	-0.1223	-0.0872	0.0812	-0.116	-0.0789
South Sulawesi	0.2444	0.0136	0.0452	0.0803	-0.0619	-0.0306	0.2387	0.0291	0.0406	0.1559	0.0285	0.0275	0.2177	-0.0303	-0.0195
South East Sulawesi	0.3272	0.0489	0.0996	0.2031	0.0733	0.1018	0.2672	-0.0252	0.0173	0.2731	0.0302	0.0593	0.1557	-0.0153	0.0056
Maluku	0.0405	-0.102	-0.0408	0.0071	-0.1445	-0.0761	-0.0765	-0.0798	-0.0222	0.0203	-0.0535	-0.0338	0.1033	-0.1046	-0.0537
Papua	0.1998	-0.0368	-0.0066	0.1484	0.1317	0.1557	0.3385	0.1915	0.2435	0.4928	0.0547	0.0415	0.0851	0.0084	0.0206
Average	0.2707	0.0028	0.0345	0.2504	0.0231	0.0448	0.2356	0.0175	0.042	0.2298	0.0312	0.0335	0.2036	-0.019	0.001

Source: SAKERNAS, Author's Calculation

occupational dummy variable for year 2002, 2004, 2006, 2008, and 2010. Table 4.5 clearly indicates that, when the occupational heterogeneity in the Mincerian regression is controlled for, the explanatory power of human capital differences is significantly reduced. The decrease of explanatory power is depicted for each sample year (0.0345 to 0.0028 in 2002, 0.0448 to 0.0231 in 2004, 0.042 to 0.0175 in 2006, 0.0335 to 0.0312 in 2008, and 0.001 to -0.019 in 2010). When the provinces are examined separately, the explanatory power pertaining to higher income provinces (West Java, Riau, Jakarta, East Java, South Sumatra, Central Java, South Sulawesi, East Kalimantan, North Sumatra, Papua, Aceh, North Sulawesi and Lampung) reduces on average from 0.0338 to 0.0175, whereby for lower income provinces (West Sumatra, West Kalimantan, South Kalimantan, Bali, Yogyakarta, Maluku, West Nusa Tenggara, Central Kalimantan, Central Sulawesi, Jambi, East Nusa Tenggara, South-East Sulawesi and Bengkulu)¹² the reduction is more significant—from 0.0248 to 0.0047. Moreover, there are decreases in the explained part of the raw wage gaps, indicating that there are also increases in the unexplained part of the gender wage gap. Hence, the occupational gender wage gap seems to compensate for unobservable human capital differences to some extent, while the residual wage gap only controls for observable human capital differentials.

In addition, I conducted paired t-test to verify that the difference between the two decomposition models (with and without occupational dummy) is statistically significant. The null hypothesis tests whether the mean of differences is equal to the mean of “without” minus “with” (no - yes) occupational dummy or, conversationally, equal to zero. Based on the paired t-test results, the null hypothesis is rejected, confirming that the mean difference of “without” minus “with” occupational dummy is greater than zero, which implies that the explained part of the raw wage gap without the occupational dummy is greater than the one with the occupational dummy. The reduction in the explanatory power of the human capital differences is thus likely due to controlling for occupational heterogeneity. It implies that the observed skills explain little of the gender wage gap for given occupations. Although human capital differences still explain a small part of the raw wage gap, if the occupational heterogeneity is controlled for, the unobservable human capital differences are also affected to some extent. In addition, the occupational gender wage gap does not depend on a regression model to eliminate the effect of the human capital differences. Occupational wage

¹² The numbers presented are not reported in Table 4.6, but they are simply the average of the numbers provided in Table 4.6.

gap is very useful in analyzing gender wage gap when occupations are narrowly defined. At this point, the occupational gender wage gap appears as the alternative proxy of gender wage discrimination.

Chapter 5

Conclusion

5.1 Conclusion and Discussion

Despite some notable improvements in Indonesian economy that took place during the last 30 years, such as remarkable increase in real per capita income, rapid economic growth, vibrant economic transformation, greater openness to foreign countries, and impressive socio-economic development, there is still an ongoing concern pertaining to the distribution of the benefits they brought. This study focused on the earnings female workers command in comparison to their male counterparts, and tried to assess the effects of the increasingly open Indonesian economy on their wages. More specifically, the aim was to examine the impact of globalization on the gender wage gap in Indonesia during the 2001-2010 period. The work undertaken is based on the theory by Heckser-Ohlin and Stolper-Samuelson and Becker, which imply that open market has a narrowing effect toward gender gap. However, an extensive literature review revealed evidence of both widening as well as mixed effect of globalization on gender wage gap. Although several extant studies analyzed Indonesian gender wage gap at the national level, none explored the impact of globalization on the gender wage gap. Hence, this study contributes to the literature on gender inequality or specifically gender wage gap and globalization by examining the association between globalization and gender wage disparity at the sub-national level.

This study used occupational gender wage gap as a gender wage gap proxy measured as female-male wage difference within a narrowly defined occupation, and SAKERNAS as the data bank supports the availability of narrowly defined occupations. This proxy appears as an alternative to residual gender wage gap that can be obtained by Blinder-Oaxaca decomposition method. Moreover, real GRDP per capita is used as a proxy of development level and various proxies of globalization, such as FDI net inflow ratio, trade ratio, and openness index, are used to draw the conclusion about the effect.

Unlike most earlier empirical studies that find negative relationship between level of development and gender inequality, this study does not find evidence that the increase of GRDP decreases the gender wage gap, as positive and statistically significant associations appear between the two. One possible explanation for this is mentioned by Seguino (2000), who noted that development level and gender wage gap in developing countries may be positively correlated, since female workers' low wages are needed in order to attract more

investment. Moreover, as previously mentioned by Boserup (1970) and Dollar and Gatti (1999), development of a country needs to reach a certain level before gender inequality may be reduced by further economic growth. Consistent with this view, this study also found evidence of a convex relationship between province income and gender wage gap. In this study, for a more comprehensive analysis, Indonesian provinces were classified into two groups: upper middle income (Jawa Barat, Riau, DKI Jakarta, Jawa Timur, Sumatera Selatan, Jawa Tengah, Kalimantan Timur, Sumatera Utara, Papua, Aceh, and Sulawesi Utara) and lower middle income (Sumatera Barat, Kalimantan Barat, Kalimantan Selatan, Bali, Maluku, Nusa Tenggara Barat, Kalimantan Tengah, Jambi, Sulawesi Tengah, Nusa Tenggara Timur, Sulawesi Tenggara, and Bengkulu). Nonetheless, as a whole, Indonesia is a developing country and is thus globally recognized as a lower middle income country, as categorized by World Bank. Hence, it is likely that none of its provinces have yet reached the economic development threshold required for a more pronounced reduction in the gender wage gap.

The estimation results of the globalization impact show that during the period covered by the analysis, trade ratio, and openness index had narrowing effect on the gender wage gap. However, the same is not the case for FDI net inflow ratio, as the positive association was found. I argue that this might be due to the need of high-skilled workers, since the technology embodied in foreign investment requires a better-qualified workforce. Due to the stereotypes associated with female workers, male workers benefit disproportionately more from this condition, thus widening the gender wage gap. Another possible explanation came from Neumayer and Soysa (2007), who stated that the type of FDI matters. In the Indonesian context, a resource-rich lower middle income country with a relatively high FDI to GDP ratio, it is likely that the government is still not investing enough in the modernization of the economy, which is reflected in inequitable labor market conditions.

Further, the results of the impact of GRDP, trade ratio, and openness index remain robust when I conducted estimation using only data pertaining to the 2007-2010 period. SAKERNAS changed its occupation classification in 2007. Although the new classification was stated to be comparable to the previous one, the number of observations for each year during the 2007-2010 period is twice as high as that pertaining to the individual years in the full 2001-2010 data sample. When only the 2007-2010 is used, the results for FDI change, as now there is significant narrowing effect for low-skill occupations, while the impact of FDI for high-skill occupations remains positive. As the result for FDI was not robust, I conducted robust regression to control for the vertical outliers in the FDI data for the entire 2001-2010

period. The results indicated that FDI had a statistically significant narrowing effect on the gender wage gap in low-skill occupations in all provinces and a widening effect in high-skill occupations. It should be noted, however, that none of the results pertaining to high-skill occupations were statistically significant.

When the estimation results were segregated by skill level, high-skill and low-skill occupations provided rather similar results, since they mostly moved in the same direction in each group of provinces. Interestingly, when the association between the globalization proxies and the gender wage gap is negative, the narrowing effect experienced by low-skill occupations is greater than that related to high-skill occupations. In addition, in the FDI case, the narrowing effect is also experienced by low-skill occupations. When the narrowing effect in a developing country is mainly experienced by low-skill occupations, it is mostly governed by the sector expansion, whereby globalization increases relative demand for female workers.

Knowing that for Indonesian case sector expansion is the channel through which globalization reduces the gender wage gap, creating more jobs is the first step in achieving gender equality. In 2010, there were at least ten companies relocating their business to other countries because of the rigidity of 2003 Manpower Law number 13, considered as hampering Indonesian investment climate (Asean Affairs , 2012). The law enforces high severance rates for workers with at least three years of service, as well as giving additional 15 percent gratuity fee. This severance pay is considered as a “hiring tax”, equivalent to one-third of the worker’s annual wage. Yet, on the contrary, the law has not adequately protected workers, since only 34% of all eligible workers who were dismissed in the last two years received severance pay and 78.4% of those collected less than the amount they were entitled. Due to these conditions, employers and workers are trapped in a “lose-lose” situation that leaves workers inadequately protected and constrains job creation (World Bank, 2010). Indonesia needs to relax its rigid labor restrictions that deter foreign investment and discourage entrepreneurs from creating new jobs that would bring prosperity and growth to Indonesian economy.

5.2 Limitations

This study is subject to several limitations. Firstly, since 2003, two variables in SAKERNAS can be used to estimate hourly wage: reported working hours and reported number of days required to earn the reported monthly income. Matsumoto (2010) mentioned that the number of working days allows for a finer refinement in estimating hourly wage.

However, in the data sample used in this study, fewer observations could be made using the number of working days, compared to the reported working hours. This indicates that there are inconsistencies in the occupation data. Consequently, in this study, I use the reported working hours as the earnings estimate.

Secondly, since FDI has many forms, this study would have benefitted if the effects of different FDI types on the gender wage gap were examined. However, the data that would identify the type of foreign investment in Indonesia was not available at the time of this study. This limitation might provide the direction for future research, whereby the focus could be on analyzing the association between different FDI types and the gender wage gap.

Finally, an opportunity for future research using other gender wage gap proxies to analyze the impact of globalization on gender wage gap is provided. I was not able to further compare the occupational gender wage gap to residual wage gap because of the difficulty in conducting Blinder-Oaxaca decomposition for each narrowly defined occupation in SAKERNAS. Mostly, to the issues stemmed from the small number of observations for each occupation, which prohibited a comprehensive analysis. Thus, given a more comprehensive data sample, future studies could explore the gender wage gaps in different occupations and industries, and possibly expand this analysis by allowing for other effects, such as age, educational level and other socio-demographic characteristics, which could also yield useful information on the reasons behind the gender inequality.

References

- Aigner, D. J., & Chain, G. G. (1977). Statistical Theories of Discrimination in Labor Market. *Industrial and Labor Relation Review*, Vol.30, 175-187.
- ANU. (2010). *Indonesia Labor Force Survey (SAKERNAS) August 2007*. Canberra: Australian Demographic and Social Research Institute: The Australian National University.
- Arora, R. U. (2012). Gender Inequality, Economic Development and Globalization: A State Level Analysis of India. *The Journal of Developing Areas*, 147-164.
- Arrow, K. (1972). The Theory of Discrimination. *Princeton University Working Paper* No.30A.
- Artecona, R., & Cunningham, W. (2002). Effect of Trade Liberalization on Gender Wage Gap in Mexico. *The World Bank: Policy Research Report on Gender and Development*.
- Asean Affairs . (2012, October 31). *Foreign Companies May Relocate from Indonesia Over Labor Issues* . Retrieved from Asean Affairs: The Voice of Southeast Asia: <http://www.aseanaffairs.com>
- Baliamoune-Lutz, M. (2006). Globalisation and Gender Inequality: Is Africa Different? *Journal of African Economies*, Vol. 16, No. 2, 301–348.
- Becker, G. S. (1971). *The Economy of Discrimination*. Chicago: University of Chicago Press.
- Berik, G., Rodgers, Y. v., & Joseph E. Zveglic, J. (2004). International Trade and Gender Wage Discrimination: Evidence from East Asia. *Review of Development Economics*, 8(2), 237–254.
- BI. (2011). *2011 Economic Report on Indonesia*. Jakarta: Central Bank of Republic of Indonesia.
- Birdsall, N., & Hamoudi, A. (2002). Commodity Dependence, Trade, and Growth: When "openness" is not enough. *Center for Global Development Working Paper* 7.
- Black, S. E., & Brainerd, E. (2002). Importing Equality? The Impact of Globalization on Gender Discrimination. *NBER Working Paper Series No. 9110*.
- Blinder, A. S. (1973). Wage Discrimination: Reduced Form and Structural Estimates. *Journal of Human Resource* 8 (4), 436-455.
- Boserup, E. (1970). *Woman's Role in Economic Development*. London: Earthscan Publications.

- BPS. (2002). *Klasifikasi Baku Jenis Pekerjaan Indonesia-KBJI 2002*. Jakarta: Badan Pusat Statistik.
- Cotton, J. (1988). On the Decomposition of Wage Differentials. *Review of Economics and Statistics* No.70, 236-143.
- DFAT. (2000). *Indoensia: Facing the Challenge*. Barton: Department of Foreign Affairs and Trade.
- Dollar, D., & Gatti, R. (1999). *Gender Inequality, Income, and Growth: Are Good Times Good for Women?* Washington, D.C.: The World Bank Development Research Group/ Poverty Reduction and Economic Management Network.
- Driffield, N., & Taylor, K. (2000). FDI and the Labour Market: A Review of the Evidence and Policy Implication. *Oxford Review for Economic Policy*, Vol.16, No.3.
- Feridhanusetyawan, T., Aswicahyono, H., & Perdana, A. A. (2001). The Male-Female Wage Differentials in Indonesia. *CSIS Working Paper Series WPE 059*.
- Fontana, M., & Wood, A. (2000). Modeling the Effects of Trade on Women, at Work and at Home. *World Development* Vol. 28, No. 7, 1173-1190.
- Galor, O., & Weil, D. N. (1996). The Gender Gap, Fertility, and Growth. *The American Economic Review*, Vol. 86, No. 3 , 374-387.
- ILO. (2012). *Labour and Social Trends in Indonesia 2011: Promoting job-rich growth in provinces*. Jakarta: ILO Office for Indonesia.
- IMF. (2011). *World Economy Outlook*. Washington DC: International Monetary Fund.
- Jann, B. (2008). The Blinder-Oaxaca Decomposition For Linear Regression Models. *The Stata Journal* 8(4), 453-479.
- Kassenböhmer, S., & Sinning, M. (2010). Distributional Changes in the Gender Wage Gap. *IZA Discussion Paper* No. 5303.
- Kulich, C., Trojanowski, G., Ryan, M. K., Haslam, S. A., & Renneboog, L. (2010). Who Gets the Carrot and Who Gets the Stick? Evidence of Gender Disparities in Executive Remuneration. *ECCI Working Paper Series in Finance*.
- Marjit, S., Kar, S., & Maiti, D. S. (2007). Regional Trade Openness Index and Income Disparity: A New Methodology and the Indian Experiment. *Economic and Political Weekly*, 757-769.
- Matsumoto, M. (2011). Wage Inequality in Indonesia: 1996-2009.

- Menegpp & BPS. (2011). *Pembangunan Manusia Berbasis Gender 2011 (Human Development on Gender Basis 2011)*. Jakarta: Ministry of Women Empowerment and Child Protection (Menegpp).
- Mitra-Khan, B. H., & Mitra-Kahn, T. (2008). Gender Wage Gaps and Growth: What Goes Up Must Come Down. *Presented at 'United Nations Inequality, Development & Growth Workshop'*.
- Nakavachara, V. (2010). Superior Female Education: Explaining the Gender Earnings Gap Trend in Thailand. *Journal of Asian Economics* 21, 198-218.
- Nethercott, K., Marianti, R., & Hunt, J. (2010). *Gender Equality Results in ADB Projects: Indonesia Country Report*. Mandaluyong City: Asian Development Bank.
- Neumark, D. (1988). Employers' Discriminatory Behavior and the Estimation of Wage Discrimination. *The Journal of Human Resources* 23(3), 279-295.
- Neumayer, E., & Soysa, I. d. (2007). Globalisation, Women's Economic Rights and Forced Labour . *The World Economy*, 30 (10), 1510-1535.
- Oaxaca, R. (1973). Male-Female Wage Differentials in Urban Labor Markets. *International Economic Review* 14 (3), 693-709.
- Oaxaca, R. L., & Ransom, M. R. (1994). On Discrimination and the Decomposition . *Journal of Econometrics* 61(1), 5-21.
- Oostendorp, R. H. (2004). Globalization and The Gender Wage Gap. *World Bank Policy Research Working Paper* 3256.
- Oostendorp, R. H. (2009). Globalization and the Gender Wage Gap. *The World Bank Economic Review*, 141-161.
- Pirmana, V. (2006). Earning Differentials Between Male-Female In Indonesia: Evidence from SAKERNAS Data. *Working Paper in Economics and Development Studies*.
- Reilly, B., & Dutta, P. V. (2005). The Gender Pay Gap and Trade Liberalisation: Evidence for India. *PRUS Working Paper no. 32*.
- Sakellariou, C. (2009). Changing Wage distributions and the Evolution of Wage Inequality in Indonesia: 1994-2007. *Economic Growth Centre Working Paper No: 2009/06*.
- Schober, T., & Winter-Ebmer, R. (2011). Gender Wage Inequality and Economic Growth: Is There Really a Puzzle? - A Comment. *World Development Vol.29 No.8*, 1476-1484.
- Seguino, S. (2006). The Great Equalizer? Globalization Effects on Gender Equality in Latin America and the Caribbean. *MPRA Paper No.6509*.

- Seguio, S. (2000). Gender Inequality and Economic Growth: A Cross-Country Analysis. *World Development* Vol. 28, No. 7, 1211-1230.
- Sen, A. (2001). The Many Faces of Gender Inequality. *The New Republic*.
- Shen, C., & Williamson, J. B. (1999). Maternal Mortality, Women's Status, and Economic Dependency in Less Developed Countries: A Cross-National Analysis. *Social Science & Medicine* 49, 197-214.
- SMERU. (2005). Inequality: An Old Issue of New Relevance. *The SMERU Research Institute*, No.16: Oct-Dec 2005.
- UNDP. (2010). *Asia-Pacific Human Development Report: Power, Voice and Rights. A Turning Point for Gender Equality in Asia and the Pacific*. Colombo: Macmillan Publishers India Ltd.
- UNDP. (2010). *The 2010 Asia-Pacific Human Development Report*. New Delhi: United Nation Development Programme.
- UNDP. (2011). *Human Development Report 2011: Sustainability And Equity a Better Future For All*. New York: United Nation Development Programme.
- United Nations. (1999). *1999 World Survey on the Role of Women in Development: Globalization, Gender, and Work*. Report of the Secretary-General.
- World Bank. (2001). *Engendering Development. Through Gender Equality in Rights, Resorces, and Voice*. New York: World Bank Policy Research Report, Oxford University Press.
- World Bank. (2010). *Indonesia Jobs Report: Towards Better Jobs and Security for All*. Jakarta: World Bank.
- World Bank. (2012). *World Development Report 2012: Gender Equality and Development*. Washington DC: The World Bank.
- Zweimüller, M., Winter-Ebmer, R., & Weichselbaumer, D. (2007). Market Orientation and Gender Wage Gaps: An International Study. *Working Paper No. 0712*.

Appendix

A. Estimation Results of the Effect of Globalization Proxies on the Occupational Gender Wage Gap, by Province Income, Estimated Together

	All provinces	High/higher middle income provinces	Low/lower middle income provinces
GRDP	0.0426*** (4.11)	0.0531** (3.01)	0.0319* (2.3)
FDI net inflows (percent GRDP)	0.0260*** (3.52)	0.0763*** (5.58)	-0.00986 (-1.38)
Trade (percent GRDP, current price)	-0.0998** (-3.15)	-0.117** (-3.15)	-0.0682 (-0.54)
Openness Index	-0.0528 (-1.79)	-0.0964* (-2.32)	0.00428 (0.08)
Occupation fixed effect	Yes	Yes	Yes
Provincial fixed effect	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes
Number of observation	15477	9416	6061

Note: t-statistics are in parentheses. *Coefficient for the variables for which both interaction terms for low- and high-skill occupations are jointly significant at 10 percent, **5 percent, or ***1 percent