



# CAUSALITY ANALYSIS BETWEEN GENDER INEQUALITY AND ECONOMIC GROWTH

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Article history:		Abstract:
<b>Received:</b>	14 <sup>th</sup> December 2023	This study aims to determine the relationship (causality) between gender inequality and economic growth and see the effect of economic growth on women's life expectancy, women's per capita expenditure, and average years of schooling for women in 34 provinces in Indonesia at the time period 2015-2020. The data used in this study are secondary data sourced from BPS (Central Bureau of Statistics). The analysis technique in this study uses a granger relationship or better known as a causal relationship with the use of methods in this study, namely panel data regression analysis. The results of the analysis show that gender inequality is granger insignificant to economic growth, while economic growth is granger insignificant to gender inequality. The analysis of economic growth has a negative and significant effect on female life expectancy, female average years of schooling, and female per capita expenditure.
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## INTRODUCTION

Continued positive annual economic growth still faces many difficulties. Current economic growth is still not accessible to all aspects of society, especially the poor. Because higher economic growth helps neutralize greater risk-taking and greater volatility in less competitive markets (Soedarmono et al., 2011). In 2000 Indonesia together with 189 member countries of the United Nations (UN) signed the Millennium Declaration Goals (MDGs) declaration by the United Nations (UN). The year 2015 is the success target of the MDGs. Indonesia is committed to implementing and realizing the goals of the MDGs, one of which is to encourage the achievement of gender equality and justice and the empowerment of women. With the end of the MDGs then continued with the Sustainable Development Goals (SDGs), in the SDGs Indonesia also has a commitment to continue development goals, one of which is to achieve gender equality and empower all women and girls (Ministry of Women's Empowerment and Child Protection, 2018).

One of the issues that have been increasingly discussed lately is the issue of gender equality between men and women or in other terms the issue of gender equality. The interpretation of the term gender equality is specifically about the problem of inequality between the situation and position of women and men in society. Gender inequality still occurs in all aspects of life in Indonesia, there are still gaps in the achievement of the benefits of development results for women compared to men in relation to basic human needs, employment, education, and health. This is a fact despite significant progress in gender equality today. The nature and degree of discrimination vary significantly between regions/provinces.

Gender equality can be seen by comparing the Gender Development Index (GDI) and the Human Development Index (HDI). The GDI measures the gap in human development between men and women. If the number is closer to 100, the gap in human development between men and women will decrease. Meanwhile, Gender Equality can be said to be equal if the Gender Development Index is close to 100 and is followed by the Human Development Index.

The Gender Development Index (GDI) in Indonesia has fluctuated in the last 5 years released by BPS, it can be seen from the lowest number in Papua in 2015 at 78.52 and the highest was in North Sulawesi in 2016 at 95.04. The components that affect GDI are similar to the HDI dimension, which consists of Life Expectancy (ALE), Average Years of Schooling (ALS), and Expenditure per capita, but in the HDI dimension, it is seen from the female gender. Changes in the HDI figure during the 2015-2020 period are certainly influenced by the increase in these components. Gender inequality will continue to occur between men and women, both in aspects of human life and the gap in achieving the benefits of development results which will ultimately affect the economic growth of a region. Therefore, this paper is made to see the causality between gender inequality and economic growth in Indonesia.

Previous research has described the relationship between gender inequality and economic growth. Arifin S (2020) wrote about gender equality and economic growth in Indonesia. This study shows that there has been an improvement in

gender equality in Indonesia as seen from the state of the GPA of 34 provinces, for 7 years, which is indicated by the increase in GPA indicators. Erma & Budiono (2012) looked at the effect of gender inequality on economic growth. The results of panel data regression analysis show that there is a negative and significant influence between gender inequality represented by 3 (three) types of inequality indices, namely GII proxy, GDI, and GEM proxy on district/city economic growth in Central Kalimantan province. Meanwhile, according to Nazmi Lisa & Abd Jamal (2018) who wrote about the Effect of Gender Inequality on Economic Growth in Indonesia, it can be concluded that GNI and HDI have a positive effect on economic growth.

Nevertheless, some of the previous studies presented above certainly have some weaknesses that can be improved and further research on the variables of gender inequality and economic growth. Therefore, this study was conducted to provide improvisation to previous studies by including variables that affect the Gender Development Index, namely through the dimensions of the Human Development Index, including Female Life Expectancy, Female Per Capita Expenditure, and Average Years of Schooling for Women. From the dimensions of the Human Development Index, it will then be seen whether it can affect economic growth in Indonesia or not.

Therefore, this paper will try to answer four research questions: 1) Is gender inequality interconnected with economic growth? 2) Does economic growth affect Female Life Expectancy? 3) Does Economic Growth affect the Average Years of Schooling of Women? 4) Does female per capita expenditure affect economic growth?

The main objective of this study is to examine the relationship between gender inequality and economic growth in Indonesia. It also examines whether economic growth can affect female life expectancy, female per capita expenditure, and average years of schooling.

**RESEARCH METHODS**

This research uses a quantitative approach where in this approach that reflects the problem and is analyzed in the form of numbers starting from collecting interpretations to getting the results. Quantitative data is needed in research to draw conclusions on the results and research and intends to determine the effect between two or more variables.

The type of data used in this research is secondary data. The type of data used in this study is secondary data obtained from the Central Bureau of Statistics. Data was taken from 2015-to 2020 throughout Indonesia. The data collection techniques used in this research are documentation, literature review, and publications.

Data analysis in this study uses the Granger relationship or better known as the cause-and-effect relationship. Analyzing the Causality between Gender Inequality and Economic Growth of all provinces in Indonesia in 2015-2020. This study will analyze whether there is a relationship between Gender Inequality and Economic Growth or Gender Growth and Gender Inequality. To get a clear picture of the causality relationship between gender inequality and economic growth. Granger Causality Test. The purpose of the Granger causality test is to examine whether Gender Inequality affects Economic Growth, Economic Growth affects Gender Inequality or whether the relationship between Gender Inequality and Economic Growth is reciprocal (bidirectional), or whether there is no relationship between X and Y at all.

While the equation used to test Causality, can be written as follows:

$$X_t = \sum_{i=1}^m \alpha_i X_{t-i} + \sum_{j=1}^m \beta_j Y_{t-j} + Ut_1$$

$$Y_t = \sum_{i=1}^m \lambda_i X_{t-i} + \sum_{j=1}^m \delta_j Y_{t-j} + Ut_2$$

Description:

X<sub>t</sub> : Gender Inequality

Y<sub>t</sub> : Economic growth

M : Number of lags

Ut<sub>1</sub>, Ut<sub>2</sub> : Confounding variables

α, β, λ, δ : The coefficient of each variable is assumed that the disturbances Ut<sub>1</sub>, Ut<sub>2</sub> are uncorrelated.

Simple regression analysis was then used to examine the effect of economic growth on female life expectancy (equation 1), economic growth on per capita expenditure (equation 2) and economic growth on average years of schooling for women (equation 3). The simple linear regression equation is mathematically expressed by :

$$AHH_{it} = \alpha_0 + \beta pe + e \tag{1}$$

$$Pengeluaran_{it} = \alpha_0 + \delta_1 pe + e \tag{2}$$

$$RLS_{it} = \alpha_0 + \delta_1 pe + e \tag{3}$$

Description:

AHH = Female Life Expectancy

Expenditure = Female Expenditure

RLS = Average Years of Schooling for Women

PE = Economic growth

a = Constant (intercept), intersection with the vertical axis.

**RESULT AND DISCUSSION**

We will first conduct a granger causality analysis after conducting the data validity test conducted earlier. The granger causality analysis is to see the relationship between gender inequality and economic growth. The results of the granger causality analysis can be seen in the following table:

**Table 1. Granger Causality Test**

Pairwise Granger Causality Tests  
Lags: 1  
Obs : 170

Null Hypothesis:	Obs	F-	
		Statistic	Prob.
PE does not Granger Cause GD	170	0.55984	0.4554
GD does not Granger Cause PE		0.47735	0.4906

Source: Estimation Output, 2022 (Appendix)

Notes: \*\*\*) significant at 1% and \*\*) significant at 5% \*) significant at 10% N S) Not Significant

Table 1 above shows that Economic Growth does not Granger cause Gender Inequality with a probability value of 0.4554, this value is greater than the 10% confidence level. Likewise, Gender Inequality does not Granger cause Economic Growth with a probability value of 0.4906, this value is greater than the 10% confidence level. Thus, it can be decided that gender inequality is the dependent variable and economic growth is the independent variable. This is because gender inequality has the smallest probability value on economic growth.

After the granger causality test, simple regression testing will be conducted. From the results of the Granger causality test, it is concluded that gender inequality is the dependent variable and economic growth is the independent variable. Where gender inequality is respectively female life expectancy, female per capita expenditure, and female average years of schooling.

The estimation results of the random effect regression model consist of three simple linear regression analysis equations, namely: First, the equation of the Economic Growth variable on Female Life Expectancy. Second, is the equation of the Economic Growth variable on Female Per Capita Expenditure. Third, is the equation of the Economic Growth variable on the Average Years of Schooling of Women.

Table 2. Simple Regression Analysis

Variable	Coefficient	Prob.
Persamaan 1 PE vs AHH		
C	71.74668	0.0000***
PE	-0.044405	0.0000***
R-Square	0.247711	
Persamaan 2 PE vs PENGELUARAN		
C	9.004512	0.0000***
PE	-0.002810	0.0012***
R-Square	0.051296	
Persamaan 3 PEvs RLS		
C	8.117804	0.0000***
PE	-0.035793	0.0000***
R-Square	0.221592	

Sumber : Hasil Olahan 2022

Keterangan : \*\*\*) 1% \*\*) 2% \*)10%

a) Equation 1

From the results of a simple regression analysis of Economic Growth on Female Life Expectancy, a constant value of 71.74668 was obtained. Economic growth has a negative effect on female life expectancy with a coefficient value of -0.04405. This means that every 1% increase in economic growth will reduce women's life expectancy by 0.04405. The probability value is 0.0000, smaller than the 5% alpha level. So it is concluded that economic growth has a negative and significant effect on women's life expectancy.

b) Equation 2

From the results of a simple regression analysis of economic growth on women's per capita expenditure, a constant value of 9.004512 was obtained. Economic growth has a negative effect on women's per capita expenditure with a coefficient value of -0.002810. This means that every 1% increase in economic growth will reduce women's per capita expenditure by 0.002810. The probability value is 0.0012, smaller than the 5% alpha level. So it is concluded that economic growth has a negative and significant effect on women's per capita expenditure.

c) Equation 3

From the results of a simple regression analysis of economic growth on the average years of schooling of women, a constant value of 8.117804 was obtained. Economic growth negatively affects the average years of schooling of women with a coefficient value of -0.035793. This means that every 1% increase in economic growth will reduce the average years of schooling of women by 0.035793. The probability value is 0.0000, smaller than the 5% alpha level. So it is concluded that economic growth has a negative and significant effect on the average years of schooling of women.

According to the results of the Granger causality estimation conducted previously, there is no significant causality between economic growth and gender inequality. Economic growth that does not Granger cause gender inequality indicates that economic growth that fluctuates annually does not necessarily cause gender inequality in Indonesia. Vice versa, gender inequality does not Granger cause economic growth.

Gender inequality that occurs in Indonesia is not the main factor in the high and low economic growth in Indonesia. There are many factors that influence it. However, the gender inequality factor cannot be ruled out. This result does not prove the initial hypothesis that economic growth is positively Granger related to gender inequality, and gender inequality is positively Granger related to economic growth.

The results of this study are in line with research conducted by Idham Hardinata (2019) the results of his research show that there is a significant influence between gender inequality on economic growth in Indonesia.

The results of the regression analysis that has been carried out previously, show that economic growth has a negative and significant effect on the life expectancy of women in 34 provinces in Indonesia. The higher the economic growth, the lower the life expectancy of women in Indonesia. This proves that the high economic growth of each region in Indonesia is not able to overcome the problem of women's life expectancy.

Increased economic growth characterized by increased GRDP can also improve the standard of living of the population. However, in this study, it is the opposite. However, if examined further, economic growth is actually not an important factor in the low life expectancy of women in Indonesia.

Economic growth has a negative and significant effect on women's per capita expenditure in 34 provinces in Indonesia. This means that every 1% increase in economic growth will reduce women's per capita expenditure in Indonesia. This certainly proves that gender inequality occurs in Indonesia. Increased economic growth will actually reduce women's per capita expenditure, while men's per capita expenditure should increase. Family heads are still dominated by men compared to female family heads.

High economic growth will improve the standard of living of the population. Most of the population in Indonesia tends to be supported by men. Therefore, women's per capita expenditure tends to decrease because in addition to the number of family heads who are still dominated by men, most women are also still very dependent on men in meeting their daily needs even though the standard of living is increasing as economic growth in Indonesia increases.

The results of the regression analysis show that economic growth has a negative and significant effect on the average years of schooling of women in 34 provinces in Indonesia. This means that any increase in economic growth will actually reduce the percentage of women's average years of schooling in Indonesia. This is because the high level of years of schooling carried out by women does not guarantee that women's productivity will increase. This phenomenon is certainly interesting considering that the increasing economic growth of a region should be followed by high school interest and an increase in the long term. The high standard of living caused by increased economic growth in a region will actually encourage women to work rather than sit in school.

Granger causality estimation shows that there is a one-way relationship between gender inequality to economic growth, meaning that an increase or decrease in gender inequality will affect economic growth, but an increase or decrease in economic growth does not affect gender inequality. Economic growth has a negative and significant effect on the life expectancy of women in 34 provinces in Indonesia. The low quality of the population due to life expectancy is not only caused by the increasing economic growth of a region. It is necessary to further examine influencing factors such as the provision of public goods in the health sector. Economic growth has a negative and significant effect on the per capita expenditure of women in 34 provinces in Indonesia. This means that any increase in economic growth will reduce women's per capita expenditure in Indonesia. Economic growth has a negative and significant effect on the average years of schooling of women in 34 provinces in Indonesia. This means that any increase in economic growth will actually reduce the average years of schooling of women in Indonesia.

### CONCLUSION

Based on the results of the analysis and discussion in the previous chapter, researchers can conclude from the causal relationship and regression results of economic growth and gender inequality, the following conclusions are drawn: (1) Granger causality estimates show that there is a one-way relationship, namely from gender inequality to economic growth, meaning that an increase or decrease in gender inequality will affect economic growth, but an increase or decrease in economic growth does not affect gender inequality. (2) Economic growth has a negative and significant effect on women's life expectancy in 34 provinces in Indonesia. The low quality of the population due to life expectancy is not only caused by increasing economic growth in a region. It is necessary to examine further the factors that influence, for example, the provision of public goods in the health sector. (3) Economic growth has a negative and significant effect on women's per capita expenditure in 34 provinces in Indonesia. This means that every increase in economic growth will reduce women's per capita expenditure in Indonesia. (4) Economic growth has a negative and significant effect on the average length of schooling for women in 34 provinces in Indonesia. That is, every Increasing economic growth will actually reduce the average length of schooling for women in Indonesia.

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