



THE EFFECT OF GENDER INEQUALITY ON INCOME PER CAPITA: PANEL DATA ANALYSIS FROM 34 PROVINCES IN INDONESIA

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ABSTRACT

Kesetaraan gender telah menjadi salah satu dari 17 Tujuan Pembangunan Berkesinambungan Perserikatan Bangsa-Bangsa. Kesetaraan gender dinilai sangat penting karena merupakan salah satu faktor utama yang mempengaruhi pertumbuhan ekonomi dan pembangunan. Meskipun telah banyak penelitian yang memeriksa hubungan antara ketimpangan gender dan penghasilan per kapita, penelitian atas kasus di Indonesia masih sangat sedikit. Oleh karena itu, penelitian ini mencoba untuk berkontribusi dengan memanfaatkan data panel 34 propinsi dari tahun 2015 sampai dengan 2018 untuk menguji pengaruh ketimpangan gender terhadap penghasilan per kapita di Indonesia. Dengan menggunakan Model Pooled OLS, Fixed Effect, dan Random Effect, penelitian ini menemukan bahwa ketimpangan gender memiliki dampak negatif yang signifikan terhadap penghasilan per kapita di Indonesia. Artinya, semakin kecil ketimpangan antara pria dan wanita, maka semakin besar penghasilan per kapita. Bukti empiris menunjukkan bahwa penurunan satu poin Gender Inequality Index (GII) akan meningkatkan penghasilan per kapita sebesar 0.65 sampai dengan 0.71 persen. Selain itu, penelitian ini juga menemukan bahwa ketimpangan gender memiliki dampak yang sama terhadap penghasilan per kapita di seluruh provinsi di Indonesia.

The issue of gender equality has become one of the 17 United Nation Sustainable Development Goals. Gender equality is so important since it has been argued as one of the crucial determinants of economic growth and development. Although there have been numerous studies to investigate the correlation between gender inequality and income per capita, the empirical evidence regarding this issue in the case of Indonesia is still minimum. Therefore, this paper tries to examine the effect of gender inequality on income per capita in Indonesia by analysing a panel data set of 34 provinces from 2015 to 2018. Using the Pooled OLS, Fixed Effect, and Random Effect Model, this paper finds that gender inequality has a negative significant impact on income per capita in Indonesia. It means that the less the gap between men and women, the more income per capita. The empirical evidence suggests that a one-point decrease in Gender Inequality Index (GII) will increase income per capita by 0.65 to 0.71 percent on average. Moreover, the paper finds that gender inequality has the same impact on income per capita across all regions in Indonesia.

1. INTRODUCTION

Gender equality is one of the fundamental aspects to achieve economic development. The United Nations (UN) sets Goal 5 "Achieve gender equality and empower all women and girls" as part of 17 Sustainable Development Goals. United Nation Development Program-UNDP (2017) states that gender equality is not necessarily men and women have to be the same, but their rights, responsibilities, and opportunities must not be treated based on their gender as male or female. Therefore, Goal 5 is targeting to eliminate discrimination; thus, women can fully participate in the economy as well as men.

In order to achieve Goal 5, Indonesia has made efforts to reduce gender inequality. The Government of

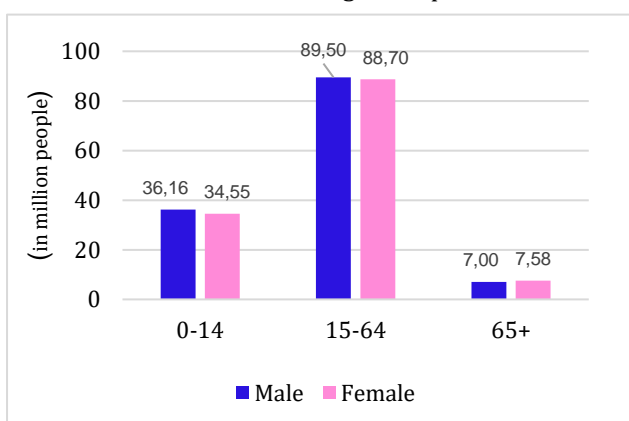
Indonesia (GOI) has collaborated with the UNDP to reduce gender inequality. In 2016, the UNDP Indonesia received a 'Silver' level certification in the Gender Equality Seal assessment for its significant contribution to national gender equality objectives (UNDP, 2017). As a result, this directs UNDP Indonesia to set Gender Strategy and Action Plan for 2017-2020. Other attempts that have been done by GOI to improve gender equality are: create a task force to ensure equal opportunity and treatment in the working environment; and sign the Memorandum of Understanding and a Cooperation Agreement on Optimizing the Application of Equal Opportunities and Treatment without Discrimination in Work between

The Ministry of Manpower and the relevant ministries (Kurniawan, 2019).

Despite the fact that gender inequality in Indonesia has shown to be decreasing, the gaps still exist. The data show that the Gender Inequality Index (GII)¹ of Indonesia consistently declined from 46.6 in 2015 to 43.6 in 2018 (Statistics Indonesia, 2019). Even though the GII trend is decreasing, the GII of Indonesia is still relatively high compared to other ASEAN countries (Singapore: 6.5; Brunei: 23.4; Vietnam: 31.4; Thailand: 37.7; and Philippines: 42.5). The gaps between men and women in Indonesia are still apparent in many aspects, such as health, education, and per capita expenditure. Based on Statistics Indonesia (2019), women's per capita expenditure is only around IDR 9.04 million. This figure is far below men's per capita expenditure, which is already at IDR 15 million. Moreover, there are disparities of the GII between provinces in Indonesia.

On the other hand, the current demographic conditions in Indonesia have the advantage of a "demographic bonus". A population is one of the powerful stimuli for economic growth. The composition of age structure, under certain conditions, can be a crucial determinant factor of the welfare of a country. "Countries with heavy concentrations of populations in the working ages have an inherent advantage to produce high levels of per capita income" (Mason, 2005: 82). Figure 1 describes that 178 million people (67.5 percent) of the total population are in the productive-working ages. Moreover, the number of men and women in the working-age groups are almost equal. This shows that women are as important as men in terms of maximizing the benefit of the demographic bonus.

Figure 1. Demographics of Indonesia Based on Age Group



Source: Statistics Indonesia (2018)

However, the existence of gender inequality in Indonesia causes Indonesia cannot maximize the benefit of the demographic bonus because women could not give full participation to the economy. Bappenas, Statistics Indonesia, and UNFPA (2018) in Indonesian Population Projection 2015-2045 predicted that working-age population will still dominate the structure of Indonesian demographic from 68 percent in 2015 to 65-66 percent in 2045.

The correlation between gender inequality and income has become interesting issues for scholars in the last few decades. There have been numerous studies investigating the effect of gender equality on income per capita. The majority of previous studies have reached a consensus on the fact that there is a positive impact of gender equality on per capita income (Cuberes and Teignier, 2016). For example, Wodon and De La Briere (2018) stated that on a per capita basis, gender gap in incomes could result in global wealth losses of \$23,620 per person, while Munir and Kanwal (2020) showed that gender disparity in education reduced per capita income in South Asian Countries. Additionally, a finding by Klasen and Minasyan (2017) proved that gender inequality in labour force participation has an impact on economic growth in European countries.

Based on the description above, it can be argued that gender equality plays an important role to boost economic growth and increase income per capita. Therefore, if the demographic bonus of Indonesia is followed by the full participation of the working-age population -both men and women- in labour force, then the optimal economic growth can be reached.

However, study about this subject in the case of Indonesia is still minimum, especially at the regional level. Moreover, research has yet to be done regarding the difference effects of gender inequality on income per capita based on Indonesian time zone areas. Therefore, this study tries to contribute to the literature not only by examining the effect of gender inequality on income per capita using panel data analysis from 34 provinces in Indonesia, but also by differentiating the impact between Western, Central, and Eastern Indonesian Time. In addition, the novelty of this research also lies in the comparison of the results between three different regression models: the Pooled OLS, the Fixed Effect, and the Random Effect Models.

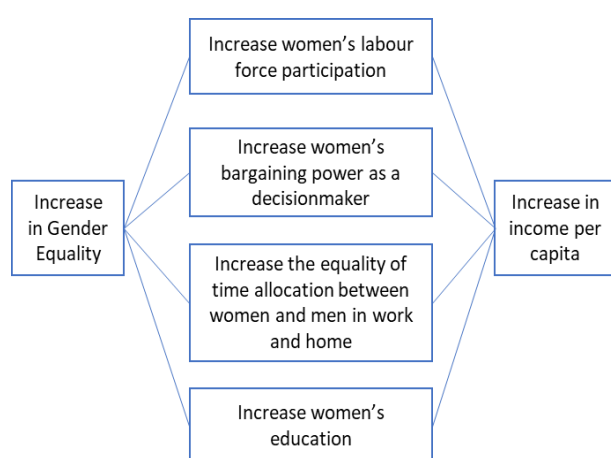
¹ The Gender Inequality Index is an index that measures inequalities in three important aspects of human development—reproductive health (measured by maternal mortality ratio and adolescent birth rates), empowerment (measured by proportion of parliamentary seats occupied by females and proportion of adult females and males aged 25 years and older with at least some secondary

education), and economic status (expressed as labour market participation and measured by labour force participation rate of female and male populations aged 15 years and older) (UNDP, 2019). The GII has a value between 0 and 100. A GII of zero represents perfect equality, while a GII of 100 expresses maximum inequality.

2. LITERATURE REVIEW AND HYPOTHESIS

The effect of gender equality on income per capita can be observed through some channels (Figure 2): women's labour force participation (Morrison, Raju, and Sinha, 2007; Kabeer, 2016; Cuberes and Teigner, 2016; Kim, Lee, and Shin, 2016; Getahun and Villanger, 2017), women's bargaining power as a decisionmaker (Morrison et al., 2007; Agenor and Canuto, 2015; Getahun and Villanger, 2017), the equality of time allocation between women and men in work and home (Agenor and Canuto, 2015, and Kim et al., 2016; Rubiano and Viollaz, 2019), and inequality in education (Klasen, 1999; Klasen and Lamanna, 2009; Duflo, 2012; Munir and Kanwal, 2020).

Figure 2. The Theoretical Framework on How Gender Equality Affects Income per Capita



2.1 An Increase in Women Labour Force Participation Will Boost Economic Growth

Morrison et al. (2007) observed that an increase in gender equality will increase current economic growth and future economic growth as well. A better current economic growth can be attained by increasing women's participation in labour force. By participating more in the workforce, women's productivity and earnings will increase; thus, raising households' income and consumption expenditure. Regarding the future economic growth, it will be explained in the next part.

In line with Morrison's findings, Kabeer (2016) also showed that there is strong evidence that gender equality has a positive impact on economic growth. She found that when women are given a better chance to enter the job market, it will increase the number of labours, and eventually will increase the productivity of human resources available in a country.

In addition, Kim, Lee, and Shin (2016) found that if the gap between men and women at home and in labour market is eliminated in Korea, the women labour force participation rate will increase from 54,4 to 67,5 percent, and the growth rate in per capita

income will rise from 3,6 to 4,1 percent on average over a generation.

Cuberes and Teignier (2016) found that gender gaps create an average earning loss of 14 percent in OECD countries and 16 percent in developing countries. They used labour force participation by gender as well as occupational choices of women (employers, self-employed, or workers) to quantify income effect. If there are no women worked as an employer or self-employed, they predicted income per worker would decline by around 10 percent, while if there is no participation of women in the labour force, income per capita would decline by approximately 47 percent. Getahun and Villanger (2017) also showed that women entering labour force will have an income effect that increases intra-household welfare.

2.2 Increasing Gender Inequality Means Increasing Women's Bargaining Power

As mentioned before, Morrison et al. (2007) observed that an increase in gender equality will also raise future economic growth. They explained that mother's greater control over decision making in a household will make them give more concern about children's educational attainment and health; thus, children's well-being will be improved, and they will have greater productivity as adults. As a result, future economic growth can be attained.

Besides, the analysis by Agenor and Canuto (2015) showed that promoting gender equality, which relies on externalities that infrastructure generates in terms of women's time allocation in market work and bargaining power, can have a major effect on long term growth as well as on educational and health outcomes in Brazil. Therefore, they suggested that improving women's access to infrastructure can decrease constraints on women's capacity to engage in the labour market and strengthen their bargaining power to contribute more in economic development.

Another study, Getahun and Villanger (2017) found that the decrease of spouses' income gap when wives get the job will increase women bargaining power; thus, increase intra-household welfare. The increase in the women bargaining power will persuade the husband to contribute more in the household, increase household consumption, reduce poverty, and bolster food security.

2.3 Equal Time in Work and Home Between Men and Women Will Increase Women's Productivities

When men and women allocate equal time in work and home, women will have more time to participate in labour market; thus, they will contribute more to economic growth. Kim et al. (2016) recommended policies so men and women can have equal time for market production, home production, child-rearing, and child education because it will give more opportunities for women to be more productive

in labour market. Similarly, Agenor and Canuto (2015) found that women's time allocation in market work will give a positive impact on education and health attainment; thus, it will boost economic growth in the long term. Furthermore, Rubiano and Viollaz (2019) claimed that the difference in time allocation of men and women can be a driving force behind the gaps in access economic opportunity, and can result a development constraint.

2.4 Increase in Women's Education

An educated woman will contribute more to economic growth because they tend to be more productive than the uneducated one, and they can prepare a better future generation. In general, an educated mother will give more benefits to the family than an uneducated one. First, an educated mother is usually more aware of the importance of education for her children. Second, an educated wife likely knows better on how to support her husband's career. Moreover, an educated woman usually also contributes more to the family's income. Duflo (2012: 1065) stated that mothers' education gives a greater impact on earnings than fathers' education.

In addition, "women are more likely than men to invest the resources under their control in their children's human capital, thereby increasing the productivity of the next generation of workers" (Klasen, 1999: 26-27). Thus, by connecting those two findings, it can be concluded that increasing women's education not only improves the family's earning, but also enlarge the proportion of allocation those earnings to the children's human capital investment, which will affect future economic growth.

Klasen and Lamanna (2009) investigated to what extent gender inequality in education and employment limits economic growth. They believed that promoting women's education will lower fertility rates, minimize childhood mortality rates, and promote next generation education; therefore, it will give a positive impact on economic growth. Moreover, Munir and Kanwal (2020) found that inequality between boys and girls at secondary and tertiary level of education lowered income per capita in South Asian Countries.

Drawing from the theoretical framework above, this paper tries to examine whether or not gender inequality has an effect on income per capita. The null hypotheses that will be tested in this paper are:

Ho: Gender inequality does not affect income per capita

Ha: Gender inequality affects income per capita

3. RESEARCH METHODOLOGY

3.1 Data Sources

A panel data set of 34 provinces from 2015 to 2018 is used to examine the effect of gender inequality on income per capita in Indonesia. All data used in this study is secondary data (Statistics Indonesia and BKPM, 2015 to 2018). The data of Gross Regional Product, the Gender Inequality Index, consumption, and government expenditure are acquired from

Statistics Indonesia (BPS). Meanwhile, data for domestic and foreign investments are obtained from the Indonesia Investment Coordinating Board (BKPM).

3.2 Descriptive Statistics

Table 1 presents the descriptive statistics for each variable used in the regression (Statistics Indonesia and BKPM, 2015 to 2018). The statistics in Table 1 shows that GRP per capita ranges from IDR 11 million to IDR 165 million per year. It may suggest that income inequality in Indonesia is quite high. Similar to GRP per capita, the dispersion of the Gender Inequality Index between provinces is also relatively large. For example, the lowest point of the GII was only 11 for DKI Jakarta in 2015, while Papua Barat had the highest GII of 58.2 points in 2017. This large dispersion shows that there is gender inequality between provinces in Indonesia.

With regard to the level of consumption and government expenditure per capita, Table 1 shows that people and government, on average, spend approximately IDR 1.8 million and IDR 12.17 million per capita per year, respectively.

In addition, Maluku and Sulawesi Barat have the lowest domestic and foreign investment per capita, respectively. In contrast, Kalimantan Timur enjoys the largest investment per capita, both domestic and foreign.

Table 1. Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
GRP per Capita (IDR 000)	136	39,942	30,151	11,088	165,872
Gender Inequality Index	136	44.49	10.02	11	58.2
Consumption per Capita (IDR 000)	136	1,822	1,661	548	8,608
Government Expenditure per Capita (IDR 000)	136	12,173	3,182	6,406	24,469
Domestic Investment per Capita (IDR 000)	136	1,040	1,109	6.41	7,109
Foreign Investment per Capita (USD)	136	148	148	1.56	695

Source: Author's Calculation (Statistics Indonesia and BKPM, 2015 to 2018)

3.3 Econometrics Model

A panel data regression approach is used to observe the effect of gender inequality on income per capita in Indonesia. This study uses a panel data approach because panel data combines both cross-section and time series data. As a result, it gives not only more degree of freedom, but also increases the number of observations (Hsiao, 2005: 145-148).

A regression model is defined as follow:

$$\text{LogGRP}_{it} = \alpha + \beta_1 \text{GII}_{it} + \beta_2 \text{LogGov}_{it} + \beta_3 \text{LogCons}_{it} + \beta_4 \text{LogDI}_{it} + \beta_5 \text{LogFI}_{it} + \beta_6 \text{WITA} + \beta_7 \text{WIT} + \varepsilon_{it}$$

where:

LogGRP = Gross Regional Product per Capita (in logarithm form)

GII = Gender Inequality Index. It has a value between 0 and 100.

LogGov = Government expenditure per capita (in logarithm form)

LogCons = Consumption per capita (in logarithm form)

LogDI = Domestic investment per capita (in logarithm form)

LogFI = Foreign investment per capita (in logarithm form)

WITA* = Central Indonesian Time (dummy variable)

WIT* = Eastern Indonesian Time (dummy variable)

ε = Error term

*) Western Indonesian Time (WIB) is the baseline

GRP per capita is the dependent variable in this regression model, while the GII is the focus independent. This regression model also includes four variable controls: government expenditure, consumption, domestic, and foreign investment per capita. Moreover, to measure the impact between regions, this model uses dummy variables (WIB, WITA, and WIT).

GRP, government expenditure, consumption, domestic and foreign investments use logarithmic formulation because those variables involve money term (Emerson, 2014; Wooldridge, 2016; Zarembka, 1968). It is crucial to transform those variables into the logarithmic formulation because money is more multiplicative terms than additive ones. For instance, a \$1,000 per year increase feels more significant if the income per capita is \$10,000 than if it is \$100,000.

In addition, to examine the effect of gender inequality on income per capita, this study will use the Fixed Effect Model (FEM) and Random Effect Model (REM). FEM and REM are used because it is the most commonly estimated models for panel data series. Moreover, those models will use not only all data available, but also produce the smallest standard errors and unbiased coefficient estimates (Williams, 2018). Then, the Hausman test will be used to select the best model among those two models.

3.4 Correlation Table

In statistics, in order to obtain an unbiased and precise coefficient estimate, it is important to ensure that there is no collinearity problem in the regression model. According to Evans² (1996), correlation coefficient higher than 0.60 indicates that there is strong correlation between variables. However, Table

2 shows that all correlations between variables in the model are less than 0.60. It suggests that there is no strong collinearity problem between variables in the regression model.

Table 2. Correlation Table

Variable	GRP	GII	Gov	Gov	DI
GII	-0.217	1.000			
Gov	0.559	0.031	1.000		
Cons	-0.219	0.077	-0.154	1.000	
DI	0.305	-0.055	-0.143	0.042	1.000
FI	0.561	0.070	0.346	-0.065	0.062

Source: Author's Calculation (Software Stata, 2020)

4. RESULTS AND DISCUSSION

This section presents the analysis of gender inequality across 34 provinces, and the results of the regression analysis. The structure of this section is divided into two sub-sections. The first sub-section will analyse the gap between men and women per province in Indonesia, describe panel data model selection between FEM and REM using the Hausman test, and present the regression results of the effect of gender inequality on income per capita in Indonesia. The second sub-section will discuss policies that can be implemented by the government regarding the finding of this study.

4.1 Result

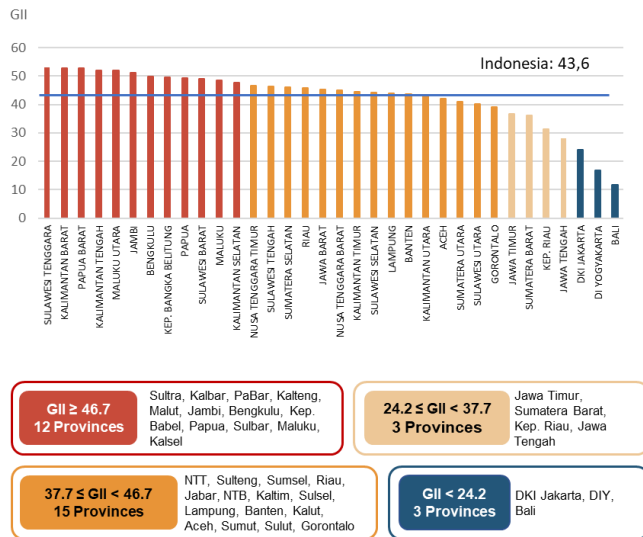
4.1.1 Gender Inequality Analysis per Province

This sub-section analyses gender inequality across 34 provinces in Indonesia based on four factors: the Gender Inequality Index (GII), average school years, women as professional workers, and women in parliament.

The GII of Indonesia in 2018 is 43.6, one of the highest compared to other ASEAN countries (Singapore: 6.5; Brunei: 23.4; Vietnam: 31.4; Thailand: 37.7; and Philippines: 42.5). Based on Figure 3, it can be seen that the provinces with the highest GII are mainly located in the eastern part of Indonesia. In contrast, the western regions, especially provinces in Java and Bali Islands have a considerably lower GII. It indicates that not only Indonesia still has high gender inequality but also there is an inequality in gender development between regions.

² Very strong: 0.80-1.00; strong: 0.60-0.79; moderate: 0.40-0.59; weak: 0.20-0.39; and very weak: 0.00-0.19

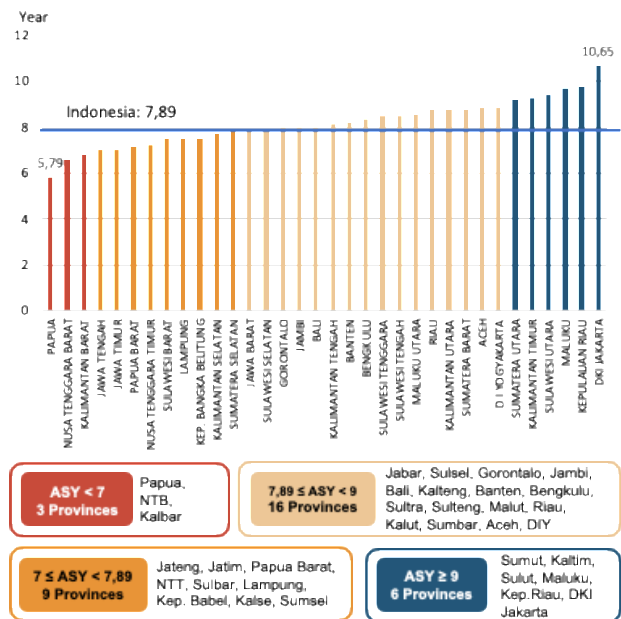
Figure 3. Gender Inequality Index - GII (2018)



Source: Figure created by author based on data from Statistics Indonesia (2019)

Meanwhile, the average school years for females in Indonesia are only 7.89 years, one year lower than men. Literature has shown that education is negatively related to poverty incidence (Awan et al., 2011; Fields, 1980; Schultz 1963). Without adequate education, the opportunity of getting a decent job is limited. As a result, women with a low-level of education are likely associated with low income. Figure 4 shows that women in Indonesia, on average, do not finish their lower secondary education. The condition is worse in certain regions, such as Papua, Nusa Tenggara Barat, and Kalimantan Barat.

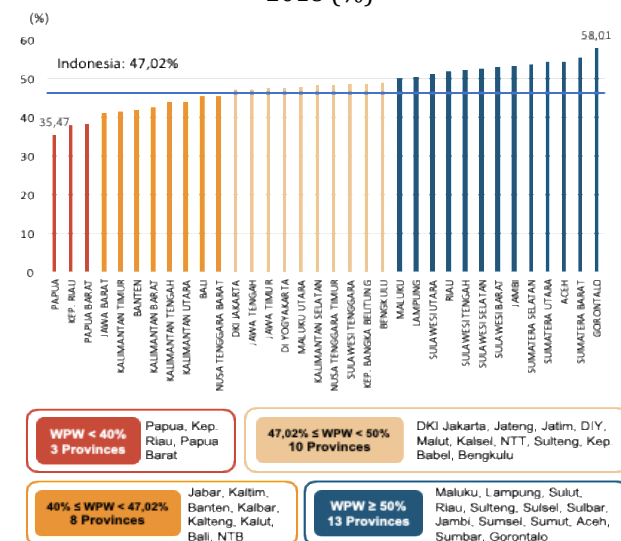
Figure 4. Average School Years - ASY 2019 (Year)



Source: Figure created by author based on data from Statistics Indonesia (2019)

In contrast, the percentage of female workers as a professional is fairly high at 47.02 percent (Figure 5). This shows that almost half of women who join in labour market are equipped with skills and education. However, the data might indicate that only women with sufficient skills and education can join the labour market, while others cannot.

Figure 5. Women as Professional Workers - WPW 2018 (%)

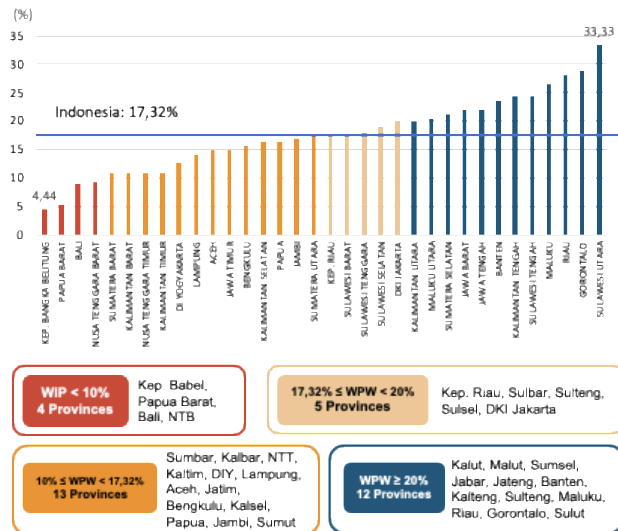


Source: Figure created by author based on data from Statistics Indonesia (2018)

Unfortunately, the involvement of women in parliament is very low (only 17.32 percent). Women's political participation is first and foremost a question of democracy and human rights (Inter-Parliamentary Union, 2018). Therefore, it is crucial for women to have access to parliament. Not only to promote women's issues and bring a gender perspective to the analysis of legislation, but also to be a credible role model to other

women, including young women, and encourage other women to participate in politics. However, Figure 6 shows that women's participation in the Indonesian parliament is very little. In some provinces, the participation rate is even below 10 percent.

Figure 6. Women in Parliament – WIP 2018 (%)



Source: Figure created by author based on data from Statistics Indonesia (2018)

4.1.2 Panel Data Model Selection

The Hausman test is used to determine the appropriate model for this study. The test works by testing whether the unique errors are correlated with regressors. The hypothesis is as follow:

H0 : The Random Effect Model (REM) is the preferred model

H1 : The Fixed Effect Model (FEM) is the preferred model

If the p-value is insignificant ($p > 0.05$ or less than 5%), then the random effect is the preferred model. However, if the p-value is significant ($p < 0.05$ or more than 5%), it suggests that the fixed effect is the better model. The result of the Hausman test shows an insignificant p-value (0.8080), which suggests that Random Effect Model (REM) is the preferred model.

Another method to determine which model fits better is by using non-statistical consideration. The non-statistical approach works by comparing the time series unit and cross-section unit or the number of individuals. If the time series unit is larger than the number of individuals, then FEM is preferable. In contrast, if the number of individuals is larger than the time series unit, then REM is a better model (Baltagi, 1995; Nachrowi and Usman, 2006).

Since this paper uses data of 34 provinces in four years period, it means the number of individuals is larger than the time series unit. Therefore, REM is the preferred model for this case. However, it is worth noting that even though the Hausman test and non-statistical consideration suggest that random effect is the preferred model, this paper still reports the results

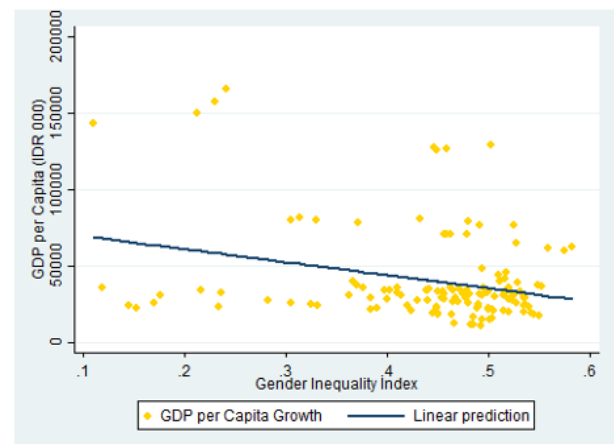
of the pooled OLS and fixed effect model for comparative reasons and to enable result robustness.

4.1.3 The Effect of Gender Inequality on Income per Capita

This sub-section presents the two-ways scatter plot and the empirical evidence regarding the correlation between gender inequality and income per capita.

Figure 7 illustrates that gender inequality is negatively associated with GRP per capita. It means that the lower the gender inequality, the higher GRP per capita.

Figure 7. Correlation Between Gender Inequality and GRP per Capita



Source: Statistics Indonesia (2020)

Note: The graph uses a data set of 34 provinces in Indonesia from 2015 to 2018

Furthermore, the empirical evidence of the impact of gender inequality on income per capita is presented in Table 3. Table 3 reports three sets of results using three regression models: the pooled OLS in column (1); the fixed effect model in column (2); and the random effect model in column (3).

Based on Table 3, all three regression models suggest that gender inequality has a negative correlation with income per capita, which means the less the gap between men and women, the more income per capita. All results are statistically significant at 1% level.

According to the pooled OLS and random effect model, it is suggested that every time the GII decreases by one point, the income per capita will increase by 0.65 percent on average. Similarly, the fixed effect model suggests that a one-point decrease in the GII raises income per capita by 0.71 percent on average. In other words, if the gap between men and women is eliminated in Indonesia (the GII equals zero), income per capita would increase by approximately 28.34 percent. It is worth noting that this is an extreme example since there is no country in the world that has GII index equals to zero. However, if Indonesia (GII = 43.6) could decrease its GII, for example to the Thailand's level (GII = 37.7), that means Indonesia's

income per capita would likely to increase as much as 3.9 percent on average.

These results confirm the findings of previous studies in the literature that eliminating the gap between men and women could increase income per capita (Cuberes and Teignier, 2016; Kim, Lee, and Shin 2016; Munir and Kanwal, 2020). Furthermore, this finding is important because very limited research that focuses on empowering women's participation in terms of increasing the GDP growth. Most research only focuses on production, consumption, investments, government spending, and related topics regarding achieving the desired growth. In addition, this paper provides the empirical evidence which shows that gender equality also plays a crucial role to boost income per capita, especially considering that 50 percent of productive-working population of Indonesia is women.

Table 3. Estimation Results for the Effect of Gender Inequality on GRP per Capita

Log GRP per Capita	Pooled OLS	FEM	REM	Expected Sign
	(1)	(2)	(3)	(4)
Gender Inequality Index	-0.0065*** (0.0019)	-0.0071*** (0.0015)	-0.0065*** (0.0019)	Negative (-)
Log Government Expenditure per Capita	0.2103*** (0.038)	0.1632*** (0.0312)	0.210*** (0.0379)	Positive (+)
Log Consumption per Capita	-0.9272 (0.0971)	-0.9814 (0.0766)	-0.9272 (0.0971)	Positive (+)
Log Domestic Investment per Capita	0.0094** (0.0042)	0.0096*** (0.0033)	0.0094** (0.0042)	Positive (+)
Log Foreign Investment per Capita	0.0072 (0.0073)	0.0033 (0.0058)	0.0072 (0.0073)	Positive (+)
WITA	-0.1333 (0.1354)	-	-0.1333 (0.1354)	
WIT	-0.2822 (0.3143)	-	-0.2822 (0.3143)	
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Source: Software Stata (2020)

Moreover, the empirical evidence suggests that government expenditure is positively associated with income per capita at a significance level of 1 percent. An increase in government expenditure by one per cent will raise income per capita by 0.16 to 0.21 percent on average. This result is in line with previous research that find solid evidence that increasing total government spending is beneficial for per capita income (Churchill, Ugur, and Yew, 2016; Ikechukwu, Obindah, and Iledare, 2018). However, consumption seems to have no significant impact on income per capita. The results are consistent whether using the pooled OLS, fixed effect, or random effect model.

Regarding investment, it can be observed from Table 3 that domestic investment is a more important factor to boost income per capita than foreign investment. The results show that a one percent increase in domestic investment will cause a raise in income per capita by 0.0094 percentage points for both pooled OLS and REM, and 0.0096 percentage points for FEM. This finding confirms the study by Yusoff and Nulambeh (2016) that shows positive relationship between gross domestic investment and GDP. In contrast, the evidence suggests that foreign investment is not an important determinant for income per capita.

Furthermore, the dummy variables (WITA and WIT) show insignificant p-value, which indicates that gender inequality has the same impact on income per capita across all regions in Indonesia.

4.2 Discussion

As implied in the result sections above, gender inequality is negatively correlated with income per capita in Indonesia. Since the gap between men and women in Indonesia is still quite high, it may suggest that policymakers need to focus on reducing the gender gap to increase income per capita. Besides continuing the existing gender inequality reduction policies, the Indonesian Government should step-up their efforts by enacting policies that could encourage women to participate in labour force (one of three aspects to measure GII index) since Indonesia is predicted to be in demographic bonus condition at least until 2045.

The author recommends some policies to be implemented by Indonesian Government. These policies are divided into two types: tax policies and non-tax policies.

There are several alternatives of tax policies that the Indonesian government could do to foster women's participation in the economy. First, in term of Personal Income Tax, tax authorities could give incentives for married couple such as implementing individual taxation scheme instead of joint-family taxation system or giving an additional tax deduction for married couple. The second earners in a family, usually wives, have disadvantage in the current joint-family taxation scheme, because they are taxed in the higher tax bracket after their husbands' income. By implementing individual taxation scheme, it will enable married women to earn more disposable income; thus, give an extra incentive for women to enter labour force. LaLumia (2017), Meier and Wrede (2013), Decoster and Haan (2014) informed that many countries have succeeded increasing their women labour force participation by switching from joint taxation to individual taxation, such as the United Kingdom and many OECD countries. Another Personal Income Tax policy that could increase women's labour participation rate is income tax borne by the government for working married women who have young children. With this incentive, a working mother with young children would have more money to put

their children in the childcare so they will not hesitate to be more productive by joining labour market.

Second, in term of Corporate Income Tax, the incentive could be given to the companies that impose benefit in kind that is provided for women, such as childcare, as deductible expenses. Also, giving super deduction tax for companies employing married women with young children can be an option to attract companies to hire women with children.

The last tax policy that is possible to be implemented is VAT exemptions for such products and services that promote women's inclusion in the labour market. Day-care, nursery, and elderly care programs could all be excluded from VAT. This initiative would reduce the cost of returning to work for women with children or elderly; thus, increasing the likelihood of women joining the workforce rather than staying at home to care for their families.

Furthermore, there are at least three non-tax policies to enable the rise in women employment. The first policy is by increasing government expenditure for women education, especially in rural areas. As mentioned in previous section, education is critical for both current and future generations of women to participate in the workforce. The second policy is by giving subsidy to provide better-quality and more affordable child and elderly care. This subsidy will lower the cost of childcare and elderly care; therefore, boost the women's opportunity cost of staying at home. The last non-tax policy is supporting women entrepreneurship by giving easier access to education and training, financial resources, technology and social capital. Female entrepreneurs not only create jobs for themselves but may also generate employment opportunities for other women. It is because female entrepreneurs are less likely than male entrepreneurs to discriminate against women and more likely to hire them. If these recommendation policies are applied, it would likely increase women's labour participation rate; therefore, Indonesia can maximize the benefit of the demographic bonus, and eventually will increase income per capita.

5. CONCLUSION

The research has focused not only on examining the impact of gender inequality on income per capita in Indonesia, but also differentiating the impact across regions in Indonesia.

Using the Pooled OLS, Fixed Effect, and Random Effect Model, this paper finds several key findings. First, all three regression models suggest that gender inequality has a negative correlation with income per capita, which means the less the gap between men and women, the more income per capita. All results are statistically significant at 1% level. The empirical evidence suggests that a one-point decrease in the GII will increase income per capita by 0.65 to 0.71 percent on average.

Second, the results also find that if the gap between men and women is eliminated in Indonesia

(the GII equals zero), income per capita would increase by approximately 28.34 percent. In addition, the paper also suggests that there is no significant evidence that gender inequality has a different impact on income per capita in the Western, Central, and Eastern parts of Indonesia.

6. IMPLICATION AND LIMITATION

Indonesia has not only the advantage of demographic bonus, but also almost half of working-age population are women. The fact that GII Index of Indonesia is still high means Indonesia has a big opportunity to reduce the gender inequality by increasing women labour force participation since it is one of important aspect of GII Index. Therefore, this study may contribute to highlight the important of gender equality in maximizing the benefit of Indonesian demographic bonus to boost economic growth and income per capita. Also, this study presents several alternative policies that the Indonesian government could do to foster women's participation in the economy.

In terms of the limitation of this paper, the main one is the lack of gender inequality data. The best data available to measure gender inequality in Indonesia at the regional level is the Gender Inequality Index (GII). However, the earliest data of the GII is from 2015. Therefore, this research can only use data from 2015 to 2018 (four years). Another limitation of the analysis lies in the lack of export and import as control variables. Aside from consumption, investment, and government spending, net exports (exports minus imports) are to be found as determinant factors of GRP per capita; thus, it affects income per capita. However, this paper cannot include exports and imports into the analysis since data for exports and imports per province in Indonesia is still not available. This opens the opportunity for further research to include exports and imports into the analysis.

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