



# Causality Analysis Between Unemployment, Poverty, and Economic Growth in the Southern Sumatra Region

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## ABSTRACT

This study aims to look at the relationship between poverty, unemployment, and economic growth in five provinces in the Southern Sumatra region (Sumbagsel) from 2000 to 2022 through the use of time series data. The method used is a quantitative approach using the Granger causality model. The results showed that: (1) there is no causal relationship between unemployment and economic growth or vice versa in the five provinces in Southern Sumatra (Sumbagsel), (2) there is a one-way causal relationship between poverty and economic growth in Bangka Belitung Islands Province, while there is no relationship between economic growth and poverty, (3) there is a causal relationship between poverty and unemployment rate and vice versa in Bangka Belitung Islands Province and South Sumatra, while there is a one-way relationship between poverty and unemployment rate in Lampung Province, and a one-way relationship between unemployment rate and poverty in Jambi Province. However, there is no significant causal relationship in Bengkulu Province, either in the form of a one-way or two-way relationship.

## INTRODUCTION

The process of economic development is a complex journey that involves profound changes in many aspects, including social structures, social attitudes, and state institutions. Sustained and rapid economic growth is a necessary condition for sustaining prolonged economic development and improving welfare. This is because the population is increasing every year, as well as the daily consumption needs. Therefore, an increase in income every year is needed.

Apart from the demand aspect in consumption, population growth also demands an increase in employment opportunities to support income. Economic growth without an increase in employment opportunities can create new income inequality (*ceteris paribus*), which then has

the potential to create a situation where economic growth goes hand in hand with an increase in the poverty rate. Meeting consumer demand and employment opportunities can only be achieved through sustained growth in total output (goods and services) or GDP. Through the unemployment rate and poverty rate, we can determine the status of a country's economy, whether development is in a state of stagnation, or even recession. In addition, from the unemployment rate and poverty rate, we can also find out the extent of the social income distribution gap in the country. Every government in a country always strives to make the lives of its people better because this is the main goal of every government. When people are prosperous, they can fulfill their daily needs.

Unemployment is a common problem faced by almost all countries, both developed and developing countries. This is also true in Indonesia, where unemployment can occur due to high labor mobility, lack of employment opportunities, and low levels of labor absorption. The problem of unemployment is a very complex topic and has important aspects because it can be related to various indicators. Economic indicators that affect unemployment include the country's economic growth, inflation rate, poverty rate, and prevailing wage rate.

Poverty is a common problem faced by all countries around the world, especially in developing countries. Poverty is a complex issue because it is influenced by a variety of related factors, including people's income levels, unemployment rates, health conditions, education, access to goods and services, geography, gender inequality, and the environment. Poverty has many negative impacts. Apart from causing social problems, poverty also has an impact on the economic development of a country. Severe poverty indirectly hinders economic development by increasing the cost of promoting economic growth.

**Figure 1: Poverty Rates in the 10 Poorest Provinces**



**Sumber : BPS, 2023 (data diolah)**

According to the data in Figure 1, in the period 2018-2022, it can be seen that the average percentage of poverty rate in the 10 poorest provinces shows that Papua ranks the highest in terms of poverty rate. On the island of Sumatra, four provinces fall into the category of the 10 poorest provinces, namely Aceh, Lampung, South Sumatra, and Bengkulu. Of these four provinces, the Southern Sumatra region has three provinces that fall into the category of the 10 poorest provinces out of a total of five provinces in the region. These provinces include Jambi, Bengkulu, South Sumatra, Lampung, and Bangka Belitung Islands

**Table 1. Development of the Percentage of Poor People, Unemployment Rate, and Economic Growth in the Southern Sumatra Region 2018-2022**

TAHUN	Persentase Penduduk Miskin					Tingkat Pengangguran					Pertumbuhan Ekonomi				
	JAMBI	SUMSEL	BENGGKULU	LAMPUNG	BABEL	JAMBI	SUMSEL	BENGGKULU	LAMPUNG	BABEL	JAMBI	SUMSEL	BENGGKULU	LAMPUNG	BABEL
2018	7,85	12,82	15,41	13,01	4,77	3,73	4,27	3,35	4,04	3,61	4,69	6,01	4,97	5,23	4,45
2019	7,51	12,56	14,91	12,3	4,5	4,06	4,53	3,26	4,03	3,58	4,35	5,69	4,94	5,26	3,32
2020	7,97	12,98	15,3	12,76	4,89	5,13	5,51	4,07	4,67	5,25	-0,51	-0,11	-0,02	-1,66	-2,29
2021	7,67	12,79	14,43	11,67	4,67	5,09	4,98	3,65	4,69	5,03	3,69	3,58	3,27	2,77	5,05
2022	7,7	11,95	14,34	11,44	4,61	4,59	4,63	3,59	4,52	4,77	5,13	5,23	4,31	4,28	4,4

**Sumber : BPS, 2023 (data diolah)**

Table 1 illustrates the fluctuation of unemployment rates in the southern sumatra region over the period 2018 to 2022. In 2020, the highest increase in poverty occurred in bengkulu due to the impact of the covid-19 pandemic. Many employees lost their jobs due to layoffs. Several factors contributed to the decline in the number of poor people. One of the main factors is the expansion of employment to remote areas, resulting in an increase in income. A similar phenomenon is also observed in southern sumatra, where the number of available workers is not proportional to the employment required, especially with population growth that is not balanced with the availability of existing jobs.

From Table 1, it can be seen that the unemployment rate in the Southern Sumatra Region during the period 2018 to 2022 experienced variations or changes that went up and down. South Sumatra Province recorded the highest unemployment rate in 2020 at 5.51%, while Bengkulu Province had the lowest unemployment rate in 2019 at 3.26%. In addition, the increasing unemployment rate is also one of the causes of the increasing number of poor people. High levels of unemployment are caused by population growth that is not matched by an increase in employment opportunities, leading to people being forced into unemployment. Efforts to reduce the unemployment rate and address poverty are two interrelated issues. If the unemployment rate increases, poverty tends to also increase, and vice versa. In theory, if people have jobs and sufficient income to fulfill their needs, then poverty can be overcome. Therefore, a low unemployment rate (high employment opportunities) means a low poverty rate. (Sari, 2022).

Economic growth and unemployment rates in the southern sumatra region have a direct impact on poverty rates because economic growth and unemployment rates have a close relationship. Economic growth is a process of continuous change in the economic conditions of south sumatra that aims to achieve improvements within a certain period. According to neo-classical theory, economic growth is determined by an increase in the availability of factors of production such as population, human resources, capital investment, and technological development.

Based on Table 1, it can be seen that economic growth in the Southern Sumatra Region in the period 2018-2022 showed an increasing trend each year, in line with the increasing realization of investment in the form of PMDN and PMA. However, in 2020, there was a sharp decline in economic growth in Southern Sumatra, caused by the negative impact of the Covid-19 pandemic. The pandemic resulted in a significant economic contraction in the Southern Sumatra region in 2020. However, in 2021, there was an increase in economic growth in the region compared to the previous year.

Southern sumatra is a region rich in resources, including abundant human and natural resources. In this region, three main sectors are the main contributors in generating income, namely agriculture, trade, and especially the mining sector, especially the natural gas that the region is famous for. There are large companies that manage this mining industry. Despite the province's abundant wealth and leading sectors, issues of poverty and unemployment in southern sumatra remain a focus of attention. Natural wealth and strong economic growth do not always translate into equitable prosperity for the local population, especially in the region

that includes jambi, bengkulu, bangka belitung islands, south sumatra, and lampung, collectively known as southern sumatra. This issue of unemployment and poverty is a problem that must be addressed in the context of the Indonesian economy, especially in the southern sumatra region. The population growth that continues to increase every year in this region has an impact on the increase in the number of available workers. High levels of unemployment and poverty in the southern sumatra region can also potentially hurt the economy in the region.

## LITERATURE REVIEW

### Unemployment

One measure of economic performance is the level of unemployment. As explained by Blanchard et al. (2017), unemployment refers to individuals who do not have a job or are looking for a job, while workers refer to those who have a job. The unemployment rate is expressed as the ratio between the number of people who do not have a job and the number of people who have a job in essence, the number of unemployed reflects the total size of the labor force. Sukirno (2012) the adverse effects of unemployment include a decline in income, which results in the unemployed having to reduce their consumer spending. Long-term unemployment also has the potential to increase the poverty rate. If the unemployment rate in a country is very high, it can lead to social instability, harm people's welfare, and hamper economic growth in the long run.

According to Mankiw (2014), unemployment refers to individuals who are temporarily not working or looking for work. Unemployed people usually have no source of income, and the higher the unemployment rate in a society, the more individuals are without income, which in turn can reduce consumption levels and affect economic growth. When economic growth slows down, the government may find it difficult to create new jobs, which can then lead to an increase in the unemployment rate. (Mekahsari, 2012).

### Poverty

The central bureau of statistics defines poverty as a condition in which the economy is unable to meet basic needs, including food and non-food needs, as measured by expenditure levels. (bps, 2017). The poverty rate refers to a situation where the poor have difficulty obtaining loans or funding, as well as limited investment opportunities for children's education. As a result, poverty can be more widespread, resulting in lower incomes and lower living standards for the poor. It can also lead to negative impacts on aspects such as health, nutrition, and education, as well as lower levels of economic productivity, and slow social development. (Todaro and Smith, 2011). If a country's economic growth increases, this will encourage increased investment in the country and reduce the unemployment rate. When the unemployment rate decreases, it will correspondingly have a positive impact on reducing the poverty rate. (Fosu, 2010).

According to Retnowati et al (2017), poverty and unemployment have a positively correlated relationship, which means that if the poverty rate increases, the unemployment rate will also increase. Unemployment can result in a decrease in people's income, which in turn affects their level of prosperity and welfare because unemployed individuals do not have a source of income. According to Sukirno (2013), the negative consequence of an increase in the labor force or an increase in the unemployment rate is to reduce the income of the community, which in turn will reduce the level of community welfare as a result of unemployment. In theory, if people do not experience unemployment, then they have a job and the income it generates, and it is expected that this income can be sufficient to fulfill their daily needs.

### Economic Growth

Economic growth is the development of economic activities that lead to an increase in the production of goods and services in society, which ultimately contributes to improving the

welfare of society. (sukirno, 2000). A high rate of economic growth has the potential to increase a country's economic capacity, which in turn can reduce poverty levels. However, inequality in income distribution can hinder the effectiveness of economic growth in reducing poverty. (harsuti, 2017) indicating that efforts to address poverty in indonesia can be influenced by many factors, including economic growth as well as other supporting elements. These include investments in the private and public sectors that create jobs, innovative and productive technological advances, as well as population growth that is enriched through improved human capital.

When a country's economy experiences faster growth, it is expected to reduce the unemployment rate, which is often related to the prevailing wage rate. An increase in wages can lead to a decrease in unemployment. On the other hand, a high inflation rate can result in an increase in unemployment. (sukirno, 2008). The link between economic growth and the unemployment rate can be conveyed through the concept of okun's law, which is named after economist arthur okun who studied the concept. (demburg, 1985: 53). It has been observed that there is an empirical relationship between the unemployment rate and economic output in the business cycle. Empirical research findings show that every one percent increase in the unemployment rate will result in a two percent decrease in gross domestic product (gdp). This indicates a negative impact on economic growth and the unemployment rate, and conversely, the unemployment rate hurts economic growth. A decrease in the unemployment rate also indicates inequality.

## METHODS

This study focuses on analyzing the causal relationship between poverty, unemployment, and economic growth in the Southern Sumatra region, which includes five provinces. The data used in this study are time series data from five provinces in the Southern Sumatra region from 2000 to 2022. The variables studied include poverty rate, open unemployment rate, and economic growth rate. The data source used is secondary data obtained from the Central Bureau of Statistics (BPS), other government agencies, and literature references relevant to this research. The research was conducted during the period 2000-2022.

The analysis method used in this research is the Granger Causality Test. In the Granger causality test, we determine whether variable X causes variable Y, meaning the extent to which the value of Y in the current period can be explained by the value of Y in the previous period and the value of X in the previous period. It should be noted that the Granger causality test only tests the causal relationship between the variables without estimating a more complex statistical model.

$$\begin{aligned}\Delta KEM_{it} &= \sum_{i=0}^n \beta_i KEM_{t-i} + \sum_{i=0}^n \beta_i PENG_{t-i} + \sum_{i=0}^n \beta_i PE_{t-i} + e_{1it} \\ \Delta PENG_{it} &= \sum_{i=0}^n \beta_i PENG_{t-i} + \sum_{i=0}^n \beta_i PE_{t-i} + \sum_{i=0}^n \beta_i KEM_{t-i} + e_{2it} \\ \Delta PE_{it} &= \sum_{i=0}^n \beta_i PE_{t-i} + \sum_{i=0}^n \beta_i KEM_{t-i} + \sum_{i=0}^n \beta_i PENG_{t-i} + e_{3it}\end{aligned}$$

Description

KEM = Poverty (%)

PENG = Unemployment (%)

PE = Economic Growth (%)

t = time series

I = Cross section (Provinces in the Southern Sumatra region)

$e_{1it}$ ,  $e_{2it}$  dan  $e_{3it}$  is an error term assumed to be uncorrelated.

The next test applied in this study is the Hypothesis Test, specifically the Granger Causality Test, which aims to determine whether there is a reciprocal relationship between the variables under study.

## RESULTS

### Unit Root Test

Results Before undergoing the Granger Causality Test, the stage taken is the Unit Root Test using time series data from each province in the Southern Sumatra region. The purpose of this Unit Root Test is Eviews to make the data stationary. In addition, this test also helps in determining whether the data contains unit roots or not. If the variables are found to contain unit roots, then the data will be considered non-stationary.

### Leg Length Test (Lag Length Criteria)

When conducting Granger Causality Testing, one of the main concerns is determining the appropriate lag length. Choosing an appropriate lag length is essential to prevent errors in model specification, which can occur if the lag length is too short or too long, thereby reducing the degrees of freedom. Testing lag length using tools such as Eviews can make it easier to determine the optimal lag length. This is done by observing the asterisk (\*) sign that appears most frequently at each available lag length option. This aims to get accurate and appropriate data results.

### Granger Causality Test

#### 1. Jambi

**Table 2. Stationarity Test Results with ADF Method in Jambi Province**

Variabel	Uji URT	Tren deterministik	ADF Test	CV (5%)	Prob	Stasioner
KEM	2 <sup>nd</sup> Difference	Trend and Intercept	-4.434.635	-3.673.616	0.0121	YA
PE	2 <sup>nd</sup> Difference	Trend and Intercept	-6.078.516	-3.690.814	0.0006	YA
PENGG	2 <sup>nd</sup> Difference	Trend and Intercept	-6.068.753	-3.690.814	0.0006	YA

Source: Processed results of eviews 10, 2023

The test results using the Augmented Dickey-Fuller method in Table 2 with a 95% confidence level show that in the variables of poverty, economic growth, and unemployment in Jambi Province, all three do not show stationarity in level, but are stationary in the first difference. Therefore, it can be concluded that these three variables collectively show stationarity in the first difference form.

**Table 3. Results of Lag Length Criteria Test in Jambi Province**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-89.59861	NA	5.902918	10.28873	10.43713	10.30920
1	-55.99679	52.26950*	0.392268	7.555199	8.148780	7.637046
2	-52.46388	4.317996	0.801421	8.162654	9.201421	8.305886
3	-38.10527	12.76321	0.593675	7.567253	9.051206	7.771870
4	-16.27468	12.12811	0.291800*	6.141631*	8.070770*	6.407633*

Source: Processed results of eviews 10, 2023

In Table 3, finding the optimal lag length is done using various information criteria, and in this study, the criterion used is AIC (Akaike Information Criterion). From the results of the AIC values listed in the output, the smallest value is selected, which indicates that under these conditions there is an optimal lag. With a confidence level of 95%, the test results show that the optimal and maximum lag length is lag 4. Therefore, in this study, Granger Causality testing in Jambi Province uses a lag of 4.

**Table 4. Granger Causality Test Results in Jambi Province**

Null Hypothesis	Obs	F-Statistic	Prob
PE does not Granger Cause KEM	18	0,60474	0,6692
KEM Does not Granger Cause PE		1.42112	0.3029
PENGG does no Granger Cause KEM	18	1.80435	0.2.46
KEM Does not Granger Cause PENGG		12.4333	0.0007
PENGG does no Granger Cause PE	18	0.94743	0.4800
PE Does not Granger Cause PENGG		0.11522	0.9738

Source: Processed results of eviews 10, 2023

Based on the results of the Causality Test contained in Table 4, it is found that Poverty (KEM) does not have a significant relationship with Unemployment (PENGG), as shown by the probability value of  $0.2046 > \alpha = 0.05$  at lag 4. Meanwhile, Unemployment (PENGG) has a significant relationship with Poverty (KEM), as shown by the probability value of  $0.0007 < \alpha = 0.05$  at lag 4. Thus, it can be concluded that in Jambi Province there is a one-way relationship between Unemployment (PENGG) and Poverty (KEM).

## 2. South Sumatra

**Table 5. Stationarity Test Results with ADF Method in South Sumatra Province**

Variabel	Uji URT pada	Tren Deterministik	ADF Test	cv (5%)	Prob*	Stasioner
KEM	2nd Difference	Tren and Intercept	-4.434.635	-3.673.616	0.0121	YA
PE	2nd Difference	Tren and Intercept	-6.078.516	-3.690.814	0.0006	YA
PENGG	2nd Difference	Tren and Intercept	-6.068.753	-3.690.814	0.0006	YA

Source: Processed results of eviews 10, 2023

The test results with the Augmented Dickey-Fuller method contained in Table 5 with a 95% confidence level, show that the variables of poverty (KEM), economic growth (PE), and unemployment (PENGG) in South Sumatra Province are stationary in the first difference. Therefore, it can be concluded that together, these three variables show stationarity in the form of first differences

**Table 6. Results of Lag Length Criteria Test in South Sumatra Province**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-95.71778	NA	11.65057	10.96864	11.11704	10.98910
1	-61.88295	52.63195*	0.754431	8.209217	8.802798*	8.291064
2	-51.32494	12.90424	0.706157*	8.036105*	9.074872	8.179337*
3	-45.03701	5.589272	1.282447	8.337446	9.821399	8.542063
4	-35.33392	5.390608	2.425427	8.259324	10.18846	8.525327

Source: Processed results of eviews 10, 2023



In Table 6, the optimal lag length is sought using various lowest information criteria, with AIC (Akaike Information Criterion) as the criterion used in this study. From the results of the AIC values listed in the output, the smallest value is selected, which indicates that there is an optimal lag under these conditions. With a confidence level of 95%, the test results show that the optimal lag length is lag 2, and the maximum lag reaches lag 4. Therefore, in this study, testing Granger Causality in South Sumatra Province uses a lag of 2.

**Table 7 Granger Causality Test Results in South Sumatra Province**

Null Hypothesis	Obs	F-Statistic	Prob
PE does not Granger Cause KEM	20	0.34915	0.7109
KEM Does not Granger Cause PE		0.52436	0.6024
PENGG does no Granger Cause KEM	20	3.11806	0.0719
KEM Does not Granger Cause PENGG		9.48621	0.0019
PENGG does no Granger Cause PE	20	0.59689	0.5631
PE Does not Granger Cause PENGG		0.44332	0.6500

**Source: Processed results of Eviews 10, 2023**

The results of the Causality Test contained in Table 7 show that Poverty (KEM) has a significant influence on Unemployment (PENGG), with a probability value of  $0.0719 < \alpha = 0.1$  at lag 2. Meanwhile, Unemployment (PENGG) also has a significant relationship with Poverty (KEM), indicated by a probability value of  $0.0019 < \alpha = 0.05$  at lag 2. Therefore, it can be concluded that in South Sumatra Province there is a two-way relationship between Unemployment (PENGG) and Poverty (KEM), which means that both influence each other.

### 3. Bengkulu

**Table 8 Stationarity Test Results with ADF Method in Bengkulu Province**

Variabel	Uji URT pada	Tren Deterministik	ADF Test	cv (5%)	Prob*	Stasioner
KEM	1st Difference	Tren and Intercept	- 5.275.105	-3.690.814	0.0027	YA
PE	1st Difference	Tren and Intercept	- 3.902.508	-3.733.200	0.0375	YA
PENGG	1st Difference	Tren and Intercept	- 3.681.973	-3.673.616	0.0549	YA

**Source: Processed results of eviews 10, 2023**

In Table 9, to find the optimal test lag length, various information criteria are used by prioritizing the AIC (Akaike Information Criterion) criteria. From the results of the AIC values contained in the output, the lowest value is selected to determine the optimal lag. With 95% confidence, the optimal and maximum test lag length criteria are at lag 4. Therefore, this study uses lag 4 for testing Granger Causality in Bengkulu Province.

**Table 9 Results of Lag Length Criteria Test in Bengkulu Province**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-63.91539	NA	5.941478	10.29468	10.42505	10.26788
1	-38.75204	34.84157*	0.525286*	7.808005	8.329497	7.700815
2	-29.96131	8.114515	0.746559	7.840202	8.752812	7.652619
3	-17.39122	5.801579	1.313358	7.290957	8.594687	7.022982
4	1063.554	0.000000	NA	-157.6237*	-155.9288*	-157.9720*

**Source: Processed results of eviews 10, 2023**



In Table 9, to find the optimal test lag length, various information criteria are used by prioritizing the AIC (Akaike Information Criterion) criteria. From the results of the AIC values contained in the output, the lowest value is selected to determine the optimal lag. With 95% confidence, the optimal and maximum test lag length criteria are at lag 4. Therefore, this study uses lag 4 for testing Granger Causality in Bengkulu Province.

**Table 10. Granger Causality Test Results in Bengkulu Province**

Null Hypothesis	Obs	F-Statistic	Prob
PE does not Granger Cause KEM	18	0.43065	0.7827
KEM Does not Granger Cause PE		0.94106	0.5228
PENGG does no Granger Cause KEM	18	0.43721	0.7785
KEM Does not Granger Cause PENGG		0.67103	0.6398
PENGG does no Granger Cause PE	18	0.78557	0.5625
PE Does not Granger Cause PENGG		1.41999	0.3032

**Source: Processed results of Eviews 10, 2023**

The results of the Causality Test in Table 10 show that the Poverty variable (KEM) does not have a significant relationship with Economic Growth (PE) and vice versa, which is consistent with the findings of previous research (Barika et al, 2020) which states that there is no causal relationship between poverty and economic growth in Bengkulu Province. The Poverty Variable (KEM) also does not have a significant relationship with Unemployment (PENGG), and vice versa. This result is likely due to the increase in poverty in Bengkulu in the last ten years, making the province one of the poorest in Indonesia. Nonetheless, social stress in Bengkulu over the past decade has remained below the national average. The Economic Growth (PE) variable also has no significant relationship with Unemployment (PENGG), and vice versa. Thus, it can be concluded that in Bengkulu Province there is neither a one-way nor a two-way causal relationship between the variables of Unemployment, Poverty, and Economic Growth.

#### 4. Lampung

**Table 11 Stationarity Test Results with ADF Method in Lampung Province**

Variable	Uji URT pada	Tren Deterministic	ADF Test	cv (5%)	Prob*	Stationery
KEM	1st Difference	Tren and Intercept	-4.334.821	-3.710.482	0.0166	YA
PE	1st Difference	Tren and Intercept	-5.175.719	-3.673.616	0.0029	YA
PENGG	1st Difference	Tren and Intercept	-4.876.134	-3.644.963	0.0044	YA

**Source: Processed results of eviews 10, 2023**

The Augmented Dickey-Fuller test results in Table 11, with a 95% confidence level, show that the three variables, namely Poverty (KEM), Economic Growth (PE), and Unemployment (PENGG) in Lampung Province, show stationarity in the first difference. In other words, all of these variables become stationary when applied with the first difference.

**Table 12. Results of Lag Length Criteria Test in Lampung Province**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-98.98862	NA	16.75642	11.33207	11.48046	11.35253
1	-60.24248	60.27178*	0.628721*	8.026942	8.620523*	8.108789
2	-57.78084	3.008671	1.446871	8.753426	9.792193	8.896658
3	-44.16016	12.10727	1.163395	8.240018	9.723971	8.444635
4	-24.24368	11.06471	0.707342	7.027076*	8.956215	7.293078*

**Source: Processed results of eviews 10, 2023**

Based on Table 12, the process of determining the optimal lag length uses the lowest information criterion, specifically by using AIC (Akaike Information Criterion). The results of the analysis show that the optimal and maximum lag selected with a 95% confidence level is at lag 4. Therefore, for testing Granger Causality in Lampung Province, lag 4 is used in the analysis.

**Table 13. Granger Causality Test Results in Lampung Province**

Null Hypothesis	Obs	F-Statistic	Prob
PE does not Granger Cause KEM	18	0.88487	0.5104
KEM Does not Granger Cause PE		1.40736	0.3069
PENGG does no Granger Cause KEM	18	3.45484	0.0509
KEM Does not Granger Cause PENGG		0.32253	0.8566
PENGG does no Granger Cause PE	18	0.80212	0.5535
PE Does not Granger Cause PENGG		0.41035	0.7971

**Source: Processed results of eviews 10, 2023**

Based on Table 13, the causality test results show that in Lampung Province there is a one-way relationship between Poverty (KEM) and Unemployment (PENGG). This result shows that Poverty has a significant effect on Unemployment in Lampung Province at lag 4, with a probability value of  $0.0509 < \alpha = 0.05$ . However, there is no significant relationship running the other way around, i.e. Unemployment does not significantly affect Poverty, with a probability value of  $0.8566 > \alpha = 0.05$  at lag 4

## 5. Kep. Bangka Belitung

**Table 14. Stationarity Test Results with ADF Method in Bangka Belitung Province**

Variable	Uji URT pada	Tren Deterministic	ADF Test	cv (5%)	Prob*	Stationery
KEM	2nd Difference	Tren and Intercept	- 4.434.635	-3.673.616	0.0121	YA
PE	2nd Difference	Tren and Intercept	- 6.078.516	-3.690.814	0.0006	YA
PENGG	2nd Difference	Tren and Intercept	- 6.068.753	-3.690.814	0.0006	YA

**Source: Processed results of eviews 10, 2023**

Based on the Augmented Dickey-Fuller test results in Table 14 with a 95% confidence level, it can be concluded that the three variables, namely Poverty (KEM), Economic Growth (PE), and Unemployment (PENGG) in the Province of Bangka Belitung Islands are stationary after the second difference. In other words, these variables have reached stationarity in the form of second differences after the second stage differentiation process

**Table 15. Test Results of Lag Length Criteria in the Province of Kep. Bangka Belitung**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-97.44136	NA	14.10971	11.16015	11.30855	11.18061
1	-73.07470	37.90369	2.616233	9.452745	10.04633	9.534592
2	-65.74436	8.959303	3.505172	9.638263	10.67703	9.781495
3	-46.47033	17.13247	1.503849	8.496704	9.980657	8.701321
4	-7.298167	21.76231*	0.107628*	5.144241*	7.073380*	5.410243*

**Source: Processed results of eviews 10, 2023**

Based on Table 15, the optimal lag length in testing Granger Causality in Bangka Belitung Islands Province is determined by using various information criteria, especially by using AIC (Akaike Information Criterion). From the results listed in the output, the lag value that has the lowest AIC is selected, indicating that it is the optimal lag for analysis. With a confidence level of 95%, it is found that the optimal and maximum lag is at lag 4. Therefore, in this study, lag 4 is used for testing Granger Causality in Bangka Belitung Islands Province.

**Table 1.6 Granger Causality Test Results in the Province of Kep. Bangka Belitung**

Null Hypothesis	Obs	F-Statistic	Prob
PE does not Granger Cause KEM	18	3.08972	0.0737
KEM Does not Granger Cause PE		1.03328	0.4411
PENGG does no Granger Cause KEM	18	5.90655	0.0130
KEM Does not Granger Cause PENGG		3.76300	0.0458
PENGG does no Granger Cause PE	18	0.84286	0.5319
PE Does not Granger Cause PENGG		1.59624	0.2568

**Source: Processed results of eviews 10, 2023**

Based on the results of the Causality Test in Table 16, it can be seen that there is a significant relationship between the Poverty (KEM) and Unemployment (PENGG) variables at lag 4, with a probability value of 0.0130, which is smaller than  $\alpha = 0.05$ . This means that Poverty affects Unemployment and vice versa in the Bangka Belitung Islands Province. In addition, Unemployment (PENGG) also has a significant relationship with Poverty (KEM) at lag 4, with a probability value of  $0.0019 < \alpha = 0.05$ . In addition, Poverty (KEM) also affects Economic Growth (PE) at the 90% confidence level, indicated by a probability value of  $0.0737 < \alpha = 0.1$  at lag 4. However, Economic Growth (PE) does not have a significant relationship with Poverty (KEM) at the 90% confidence level, with a probability value of  $0.4411 > \alpha = 0.1$  at lag 4. Therefore, it is concluded that in Bangka Belitung Islands Province there is a two-way relationship between Unemployment (PENGG) and Poverty (KEM), as well as a one-way relationship between Poverty (KEM) and Economic Growth (PE).

## DISCUSSION

### Poverty to Economic Growth

Based on the results of the Granger Causality Test on five provinces in the Southern Sumatra region, it was found that there is a relationship between poverty and economic growth. However, there is no reverse relationship, i.e. economic growth does not influence the poverty rate. This suggests that there is a one-way causality relationship between poverty and economic growth. That is, during the research period, the poverty rate influenced economic growth in the Bangka Belitung Islands Province. On the other hand, economic growth had no impact on the poverty rate in the five provinces in the Southern Sumatra region.

This is relevant to the theory of Todaro & Smith (2011). The result of an increase in the poverty rate is a wider spread of poverty itself, which then results in a decrease in income and a lower standard of living for people in poor conditions. This also has adverse effects on aspects such as health, nutrition, and education, which tend to decline, as well as lowering the level of economic productivity of the community. This impact also causes social development and economic growth to slow down, both directly and indirectly. However, the results of this study are not in line with Todaro's (2011) opinion that economic growth factors can have an impact on poverty levels. In Todaro's view, rampant poverty creates a situation where the poor have difficulty accessing credit loans, face obstacles in financing their children's education, and lack investment opportunities both physically and monetarily. This ultimately leads to slower per capita growth. An increase in income among the poor can boost demand for local products for

household use. The effect is to stimulate local production, create more employment opportunities, and encourage local investment. This in turn creates favorable conditions for faster economic growth. This research is inconsistent with (Fosu, 2010). An increase in economic growth in a country can increase the level of investment. The higher this level of investment, the greater the likelihood of a decrease in the unemployment rate. When the unemployment rate decreases, this tends to contribute to a decrease in the poverty rate.

### **Poverty to Unemployment**

Based on the results of the Granger Causality Test in each province in the Southern Sumatra region, it is found that the reciprocal relationship between poverty and economic growth only occurs in the Province of Bangka Belitung Islands. Meanwhile, a one-way relationship exists in Jambi, South Sumatra, and Lampung between unemployment and poverty. Furthermore, only in Lampung Province, does poverty affect unemployment and not vice versa. In Jambi and South Sumatra, unemployment affects poverty and not the other way around. This situation occurs because the Southern Sumatra region has many people who are unemployed and underemployed, which results in their inability to fulfill their needs adequately. The impact is that many people fall into the poor category, which in turn leads to an increase in the number of poor people in Southern Sumatra.

The findings of this study are by Okorie & Anowor, (2017) The results showed that there is a reciprocal relationship between unemployment and poverty in the context of the economy. In other words, when the unemployment rate increases, the poverty rate also increases, and vice versa. In line with the findings of Retnowati et al, (2017) Unemployment has a positive correlation with the poverty rate, and vice versa, which means that when the unemployment rate increases, poverty also tends to increase, and vice versa. One factor that plays a role in this is the mismatch between the number of job opportunities available and the number of individuals seeking work. In addition, one of the other main causes is the lack of skills and ability of the workforce to meet the existing demand in the labor market (Kolibu et al., 2019). According to Arsyad (1997), the unemployment rate and the poverty rate are closely interrelated, as an unemployment situation has the potential to reduce a person's welfare. Poverty is also often a continuing consequence of a prolonged unemployment problem.

### **Unemployment on Economic Growth**

Based on the Granger Causality Test results in each province in the Southern Sumatra region, it can be concluded that there is no causal relationship between the unemployment rate and economic growth. This means that during the study period, the unemployment rate had no influence on economic growth in each province in the Southern Sumatra region, and conversely, the economic growth rate did not affect the unemployment rate in those provinces.

But this is not in line with the theory according to Mankiw, (2014). namely, an unemployed person usually does not earn income, and the higher the unemployment rate in society, the more people do not have a source of income. This can then reduce consumption levels and have an impact on economic growth. This is not in line with the theory according to Sukirno (2000). namely, Strong economic growth has the potential to increase economic capacity, such as Gross Domestic Product (GDP), which in turn can reduce poverty levels. However, inequality in income distribution can inhibit the effectiveness of economic growth in reducing poverty. This research is also not in line with the findings of Romhadoni et al, (2019) His research revealed that economic growth has a relationship with the open unemployment rate. In other words, when economic growth increases, the poverty rate tends to also increase, and vice versa. In theory, increasing economic growth should contribute to labor absorption, which in turn can reduce the unemployment rate. In other words, economic growth influences the unemployment rate. This finding is inconsistent with Syarun (2016) who states that the unemployment rate, individually, has an impact on economic growth, and vice versa. The existence of unemployment in an

economic context will certainly affect the achievement of Gross National Product (GNP) or Gross Domestic Product (GDP). In economics, a low unemployment rate will tend to have a positive impact on a higher GNP or GDP level when compared to a high unemployment rate.

## CONCLUSION

Based on the results of the Granger Causality Test in each province in the Southern Sumatra Region, the following findings can be concluded:

1. There is no causal relationship between the unemployment rate and economic growth, either in one direction or the other, in the five provinces of Southern Sumatra.
2. There is a one-way causal relationship between the poverty rate and economic growth in the Province of Bangka Belitung Islands, but there is no reverse relationship between economic growth and the poverty rate.
3. There is a causal relationship between the poverty rate and the unemployment rate, and vice versa, in the provinces of Bangka Belitung Islands and South Sumatra. In addition, a one-way causal relationship is found in Lampung Province, with poverty affecting the unemployment rate, and However, in Bengkulu Province, no significant causal relationship was found, either in the form of a one-way or two-way relationship.

## SUGGESTION

Poverty reduction is the main focus for local governments in the four provinces in southern sumatra to reduce unemployment. Reducing the poverty rate has the potential to reduce the unemployment rate. Therefore, the policy implications of this study center on policy measures and programs that can be implemented to reduce poverty levels in the four provinces in southern sumatra. Meanwhile, to increase economic growth in the bangka belitung islands province, the bangka belitung islands government needs to place greater emphasis on the issue of poverty levels. By doing so, it can avoid adverse impacts, such as a decrease in income, a decrease in the standard of living of the poor, and a decrease in the economic productivity of the community, all of which can hinder optimal economic growth.

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