



# Analysis of the Role of Gender Equality on Poverty Levels in Aceh Province

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**Abstract:** This study aims to analyze the role of gender equality on poverty levels in Aceh Province during the 2018–2023 period. Gender equality is measured through three main indicators, namely the Gender Development Index (GDI), women's income contribution to household income, and women's Labor Force Participation Rate (LFPR). The method used in this study is panel data regression with the Fixed Effect Model (FEM) approach. The results of the analysis show that the GDI has a negative and significant effect on poverty, which means that increasing gender equality contributes to reducing poverty levels. Women's income contributions also show a negative and significant effect, indicating that the greater the economic contribution of women, the lower the poverty level. Conversely, women's LFPR does not show a significant effect on poverty in Aceh. These findings indicate that the quality of women's participation in development is more important than the quantity of participation. Therefore, policies are needed to support improving

the quality of women's resources and expanding their access to the economic sector as part of the poverty alleviation strategy in Aceh Province.

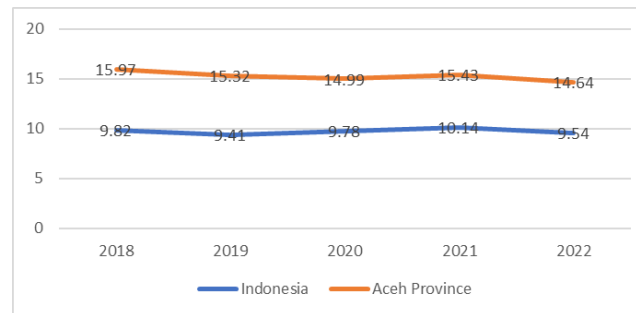
**Keywords:** Poverty, Gender Development Index, Women's Income Contribution, Female Labor Force Participation Rate (LFPR)

## Introduction

Poverty is one of the main problems faced by various countries in the world. Various efforts have been made to reduce poverty levels with the hope of improving people's welfare (Sinurat, 2023). In general, poverty is defined as a condition of low income that prevents individuals from meeting basic needs such as food, clothing, and shelter (Atina Titania et al., 2022). Various studies indicate that high poverty rates reflect the overall low quality of life of a society. This means that poverty not only impacts economic aspects but also affects access to education, healthcare services, basic needs fulfillment, and social participation. This condition indicates that poverty can be a major obstacle to improving welfare and sustainable human development (Amri & Masbar, 2019).

As a developing country, Indonesia still faces significant challenges in its efforts to eradicate poverty. According to data from the Central Statistics Agency (BPS), in 2023 the national poverty rate was recorded at 9.36% the total population, meaning that approximately 25.90 million people still live below the poverty line. Several provinces in

Indonesia have poverty rates exceeding the national average, one of which is Aceh Province. Aceh is a province located at the western tip of Sumatra Island, recording a poverty rate of 14.45% in 2023 according to BPS data, with approximately 806,750 people living in poverty. This figure places Aceh as the province with the highest poverty rate in the Sumatra region.



**Figure 1.** Poverty rate of Aceh Province and Indonesia

Various studies have been conducted to identify factors that influence poverty and efforts to alleviate it in order to achieve development. However, studies that specifically highlight the role of gender in the context of poverty reduction are still limited (Kurniasih et al., 2022). In fact, women play an important role and make a real contribution in addressing various social and economic challenges, especially among the poor (Nikolaou, 2019). Scientists argue that women play a role in improving the economy. The current reality shows that the poverty rate among women is higher than that among men (Todaro & Smith, 2011).

A study conducted (Klasen & Lamanna, 2009) shows that reducing gender inequality, particularly in education, employment, and access to economic opportunities, plays a crucial role in reducing poverty levels. Persistent gender inequality not only limits women's roles and contributions to economic activities but also hinders overall economic growth. By empowering women and expanding their access to resources and opportunities, the poverty alleviation process can be more effective and sustainable.

The Gender Development Index (GDI) is one of the tools used to assess the level of gender equality in development, particularly in the health, education, and economic sectors (Nurul Fajriyyah & Budiranta I Nyoman, 2015). In addition to the GDI, women's contribution to household income is also an important indicator in measuring gender equality. When women are active in economic activities and able to generate income, they help strengthen the economic condition of families that previously depended solely on male income (Adnan & Amri, 2020).

Another factor that can be used as a benchmark in measuring poverty from a gender perspective is the female labor force participation rate (FLP). The labor force participation rate is a measure used to determine how many people are of working age and participate in the labor market (Sari & Sugiharti, 2022).

Based on the previous discussion, this study aims to analyze the extent to which gender equality influences poverty levels in Aceh Province. Several reasons underlie the selection of this topic, including: The Gender Development Index (GDI) in Aceh Province has not yet reached the ideal value of 1, which reflects equality in education, health, and the economy, indicating the persistence of gender disparities. Women's income contributions remain relatively low compared to men's, reflecting the inadequate empowerment of women in the economy. there is a significant gap in labor force participation rates between men and women in Aceh Province.

## Literature Review

### The Theory of the Vicious Cycle of Poverty

Poverty can be explained through the Vicious Cycle of Poverty theory, which states that poverty is self-perpetuating and continues from one generation to the next due to various interrelated factors. This theory, proposed by Ragnar Nurkse, asserts that low income leads to low savings, which in turn hinders investment and reduces productivity. As a result, income remains low, and poverty persists. This cycle also occurs from the demand side, where low purchasing power leads to weak demand for goods and services, hindering economic growth and creating job shortages. Therefore, poverty is not caused by a single factor but is a complex interrelated set of problems, requiring comprehensive and sustainable approaches to address it (Sukirno, 2006).

### Human Capital

The Human Capital Theory, proposed by Gerry Backer in the 1960s, states that human capital refers to the skills, knowledge, and abilities of individuals that are used to generate economic value. Investment in education and training to increase human capital leads to increased productivity and high income (Becker, 1993).

Becker views humans as capital with enormous potential that can be developed through investment in education, health, and individual skills. In other words, human capital is a characteristic of human resources that is determined by aspects of knowledge, health, and skills that are possessed and used to create individual added value.

### Capability Approach

The Capability Approach theory states that poverty is not only considered from the perspective of income, but more from the inability of individuals or groups to achieve basic life functions. Poverty occurs due to a lack of individual capabilities (Sen, 2005). In his book, Amartya Sen states that women tend to be in worse conditions than men in a number of life functions, including mortality rates by age, malnutrition, and morbidity (health

complaints). This reflects that gender inequality is one of the factors that hinder the capability to achieve a more prosperous life (Sen, 2005).

### **Adam Smith Classical Theory**

The classical theory proposed by Adam Smith (1776) emphasizes the division of labor (specialization of labor) and the role of human resources as the main factor in the production process and economic growth of a country. In his view, humans as labor play an important role in creating the prosperity of a nation. According to Smith, human resources do not only function as implementers in the production system, but also as owners of intellectual abilities and skills that can improve production efficiency and quality (Todaro & Smith, 2011).

### **Research Method**

This study employs a quantitative approach using secondary data obtained from the Central Statistics Agency in the form of panel data that combines time series data with cross-sectional data (Gujarati & Porter, 2015). The quantitative approach is used to analyze the influence of independent variables on dependent variables. The data used in this study covers 23 districts and cities in Aceh Province during the period 2018-2023.

The dependent variable in this study is the poverty rate, measured through the ability of the community to meet their basic needs, which are divided into food and non-food needs. The independent variables in this study consist of: (1) Gender Development Index (GDI), (2) Women's income contribution, (3) Female Labor Force Participation Rate (FLP). These three indicators can reflect the extent to which gender equality plays a role in reducing poverty.

The analysis in this study was conducted using panel data regression processed through EViews 13 software. The estimation model was determined through a series of model selection tests, namely the Chow test to distinguish between the Common Effect Model and the Fixed Effect Model, the Hausman test to choose between the Fixed Effect and Random Effect Models, and the Lagrange Multiplier test to assess whether the Common Effect is more appropriate than the Random Effect. After the best model was determined.

Before testing the hypothesis, a series of classical assumption tests were conducted to ensure the validity of the regression model. The tests performed include multicollinearity testing using and and heteroscedasticity testing using the method. Next, statistical testing is performed using partial tests (t-tests), simultaneous tests (F-tests), and the coefficient of determination ( $R^2$ ) to measure the extent to which the independent variables can explain the variation in the dependent variable. The regression model in this study is formulated as follows:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + e_{it}$$

Explanation:

- Y : Poverty  
 $\alpha$  : Constant  
 $\beta$  : Regressions coefficient of independent  
it : Individual variable I and period 1  
X1 : Gender Development Index (GDI)  
X2 : Women Income Contribution  
X3 : Female Labor Participant Rate (FLPR)  
e: : Error term

## Results and Discussion

This study analyzes poverty using panel data from 23 districts/cities in Aceh Province during the period 2018-2023. Based on data from the Central Statistics Agency, it is known that the average poverty rate in Aceh Province is above 14% and has consistently remained above the national poverty rate. Therefore, this issue is important to examine using the following indicators: Gender Development Index, Women's Income Contribution, and Women's Labor Force Participation Rate.

### Selection Model

#### 1. Chow Test

The Chow Test is used in panel data analysis to determine whether the Fixed Effects Model is more appropriate than the Random Effects Model.

Effect Test	Statistic	d.f	Prob.
Cross-section F	258.428293	(22,12)	0
Cross- section Chi- Square	544.640435	2	0

Based on the results of the Chow test regression, the probability value is 0.0000 or < 0.05. This indicates that the most appropriate model to use in panel data regression analysis is the Fixed Effect Model (FEM). This is followed by the Hausman test.

#### 2. Hausman Test

The Hausman test is used to select between the Fixed Effect Model (FEM) and the Random Effect Model (REM).

Test Summary	Chi-sq. Statistic	Chi-square	Prob
Cross-sectional random	29.95	3	0

Based on the results of the Hausman test, the probability value for Cross-section random is 0.0000 and  $<0.05$ , indicating that the model to be used is the Fixed Effect Model (FEM). Thus, the results of the Chow test and the Hausman test indicate that the most appropriate model to use in this study is the Fixed Effect Model (FEM), and there is no need to proceed to the Lagrange Multiplier test.

### Multiple Linear Regression Equation

Based on the results of the model estimation selection, the Fixed Effect Model (FEM) the following multiple linear regression equation is obtained.

Variable	Coefficient	Std. Error	t-statistic	Prob
C	12650.020	1260.645	10.034	0
GDI (X1)	-1.120	0.139	-8.025	0
WIC (X2)	-0.284	0.134	-2.111	0.036
LFPR (X <sup>3</sup> )	-0.005	0.01	-0.505	0.61

Based on the data in the table above, the multiple linear regression equation can be described as follow:

$$\text{Poverty} = 12650.020 - 1.120 \cdot \text{IGD} - 0.284 \cdot \text{WIC} - 0.005 \cdot \text{LFPR} + \varepsilon$$

### Classic Assumption Test

#### 1. Multicollinearity Test

The multicollinearity test is a test to determine whether there is a linear relationship between independent variables in a model.

	X1	X2	X3
X	1.0	0.201602	0.2826
X2	0.2016	1.00	0.320963
X3	0.282661	0.320963	1.0000

All correlation values between the GDI variable (X1), Women's Income Contribution (X2), and Women's LFPR (X3) obtained from are 0.8. This indicates that there is no multicollinearity in the model.

## 2. Heteroskedasticity Test

The heteroscedasticity test is used to identify whether there is variance inequality in the model.

Variable	Prob
C	0.661
X	0.660
X2	0.545
X3	0.662

Based on the test results, the probability values for each variable are as follows: constant (C) is 0.661, variable X1 is 0.660, variable X2 is 0.545, and variable X3 is 0.662. Therefore, it can be concluded that the model used is free from heteroscedasticity.

## T test (Partial Test)

Variable	Coefficient	Std. Error	t-statistic	Prob
C	12650.02	1,260.645	10,034	0
GDI (X1)	-1.120	0.139	-8.025	0
WIC (X2)	-0.284	0.134	-2.111	0.036
LPFR (X3)	0.005	0.01	-0.505	0

Based on the results of the T-test, it is known that the variables of the GDI Development Index and Women's Income Contribution are significant in relation to poverty, with significance levels of 0.000 and 0.036, respectively ( $p < 0.05$ ). In other words, both variables have a partial effect on poverty. Meanwhile, the female LPFR has a significance level of 0.614 ( $> 0.05$ ), indicating that it does not influence poverty.

## F-Test (Simultaneous Test)

F-Statistic	282.295
Prob (F-statistic)	0

Based on the results of the F-test, it can be seen that the calculated F- value is 282.2951 with a probability value (F-statistic) of 0.000, which is less than  $\alpha = 0.05$  ( $0.000 < 0.05$ ). Therefore, all independent variables collectively or simultaneously influence the dependent variable, which is the poverty level in Aceh Province.

### Coefficient of Determination ( $R^2$ )

R-squared	0.98
Adjusted R-squared	0.98
Standard Error of Regression	4

It can be seen that the adjusted R-squared value is 0.984 or 98.43%. Thus, the independent variables consisting of GDI, women's income contribution, and female LPFR are able to explain the dependent variable, namely poverty (Y), by 98.43%, while the remaining 1.57% is explained by other variables.

### Discussion

Based on the analysis conducted, it is known that the variables Gender Development Index (X1), Female Income Contribution (X2), LPFR (X3) simultaneously influence the poverty rate in Aceh Province. However, the results of the partial t-test indicate that not all independent variables have a significant influence on the dependent variable, which is poverty.

#### The Influence of The Gender Development Index on Poverty

It is known that the probability value of the Gender Development Index (GDI) variable is 0.000 with a coefficient of -1.120, which means that GDI has a negative and significant effect on the poverty rate in Aceh Province. This study aligns with the Human Capital theory from the 1960s by Gery Becker, which explains that investments in human capital, such as education, health, and skills, can enhance individual productivity.

When women have better education and health, they are more likely to obtain decent jobs and contribute to household income. The findings of this study are supported by research conducted by (Abd & Abdul, 2023), which analyzed the relationship between GDI and poverty in South Sulawesi Province, stating that GDI has a negative and significant effect on poverty.

In contrast to the findings of (Maziyyah & Arif, 2024), this study shows that the Gender Development Index (GDI) does not have a significant effect on poverty levels in major cities in Indonesia during the period 2017–2022. Although improvements in gender equality can expand women's access to better job opportunities, this has not yet yielded tangible impacts in reducing poverty rates in urban areas.

### **The Influence of Women's Income Contribution on Poverty**

It is known that the variable of women's income contribution has a probability value of 0.0363. Additionally, the coefficient is -0.298. This indicates that women's income contribution has a significant and negative influence on poverty levels in Aceh Province. This finding can be explained through the Capability Approach (1980) developed by Amartya Sen, which emphasizes that development should focus on expanding individuals' capabilities and freedoms to choose their own lives.

The findings of this study are supported by research conducted by (Adnan & Amri, 2020), which shows that women's income contributions have a negative and significant effect on poverty levels. In other words, the higher the contribution of women to family income, the greater the potential to reduce poverty levels.

In contrast, research conducted by (Febriana & Sishadiyati, 2024) states that women's income contribution has no effect on poverty levels in Gresik Regency. Therefore, the results of this study confirm that women's involvement in economic activities does not necessarily have a direct impact on improving welfare.

### **The Influence of Women's Labor Force Participation Rate (LFPR) on Poverty**

It is known that the variable of the Female Labor Force Participation Rate (FLP) has a probability value of 0.614. Additionally, the regression coefficient value is -0.005. This indicates that the FLP does not have an impact on poverty levels in Aceh Province.

The findings of this study align with the results of a study conducted by (Asrahmaulyana, 2022) that examined the relationship between the Labor Force Participation Rate (LFPR) of women and poverty levels. The study showed that female labor force participation does not have a significant effect on changes in poverty levels. In other words, changes in the number of women working, whether increasing or decreasing, are not directly related to changes in poverty rates in the region.

This contrasts with the study conducted by (Kurniasih et al., 2022), which showed that the WLP has a negative and significant relationship with poverty levels in districts/cities in Riau Province. In that study, increased female participation in the labor market was found to contribute significantly to the decline in poverty rates in Riau Province.

### **Conclusion**

Based on the results of the panel data regression analysis conducted in this study, it was found that two main variables, namely the Gender Development Index (GDI) and women's contribution to household income, have a negative and significant impact on poverty levels in Aceh Province during the period 2018 to 2023. This means that the higher the level of gender equality reflected through the GDI, and the greater the economic

contribution made by women in households, the poverty rate tends to decrease significantly. Conversely, the female labor force participation rate (FLPR) variable does not show a significant relationship with poverty, which may indicate that women's presence in the labor market has not been fully accompanied by improvements in the quality and productivity of their jobs, or that the types of jobs available are still insufficiently economically empowering.

The results of this study provide an understanding that improving gender equality, particularly in terms of access to education, health, and women's economic contributions, can be an important strategy in reducing poverty. Therefore, concrete steps are needed from local and central governments to overcome structural barriers faced by women in the social, economic, and cultural spheres.

As a follow-up to these findings, this study recommends several policy strategies. First, the government needs to expand and facilitate access to education for women at all levels, as well as ensure quality and equitable health services in all regions, including remote areas. Education and health are important foundations for improving the quality of life of women and ultimately have an impact on their economic independence. Second, there needs to be a systematic effort to empower women economically, including through job training programs relevant to market needs, providing access to capital, and supporting the development of micro and small enterprises (MSMEs) managed by women.

By providing women with greater opportunities to actively participate in economic activities, as well as enhancing their capacity and productivity, women's economic contribution to households will increase. This not only contributes to improving family welfare but also plays a crucial role in reducing poverty levels sustainably in Aceh Province. Additionally, it is essential to create an inclusive and gender-equitable work environment, ensuring women can work in safe conditions, be valued, and receive equitable compensation.

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