CAUSALITY OF ECONOMIC GROWTH AND EMPLOYMENT IN YOGYAKARTA SPECIAL REGION 2001-2020

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Abstract – This study aims to determine the causality pattern between Employment and Economic Growth in the Special Region of Yogyakarta from 2001-2020. The data used in this study were obtained from BPS (Central Bureau of Statistics) Yogyakarta Special Region. The research method used is the Granger causality test. The test results show that in the Special Region of Yogyakarta there is a one-way causality pattern, namely Economic Growth affects Employment, but Employment does not affect Economic Growth. This result shows that the process of economic growth in the Special Region of Yogyakarta over time has been conducive to Employment, so it can be a solution to the employment problem in the region. The fact that Employment does not affect economic growth suggests that there may be a problem with the productivity of the labor force, which is most likely in the agricultural sector.

Keywords: Granger Causality, Employment, Economic Growth

I. INTRODUCTION

The success of a country's development can be seen from several indicators. One of the important indicators in the success of a country's development is economic growth and the unemployment rate. Economic growth is an increase in aggregate national income or an increase in output in a certain period. Another meaning of economic growth is economic growth that shows an increase in production capacity in goods and services (Indayani & Hartono, 2020).

Development is carried out to realize community prosperity through economic development in order to overcome various development and social problems such as unemployment and poverty. In addition to economic growth, one important aspect to see development performance is how effective the use of existing resources is so that employment can absorb the available labor force. Increasing economic growth means that the production of goods/services is increasing. Thus, more labor is needed to produce these goods/services so that poverty decreases and decreases (Yacoub, 2012).

Employment absorption and income levels are ongoing problems for the Indonesian state. The small number of jobs causes the working-age population to not have decent jobs, causing the poverty rate to increase and the Indonesian population to get a fairly low income (Warapsari et al., 2021).

Employment is a major factor in government policy making, with population growth followed by a large number of absorbed labor shows good economic development where the increase in population balanced with the absorption of the labor force should result in an increase in the amount of output in a particular area. However, labor problems become a major problem if the increase in population is not followed by the absorption of the labor force. One of the problems is unemployment, where the existing population is not balanced with the number of jobs, causing unemployment. The problem of unemployment will interfere with the development of economic development, where the goal of development in a region is to prosper the community, create jobs, increase productivity so as to increase people's income (Damayanti, 2019).

The existence of high employment opportunities will absorb labor optimally, so the progress of community economic activities will be better. The income earned by the community, in the form of wages given in the field of work, will be able to fulfill their life needs so that the goal of development, namely creating welfare for the community, can be achieved (Hanjaya et al., 2016).

II. METHODS

The analytical tool used in this study is the Granger causality test, whose econometric model formulation is as follows:

$$EMP = \sum_{i=1}^{m} \alpha_i \, EMP + \sum_{j=1}^{m} \beta_j \, PE + \varepsilon_{t1}$$

$$PE = \sum_{i=1}^{m} \lambda_i \, PE + \sum_{j=1}^{m} \delta_j \, EMP + \varepsilon_{t2}$$

where:

PE	: Economic Growth in Yogyakarta Special Region
EMP	: Employment in the Special Region of Yogyakarta
M	: Maximum lag count
$\varepsilon_{t1}, \varepsilon_{t2}$	: Confounding Variable
$\alpha, \beta, \lambda, \delta$	: Coefficient of each variable

III. RESULTS AND DISCUSSION

Employment Absorption Variable (*EMP*)

The results of the stationarity test of the employment absorption variable (EMP) are presented in Table 1.

Table 1. Stationarity test of EMP variable

Model	δ	τ stat	τ(0,05)	Prob.	AIC
1.	0.020615	2.195073	-1,961409	0.9900	25.13022
2.	-0.090187	-0.949926	-3.029970	0.7488	25.14867
3.	-0.656632	-2.803273	-3.673616	0.2128	24.90549*

Description: * Minimum AIC or best model

Table 1 shows that the best stationarity test result is in the 3rd model. In this model, the statistical probability τ is 0.2128 (> 0.01), so the hypothesis of non-stationary data (*H0*: δ = 0) is accepted, meaning that the Employment Generation variable (EMP) is not stationary so that the 1st difference is performed. The results of the 1st difference stationarity test of EMP are presented in Table 2.

Table 2. Stationarity test of EMP 1st difference variable

Model	δ	t stat	t (0,05)	Prob	AIC
1	-1.129422	-4.705899	-1,961409	0.0001	25.28236
2	-1.376239	-5.694119	-3.040391	0.0002	25.11744*
3	-1.380595	-5.512401	-3.690814	0.0018	25.22629

Description: * Minimum AIC or best model

Table 2 shows that the best stationarity test result is in the 2nd model. In this model, the statistical probability τ is 0.0002 (<0.05), so the stationary data hypothesis (HA: δ = 0) is accepted, meaning that the 1st difference labor absorption variable (EMP) is stationary.

Economic Growth Variable (*PE*)

The results of the stationarity test for the Economic Growth (*PE*) variable are presented in Table 3.

Table 3. Stationarity test of PE variable

Model	δ	t stat	t (0,10)	Prob	AIC
1	-0.034971	-0.315264	-1.606129	0.5568	4.501063
2	-2.682654	-3.339380	-2.660551	0.0281	4.178067
3	-4.024586	-3.323239	-3.286909	0,0942	4.150502*

Description: * Minimum AIC or best model

From Table 3, it can be seen that the best stationarity test results are in the 3rd model. In this model, the statistical probability τ is 0.0942 (< 0.10), so the stationary data hypothesis (HA: δ = 0) is accepted, meaning

that the Economic Growth (*PE*) variable is stationary.

From the stationarity test results, the Employment Absorption (*EMP*) variable is stationary at the 1st difference level while the Economic Growth (*PE*) variable is stationary at the Level level. So the Granger causality test is conducted with the Employment absorption variable d(*EMP*) at the 1st difference level and the economic growth variable (*PE*) at the level level.

The results of the Granger causality test on the EMP and PE variables are presented in Table 4.

Table 4. Granger Causality Test Results of EMP and PE variables

Lag Maksimum	Hipotesis Nol	F	Prob.F
2	PE does not cause DEMP	1.39930	0.2843
	DEMP does not cause PE	0.14194	0.8691
3	PE does not cause DEMP	2.73484	0,1057
	DEMP does not cause PE	0,13674	0,9356
4	PE does not cause DEMP	12.0746	0,0049
	DEMP does not cause PE	0.88145	0,5274

From the results of the Granger causality test in Table 4, only lag 2 shows that there is no causal relationship between Economic Growth and Employment, with an F probability of 0.2843 (> 0.10) and 0.8691 (> 0.10). In lags 3 and 4, there is a one-way causality pattern of Economic Growth causing Employment, but Employment does not affect Economic Growth, with F probabilities of 0.1057 (very close to 0.10) and 0.0049 (< 0.10).

Discussion

The results of the one-way causality test of economic growth affecting employment show that in the Special Region of Yogyakarta the process of economic growth is conducive to employment, so it can be a solution to the employment problem in the region. However, the result of the causality test of employment that does not affect economic growth shows that there may be problems related to the productivity of the labor force.

The results of one-way causality of economic growth affecting labor absorption are in line with the findings of Larasati (2023) in West Sumatra in 2001-2020. The condition that employment does not affect economic growth was also found by Adi (2018) in Kalimantan Island in 2001-2015.

The low level of labor productivity can be caused by factors that occur in the agricultural sector. According to the Central Bureau of Statistics (2019), the dominance of the agricultural sector in the labor structure is not matched by the quality of human resources in it. This condition is exacerbated by human resources in the agricultural sector which are dominated by older groups whose education level is relatively low. The results of this study are in line with Purania (2021) in the Special Region of Yogyakarta Province in 2014-2019.

IV. CONCLUSION

In the Special Region of Yogyakarta, there is a one-way causality pattern where economic growth affects employment, but employment does not affect economic growth. This may be due to labor productivity issues. This shows that sustainable economic growth has succeeded in becoming a solution to the problem of providing employment.

If productivity problems occur in the agricultural sector or other traditional sectors, then the government must identify what exactly the root of the problem is and then create appropriate programs to solve it. The non-agricultural sector must of course also be observed if it is also experiencing labor productivity problems. If this problem is found, then it should also be addressed immediately with appropriate policies.

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