



# Analysis of Regional Development Disparity in Indonesia Period 2018–2021

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**Abstract.** Inequality in economic development between regions is a problem faced by every country, including Indonesia. This was also exacerbated by the COVID-19 pandemic that hit Indonesia. This study is to determine the level of inequality in Indonesia period for 2018 until 2021 and to test whether the inequality increased significantly during that period. The technical analysis of inequality used is the Williamson Index. The research data includes the number of Indonesia's population and Gross Domestic Product (GDP) per capita per province. According to the index calculation of Williamson, the level of inequality in Indonesia tends to be volatile every year with a mean of 0.54.

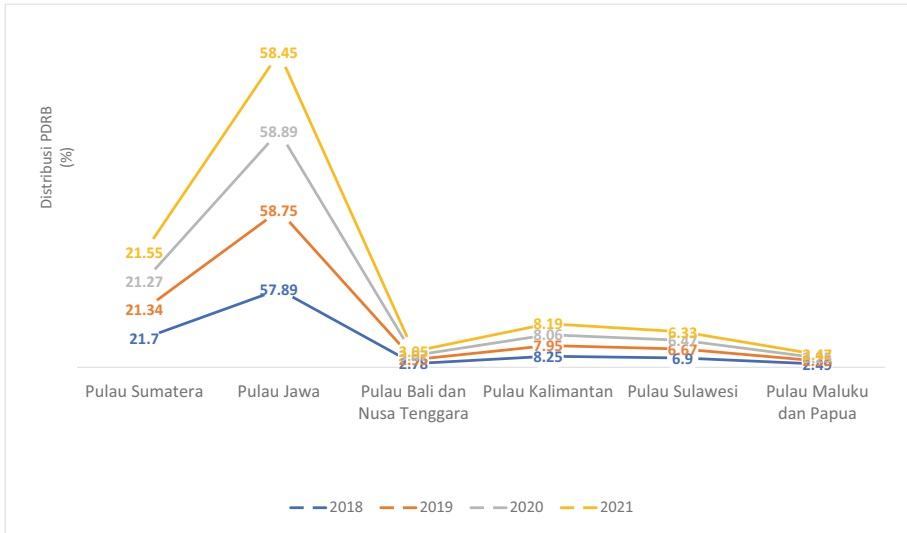
**Keywords:** Williamson Index · Inequality · Pandemic

## 1 Introduction

The disparity of economic development between regions is a problem faced by all countries, including Indonesia. Inequality has both negative and positive impacts. The negative impacts of inequality include reduced investor attraction to invest, increasing poverty, and reducing productivity levels in the region [1] Meanwhile, the positive effect of inequality is that it can encourage other less developed regions to compete to increase their growth to improve their welfare [2].

Inequality in development that has been going on has different forms, perspectives, and dimensions. For example, inequality in development outcomes as measured in terms of per capita or regional income, and inequality in activities or the development process itself [3]. Gross Regional Domestic Product (GRDP) per capita is one of the measuring instruments used to measure the level of welfare of the population in an area, where if the greater the value of GRDP per capita, it can be interpreted that the level of welfare of the people of the area is getting better. Vice versa, if the per capita GRDP value of an area is getting smaller, it can be interpreted that the level of community welfare is getting worse as well [4].

In its development, inequality between regions in Indonesia is a classic problem that often causes concern. This can be seen from the amount of GRDP contribution of 34 provinces according to island areas in Indonesia in 2018–2021. Broadly speaking, Indonesia's economic structure in 2018–2021 is dominated by provincial groups on the island of Java and Sumatra Island. Java Island contributes the largest to the Gross



**Fig. 1.** GRDP Contribution According to Island Areas in Indonesia in 2018–2021 (in percent)

Domestic Product (GDP), with an average of 58.49%, followed by Sumatra Island with an average of 21.46%, and Kalimantan Island with 8.11.

According to research conducted by the National Development Planning Agency [5] similar conditions also occurred in 2001–2005 where Java Island contributed the largest GRDP to Indonesia’s GDP, namely 60 percent and was followed by the Sumatra Island area with 21.9 to 22.5%.

The phenomenon of inequality between regions in Indonesia is also exacerbated by the Covid-19 pandemic that has devastated Indonesia throughout 2020 until now. Various steps taken by the government also have an impact on the community, one of these steps is the Implementation of Community Activity Restrictions (PPKM). The existence of the PPKM policy makes people’s movements limited and hinders the movement of goods and services. This is thought to affect the national economy and aggravate inequality in Indonesia [3].

## 2 Literature Review

### A. Interregional Development Inequality Theory

Development inequality between regions is a relative difference in living standards that occurs between regions as a result of development carried out by taking into account the differences in resource and demographic conditions between one region and another. The difference between income inequality and development between regions lies in the measure of inequality. Development inequality is measured by examining differences in development levels between regions, and income distribution inequality examines income inequality between community groups [6].

The first discovered measure of interregional economic inequality is the Williamson Index, which was used in his work in the mid-1960s-qn. In statistics, this index is actually a coefficient of variation commonly used to measure differences. The term Williamson Index comes from a tribute to Jeffrey G. Williamson, who first used this technique to measure differences in development between regions. Although this indicator has some disadvantages, such as being sensitive to the definition of territory used in its calculations, it is very often used to measure the level of development inequality between regions [7].

Various studies on inequality between regions have been widely carried out, Kuznet (1954) is noted as one of the early researchers in researching inequality. He examined the gaps in different countries cross-sectionally and found an inverted U pattern, kuznets concluded that the average per capita income at the beginning of the country's development was still low, and the level of inequality was also low. When the average income rises, then the gap also increases. Then when the average income rises higher, then the gap will fall back [2].

Syafrizal (2008) [8], mentioned that development inequality between regions can be caused by several factors, including (1) Differences in natural resource content, (2) Differences in geographical conditions, (3) Smooth movement of goods and services, (4) Centralization of regional economic activities, (5) Allocation of development funds between regions.

Development inequality that occurs between regions in an area is a common aspect of economic activities in the area. According to Sjafrizal (2008), the inequality that occurs between regions is caused by differences in the content of natural resources and differences in the proportion of population in each region, so that the ability of a region to advance the development process is different [8]. This difference in wealth between regions ultimately gives rise to developed regions and underdeveloped areas [9].

### 3 Methodology and Data Analysis

This research is a type of descriptive analysis research that uses a quantitative approach. The data used in this study is secondary data from the Central Statistics Agency (BPS) with [www.bps.go.id](http://www.bps.go.id) addresses using time series data from 2018–2021 with observation areas of 34 provinces in Indonesia.

The data is processed using Microsoft Excel software with the data used is the number of population and Gross Regional Domestic Product (GRDP) per capita per province in Indonesia. The analytical technique used to analyze interprovincial development inequalities is the Williamson Index.

#### A. *Williamson Index*

To determine the development inequality that occurs in Indonesia, the Williamson Index calculation is used. In its calculations, the Williamson Index uses per capita GRDP and population as basic data. The Williamson Index can be statistically formulated as follows:

$$IW = \sqrt{\frac{\sum (Y_i - \bar{Y})^2 f_i/n}{\bar{Y}}}$$

where  $IW$  is the value of the Williamson inequality index,  $Y_i$  is the GRDP per capita of each Province,  $\bar{Y}$  is the average GRDP per capita of all Provinces,  $F_i$  is the total population of each Province, and  $N$  is the total population of Indonesia.

The Williamson Index value scale is in the range of 0 to 1. The number zero indicates a very even level of the region’s economy, while the number one indicates a very uneven (very unequal) level of the region’s economy.

### 4 Research Result and Discussion

Development inequality between regions is measured by the Williamson Index with GRDP per capita and population as the main components of the calculation. Figure 1 presents information on the contribution of interprovincial GRDP per capita in Indonesia to Indonesia’s GDP and shows results that are varied and dominated by certain regions. This situation gave rise to the idea of examining the inequality that occurs between observation regions. The lameness condition is presented in Fig. 2.

Based on the graph listed in Fig. 2, it can be seen that the interprovincial Williamson Index in Indonesia during the observation year showed fluctuations from year to year. Eastern Indonesia is a region with a high level of inequality compared to western Indonesia. This could happen because the focus of development carried out by the government is only in the Western Region, especially Java Island. However, there are several provinces with Williamson Index values close to one or in other words have a high level of inequality in the Western Region of Indonesia, such as South Sumatra, West Java, Central Java, East Java, and Banten. This condition can occur because the province has a fairly high population. Population is one of the causes of rising inequality.

The pandemic also exacerbated inequality in Eastern Indonesia, eight out of eighteen provinces in Eastern Indonesia experienced an increase in terms of inequality during the pandemic year, namely 2020–2021. This condition is inseparable from the influence

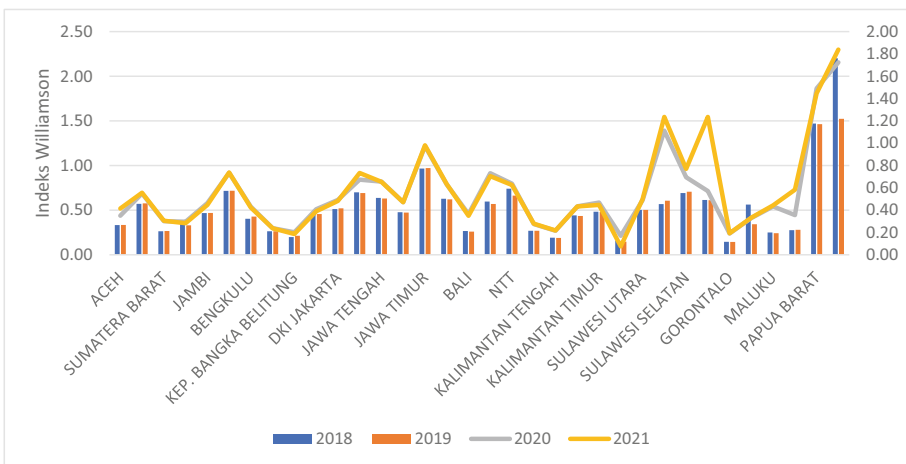


Fig. 2. Williamson Interprovincial Index in Indonesia 2018–2021

of social restriction policies carried out by the government in overcoming the Covid-19 pandemic. People with lower middle incomes are particularly vulnerable to these policies. Many of the lower class people work in the informal sector which requires direct work to the field. With the social restriction policy, it will have an impact on their work and also have an impact on consumption activities due to declining income [10].

## 5 Conclusion and Suggestions for Future Research

The conclusion in this study are:

- Eastern Indonesia is a contributor to areas with high inequality with an average Williamson Index value of 0.59 during the year of observation. This is allegedly because the focus of development carried out by the government is only in the Western Region, especially Java Island.
- There are several provinces in the Western Region that have a fairly high level of inequality, including South Sumatra, West Java, Central Java, East Java, and Banten. This is because the province has a high population.
- The pandemic that occurred in Indonesia has further exacerbated inequality in Indonesia as evidenced by the increasing value of the Williamson Index in almost all provinces in Indonesia. This condition cannot be separated from the influence of policies carried out by the government in overcoming the Covid-19 pandemic.

The drawback in this study is to use quantitative analysis without looking at the influence of other variables on inequality (without regression analysis). For further research, it is expected to include other variables by estimating and using regression analysis so that the results are more varied and update the research period.

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