

The Effect Of Fiscal Policy And Investment On Economic Performance In Sulawesi Provinces, Indonesia

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Abstract

Fiscal policy and investment are two economic variables that can affect a country's economic performance. The focus of this research is trying to uncover the effect of fiscal and investment policies on economic performance by taking the case in the Sulawesi region in Indonesia. Government spending, general allocation funds and direct spending are used as a proxy for fiscal policy, to test its effect on economic growth and unemployment is used as a proxy for economic performance. A panel dynamic simultaneous equation model with annual time series from 2011 to 2021 was used to test this effect. It was found that general allocation funds, direct spending, and unemployment had a positive effect on economic growth. Investment has no effect on economic growth. The relationship between direct spending and unemployment has a positive impact on economic growth, while general allocation funds have a negative impact. Furthermore, general allocation funds and economic growth have a positive effect on unemployment, while direct spending and investment have no effect on unemployment. Specifically, general allocation funds and economic growth on unemployment are positive.

Keywords: Fiscal, Policy, Investment, Economic Performance.

1. INTRODUCTION

Fiscal policy is an economic policy employed by the government to manage and improve the economy by changing income tax and government expenditure (Segal, 2021). The objective of economic improvement encompasses several macroeconomic factors, such as

economic growth, employment, inflation (Hayes, 2022), unemployment, and GDP (Tamplin, 2023).

In Indonesia, a portion of state revenue is allocated for provincial regional government spending, which is called the general allocation fund. In accordance with the government's fiscal policy, since January 1, 2001, provincial regional government spending has also been financed by funds derived from provincial regional revenues, which are referred to as direct spending. Therefore, there exist two kinds of provincial regional government spending, namely 1) general allocation funds and 2) direct expenditure funds. These two types of spending are intended to enhance the performance of the provincial economy while implementing the central government's decentralization policy. Furthermore, the central and provincial governments work in tandem to offer domestic and foreign investors the freedom to invest in the province, with the objective of elevating the provincial and regional economies in the country.

Previous studies have examined the effect of government spending on economic performance, specifically economic growth, and unemployment. However, they are limited to single countries (Cyril, 2016; AG et al., 2017; Adramola et al., 2020; Muammil, 2018; Obisike et al., 2020) or certain groups of countries (Nguyen & Bui, 2022; Akinyele, 2022), and rarely done in the region of a country. The analytical models utilized in these studies generally involve multiple linear regression, ARDL, traditional data panel, and ARDL panel. However, these models do not consider the possibility of causality between economic growth and unemployment as the dependent variable in the analysis. These investigations have also produced mixed or contradictory results, which Ozturk (2010) attributed to the cultural and socio-economic characteristics of the study locations, whether province, provincial group, country, or group of countries.

Despite the existing literature, there is currently no study that provides information on the relationship between government spending and economic performance specifically taking cases in several provinces in Sulawesi, Indonesia. This current study focuses on two components of government spending, namely general allocation funds and direct spending, which serve as proxies for the provincial government's fiscal policy. It is important to note that till present, no study has investigated the relationship between general allocation funds, direct spending, investment, economic growth, and unemployment in the Sulawesi region of Indonesia.

Therefore, these results are significant to the economic literature, especially in examining the relationship between general allocation

funds, direct spending, including investment on economic growth and unemployment. Then presents the results of a study of the effects of economic growth in influencing unemployment.

2. LITERATURE REVIEW

In this section, some relevant findings of previous empirical studies and theories are discussed. Specifically, the description focused on (1) the effect of government spending on economic growth, (2) the effect of government spending on unemployment, (3) the effect of investment on economic growth, (4) the effect of investment on unemployment, and (5) the relationship between economic growth and unemployment.

The effect of government spending on economic growth can be positive or negative. Barro (1990) developed a mathematical model linking government spending and economic growth using the Cobb-Douglas model, where tax revenues are assumed to finance government spending. Based on model calibration, Baro (1990) concluded that government spending can influence economic growth positively or negatively, depending on the level of productive public service selection. This theory is also in line with previous empirical studies, such as Wu et al. (2013) found that government spending has a close (significant) relationship with economic growth, which has a logical consequence that higher government budget allocations can indirectly improve economic growth achievements. But then there is a gap, because there is a negative effect that financial expenditure (allocation) has not had a real effect on economic growth as reported by Arvin et al. (2021). Arvin's findings are then supported by Nguen & Bui (2022); and Shaddady (2022). Therefore, the investigation of the model in question is important to continue to prove.

Lama and Medina (2019) proposed a theory linking government spending and unemployment. By calibrating the mathematical model, they concluded that government spending could have a negative impact on unemployment. This idea is in line with the theory put forward by Sarareh (2020). However, empirical studies have yielded mixed results in this regard Abouelfarag & Qutb (2020); and Monacelli (2010) find that there is an increase in government spending, at the same time there is an increase in unemployment. This means that spending does not have an effect (negative impact) on unemployment. Likewise, Saraireh Liu et al. (2022); and (2020) find that government spending has a negative effect on unemployment. However, these findings were later rejected by Dallari & Riba (2019); and Tagkalakis (2013) that government spending is proven to be able to reduce unemployment. This position reiterates that

the analysis of the intended relationship needs further deepening to strengthen previous findings (a strong and significant role).

According to the IS-LM model, increased investment can increase aggregate demand and economic growth. Neoclassical theory explains the long-term effects of investment by asserting that increased investment causes a proportional increase in per capita output and economic growth (Hoon et al., 2022). In an empirical study, Sial et al. (2010); and Podrecca & Carmeci (2001) used a dynamic panel data model to test that investment has a positive effect on economic growth. Furthermore, Abiad et al. (2016) by taking cases in 17 OECD countries (United States, Australia, Belgium, United Kingdom, Canada, Switzerland, Denmark, Norway, Sweden, New Zealand, Finland, Netherlands, France, Korea, Germany, Japan, Iceland) Investment leads to economic growth. Different results were shown by Rafiy et al., (2018) with the ARDL model it was found that investment did not affect economic growth. The same thing was reported by Nguyen & Nguyen (2021) where investment policy is not proven (negative effect) in increasing economic growth. Nguyen & Nguyen (2021) continued, only private investment has a positive effect on economic growth.

Theoretically, investment can condition unemployment in the long term, and may not directly in the short term (Hoon, 2022). there is enough empirical evidence to prove this theory with various econometric models. Karanassou et al., (2008) reported that investment (capital stock) has a significant positive effect on economic growth and unemployment. Furthermore, Aretis (2010) by taking studies in 9 European countries (Austria, Belgium, Finland, France, Germany, Italy, Ireland, the Netherlands and Spain), the results are in line with the Karanassou report, even significant for unemployment. Almula-Dhanoon et al., (2020); and Banded & Riviero (2012) also reported the same thing, there is a one-way relationship between investment and unemployment. The study oOluchukwu-F et al., (2019) rejects these findings where investment has a negative impact on unemployment.

Ideally, an increase in economic growth can lead to a decrease in unemployment (Loria & Salas, 2014). The empirical evidence for this theory is conflicting. The corresponding group was reported by Mbarek et al., (2018); and dLoria and Salas (2014) found that there is an inverse relationship between economic growth and unemployment, meaning that when economic growth occurs, unemployment decreases. The group that refused was Awoyemi et al., (2022); Uddin and Rahman (2022); and Hjazeen et al., (2021) using the ARDL bootstrap cointegration approach, shows that economic growth and unemployment have a negative relationship in the long run. More specifically, Siddikee et al.,

(2022) investigated the relationship between economic growth and unemployment in Asian countries using the Okun equation model. The result is that the countries of Azerbaijan, Malaysia, and Tajikistan follow Okun's law, whereas in other Asian countries, the relationship between economic growth and unemployment is positive.

The research conceptual model is produced as shown in Figure 1. There are eight hypotheses proposed (7a and 7b) to be answered in this study.

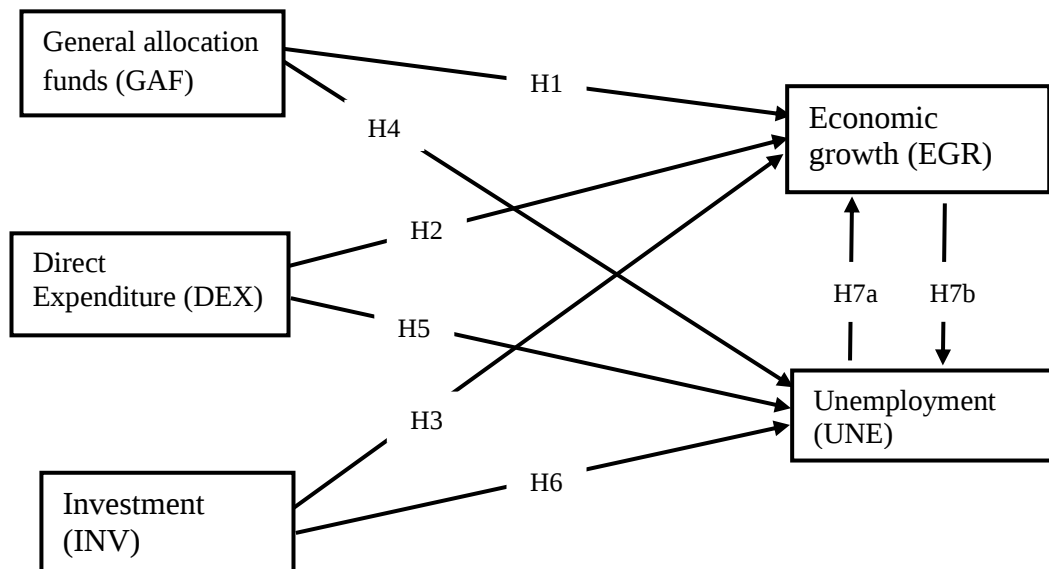


Figure 1. Conceptual Model and Research Hypothesis

3. METHOD

The variables of this study are classified into two types, namely exogenous and endogenous. Exogenous variables consist of general allocation funds (GAF), direct expenditure (DEX), and investment (INV), while endogenous include economic growth (EGR) and unemployment (UNE). The general allocation fund and direct expenditure are components of government expenditure.

The panel data utilized was obtained from six province cross sections, namely North Sulawesi, Central Sulawesi, South Sulawesi, Southeast Sulawesi, Gorontalo, and West Sulawesi with time series from 2011 to 2021. The unit for general allocation fund, direct expenditure, and investment is IDR. In addition, the unit for economic growth, and unemployment is a percentage (%). The data is sourced from the Indonesian Central Statistics Agency.

The model used is panel dynamic simultaneous equations (Mitze, 2010; Hasiao & Zhou, 2015). The model equation is,

$$EGR_{it} = \beta_0 + \beta_1 EGR_{i(t-1)} + \beta_2 UNE_{it} + \beta_3 GAF_{it} + \beta_4 DEX_{it} + \beta_5 INV_{it} + e_{1it}$$

$$UNE_{it} = \gamma_0 + \gamma_1 UNE_{i(t-1)} + \gamma_2 EGR_{it} + \gamma_3 GAF_{it} + \gamma_4 DEX_{it} + \gamma_5 INV_{it} + e_{2it}$$

where β_i ($i = 0, 1, \dots, 5$), dan γ_i ($i = 0, 1, \dots, 5$) are the parameters of the regression equation, and e_{jit} ($j = 1, 2$) is an error. The notation i represents the province cross sections of Sulawesi Regions, including North, Central, South, Southeast, Gorontalo, and West, while t is the time, with $t = 2011, 2012, \dots, 2021$. The error term e_{ji} is independent of both time t and cross-section i , and also exhibits an identical distribution with respect to time t .

In general, the parameters of the panel dynamic simultaneous equations models can be estimated through various methods, such as the Quasi-Maximum-Likelihood (Hasiao & Zhou, 2015) and moment approach, including general moment method (Mitze, 2010), and P2SLS method (Hasiao & Zhou, 2015). In this study, the P2SLS method was used to estimate the parameters of equations (1) and (2). The P2SLS method was applied to the first differentiation equation to eliminate individual effects and identify each equation in the panel dynamic simultaneous equations system. Asteriou and Hall (2011) and other economists suggested that order conditions can be used to evaluate identification problems. Suppose K represents the number of endogenous variables in the system of equations, and L is the number of missing variables in an equation of all the variables in the system of equations, then an equation is considered as an identified equation if $L = K - 1$ or $L > K - 1$. According to these order conditions, equations (1) and (2) are identified since $K = 2$, $L = 4$, and $4 = L > K - 1 = 2 - 1 = 1$. Therefore, the parameters of equations (1) and (2) can be estimated using the P2SLS method.

Based on the estimation method and model assumptions outlined above, the data analysis using the panel dynamic simultaneous equations models involves the following steps. The first step is to estimate the parameters of models (1) and (2) using the P2SLS method. The final step is to examine the residual assumptions, including independence and normality. To test for residual independence over time, the Breusch-Godfrey LM (BGLM) test was employed. For assessing the residual normality assumptions, the Jarque Bera test (JB) was considered. Finally, the Breusch-Pagan LM (BPLM) test was utilized to examine potential cross-sectional dependencies among the provinces.

4. RESULTS

The results of the model 1 parameter estimation using the P2SLS method are summarized in Table 1. It was observed that the general allocation fund and unemployment were significant at the 1% significance level. This means that these two variables significantly affect economic growth. Furthermore, direct expenditure is significant at 10%, while investment is not significant. It can be concluded that direct expenditure has a significant impact, while investment does not affect economic growth.

Table 1. Estimation results of model 1 parameters

Variable	Coefficient	t-Statistic	Prob.
EGR(-1)	0.270279	1.914425	0.0608
UNE	1.126313	3.231083	0.0021
GAF	-2.52E-12	-3.076980	0.0033
DEX	1.25E-12	1.896663	0.0631
INV	0.000117	0.522925	0.6031

Source: Processed data.

Note: The probability values of the JB and BPLM tests are 0.042 and 0.149. The static value of the BGLM test is 0.2086.

The estimation results of model 2 parameters using the P2SLS method are presented in Table 2. It can be observed that general allocation funds and economic growth have a significance level of 1% and 5%. This indicates that these two variables affect unemployment. In other words, it was also observed that direct expenditure and domestic investment were not significant.

Table 2. Estimation results of model 2 parameters

Variable	Coefficient	t-Statistic	Prob.
UNE(-1)	0.623291	6.352408	0.0000
EGR	0.192892	2.244498	0.0288
GAF	7.68E-13	2.852195	0.0061
DEX	-3.23E-13	-1.108180	0.2726
INV	3.85E-06	0.050804	0.9597

Source: Processed data.

Note: The probability values of the JB and BPLM tests are 0.704 and 0.106. The BGLM test static value is 5.3578.

Therefore, both direct expenditure and investment variables do not affect economic growth. The estimation results of model 1 and 2

parameters which are summarized in Table 1 and 2 showed that the two endogenous variables, namely economic growth, and unemployment exhibited a two-way relationship. This implied that the direction of the relationship is from economic growth to unemployment, and vice versa.

After examining the residual assumptions of models (1) and (2), it was found that the residuals are normally distributed for each time t ($t=2011, 2012, \dots, 2021$), and independent across provinces j ($j=\text{North Sulawesi, Central Sulawesi, Sulawesi South, Southeast Sulawesi, Gorontalo, and West Sulawesi}$). Table 1 presents the results of the independent test statistics, normality test, and cross-sectional dependent. It was observed that the probability values of the JB and BPLM tests are greater than 1%, and the BGLM statistical test values are smaller than the critical value of 9.21 at a significance level of 1%.

5. DISCUSSION

This study concludes that general allocation funds have a significant negative impact on economic growth, with an estimated decrease of $2.52E-10$ % for every 1% increase in funds. Meanwhile, direct expenditure has a significant positive effect on economic growth, with an estimated increase of $1.25E-12$ for every 1% increase in expenditure. This finding aligns with the theoretical framework proposed by Barro (1990) and empirical studies conducted by Nguen and Bui (2022), Arvin et al. (2021), Wu et al. (2013), and Shaddady (2022).

The results of this study showed that general allocation funds have a significant and positive impact on unemployment, with a small percentage increase of 7.68-11% for every 1% increase in these funds. This finding contradicts the theory proposed by Lama and Medina (2015). However, the positive effect of government spending on unemployment has been observed in previous empirical studies, such as the study conducted in Egypt by Abouelfarag and Qutb (2012), and Monacelli (2010) in the United State. On the other hand, studies by Tagkalkis (2013), Liu et al. (2022) and Sarareh (2020) support the theory but are inconsistent with the outcome of this current study.

In conclusion, this study reveals a significant and positive relationship between economic growth and government spending, contrary to the theory of Okun's law (Hon, 2022), which proposes a negative relationship. The findings contradict the results of previous empirical studies (Awoyemi et al., 2022; Loría and Salas, 2014; Hjazeen et al., 2021) where economic growth and unemployment were negatively correlated.

The reason for the positive relationship between government spending, economic growth, and unemployment can be due to slower employment growth compared to that of the labor force. Despite government projects funded by general allocation funds and the expansion of private companies, there is still limited job creation. Therefore, an increase in government spending (general allocation funds) and economic growth has not been sufficient to curb the rapidly increasing unemployment rate.

Based on these findings, it is recommended that national and regional provinces increase the general allocation of funds and direct spending toward financing government and private projects. This can generate more employment opportunities, thereby reducing the unemployment rate every year. Additionally, to promote economic growth and reduce unemployment, the government needs to facilitate investment in provincial areas by both domestic and foreign investors.

6. CONCLUSIONS

This study found a relationship model that has positive and negative effects. These results also confirm previous empirical evidence. The positive effects that have been revealed are general allocation funds, direct spending, and unemployment have a positive effect on economic growth. The following findings show that direct spending and unemployment have a positive impact on economic growth, general allocation funds and economic growth have a positive effect on unemployment, and general allocation funds and economic growth have a positive effect on unemployment.

The opposite relationship is the resulting negative effect that investment does not affect economic growth. Then the general allocation fund is negatively related to unemployment, and direct spending and investment have no effect on unemployment.

Recommendation

Practically it was shown to the provincial government in the Sulawesi region to review investment policies because they have not actually contributed significantly to the structure of the economy including the absorption of labor in overcoming unemployment. At the same time, the provincial government evaluates the budgeting mechanism in relation to unemployment, perhaps considering the need for a special policy on this matter by changing its implementation approach.

Theoretically, we propose a logical consequence as a reference for further research. This finding shows that there are other aspects (which

can be variables or indicators) that play a greater role in economic growth besides investment. Likewise, unemployment is not always proportionate as a positive result of investment and budgeting, so it is necessary to look again to reconstruct which variable is stronger in reducing the unemployment rate apart from the model proposed in the study. This discourse is a challenging thing to follow up in future studies.

Conflict of Interest Declaration

This research was carried out at his own expense, not involving any institution as a sponsor. Therefore, it can be ensured that the material presented in the manuscript is free from subjectivity and conflicts of interest in any form.

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