GOLDEN RATIO OF DATA IN SUMMARY
VOLUME 5, ISSUE. 3 (2025)
Website: https://goldenratio.id/index.php/grdis

GOLDEN RATIO
ISSN [Online]: 2776-6411

DATA IN SUMMARY | ACCOUNTING, MANAGEMENT, BUSINESS, ECONOMICS

The Effect of Gender Empowerment and Women's Income on Poverty in Indonesia: Economic Growth as a Moderating Variable

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ARTICLE HISTORY

Received: May 19, 2025
Revised: July 10, 2025
Accepted: July 31, 2025

DOI
https://doi.org/10.52970/grdis.v5i3.1310

ABSTRACT
The results show that gender empowerment positively influences poverty, although it is not statistically significant. Meanwhile, women's income has a negative and significant effect on the poverty rate, which means that the higher the contribution of women's income in the household, the lower the poverty rate. In addition, economic growth also has an adverse effect on poverty, which indicates that an increase in a region's economy contributes to reducing poverty. However, in the moderation analysis, economic growth does not significantly strengthen or weaken the relationship between gender empowerment and women's income and poverty. These findings provide insights for the government in designing more effective poverty alleviation policies by considering gender empowerment and increasing women's income.

Keywords: Economic Growth, Gender Empowerment, Panel Regression, Poverty, Women's Income.

I. Introduction

Poverty is a problem that is often faced by almost all countries in the world. Poverty in Indonesia tends to be higher than in Southeast Asian countries such as Malaysia (Miyamoto, 2020). Therefore, to strive for welfare, policy interventions can reduce the poverty rate. Poverty not only makes it difficult for people to fulfill their needs but can also make it difficult to access proper education. Poverty in Indonesia is spread across all provinces with different poverty levels. According to the 2022 Central Bureau of Statistics (BPS) poverty data report, the difference in poverty rates in each region is due to Indonesia's vast country, which has resources available in each place (Triono & Sangaji, 2023). As the government carries out economic development efforts, poverty differences between provinces exist within the same province in different periods.

In 2022, Papua province recorded the highest poverty rate of 26.80 percent, followed by West Papua province with a poverty rate of 21.49 percent. On the other hand, the province with the lowest poverty rate is Bali with 4.53 percent, followed by the provinces of Bangka Belitung Islands, DKI Jakarta, and South Kalimantan, each with a poverty rate of 4.61 percent. So, in 2023, the provinces of Papua and West Papua will still have the highest poverty rates at 26.03 and 20.49 percent, respectively. On the other hand, Bali is the

GOLDEN RATIO
ISSN [Online]: 2776-6411

province with the lowest poverty rate of 4.25 percent. For more details about the poverty data of the provinces in Indonesia for 2022-2023, see Figure 1.

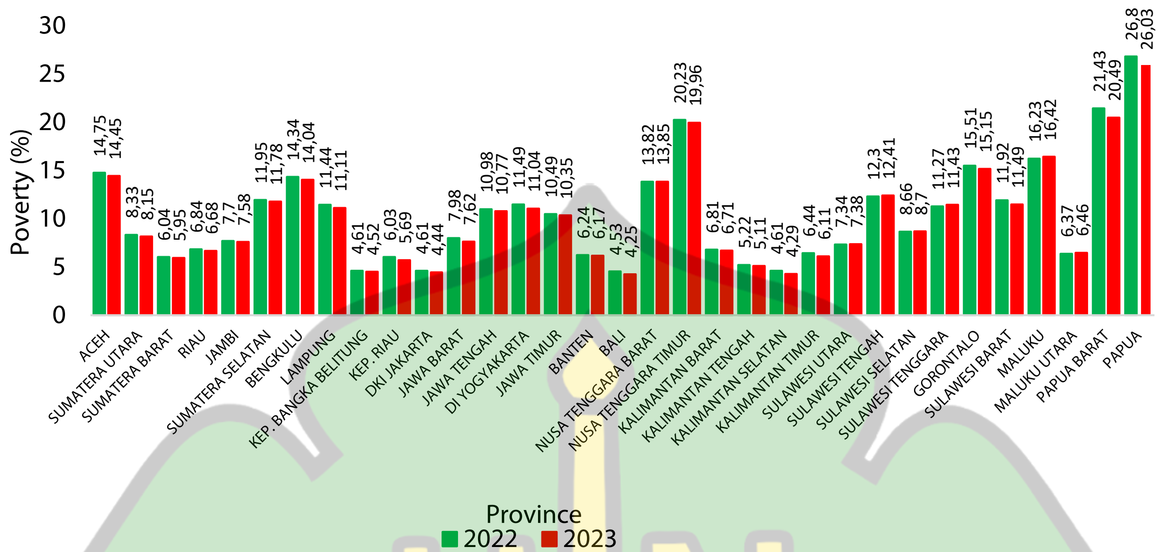

Figure 1. Percentage of Poverty Level by Province in Indonesia for the 2022-2023 Period

Theoretically and empirically, poverty alleviation is associated with several main factors, including women's empowerment. According to a study conducted by Boadi et al. (2024) in Ghana, women's social empowerment can reduce monetary poverty through individual household investment. Women tend to invest more in their families and communities, leading to improved living standards, health, and educational opportunities. This helps break the cycle of intergenerational poverty and promotes sustainable development. Although poverty reduction is linked to women's empowerment, several studies reveal that the risk of poverty varies significantly among female-headed and male-headed households, depending on the employment status of household members (Škare & Družeta, 2016). This identifies that poverty reduction policies can be linked to women's empowerment. In this study, women's empowerment is proxied by the gender empowerment index of each region in Indonesia. Based on the observation of related reports, statistical information is obtained that the gender empowerment index varies between provinces, as shown in Figure 2.

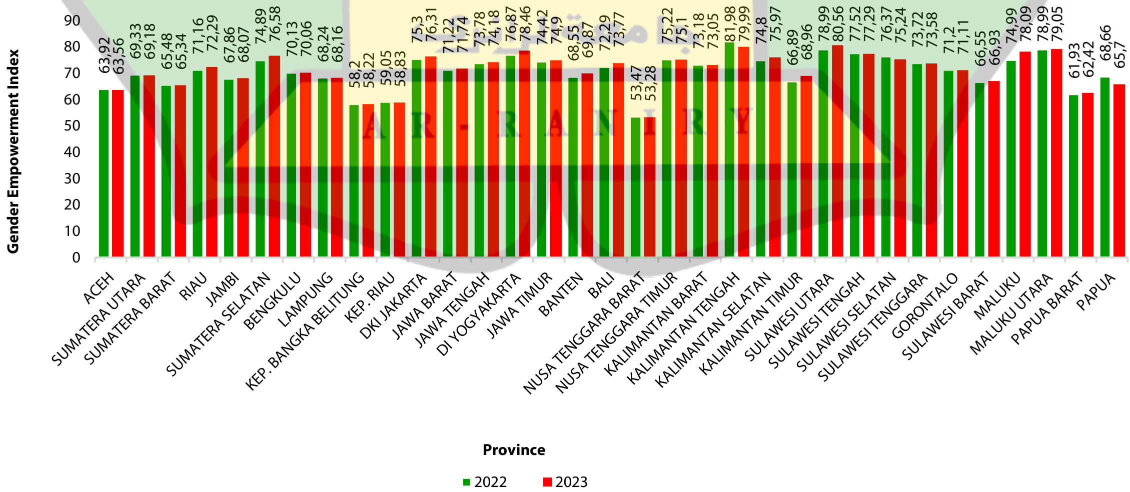

Figure 2. Gender Empowerment Index by Province in Indonesia for the Period 2022-2023

GOLDEN RATIO
ISSN [Online]: 2776-6411

Figure 2 above illustrates that the Gender Empowerment Index across 33 provinces in Indonesia varies significantly. In 2022, the highest Gender Empowerment Index was recorded in Central Kalimantan Province at 81.98, followed by North Sulawesi and North Maluku in second place at 78.99. Conversely, the province with the lowest index was West Nusa Tenggara, at 53.47. In 2023, Central Kalimantan experienced a decline to 79.99, while North Sulawesi became the province with the highest index at 80.56. Meanwhile, the lowest Gender Empowerment Index in 2023 was recorded in the Bangka Belitung Islands Province, at 58.22. As previously explained, reducing poverty rates can be associated with gender empowerment, particularly through the variable of women's income. Gender empowerment has a positive impact on women's income, as found by Adnan and Amri (2021), who stated that if women's empowerment continues to improve, women's income will also increase. Conversely, if gender empowerment declines, women's income will decrease. The documented data from statistical reports show that the contribution of women's income to the household varies across provinces, as presented in Figure 3.

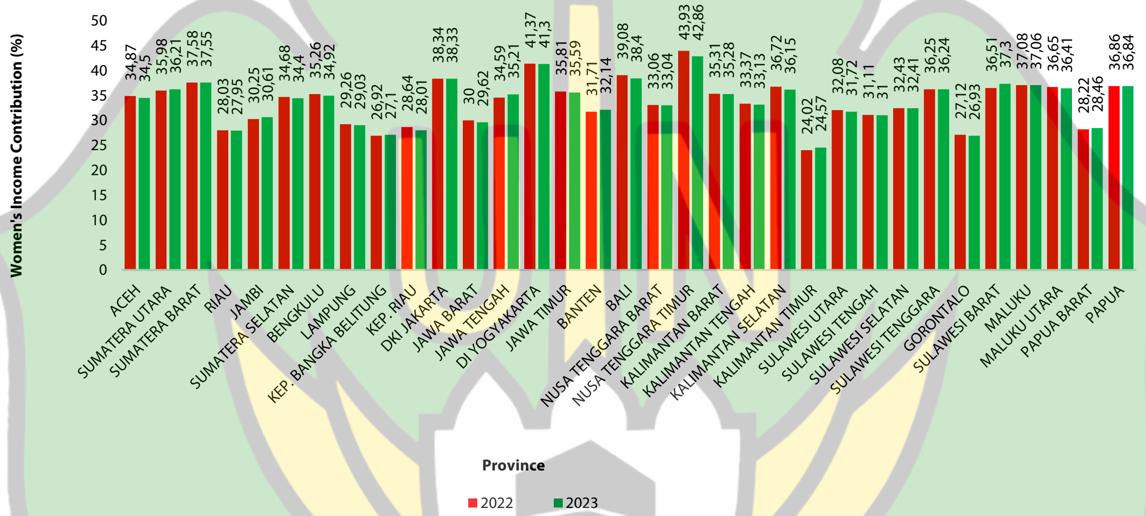

Figure 3. Women's Household Income Contribution by Province during the 2022-2023 Period (percent)

Based on what is shown in Figure 3, the contribution of women's income to total household income is different in each province. In 2022, the highest contribution of women's income was in East Nusa Tenggara at 43.93 percent. This means that in this province, on average, 43.93 percent of women's income contributes to total family income. Then followed the Special Region of Yogyakarta in the second-highest position at 41.37 percent. Then, not only can women's income affect the decline in poverty, but economic growth also plays an empirical role in this phenomenon. As found by Škare & Družeta (2016), their proof formulated considerable variation in the effectiveness of growth in reducing poverty over time and from author to author. Moreover, it supports the idea that, despite inequality, poverty will be reduced when growth occurs. Similarly, the same growth pattern has different impacts on poverty reduction.

Figure 4 shows Indonesia's economic growth is relatively different in each province. In 2022, the province with the most significant economic growth was North Maluku with 22.94 percent, and Central Sulawesi with a significant economic growth of 15.22 percent. On the other hand, the province with the smallest economic growth is West Sulawesi with 2.31 percent. Meanwhile, in 2023, the province with the most significant economic growth is still held by North Maluku at 20.49 percent, and in second place is Central Sulawesi with economic growth of 11.91 percent. Conversely, the province with the smallest economic growth is West Nusa Tenggara at 1.80 percent. This means that the difference in economic growth reflects the poverty level in the province and results in development inequality between provinces in Indonesia. In addition to gender empowerment, empirical studies have a link to poverty reduction. Providing broad access for women so that they can express and develop themselves in becoming qualified human beings, independent women

GOLDEN RATIO
ISSN [Online]: 2776-6411

can contribute to supporting themselves and their households and survive in situations of difficulty in the family economy (Septari et al., 2022).

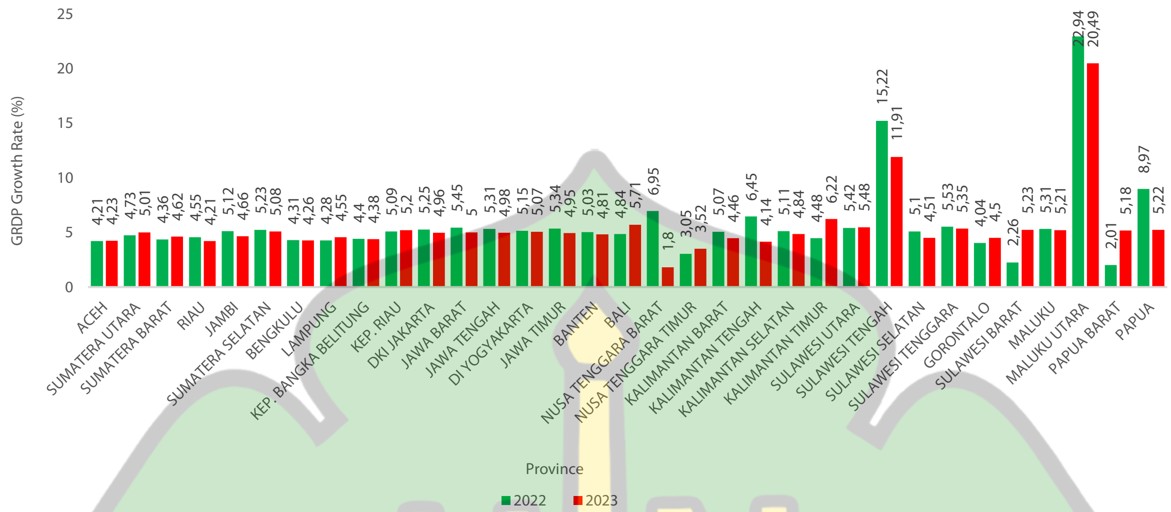

Figure 4. Growth rate of gross regional domestic product at constant 2010 prices by province during the period 2022-2023 (percent)

Empirical studies conducted by Yustie et al. (2022) show that women's income contribution has a significant effect, which indicates that an increase of 1 rupiah in women's income contribution will cause an increase and affect economic growth. The decline in poverty levels in Indonesia can be analyzed using gender empowerment, women's income, and economic growth. Therefore, this study examines the effect of gender empowerment, women's income, and economic growth on poverty reduction. Economic growth is a moderating variable for gender empowerment and women's income. Thus, empirical findings can be obtained on moderating economic growth in the relationship between the three variables. The study results can contribute to related parties, especially the Indonesian government and the government at the provincial level, in making poverty alleviation program policies in Indonesia.

II. Literature Review and Hypothesis Development

2.1. Poverty

Poverty has been a common problem since the beginning of human civilization. This problem is complex and a challenge faced by developing countries, including Indonesia (Anjarsari & Hartini, 2018). Sinurat (2023) states that a person is considered poor if they do not have money or material goods or do not have basic human needs, which he defines as absolute poverty. On the other hand, according to Suryadi (2020), reported on the NTB BAPPEDA website, poverty is relative because it is characterized as an economic gap within a community or region. Previous studies by Englama et al. (1997) in Olusola-ilori & Afolaranmi (2024) tried to define poverty by measuring various issues in poverty. They stated that relative and absolute poverty are situations where individuals cannot meet their basic needs, such as adequate food, clothing, and shelter. They also stated that poverty is the inability to fulfill social and economic obligations, access productive work, lack of necessary resources, skills, or confidence, and limited access to social and economic infrastructure. This includes access to roads, drinking water, health services, education, and sanitation. All of these prevent individuals from improving their well-being, which is constrained by the limited availability of social and economic facilities.

GOLDEN RATIO
ISSN [Online]: 2776-6411

2.2. Contribution between gender empowerment and poverty

According to UNDP (2023), gender-biased social norms are a significant obstacle to achieving gender equality and women's empowerment, directly contributing to structural poverty. This bias limits women's roles and opportunities in various spheres of life, such as education, economics, and politics, hindering their potential to contribute fully to development. Data from the Gender Social Norms Index (GSNI) shows that gender bias is global, with nearly half of the world's population considering men more suitable to be political leaders and two in five people viewing men as more suitable to be business executives than women. A study conducted by Adnan and Amri (2021) states that gender empowerment does not reduce poverty. This indicates that developing women's activeness in Western Indonesia's economic, social, and political fields has not significantly reduced poverty. The study by Saputri et al. (2023) found that the gender empowerment index does not affect poverty in five districts in Central Java, which means that an increase in the gender empowerment index (IPG) has no impact on reducing poverty. This is due to the low value of the GPA in the five districts, which results in a relatively low effect on poverty because gender equality has not been achieved. Aisa et al. (2019) found that the uniformity between men and women is only visible on the surface.

Theoretically, women should have a better position due to their higher education level. Unfortunately, this advantage is lost when they enter the job market, as women hold most part-time jobs. In addition, gender-based inequality is also found in certain types of jobs, although it is not seen in the difference between permanent and temporary workers. Full participation of women in the economy can contribute to sustainable development, such as the study conducted by Al-Qahtani et al. (2020) in Saudi Arabia, which found that women's political empowerment has a positive direct effect on economic and managerial empowerment, but an insignificant effect on social empowerment. Furthermore, political empowerment has a positive direct effect on academic empowerment, which in turn has a positive effect on women's economic, social, and managerial empowerment. Moreover, these indirect effects were greater than the direct effects of political empowerment. This study recommends improving women's economic, social, and political status through political and academic policies to accelerate sustainable development.

2.3. Contribution of women's income to poverty

Previous studies show that poverty often encourages women to be more involved in productive activities. Women's participation in work optimizes women's contribution to family income, positively impacting household consumption expenditure, thereby reducing poverty levels (Habanabakize, 2021). One of the main factors influencing women's work participation, especially wives, is the decline in husbands' income, which leads to the inability to meet household needs (Majid & Handayani, 2012). Generally, women from less prosperous households tend to have higher work participation rates than women from more prosperous families. Higher women's income will indicate a growing contribution to overall household income; therefore, households will be more prosperous and the poverty rate will be lower (Haq & Amin, 2017). This is also supported by the findings reviewed by Paramita (2023), showing that women's income significantly reduces poverty levels in South Sulawesi province. According to a page reported by the United Nations (2017), women tend to spend more time on unpaid domestic work than men. Although families, communities, and economies depend on this work, for women, this work results in lower incomes, in addition to equalization of economic resources, which is not only a right, but women's income also accelerates development in various fields, to reduce poverty levels.

2.4. Contribution between economic growth and poverty

The rate of economic growth is one of the leading indicators in assessing the success of a country's economic development. Previous studies by Anjarsari & Hartini (2018) found that economic growth has a significant relationship to poverty reduction; the high economic growth of a country will affect economic

ISSN [Online]: 2776-6411

capacity, so that it can reduce poverty levels. The study conducted by Kasih & Yefriza (2025) said that economic growth has an inverse correlation to poverty; this states that economic growth has the potential to reduce poverty. Empirical studies prove that economic growth is closely related to poverty reduction. A study conducted by Susanto & Pangesti (2021) found that economic growth has a significant adverse effect on reducing the poverty rate. In other words, an increase in economic growth can encourage the creation of wider employment opportunities to absorb more labor, thus reducing the poverty rate.

Increased economic growth creates more jobs, increases per capita income, and expands access to resources and essential services, such as education and health. Equitable income positively influences economic growth in the short term (Nabiel, 2021). Meanwhile, research conducted by Azizah et al. (2018) found that per capita income negatively and significantly affects poverty reduction. Thus, economic growth is one of the main factors that can help reduce poverty in a region. However, it is important to remember that the benefits of this growth must be equitable so that the impact can be felt by all levels of society, especially vulnerable groups. Without equity, there is a risk of widening the gap even though the overall economy continues to grow (Erlando et al., 2020).

2.5. The role of GRDP in moderating the relationship between poverty and gender empowerment

A study conducted by Yacoobi (2010) found that poverty reduction can occur with the involvement of women's economic empowerment, meaning that regions that have a good gender empowerment index have the opportunity to reduce poverty levels, increase economic growth, and development. A study conducted by Amran and Parinduri (2024) found that the increasing acquisition of PRDB of a region will have an impact on reducing the poverty rate. This is characterized by equitable development from facilities and infrastructure, which all poor people have experienced. The role of GRDP in moderating the relationship between poverty and gender empowerment is still relatively lacking at the empirical level. Especially in Indonesia, this is because previous researchers were more interested in researching the influence or relationship between gender empowerment variables and poverty and GRDP variables on reducing poverty levels. However, it is suspected that the economic growth of a region can moderate the gender empowerment index in reducing poverty levels.

2.6. The role of GRDP in moderating the relationship between poverty and women's income

Rustinsyah's research (2018) shows that women's income contributions generated through empowerment programs in the economic sector can build welfare, which ultimately plays a role in reducing poverty levels among the community. Meanwhile, Abda & Cahyono (2022) found that, partially, the contribution of women's income did not significantly reduce poverty. Women's economic involvement can increase the gross regional domestic product (GRDP). A study by Lusiarista & Arif (2022) found that women's income contribution positively and significantly influences gross regional domestic product (GRDP). This is also supported by the findings of Azizi (2020), conducted on the island of Java, that women's income has a positive and significant effect on economic growth. The economic growth of a region can empirically reduce the poverty rate in the area; the temporary assumption is that the economic growth of a region has a moderating role between the effect of women's income contribution on reducing the poverty rate in the area.

III. Research Method

This study uses secondary data obtained from the Indonesian Central Bureau of Statistics. The data is in the form of panel data, which combines time series data from 2011 to 2023 and cross-sectional data from 33 provinces in Indonesia. The operational variables used in this study include poverty, gender empowerment, women's income, and economic growth. Poverty is proxied by the percentage of the population living below the poverty line. Gender empowerment is represented by the Gender Empowerment Index (in points).

GOLDEN RATIO
ISSN [Online]: 2776-6411

Women's income is measured by the percentage contribution of women's income to household income, while economic growth is proxied by the growth rate of GRDP at constant 2010 prices (in percent). Given the use of panel data for these operationalized variables, the study employs a panel regression method with a fixed-effects approach to analyze the relationships among the variables.

This approach produces more accurate estimates than other methods, such as common and random effects models (Lee & Yu, 2015). Helm and Mark (2012) stated that researchers often use multilevel model analysis to analyze relationships between variables by including a moderating variable. Several studies have supported this approach in examining the moderating role in variable relationships, as noted by Rocconi (2013), Lu (2019), and Ghahroudi & Chong (2020). This study applies multilevel regression to predict the effects of gender empowerment and women's income on poverty by incorporating economic growth as a moderating variable. Following the procedure proposed by Helm and Mark (2012), the regression process is conducted in four stages, represented by Models 1, 2, 3, and 4.

a. Basic Model
   1) $\mathrm{Pit} = \alpha + \beta_1 \mathrm{GEI}_{it} + \beta_2 \mathrm{WIC}_{it} + e_1$
   2) $\mathrm{Pit} = \alpha + \beta_1 \mathrm{GEI}_{it} + \beta_2 \mathrm{WIC}_{it} + \beta_3 \mathrm{EG}_{it} + e_2$
b. Interaction Model
   3) $\mathrm{Pit} = \alpha + \beta_1 \mathrm{GEI}_{it} + \beta_2 \mathrm{WIC}_{it} + \beta_3 \mathrm{EG}_{it} + \lambda\beta_4 (\mathrm{GEI} \times \mathrm{EG})_{it} + e_3$
   4) $\mathrm{Pit} = \alpha + \beta_1 \mathrm{GEI}_{it} + \beta_2 \mathrm{WIC}_{it} + \beta_3 \mathrm{EG}_{it} + \lambda\beta_4 (\mathrm{WIC} \times \mathrm{EG})_{it} + e_4$

Where :

- Pit is the percentage of the poor population in province i during period t.
- GEI_{it} is the Gender Empowerment Index in province i in year t.
- WIC_{it} represents the contribution of women's income to household income in province i during period t.
- EG_{it} denotes the economic growth rate in province i in year t.
- $(\mathrm{GEI} \times \mathrm{EG})_{it}$ and $(\mathrm{WIC} \times \mathrm{EG})_{it}$ are interaction variables formed by multiplying the Gender Empowerment Index and women's income contribution with economic growth, respectively.
- α is a constant term.
- β_1, β_2, and β_3 are the estimated coefficients for GEI, WIC, and EG, respectively.
- λ represents the estimated coefficient for the interaction term.

The relationships among the variables examined in this study are illustrated in the following theoretical framework in Figure 5. Model 1 is the first basic model that estimates the effect of gender empowerment and women's income contribution on poverty. The estimated coefficient in this model (β1) represents the main effect of gender empowerment on poverty, and the estimated coefficient (β2) represents the main effect of women's income on poverty. The significance of the effect of these variables is based on the significance of the estimated coefficients. For example, if $\beta 1 \neq 0$ (p-value < 0.05), it means that gender empowerment has a significant effect on poverty. The opposite interpretation applies if $\beta 1 = 0$ (p-value $<$ 0.05).

Model 2 is known as the second basic model, which not only produces coefficient estimates for the gender empowerment and women's income variables, but also includes the coefficient of economic growth (β3) as a moderator variable. In this model, β1 represents the estimated coefficient for gender empowerment, and β2 represents the estimated coefficient of women's income after including economic growth variables. Meanwhile, β3 represents the "main effect" of economic growth. If $\beta 3 \neq 0$ with a p-value <0.05, it can be concluded that economic growth has a significant effect. Conversely, if $\beta 3 = 0$ and p-value > 0.05, then there is no significant effect on the dependent variable.

GOLDEN RATIO
ISSN [Online]: 2776-6411

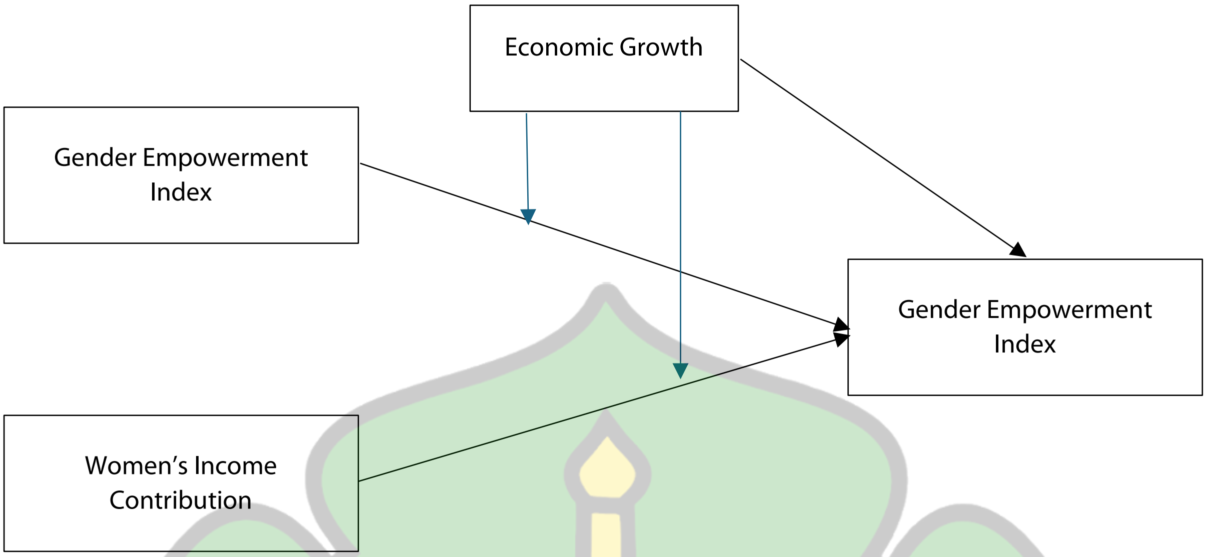

Figure 5. Conceptual Framework

Models 3 and 4 are categorized as interaction models because they add interaction variables to the previous model. This is included in moderation regression, which aims to see whether moderator variables affect the relationship between the independent and dependent variables (Andersson et al., 2014; Memon et al., 2019). The coefficient of the interaction variable, which is the interaction between GNI and SPP with economic growth, is denoted by λ. The moderating effect can be identified through the statistical significance of the interaction variable (Burks et al., 2019). If $\lambda \neq 0$ with a p-value <0.05, economic growth significantly moderates the relationship between gender empowerment and women's income on poverty. Conversely, there is no moderation result if $\lambda = 0$ and p-value > 0.05. According to Gardner et al. (2017), the role of moderating variables can appear in three forms: strengthening, weakening, or changing the direction of the relationship between variables.

IV. Results and Discussion

As explained earlier, four variables are operationalized in this study: poverty, gender empowerment, women's income, and economic growth. The poverty variable is measured based on the ratio between the number of poor people and the total population, expressed as a percentage. Furthermore, gender empowerment is proxied by the gender empowerment index in the form of points, and women's income is proxied by the contribution of income provided by women to total household income, expressed as a percentage. Finally, economic growth is measured based on gross regional domestic product (GRDP) growth rate at constant 2010 prices, which is also expressed in percent. Using panel data from 33 provinces in Indonesia from 2011 to 2023, the descriptive statistics analysis shows that the average poverty rate is 11.30 percent. Meanwhile, the gender empowerment index has an average of 67.98 points, and the average contribution of women's opinions to total household income is 32.91 percent. Economic growth, which is proxied by the growth rate of GRDP, has an average value of 4.97 percent. More details regarding the results of descriptive statistics can be seen in Table 1.

Table 1. Results of Descriptive Statistics of Research Variables

Descriptive statistics				
	Poverty (%)	**EG (%)**	**GEI (Points)**	**WIC (%)**
Mean	11.302	4.973	67.988	32.914
Median	10.270	5.250	68.620	33.910

GOLDEN RATIO
ISSN [Online]: 2776-6411

Descriptive statistics				
	Poverty (%)	**EG (%)**	**GEI (Points)**	**WIC (%)**
Maximum	31.980	22.940	83.200	43.930
Minimum	3.420	-15.740	47.880	20.890
Std. Dev.	5.943	3.425	6.831	4.549
Observations	429	429	429	429

4.1. Analysis of the Effect of Gender Empowerment and Women's Income on Poverty

As explained in the analysis methodology section, this study uses a panel regression approach and moderated regression analysis to estimate the relationship between variables. Both models were analyzed using the ordinary least squares (OLS) method. The analysis is conducted through four stages of the model, each formulated in four equations: Model 1 to Model 4. Model 1 and Model 2 are the first and second basic models. Model 1 (basic model 1) only places the gender empowerment index as the predictor variable. The estimation results show that the gender empowerment index positively affects poverty, as indicated by ($\beta 1 = 0.006$; p-value > 0.05). This means that every 1 point increase in the gender empowerment index is expected to decrease the poverty rate by 0.006 percent, assuming that other factors remain constant. In other words, the higher the gender empowerment index, the greater the likelihood of poverty reduction. However, this positive effect is not statistically significant.

This result indicates that there is not enough evidence to conclude that there is a significant adverse effect of the gender empowerment index on poverty. This finding is in line with the research of Saputri et al. (2023) on the impact of the gender empowerment index on poverty rates in five districts located in Central Java province and Adnan & Amri's (2021) research on the effect of the gender empowerment index on poverty in eight provinces in western Indonesia. The gender empowerment index measures women's involvement in political and economic decision-making (Anggraini et al., 2024). With gender inequality in education and health affecting Indonesian women, such participation has not effectively reduced poverty. In addition, biased gender social norms are a significant barrier to realizing gender equality and full empowerment for all women and girls (UNDP, 2023). To find out more clearly, the effect of the gender empowerment index on poverty can be seen in Table 2.

Table 2. Estimation results of the base model

Constanta & Predictors	**Dependent Variable: Poverty**			
	Basic model			
	Model 1		Model 2	
	Estimation coefficient	p-value	Estimation coefficient	p-value
C (α)	37,23 [23,98]	0,000	38,34 [23,39]	0,000
GEI (β_1)	0,006 [0,438]	0,661	0,009 [0,642]	0,521
WIC (β_2)	-0,800 [-14,39]	0,000	-0,835 [-14,40]	0,000
EG (β_3)	-	-	-0,031 [-2,035]	0,042
Effects Specification: Cross-section fixed				
R^2	0,977		0,977	
Adjusted R^2	0,975		0,975	
F-stat	495,14		484,94	
Prob(F-stat)	0,000		0,000	
DW- stat	0,548		0,536	
Normality test				

GOLDEN RATIO
ISSN [Online]: 2776-6411

Constanta & Predictors	Dependent Variable: Poverty	
	Basic model	
	Model 1	Model 2
JB-test	357,64 (0,000)	324,89 (0,000)
Residual Cross-Section Dependence Test		
Breusch-Pagan LM	2226,508 (0,000)	2268,842 (0,000)
Pesaran scaled LM	52,267 (0,000)	53,5707 (0,000)
Bias-corrected scaled LM	50,892 (0,000)	52,1957 (0,000)
Pesaran CD	8.2289 (0,000)	6,5636 (0,000)

The number in Table 2 indicates the t-statistic, while the number in Table 2 indicates the p-value. The p-values of <0.05 and 0.010 are significant at 95 percent and 90 percent confidence levels, respectively. The estimation results of women's income contribution to poverty show that women's income contribution hurts poverty, with an estimated coefficient value of -0.800 (p-value <0.05). An increase in women's income contribution in the household by 1 percent will lead to a decrease in the poverty rate by 0.800 percent, assuming that other factors are constant. Vice versa, if women's income contribution decreases by 1 percent, then the poverty rate increases; in other words, the greater the contribution of women's income in the household, the lower the poverty rate. This finding strengthens the empirical evidence that the decline in the poverty rate is related to women's income contribution in the household. Women's participation in employment optimizes women's contribution to family income, which will positively impact household consumption expenditure, thereby reducing the poverty rate (Habanabakize, 2021). High women's income will indicate the growth of women's contribution to total family income; therefore, family welfare will increase, to reduce the poverty rate (Haq & Amin, 2017).

Model 2 (basic model) by adding economic growth as a predictor. The estimation results of economic growth on poverty show a significant negative correlation, with a coefficient of -0.031 (p-value <0.05). If economic growth increases by 1 percent, the poverty rate will decrease by 0.031 percent, assuming other variables remain constant. Vice versa, a decrease in economic growth has the potential to cause an increase in poverty. This finding strengthens the empirical evidence conducted by Anjarsari & Hartini (2018), which states that economic growth has a significant partial relationship to poverty reduction. High economic growth increases the economic capacity of a country so that it can reduce the poverty rate. This finding also supports the study results from Kasih & Yefriza (2025) and Susanto & Pangesti (2021), which found that economic growth has a significant adverse effect on reducing the poverty rate.

The estimation results of the gender empowerment index on poverty have a positive effect, with a coefficient of 0.009 (p-value > 0.05). Thus, the establishment of economic growth in the model resulted in a difference between the effect of gender empowerment from 0.006 to 0.009, with the significance value also decreasing. However, still the same as before. The positive relationship of the gender empowerment index on poverty is not statistically significant. Estimating women's income contribution to poverty in Model 2 also gives similar results, with an estimated coefficient value of -0.835, p-value <0.05. A significant negative relationship exists between women's income contribution and poverty, meaning that a 1 percent increase will lead to a 0.835 percent decrease in poverty, holding other variables constant.

4.2. Analysis of the effect of gender empowerment, women's income, and economic growth on poverty

Gender empowerment with economic growth as a predictor of poverty. As shown in Table 3, the estimated interaction variable (λ) shows a coefficient value of -5.45, p-value > 0.05. The value is negative, which means that economic growth decreases the effect of the gender empowerment index on poverty reduction.

GOLDEN RATIO
ISSN [Online]: 2776-6411

This means that economic growth cannot moderate gender empowerment on poverty. However, the difference in the effect of the gender empowerment index on poverty based on economic growth is insignificant. In other words, although the effect of the gender empowerment index on poverty reduction is different based on economic growth, the difference is not significant at the 95 percent confidence level. Therefore, there is not strong enough statistical evidence to suggest that economic growth significantly moderates the positive effect of the gender empowerment index on poverty reduction. The results of this study signal that the gender empowerment index on poverty reduction is not limited to regions with high economic growth, but also regions with low economic growth. More detailed information regarding this finding can be seen in Table 3.

Table 3. Interaction model estimation results

Constanta & Predictors	**Dependent Variable: Poverty**			
	Interaction Model			
	Model 3		**Model 4**	
	Estimation coefficient	p-value	Estimation coefficient	p-value
C (α)	38,318 [20,80]	0,000	38,458 [20,52]	0,000
GEI (β_1)	0,009 [0,529]	0,596	0,009 [0,644]	0,519
WIC (β_2)	-0,835 [-14,36]	0,000	-0,839 [-13,053]	0,006
EG (β_3)	-0,028 [-0,207]	0,835	-0,048 [-0,369]	0,712
GEI*EG(λ)	-5,45 [-0,027]	0,977	-	-
WIC*EG (λ)	-	-	0,000492 [0,128]	0,897
Effects Specification: Cross-section fixed				
R^2	0,977		0,977	
Adjusted R^2	0,975		0,975	
F-stat	470,28		470,299	
Prob(F-stat)	0,000		0,000	
DW- stat	0,536		0,536	
Normality test				
JB-test	325,307 (0,000)		322,6920 (0,000)	
Residual Cross-Section Dependence Test				
Breusch-Pagan LM	2268,970 (0,000)		2269,181 (0,000)	
Pesaran scaled LM	53,5746 (0,000)		53,58115 (0,000)	
Bias-corrected scaled LM	52,1996 (0,000)		52,2061 (0,000)	
Pesaran CD	6,54974 (0,000)		6,5625 (0,000)	

The number shown in Table 3 indicates the t-statistic value, while the number in ( ) indicates the p-value. The p-values of <0.05 and 0.010 are significant at the 95 percent and 90 percent confidence levels, respectively. Model 4 is the second interaction model that includes the interaction between women's income contribution and economic growth as predictor variables for poverty. As in Table 3, the coefficient estimate of the interaction variable (λ) shows 0.000492 (p-value > 0.05). This indicates insufficient statistical evidence to suggest that economic growth moderates the relationship between women's income contribution and poverty. In other words, economic growth does not moderate the effect of women's income contribution on poverty reduction. The adverse effect on the poverty rate does not differ based on the level of economic growth.

V. Conclusion

This study analyzes the relationship between gender empowerment, women's income, and economic growth on poverty in Indonesia using panel data from 33 provinces from 2011 to 2023. The analysis indicates that gender empowerment has no significant effect on poverty. This suggests that despite efforts to increase women's involvement in economic and social decision-making, its impact on poverty reduction is still limited. One of the possible reasons for this is that there is still a gap in access to decent work and social norms that limit women from contributing economically. In contrast, women's income is shown to have a significant adverse effect on the poverty rate. In other words, the greater women's contribution to household income, the lower the poverty rate in a region. This result reinforces the finding that women's involvement in economic activities not only improves household welfare but also helps to reduce overall poverty. Therefore, policies supporting women's increased participation in the workforce and access to economic resources need to be strengthened. In addition, economic growth was also found to hurt poverty, which means that an increase in economic growth can help reduce poverty levels. However, when tested as a moderating variable, economic growth did not significantly strengthen or weaken the relationship between gender empowerment and women's income and poverty. This suggests that while economic growth can reduce poverty, its effect on the relationship between gender and poverty still requires further study. The findings in this study provide insights for the government in designing more effective poverty alleviation policies. Poverty alleviation efforts should not only focus on economic growth alone, but also strengthen women's empowerment programs, expand their access to decent work, and improve household economic welfare through increasing women's income. With more inclusive policies based on gender equality, poverty reduction is hoped to run more optimally and evenly throughout Indonesia.

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