



CAUSALITY ANALYSIS OF REGIONAL FINANCIAL INDEPENDENCE AND ECONOMIC GROWTH

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Abstract:

Risnawati K. Pakaya, 2021. Analysis of causality of regional financial independence and economic growth of Gorontalo province in 2011-2020. Department of EconomicsS-1 Development Economics, Faculty of Economics, Gorontalo State University with Mentor I Prof. Dr. Ir. Syarwani Canon M.Si and Guide IIFitri Hadi Yulia Akib, SE, ME.

The study aims to identify and analyze the causal relationship between regional financial independence and economic growth with regional financial independence as an intervention variable. After subsequent causality testing, a simple linear regression estimate was performed. The method of data analysis used in this study is quantitative descriptive data analysis. The data used is secondary data. Secondary data for this study is apbd and economic growth of Gorontalo province 2011-2020 sourced from the central statistics agency and director general of financial development.

The results of the Granger test estimate causality between the variables of regional financial independence and economic growth show that the variable of regional financial independence and economic growth has an effect on lag 2 with a unilateral relationship which means economic growth has an influence on financial independence. Economic growth of the three sectors directly affects the financial independence of the region. Primary economic growth has a positive effect on regional financial independence, while secondary and tertiary economic growth negatively affects.

Keywords: Economic Growth, Regional Financial Independence

1. INTRODUCTION

Economic growth is a process of increasing the value of the production of goods and services within a certain period of time. Economic growth is one of the problems of a country's economy in the long run towards a better state during a certain period that can be attributed also as a state of increase in the production capacity of an economy that is realized in the form of an increase in national income. The higher the economic growth means the better the level of community welfare. The higher the economic growth means the better the level of community welfare. Gross Regional Domestic Product (PDRB) states the total revenue and total expenditure of the region on the output of goods and services of a region. THE PDRB can be calculated in two ways, namely on the basis of constant price and on the basis of prevailing price. (Moudina, Bukit Agita 2019). PDRB on a price basis applies using the price in the current year, at the time of assessing production, the intermediate cost and value-added components whereas the PDRB on a constant price basis uses the price of goods and services in the base year. PDRB according to the business field there are 17 (seventeen) sectors grouped into three sectors, namely the primary sector, the secondary sector and the tertiary sector.

In zulkarnain research (2019) Schumpeter argued that economic growth in one country will increase if there is a role of entrepreneurs. Entrepreneurs will continue to make changes or innovations in the economy. Schumpeter believes that capitalism is the best system for creating rapid economic development. According to Classical and Neo-Classical theory, the development of factors of production, technological advances, labor and capital are the most important major factors in determining economic growth at a given mass in the development over time. Neo-Classical theory recommends that economic activity is always directed to the perfect market, therefore, the economy will grow optimally. The policy that will be pursued to realize a perfect market is to remove barriers in trade including the movement of people, goods and capital as in the classical theoretical model (Dewi, P. A K., & Sutrisna, I. K, 2015)

A budget is a statement of the performance to be achieved over a given period expressed in financial measure. The budget process is called a holding. Budgeting in the public sector, especially the government is a fairly complex

stage because it not only considers economic factors, but there are also very thick socio-political factors. (Ashshiddqi, M. H, 2018)).

In carrying out regional development, finance is the main problem of the government. The financial aspect becomes one basic criterion to know in real terms the ability of the region in taking care of its household. The ability of regional financial independence can be interpreted as the ability of local governments in financing government activities, development and services to the community by increasing their own financial resources to finance regional needs, Without always relying on aid and subsidies from the central government. The ability of the region in managing its finances can be seen from the large amount of Regional Original Income (PAD) obtained by the area concerned. Regional Native Income (PAD) has always been viewed as one of the criteria for measuring a region's dependence on the central government because as a source of income that comes purely from the region. Therefore, the greater the contribution of PAD to apbd, the smaller the regional dependence on the central government for government funds. Regional Financial Independence is a picture of local government in terms of regional dependence on the source of funds of the central and provincial governments The higher the regional financial independence, the lower the regional and provincial sources of funds (Isma C, 2014).

There are times when high regional financial independence is followed by a decrease in the rate of economic growth or a decrease in the level of regional financial independence followed by an increase in the rate of economic growth. Conversely, there are also times where a high rate of economic growth is followed by an increasing percentage of regional financial independence. Nevertheless, the relationship between the level of regional financial independence and economic growth has not been ascertained the clarity of its causality, in the sense of whether regional financial independence affects the level of economic growth or vice versa economic growth that affects regional financial independence. . From the background description, researchers will examine more deeply about the causality relationship of Regional Financial Independence and Economic Growth of Regencies / Cities located in Gorontalo Province. With this, the researchers raised the title of Causality Analysis of Regional Financial Independence and Economic Growth of Gorontalo Province 2011-2020.

2. LITERATURE REVIEW

Several relevant studies of the same type have revealed the influence of economic growth on regional financial independence studied by siska Litilonga 2020, aiming to find out the effect of economic growth on regional financial independence in North Sumatra Province in 2014-2018. Concluded that partially economic growth negatively affects the financial independence of the region.

In another study by Nur'ainy R 2013 The Effect of Regional Economic Growth and Indigenous Income on Regional Financial Independence Levels. With the results of research Economic Growth and Regional Native Income affects the Independence of Regional Financial Independence. And simultaneously Economic Growth and Local Native Income affect the Level of Regional Financial Independence.

Woestho Choiroel research, 2020 which analyzes Regional Financial Capabilities and Independence and Their Effect on Economic Growth in Jeneponto Regency. The results of the study using multiple linear regressions The result obtained is that the ratio of regional financial independence is still very low with a range of 0%-25% with an instructive pattern and has an influence on economic growth.

3. RESEARCH OBJECTIVES

The study aims to find out if there is a causality relationship between regional financial independence and the economic growth of Gorontalo Province in 2011-2020. Then to find out how much influence occurs between variables.

4. RESEARCH METHODS

The method of data analysis used in this study is quantitative descriptive data analysis. The data source used by researchers is secondary data. The data taken is the gorontalo provincial budget data for 2010-2020 sourced from the Central Statistics Agency and the Director General of Financial Development. Here is the technical analysis of the data used by researchers.

A. Granger Causality Test

It is used to identify whether there is a causal relationship between the Regional Financial Independence variable and the Economic Growth variable.

The variables used in this study consisted of two variables.

- 1. Bound variables: Economic Growth
- 2. Free Variables: Regional Financial Independence Capabilities

$$X_t = \sum_{i=1}^m \alpha_i X_{t-i} + \sum_{j=1}^m \beta_j Y_{t-j} + Ut1$$

$$Y_t = \sum_{i=1}^m \lambda_i X_{t-i} + \sum_{j=1}^m \delta_j Y_{t-j} + Ut2$$

i=1j=1

Information:

Xt: Regional financial independence

Yt: Economic growth

m: Amount of lag

Ut1, Ut2: Confounding variables

$\alpha, \beta, \lambda, \delta$: The coefficients of each variable assume that ut_1, ut_2 disorders are uncorrelated.

b. Simple Linear regression test

The study used simple linear regression. With calculations using models based on annual data of provinces and cities or called data panels. The equations used in this research model include:

$$EGP = \beta_0 + \beta_1 KKD + \epsilon ..$$

$$EGS = \beta_0 + \beta_1 KKD + \epsilon ..$$

$$EGT = \beta_0 + \beta_1 KKD + \epsilon ..$$

Information

EGP = Primary Economic Growth

EGS = Secondary Economic Growth

EGT = Tertiary Economic Growth

KKD = Regional Financial Independence

ϵ = Error Term

5. DISCUSSION

Granger's causality test is a method of knowing where bound variables (independent variables) can replace bound variables under the influence of other variables (free variables) and free variables. This relationship is called causality or reciprocity (Fidamayanti, 2021)

Table 4. 1 Causality Granger Economic Growth and Financial Independence

Pairwise Granger Causality Tests	
Lags: 2	
obs : 48	
Null Hypothesis:	Prob.
KKD does not Granger Cause gP	0.4942 ^{NS}
gP does not Granger Cause KKD	0.1194 ^{NS}
KKD does not Granger Cause gS	0.6071 ^{NS}
gS does not Granger Cause KKD	0.0266 ^{**}
KKD does not Granger Cause gT	0.7812 ^{NS}
gT does not Granger Cause KKD	0.0697 [*]

*Keterangan : ***) signifikan di 1% dan **) signifikan di 5% *) Signifikan 10%^{NS}) Not Signifikan*

Sumber : Output Regresi, 2021 (Lampiran)

Interpretation of the results of Table 4.2 above using lag length = 2, as follows:

1. Regional Financial Independence has no effect on the economic growth of the Primary sector shown by the prob value = 0.4942, this value is greater than the 10% confidence level. Similarly, the relationship between the economic growth of the primary sector does not have a significant influence on regional financial independence indicated by the value Prob = 0.1194, I, this value is greater than the 10% confidence level. Thus, it can be taken the decision that financial independence becomes a bound variable and primary economic growth becomes a free variable. This is because the smallest probability value is owned by the influence of economic growth on the financial stagna of the region, which is 0.1194.
2. Regional financial independence (KKD) and secondary economic growth are statistically insignificant at a confidence level (α) of 10% with prob (p) = 0.6071, meaning the value of α is still greater than p . While in testing secondary economic growth and regional financial independence showed a significant influence with a level of trust at the level of 5% with prob = 0.0266. This means that financial independence becomes a bound variable while Secondary economic growth becomes a free variable.
3. Regional financial independence (KKD) and economic growth are statistically insignificant at a confidence level (α) of 10% with prob (p) = 0.7812, meaning the value of α is still greater than p . While in testing tertiary economic growth and regional financial independence showed a significant influence with a level of trust at the level of 10% with prob = 0.0697. This means that financial independence becomes a bound variable while economic growth becomes a free variable.

Thus, it can be taken that in the Granger Causality test in Gorontalo province there is a one-way relationship between the variables of Secondary and Tertiary Primary Sector Economic Growth to Regional Financial Independence, namely between economic growth of 3 sectors to regional financial independence.

Model Testing

The models used in data panel regression analysis are Common Effect Mode (CEM), Fixed Effect Mode (FEM) and Random Effect Mode (REM). To determine the best model among the 3 models above, two procedures are needed, namely; Chow test, which aims to look at optimization between CEM mode and FEM mode. The second test is; Hausman's experiments found fem status optimization and REM status. Calculations are done using evIEWS-9 software by selecting models such as the following:

Tabel 4. 2Uji Chow

Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	85.284004	(5,51)	0.0000***

Keterangan : ***) signifikan di 1% dan **) signifikan di 5% *) Signifikan 10%^{N 5}) Not Signifikan
 Sumber: Output Regresi, 2021 (Lampiran)

Tabel 4. 3Uji Hausman

Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.476414	3	0.0059***

Keterangan : ***) signifikan di 1% dan **) signifikan di 5% *) Signifikan 10%^{N 5}) Not Signifikan
 Sumber: Output Regresi, 2021 (Lampiran)

This research estimation model uses the least square pool method or least square panel method through a fixed effect mode approach for regression of primary, secondary and tertiary sector economic growth against regional financial independence. Because each probability (Chow test = 0.0000 and Hausman Test = 0.0059) is below alpha level (1%), after passing 2 tests namely chow and hausman test. The final verification of the statistical hypothesis of this study is to test the effect of independent variables on dependent variables and the degree of variable determination. The t-test value is shown in the etimasi results table, which focuses on comparing the coefficients of independent variables with probability values. As mentioned in the estimation table above.

Hasil Estimasi Regresi

Dependent Variable: KKD?
 Method: Pooled EGLS (Cross-section SUR)
 Sample: 2011 2020
 Total pool (balanced) observations: 60
 Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.50332	0.685058	21.17093	0.0000***
gP?	0.298937	0.096625	3.093799	0.0032***
gS?	-0.379876	0.078752	-4.823703	0.0000***
gT?	-0.342739	0.106431	-3.220281	0.0022***

Effects Specification

Cross-section fixed (dummy variables)			
Weighted Statistics			
R-squared	0.918134	Mean dependent var	3.421725
Adjusted R-squared	0.905292	S.D. dependent var	3.435739
S.E. of regression	0.967512	Sum squared resid	47.74001
F-statistic	71.49584	Durbin-Watson stat	1.836678
Prob(F-statistic)	0.0000***		

Keterangan : ***) signifikan di 1% dan **) signifikan di 5% *) Signifikan 10%^{N 5}) Not Signifikan
 Sumber : Output Regresi, 2021 (Lampiran)

It means:

1. Constant (C) = 14,50332. That is, without being influenced by all independent variables in observing Regional Financial Independence (KKD) it will be worth 14,50332 percent.
2. Primary Economic Growth (gP) = 0.298937. This means that primary economic growth increases by 1 percent, then regional financial independence increases by 0.298937 percent.
3. Secondary Economic Growth (gS) = -0.379876. That is, secondary economic growth increases by 1 percent, then regional financial independence decreases by -0.379876 percent.
4. Tertiary Economic Growth (gT) = -0.342739. That is, Tertiary Economic Growth increases by 1 percent, then regional financial independence decreases by -0.342739 percent.

Coefficient of Determination

It is known that the R-square value of the estimated confounding variables (Primary, Secondary and Tertiary) on financial independence is 0.905292, meaning that if it is calculated in the presentation size, the r-square value reaches 90.53% (rounded up). So the decision that the 3 sectoral economic growth variables which are the dependent variables in the study can explain changes in the dependent variable (regional financial independence) of 90.53% and the remaining % is explained by other variables outside the model that are not included in the estimation model.

F-Statistik

It is known in the regression output that the value of the f-statistical probability is less than all the significant levels used in the study with an coefficient of 0.0000. Thus, a decision can be made that the independent variables (Primary, Secondary and Tertiary) together can describe external variables outside of graduation in urban districts in Gorontalo province from 2011-2020.

Variabel Bebas	Kemandirian Keuangan Daerah	
	Probability (P-Value)	Taraf Signifikan
Pertumbuhan Ekonomi Primer	0.0032 ***	Signifikan 1%
Pertumbuhan Ekonomi Sekunder	0.0000 ***	Signifikan 1%
Pertumbuhan Ekonomi Tersier	0.0022 ***	Signifikan 1%

T-Statistik

*Keterangan : (***) signifikan di 1% dan **) signifikan di 5% *) Signifikan 10%^{N 5}) Not Signifikan
 Sumber : Output Regresi, 2021 (Lampiran)*

Primary Economic Growth Against Regional Financial Independence

Estimates of the influence of primary economic growth have a positive and significant influence on regional financial independence with a positive coefficient value of 0.298937. This means that every 1 percent increase in primary sector economic growth will increase regional financial independence by 0.298937 percent.

We know that together the Primary sector is a production sector produced by natural resources, while regional financial independence is a benchmark for a region in meeting the financial needs of each region in conducting regional development.

In terms of regional financial independence has a positive effect on the agricultural sector, because regional financial independence is a comparison between the original income of the region and the transfer fund, the greater the financial independence the area then the lower the dependence of the region on other areas (Saputra et al, 2015).

Gorontalo Province is a province specialized in economics with an emphasis on the primary sector and also the primary sector contributing 30% of the total economic growth of Gorontalo Province and becomes the primadonea of income in Gorontalo Province (Mopangga, 2014). In addition, in explaining that the economic growth of the primary sector has a significant effect on financial independence, namely first, this situation is due to the direct effect of financial decentralization on economic growth the primary sector and requires a long and long process and takes quite a long time. In particular, degrees of financial decentralization through regional spending are used to finance infrastructure development and economic activities, such investments can indirectly stimulate the economic activities of the agricultural sector, so that PAD can be increased, which further increases the degree of financial independence of districts and cities in Gorontalo province, but the results are not directly seen plus the agricultural sector is a seasonal sector (Saputra dkk 2015).

Second, the causative factor of economic growth has a significant effect, namely caused by the burden of APBD spending which is also relatively large on sustainable economic development, for example in the manufacture of facilities and infrastructure with efforts to sustain the economic sustainability of the primary sector such as the creation of road access that can facilitate access to production of the primary sector. So that the phenomenon of high burden of regional shopping is a phenomenon that we usually found almost in all regions in the region Indonesia is due to several provinces classified as developing provinces (Hasan, 2021). The results of this study are in line with research conducted by Rosdin (2020) which explained that economic growth has a positive effect on regional financial independence. Economic growth is one of the important goals of local government and central government. Economic growth encourages local authorities to develop economic development through the management of existing resources and form cooperation with communities.

Secondary Economic Growth and Regional Financial Independence

The estimated effect of secondary sector economic growth has a negative and significant effect on financial independence with a coefficient value of 0.379876. This means that every 1 percent increase in economic growth in the secondary sector can clearly explain the decline in the value of regional financial independence with a decrease of 0.379876 percent.

Tertiary Economic Growth and Regional Financial Independence

The estimated effect of Tertiary Economic Growth has a negative and significant effect on tertiary economic growth with a coefficient value of 0.342739. This means that every 1 percent increase in Tertiary Economic Growth can explain significantly the decrease in the value of regional financial independence by 0.342739 percent.

In terms of economic growth in the tertiary sector in regencies/cities in Gorontalo Province, it has a negative effect on the ratio of regional financial independence, due to local revenue (PAD) in Gorontalo Regency/City. Tertiary sector revenues are in the form of taxes imposed on the accommodation sector, food and drink, tourism and so on which are almost entirely owned by outsiders or outside investors in the form of services. So that in carrying out the wheels of government and development, the regional government of Gorontalo Province can carry out government if the independence ratio increases and does not depend on the receipt of transfer funds. This is evidenced by the results of research which explains that economic growth has a negative and significant effect.

Normalitas Residual

The normalization test was conducted to determine whether the regression model on the independent variables and the dependent variable was normally distributed. If the variable does not follow a normal distribution, then the results of the statistical test are not normal. To be able to verify this by comparing the Jarque Bera (JB) test values to test for normality. If the probability value of JB is greater than the alpha level then the data can be normally distributed, otherwise if the probability value of JB is less than the alpha level used, the opposite will happen.

It is known that the JB probability of all the estimates observed in the picture above has a JB probability value greater than all significant levels ($\alpha = 1\%$, 5% and 10%) used in the study. So that H_0 is accepted and H_1 is rejected, where the data is concluded to be normally distributed.

Multikolinearitas

Independent	gP	gS	gT
gP	1	0.357	0.539
gS	0.357	1	0.685
gT	0.539	0.685	1

*Keterangan: gP)Pertumbuhan ekonomi Primer, gS) Pertumbuhan ekonomi Sekunder, gT) Pertumbuhan ekonomi Tersier
Sumber: Output Regresi, 2021 (Lampiran)*

From the estimation results in the table above, it shows that there is no multicollinearity between primary economic growth (gP) and secondary economic growth (gP). also does not occur multicollinearity (value 0.539 less than 0.80) and for secondary economic growth (gS) with tertiary economic growth (gT) does not occur multicollinearity (value 0.685 less than 0.80). So that the decision that can be taken is that the overall estimate of the independent variables does not contain symptoms of multicollinearity.

Autokorelasi

It is known that the number of observation data or the value of $N = 60$ and the number of variables or the value of $K = 2$. So that in the DW table the value of $D_u = 1.61517$ and the value of $D_L = 1.54853$, while the value of D_w Statistics = 1.836678. Thus, the decision that can be taken is that there is no autocorrelation, because the D_w Statistic value is greater than the D_L value, there is no autocorrelation symptom.

Heterokedastisitas

Tabel 4. 4 Heterokedastistas

Dependent Variable: RESABS
Method: Panel Least Squares
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
gP	-0.003109	0.129605	-0.023985	0.9810 ^{NS}
gS	0.043156	0.143119	0.301539	0.7642 ^{NS}
gT	-0.068957	0.187835	-0.367114	0.7151 ^{NS}

*Keterangan : ***) signifikan di 1% dan **) signifikan di 5% *) Signifikan 10% ^{NS}) Not Signifikan
Sumber : Output Regresi, 2021 (Lampiran)*

According to the results of the heterogeneity test, the meaning of each estimate lies in the probability of each independent variable (primary, secondary and tertiary) on Regional Financial Independence -value of the variance of the independent variable is greater than (significant) used in the model (10%, 5% and 1%), so that it can be concluded that all the regression models of the previous research were not affected by heteroscedasticity.

6. Conclusion

Based on the results of estimates and discussions in the previous chapter, researchers can conclude from the causal relationship between Sectoral (Primary, Secondary and Tertiary) economic growth to regional financial independence in Gorontalo Province from 2011 to 2020, namely:

1. Granger Causality Test in Gorontalo province there is a one-way relationship between secondary and tertiary sector economic growth variables to regional financial independence. It means sector The meaning of the secondary and tertiary sectors together become independent variables while regional financial independence becomes dependent variables.
2. Primary, secondary and tertiary economic growth directly affects the ratio of regional financial independence. For the primary sector gives a positive influence on the ratio of financial independence. Secondary and tertiary economic growth negatively affects financial independence

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