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Original Article

The Effect of Economic Growth, Investment and Unemployment on Poverty in Sulawesi Island from 2010 to 2024

Desti Saputri[1*], Asep Munir Hidayat[2], Billy Tejaarief[3], Kenedi Kenedi[4], Anti Wulan Agustini[5]

[1-5]Economics Study Program, Faculty of Economics and Business, Universitas Bina Bangsa, Indonesia
Email: [1)] destisaputri551@gmail.com [2)] asepmunir7@gmail.com [3)] billy.tejaarief@gmail.com
[4)] 17satriaforbangsa@gmail.com [5)] antyagustini@gmail.com

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Abstract

Poverty remains an obstacle that continues to disrupt social welfare among communities on the island of Sulawesi. The objectives of this study are to determine the long-term effects of economic growth, investment and unemployment on poverty in Sulawesi Island; to examine the short-term effects in each province in Sulawesi Island; to determine whether there is an error correction adjustment mechanism; and to determine whether there is a causal relationship between economic growth and poverty. This study uses the Secondary Data Analysis (SDA) method with a quantitative correlational approach and uses the ARDL Panel analysis model. The study's outcomes reveal that economic growth, investment, and unemployment significantly reduce poverty across Sulawesi Island when examined over extended periods. Short-term provincial variations emerge as follows: North Sulawesi and Central Sulawesi experience positive effects from all three factors. In South Sulawesi and Southeast Sulawesi, economic growth and investment demonstrate negative effects, whereas unemployment shows positive effects. Gorontalo exhibits positive effects from economic growth and unemployment, though investment produces negative effects. West Sulawesi presents a mixed pattern, with economic growth reducing poverty while investment and unemployment increase it. Although error correction adjustments function across all provinces, only West Sulawesi demonstrates statistically significant adjustment processes. There is a causal relationship between economic growth and poverty. Equitable economic growth and investment can certainly be felt by the poor, thus opening up opportunities to increase productivity, and vice versa. Meanwhile, unemployment certainly has a significant impact on poverty.

Keywords: ARDL Panel, Economic Growth, Investment, Poverty, Unemployment.

1. Introduction

Poverty still exists among communities, both in rural and urban areas, due to their inability to adequately and sustainably meet their daily needs (Pinontoan, 2020). This poverty is often caused by structural factors such as economic inequality, uneven investment, lack of employment opportunities, and limited access to resources.

In Indonesia, another one of the largest islands is Sulawesi, which has a population of 20.8 million according to the Central Statistics Agency (BPS). Of this population, there are certainly still some who are classified as poor, both in urban and rural areas. Sulawesi Island was selected as the research location because it has unique economic and social characteristics that differ from other regions in Indonesia. This island contributes significantly to the national economy through the agricultural, plantation, mining, and fisheries sectors, but at the same time still faces quite complex problems of poverty and unemployment. The latest data shows

that the poverty rate in South Sulawesi in March 2025 was recorded at 7.60% or 698.13 thousand people, while in Southeast Sulawesi in September 2024 it reached 11.04%. Meanwhile, the open unemployment rate in North Sulawesi actually increased to 6.03% in February 2025 (BPS, 2025). This fact confirms the existence of heterogeneous development dynamics between provinces, so that poverty analysis in Sulawesi needs to be carried out more deeply. This condition also shows that the phenomena of economic growth, investment, and unemployment have an influence that is not always uniform on poverty, thus making Sulawesi a relevant research context for testing the relationships between these variables.

To overcome poverty comprehensively, inclusive economic growth is one of the key factors that needs to be considered in poverty alleviation (Thahir et al., 2021). These results are consistent with previous research conducted by Pasaribu et al. (2022), which shows that economic growth has a significant effect on poverty levels. The level of poverty in a region can also be caused by investment factors. If investment activities are sustainable, this can improve the welfare of the community (Ningsih et al., 2023). However, this statement is not consistent with previous research that was established (Fauziah et al., 2021), which shows that investment has no significant effect on poverty. This could be due to several factors, such as uneven distribution of investment or failure to optimally absorb labour, meaning that the benefits are not immediately felt by the poor (Hidayati et al., 2022). This does not help reduce unemployment.

Unemployment usually occurs when the number of people seeking work exceeds the number of jobs available. This situation can worsen the overall welfare of the community and ultimately lead to an increase in poverty rates in a region due to a lack of labour absorption (Hidayah & Aji, 2022). This is in line with previous research conducted by Fajriansyah (2022), which indicates that the open unemployment rate has a positive and significant effect on the poverty rate.

Theoretically, many different perspectives can be used to understand how economic growth, investment, unemployment, and poverty are interconnected. According to the theory of trickle-down effect, economic growth has the potential to alleviate poverty by fostering the creation of new jobs, boosting incomes, and improving access to essential resources within communities. Neoclassical growth theory emphasizes that capital accumulation through investment can increase productivity and welfare, especially if directed towards labor-intensive sectors that are capable of absorbing a large workforce. Conversely, if investment is more dominant in capital-intensive sectors, the benefits are not directly felt by the poor. On the other hand, labor market theory affirms that high unemployment causes a decrease in household income and increases the risk of poverty. Thus, inclusive economic growth and productive investment are expected to reduce unemployment, which will ultimately suppress the poverty rate. Yet, if one of these mechanisms does not work optimally, poverty reduction will not be significant.

While some research shows that economic growth is linked to lower poverty rates and unemployment is linked to higher poverty rates, there is uncertain empirical evidence regarding the impact of investment. Several macro and panel studies show that economic growth significantly reduces poverty in the long term, while unemployment tends to increase poverty (Ngubane et al., 2023). However, the effect of investment on poverty reduction is not always stable across contexts: some national panel studies find negative effects of investment on poverty, while other studies report weak or insignificant effects, these differences are often associated with issues of benefit distribution (inequality), labor absorption capacity, and sectoral characteristics of investment (Walinono et al., 2022).

In addition, cross-provincial studies in Indonesia confirm that the effectiveness of economic growth and investment in reducing poverty differs between regions due to differences in infrastructure, level of human development, and income distribution so viewing Indonesia as one national aggregate risks obscuring sub-national variations (Hill, 2021). For Sulawesi in particular, there are heterogeneous symptoms; several provinces, for example South Sulawesi, show a decrease in poverty while other provinces show an increase in unemployment or higher poverty which is a pattern that indicates that the short-term and long-term relationships between growth, investment, and unemployment on poverty are likely to be different between provinces and require analysis that tests short-term adjustment mechanisms (ECM) as well as causality (Granger/VECM) at the provincial level. However, empirical literature that focuses on ARDL/ECM and causality analysis at the provincial level on Sulawesi Island during the modern period (post-2018) is still relatively limited, so this research fills that gap by comparing long-term and short-term effects as well as error correction mechanisms between provinces in Sulawesi.

The main goal of this study is to investigate how economic growth, investment, and unemployment impact poverty rates on Sulawesi Island. This research will primarily focus on assessing the lasting effects that these factors have on poverty levels, as well as understanding the immediate impacts within each province on Sulawesi. In addition, this research seeks to examine the existence of adjustment mechanisms through the error correction model that can explain the transition process from short-term conditions towards long-term equilibrium. This study aims to investigate the relationship between economic growth and poverty in order to gain a deeper understanding of the factors contributing to poverty in this area.

2. Literature Review

2.1. Poverty

Poverty is a condition in which individuals or groups are unable to meet their basic needs, thereby unable to maintain and improve a decent quality of life (BPS, 2025). The Vicious Circle of Poverty theory, as explained by Ragnar Nurkes (1953), explains that poverty has existed since previous conditions of poverty (Suka Prameswari & Purbadharmaja, 2024). This situation often occurs among communities due to individuals' inability to improve their current living conditions, resulting in poverty continuing into the next generation. This view confirms that poverty is multidimensional in nature, so efforts to overcome it cannot only focus on increasing income, but must also be directed at providing fair access to education, health, and decent employment opportunities. Thus, studies on poverty are important to be carried out contextually in order to understand the structural and dynamic factors that influence its existence in a region.

2.2. Economic Growth

Economic growth is a stage in the sustainable increase in the production capacity of goods and services, so that national income, whether it be Gross Domestic Product (GDP) or Gross Regional Domestic Product (GRDP), also increases (Q'rene, 2023). Adam Smith's Classical Theory argues that economic growth relies on population growth, which leads to increased output (Hendrayanti & Nafi'ah, 2023). Conceptually, economic growth is influenced by various factors, including the number of workers, capital accumulation, technological development, and institutional effectiveness in managing resources. High economic growth can open new job opportunities, increase productivity, and expand community access to economic resources. Yet, such growth does not always automatically reduce the poverty rate if

it is not accompanied by equitable distribution. Thus, the expected economic growth is inclusive growth, which is capable of providing direct benefits to the poor and vulnerable groups so it can contribute to reducing social inequality and improving overal welfare.

2.3. Investment

Investment is the activity of capital investment, expenditure, and purchasing by companies of production equipment and other capital goods to increase the production capacity of goods and services in the economy (Nizar et al., 2023). According to Keynesian Investment Theory, investment can be influenced by capital costs or interest rates, so that the amount of investment does not depend solely on returns (Heri, 2021). Investment is capital investment made to obtain profits in the future while simultaneously encouraging economic growth in a region. Investment can come from domestic or foreign sources and is generally realized in the form of infrastructure development, industrial development, or other productive activities. The presence of investment plays an important role in increasing production capacity, creating jobs, and encouraging technology transfer. With investment, the wheels of the economy can move faster because production activities increase and regional competitiveness becomes stronger.

2.4. Unemployment

Unemployment is a problem that exists in every region and poses a challenge for the government in tackling the number of unemployed people, which is increasing all the time (Sinaga et al., 2023). In Frictional Unemployment Theory, where the cause of unemployment is due to difficulties in matching job seekers with available job vacancies (Haryanto, 2025). This could be because the qualifications listed in job vacancies are generally not met by prospective employees, meaning that unemployment will continue.

Unemployment not only reduces individual income, but also increases the poverty rate and worsens social inequality. Unemployment that occurs in the long term has the potential to reduce community welfare, increase the dependency ratio, and hinder regional development efforts. In developing regions such as Sulawesi, the problem of unemployment is often related to structural issues, including limited industrial diversification and inadequate infrastructure, which limit job creation. Efforts is needed to reduce unemployment require policies that promote inclusive investment, workforce development programs, and labor-intensive sectors to directly reduce poverty.

3. Methods

3.1. Research Type

The study employs a quantitative method utilizing correlational research. This choice was made in order to investigate the connection between economic growth, investment, and unemployment to the poverty rate in Sulawesi Island, across both immediate and extended timeframes. Quantitative analysis is considered appropriate as this research utilizes numerical data that can be measured objectively and processed with econometric statistical models.

3.2. Population and Sample

The study population comprises all provincial administrative units within Sulawesi Island, including North Sulawesi, Central Sulawesi, South Sulawesi, Southeast Sulawesi, Gorontalo, and West Sulawesi. Sampling technique utilizes census sampling (saturated sampling), wherein the sample size equals the population size, incorporating all provincial

units as observational subjects. With an observation period of 15 years, namely from 2010 to 2024, the number of observations obtained is 90 panel data (6 provinces × 15 years).

3.3. Data Collection Method

The research utilized secondary data sourced from official documents released by the Central Statistics Agency (BPS), primarily from the bps.go.id website, along with additional related materials. The data collected includes Gross Regional Domestic Product (GRDP) data as an indicator of economic growth, realization of Domestic Investment (PMDN) and Foreign Investment (PMA) as investment indicators, open unemployment rate (TPT) as an unemployment indicator, and percentage of poor population as a poverty indicator.

3.4. Data Source

The main data source for this research is the Central Statistics Agency (BPS) both at the national and provincial levels. In addition, the research also refers to data from the Ministry of Investment/Investment Coordinating Board (BKPM) as well as other publications that can support data completeness. The selection of official data sources is intended to guarantee the validity, reliability, and consistency of data used in the analysis.

3.5. Data Analysis Method

Panel Autoregressive Distributed Lag (Panel ARDL) constitutes the analytical technique applied in this research. The selection of this model is justified by its methodological advantages in analyzing both short-term and long-term inter-variable relationships, irrespective of differing integration levels (I(0) or I(1)) among variables. The analytical framework proceeds sequentially, initiating with stationarity testing to ensure the stability characteristics of employed variables. Cointegration testing follows to determine the presence of long-term equilibrium relationships between variables. After that, Panel ARDL model estimation is performed to see the effect of economic growth, investment, and unemployment on poverty. The analysis continues with the use of Error Correction Model (ECM) which functions to describe the adjustment mechanism from the short term towards long-term equilibrium. Finally, the Granger causality test is conducted to test the direction of cause-and-effect relationships between variables, particularly between economic growth and poverty.

4. Results and Discussion

4.1. Research Results

4.1.1. Stationarity Test

Table 1. Stationarity Test Results

Variable	LLC Test		Im, Pesaran and Shin W-stat		ADF - Fisher Chi-Square		PP - Fisher Chi-Square	
	Level	1st	Level	1st	Level	1st	Level	1st
K	0.0038	0.0000	0.1573	0.0000	0.1159	0.0000	0.0097	0.0000
LOGPE	0.0000	0.0000	0.0778	0.0004	0.0043	0.0016	0.000	0.0024
LOGINV	0.0000	0.0000	0.0110	0.0000	0.0194	0.0000	0.0089	0.0000
P	0.0000	0.0000	0.0003	0.0000	0.0014	0.0000	0.0171	0.0000

Source: Eviews 13 output (processed data), 2025

Table 1 shows that the stationarity test results establish that poverty and economic growth are stationary at the 1st difference level. However, investment and unemployment are stationary at the level.

4.1.2. Optimum Lag Test

Table 2. Optimum Lag Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-512.6565	NA	2.585298	12.30134	12.41710	12.34788
1	-154.0614	674.5002*	0.000742*	4.144319*	4.723085*	4.376979*

Source: Eviews 13 output (processed data), 2025

In Table 2, all lag criteria marked with multiple asterisks (*) are at lag 1. The use of lag 1 is expected to capture the dynamics of the relationship between variables more accurately in the model.

4.1.3. Cointegration Test

Table 3. Results of Fisher-Type Panel Cointegration Test

Hypothesized No. of CE(s)	Fisher Stat* (from trace test)	Prob.	Fisher Stat* (from max-eigen test)	Prob.
None	206.3	0.0000	178.3	0.0000
At most 1	76.58	0.0000	62.13	0.0000
At most 2	28.84	0.0042	22.95	0.0282
At most 3	24.39	0.0180	24.39	0.0180

Source: Eviews 13 output (processed data), 2025

In Table 3, the cointegration test using the Panel Fisher-Type model, for the values in the trace test and maximum eigenvalue statistics, shows that all hypotheses have a p-value < 0.05. This means that all variables are indicated to have a long-term relationship.

4.1.4. ARDL Panel Model Estimation

Table 4. ARDL Panel Estimation Results (2.1.1.1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Long-run (Pooled) Coefficients				
LOGPE	-1.724742	0.096471	-17.87837	0.0000
LOGINV	-0.294245	0.029490	-9.977708	0.0000
P	-1.016464	0.050414	-20.16230	0.0000
C	34.52633	0.869326	39.71621	0.0000
Short-run (Mean-Group) Coefficients				
COINTEQ	-0.299365	0.208898	-1.433066	0.1561
D(K(-1))	0.003000	0.219552	0.013666	0.9891
D(LOGPE)	-0.286256	2.179694	-0.131329	0.8959
D(LOGINV)	0.037939	0.091671	0.413861	0.6802
D(P)	0.297671	0.083225	3.576699	0.0006
Log-Likelihood: -21.33594				

Source: Eviews 13 output (processed data), 2025

In Table 4, the estimation results are determined at lag (2.1.1.1). The coefficient in the long term is significant, because the prob value is < 0.05, where the t-table value is 1.66462. Meanwhile, in the short term, the COINTEQ value shows a negative result of -0.299365, which is not significant because the p-value is > 0.05. The D(K(1)) result is not significant, meaning that past changes in poverty do not affect the present. D(LOGPE) is not significant, meaning that changes in economic growth in the short term do not directly affect poverty. D(LOGINV) is insignificant, meaning that investment has not yet had an impact on poverty in the short term. Finally, D(P) is significant, so that unemployment in the short term can increase poverty.

4.1.5. Cross-Section (Region) ARDL Panel Estimation

Table 5. Results of ARDL Panel Estimation per Cross-Section (Region)

Variables	SUMUT	SULTENG	SULSEL	SULTRA	GRNT	SULBAR
	Prob.	Prob.	Prob.	Prob.	Prob.	Prob.
COINTEQ	0.2263	0.1966	0.4465	0.4715	0.2911	0.0000
D(K(-1))	0.3162	0.6118	0.0914	0.7323	0.6902	0.0000
D(LOGPE)	0.5159	0.9707	0.9288	0.3214	0.4320	0.0000
D(LOGINV)	0.6876	0.0926	0.6512	0.4433	0.8839	0.0000
D(P)	0.0979	0.8524	0.1360	0.3416	0.5531	0.0000

Source: Eviews 13 output (processed data), 2025

In Table 5, for the Cross-Section results, the provinces of North Sulawesi, Central Sulawesi, South Sulawesi, Southeast Sulawesi and Gorontalo obtained p-values > 0.05, meaning that no variables had a significant effect in the short term. Meanwhile, only West Sulawesi Province had all variables with p-values < 0.05, meaning that all variables could have a significant effect in the short term.

4.1.6. Cross-Sectional Dependence (CD) Test

Table 6. CD Test Results

Test	Statistic	d.f.	Prob
Breusch-Pagan LM	64.91523	15	0.0000
Pesaran scaled LM	9.113233		0.0000
Bias-corrected scaled LM	8.863233		0.0000
Pesaran CD	3.665555		0.0002

Source: Eviews 13 output (processed data), 2025

In Table 6, all prob values in each test obtained a Prob value < 0.05. In other words, there is cross-section dependence, because this condition causes dependence between model residuals. This shows that the assumption of independence of residuals between units has not been met.

4.1.7. Error Correction Adjustment Mechanism

Table 7. Error Correction Adjustment Mechanism

Province	COINTEQ	t-statistics	Prob	Description
North Sulawesi	-0.241407	-1.310806	0.2263	Not Significant
Central Sulawesi	-0.121473	-1.408567	0.1966	Not Significant
South Sulawesi	-0.136008	-800661	0.4465	Not Significant
Southeast Sulawesi	0.165334	0.755665	0.4712	Not Significant
Gorontalo	-0.157581	-1.130181	0.2911	Not Significant
West Sulawesi	-1.305058	-15.74671	0.0000	Significant

Source: Eviews 13 output (processed data), 2025

Table 7 shows that the COINTEQ results for six provinces on the island of Sulawesi indicate that only one province, namely West Sulawesi, obtained a p-value < 0.05, meaning that the results are significant, indicating a valid error correction adjustment between variables in the short term in West Sulawesi. Meanwhile, the other five provinces obtained p-values > 0.05, meaning that there was no error correction adjustment in the short term.

4.1.8. Granger Causality Panel ARDL

Table 8. Granger Causality Results

Null Hypothesis	W-Stat.	Zbar-Stat.	Prob.
LOGPE does not homogeneously cause K	9.53535	9.85653	0.0000
K does not homogeneously cause LOGPE	0.50143	-0.85461	0.3928

Source: Eviews 13 output (processed data), 2025

Table 8 shows that economic growth does not uniformly cause poverty. However, the p-value is < 0.05. This means that economic growth can significantly cause poverty. Meanwhile, poverty does not uniformly cause economic growth. Because the p-value is > 0.05, poverty does not significantly disrupt economic growth.

4.2. Discussions

4.2.1. The Long-Term Impact of Economic Growth, Investment and Unemployment on Poverty in Sulawesi Island

Economic growth has a negative and significant impact on poverty in Sulawesi Island. This indicates that future economic growth can be directed in an equitable, fair and inclusive manner in Sulawesi Island by the government. If economic growth is healthy, community productivity can increase, as indicated by the development of production sectors, thereby creating jobs where people can earn an income. With an income, people's purchasing power will also increase, improving their standard of living and enabling them to meet their basic daily needs and even afford luxuries. These conditions are vital to break the cycle of poverty.

Investment has a negative and significant impact on poverty in Sulawesi, because investment can help reduce poverty if the flow of investment is evenly distributed and can be felt by the poor, such as in the form of workforce training to improve and create skills among the poor. Investing in infrastructure like health, education, roads, clean water, and electricity can provide benefits to the poor and improve access to economic resources and basic services. These opportunities can be used to create effective and efficient productivity.

Unemployment has a negative and significant impact on poverty in Sulawesi Island. This may be due to social assistance programmes from the government in the form of direct cash assistance (BLT), social security agencies (BPJS), and subsidies, so that unemployed people can still meet their basic needs and avoid deprivation and even starvation. Furthermore, it is possible that the majority of unemployed people come from wealthy families, so they still receive financial support from their families to meet their primary needs and even their tertiary needs. This is what makes unemployment have a negative impact on poverty.

Healthy economic growth can increase community productivity through the development of the production sector and job creation, so that people's income and purchasing power increase, which in turn helps break the cycle of poverty. Research of Agussalim et al. (2024) shows that economic growth can reduce poverty directly and indirectly through reducing income inequality in Indonesia.

Equitable and inclusive investment, especially in the form of workforce training and infrastructure development such as education, health, roads, and electricity, enables the poor to access resources and markets thereby increasing productivity and reducing poverty. Vidriza & Talmera (2024) shows that government and private investment can reduce poverty rates in nickel-producing provinces in Indonesia, including Sulawesi.

In addition, unemployment has a negative impact on poverty due to government social assistance programs and family support, which allow people to continue meeting basic needs

even when not working, thereby helping to reduce the risk of poverty. Further, Lizarifah et al. (2022) shows that unemployment has a significant influence on poverty rates in Sulawesi.

4.2.2. The Short-Term Effect of Economic Growth, Investment and Unemployment on Poverty in the Provinces of Sulawesi Island

Economic growth, investment and unemployment have a positive and insignificant effect on poverty in the provinces of North Sulawesi and Central Sulawesi. This means that economic growth and investment can lead to an increase in poverty. This could be due to low investment inflows, resulting in uneven economic growth and inequality. Thus, the community has not been able to enjoy public access and has not been able to open up opportunities in economic productivity, especially with the continued existence of unemployment in this region, which has prevented the absorption of labour. Therefore, economic growth and investment cannot reduce unemployment, so these three factors have not been able to reduce poverty.

Economic growth and investment have a negative and insignificant effect on poverty in the provinces of Southeast Sulawesi and South Sulawesi. This is because economic growth and investment in these provinces are inclusive, but may only occur in certain areas, so that not all community groups can feel the benefits, only certain groups, and are channelled into capital-intensive sectors rather than leading to labour absorption. Thus, unemployment has a positive effect on poverty. This is due to the lack of job creation makes it difficult for people to earn an income to meet their daily needs. This situation will therefore cause poverty to increase.

Economic growth and unemployment have a positive effect, while investment has a negative effect on poverty in Gorontalo province. When the economy is weak and prices rise, people have less money to spend, leading to a decrease in production and job loss. Meanwhile, investment is channelled into several economic sectors through production, distribution and consumption, thereby creating a broad economic impact and helping to reduce poverty.

Economic growth has a negative effect, while investment and unemployment have a positive effect on poverty in West Sulawesi province. This may be due to an increase in regional revenue. The government can use increased regional revenue to finance social programmes for the poor, such as subsidies, social assistance, free education, and free public services. Meanwhile, the results of investments are not transparent to the public and are not on target. This certainly cannot be felt directly by the poor, so there is no opportunity to escape poverty, and unemployment cannot be reduced.

In North Sulawesi and Central Sulawesi, despite economic growth and investment occurring, their influence on poverty remains positive but not significant, indicating distribution inequality and high unemployment that limits labor absorption (Badu et al., 2020). In South Sulawesi and Southeast Sulawesi, economic growth and investment tend to reduce poverty, but their distribution is still limited to certain sectors so that some communities have not felt the benefits, while unemployment continues to worsen poverty (Hidayat et al., 2023). In Gorontalo, investment has a negative effect on poverty, while economic growth and unemployment have a positive impact due to low purchasing power and community productivity, although investment in certain sectors helps reduce poverty (Tobondo et al., 2021). Meanwhile, in West Sulawesi, economic growth reduces poverty, but mistargeted investment and high unemployment make poverty remain difficult to reduce. These findings highlight the importance of distributing economic growth and investment fairly, creating jobs, and being transparent to effectively reduce poverty.

4.2.3. Error Correction Adjustment Mechanism Between Economic Growth, Investment and Unemployment on Poverty in Sulawesi Island

Only West Sulawesi province showed significant results, with a COINTEQ value of -1.305058 and a prob value of 0.0000. This indicates that the speed of correction is very high in response to imbalances in poverty in the short term. This means that if there is a deviation from the long-term trend, poverty in West Sulawesi is able to fully adjust within one period. Furthermore, for the other five provinces, such as North Sulawesi, Central Sulawesi, South Sulawesi, Southeast Sulawesi and Gorontalo, they obtained a prob value > 0.05, resulting in an insignificant value that is not strong enough to show a correction to long-term imbalances.

4.2.4. Causality Between Economic Growth and Poverty on the Island of Sulawesi

The causality between economic growth and poverty shows that economic growth does not homogeneously cause poverty in Sulawesi Island with a probability value of 0.0000 or < 0.05. This means that economic growth can significantly lead to poverty. Where, higher economic growth will reduce poverty. This implies that poverty affects the rate of economic growth, because if poverty remains high, it will hinder ongoing growth, resulting in limitations such as human resources, low purchasing power, and other factors that can suppress economic policy. In other words, the relationship between the two is not merely a correlation, but there is strong statistical evidence that one causes changes in the other.

The causality between poverty and economic growth shows that poverty does not homogeneously cause economic growth with a probability value of 0.3928 or > 0.05. This means that poverty does not significantly affect economic growth. This could be due to factors other than poverty that can affect economic growth in a region on the island of Sulawesi. The emergence of poverty is caused by imbalances in the economic and social systems, such as non-inclusive growth, ineffective government policies, income inequality, and others. In order to reduce poverty, economic growth must be distributed fairly so that everyone benefits, including the poor in Sulawesi.

The results also show consistency with findings in previous literature, where the error correction mechanism and causal relationship between economic growth and poverty vary between regions. West Sulawesi, which has significant correction, shows that this region is able to adjust short-term deviations quickly, in line with panel VECM studies showing that provinces outside Java tend to have adaptive responses to poverty imbalances (Sari et al., 2020). Meanwhile, one-way causality from economic growth to poverty confirms the importance of inclusive growth; only growth supported by the distribution of investment benefits and increased human capacity can effectively reduce poverty significantly (Jauhari, 2021). Factors other than poverty, like infrastructure, education, and regional policies, influence economic growth. Poverty alleviation strategies should involve multiple sectors to ensure growth benefits community welfare (Prastyadi et al., 2024).

5. Conclusion

The results of this study indicate several important findings. First, economic growth, investment, and unemployment were found to have a negative and significant effect on poverty in Sulawesi Island in the long term. However, variations occur across provinces. In North Sulawesi and Central Sulawesi, economic growth, investment, and unemployment show a positive effect on poverty, while in South Sulawesi and Southeast Sulawesi, economic growth and investment exert a negative effect, with unemployment contributing positively to poverty.

In Gorontalo, economic growth and unemployment positively influence poverty, whereas investment has a negative effect. Meanwhile, in West Sulawesi, economic growth negatively affects poverty, but investment and unemployment have a positive short-term impact. Furthermore, only in West Sulawesi is there a significant error correction adjustment mechanism, while the provinces of North Sulawesi, Central Sulawesi, South Sulawesi, Southeast Sulawesi, and Gorontalo show insignificant results. Lastly, the study provides evidence of a causal relationship from economic growth to poverty across Sulawesi Island, but no evidence was found of causality running from poverty to economic growth. In order to reduce poverty, the central and regional governments need to design programmes that integrate economic growth with the creation of decent jobs, especially in underdeveloped areas of Sulawesi, and implement synergistic fiscal and inclusive investment policies so that economic growth has a direct impact on reducing poverty rates.

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