The Effect of Exports, Imports, Government Expenditures and Inflation on Economic Growth (Case Study in Banten Province 2010-2021)

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Abstract. The success of the economic development of a country or region is marked by increased economic growth. To increase significant growth, it is necessary to have government spending and foreign trade, namely exports and imports. Export and import activities are generally carried out by each country or region to strengthen the position of the economy and meet domestic needs. Government spending is a form of fiscal policy to achieve economic efficiency and effectiveness. Increased export activities will encourage an increase in the amount of domestic production which in turn can affect economic growth. On the other hand, increased imports can affect inflation and pose a threat to declining purchasing power and affect the effectiveness of economic growth. The study aims to determine the effect of government spending, exports, imports, and inflation on economic growth in Banten Province for the period 2010-2021.

Keywords: Government Expenditures; Exports; Imports; Inflation; Gross Domestic Regional Products

1 Introduction

Banten Province is a province in Indonesia that was established after the reform ± 23 years ago it was previously an administrative area of the Province of West Java. Banten Province has an area of ± 9,160.70 km² with a population of ± 9,351,470 people. Economically, Banten Province has strategic potential benefiting from its position as a trajectory between the islands of Sumatra and Java and a buffer for the capital city of DKI Jakarta. Economic development in Banten Province can be seen in Figure 1, the development of Gross Regional Domestic Product for the 2010-2021 period is seen to experience a relatively stable increase with an average increase of 2.59%. Export developments also appear to have increased significantly with an average of 0.79% annually. Import development has increased every year with an average of 0.85%. Then local government spending also experienced a significant increase with an average of 21.69% every year.

However, in line with economic growth which is usually accompanied by inflation, the inflation rate in Banten Province can be said to be under control, decreasing every year by an average of -0.42%. The development of exports, imports, government spending, and inflation for the period 2010-2021 can be shown in Figure 1 below.

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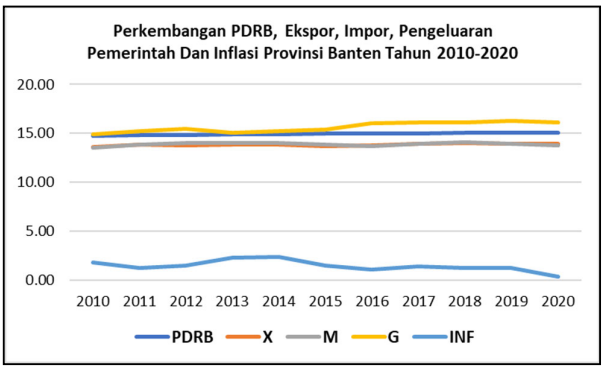

Fig.1. Development of GRDP, Exports, Imports, Inflation and Government Expenditures in Banten Province 2010-2021

Research Formulation

a. What are the simultaneous effects of exports, imports, government spending, and inflation on economic growth in Banten Province?
b. How are the partial effects of exports, imports, government spending, and inflation on economic growth in Banten Province?

Theoretical Framework

Mercantilism's concept of welfare economics argues that the prosperity of a country will occur if exports are greater than imports. Exports are goods and services produced domestically which are then purchased by people abroad. Imports are goods and services made abroad and later purchased by people at home. [1] If a country has a positive export value, then that country accumulates foreign assets. Export volume is influenced by total domestic production. The volume of imports is influenced by domestic output and the relative price between domestically-made goods and foreign-made goods (Samuelson & Nordhaus, 2001).

Domestic consumption expenditure plus government spending and added by exports minus imports equals domestic income. The positive value of exports and greater than imports will affect domestic income, (Samuelson & Nordhaus, 2001). Export and import flow response to changes in exchange rates and inflation as a result of price differences. The determinants of the occurrence of exports include abundant production, foreign consumer interest, favorable prices, and government policies. Meanwhile, the factors that determine the occurrence of imports are people's income, tastes, lower prices, and better quality. [2]

The government's role in the economy is to carry out the allocation function, distribution function, and stabilization function which is implemented in fiscal policy through tax revenues and government spending. Budget policies are directed at promoting the efficiency and effectiveness of the economy and overcoming problems of unemployment, inflation, and income distribution. [3]

Inflation is an economic event that often occurs, inflation is a monetary phenomenon that describes excessive and unstable financial developments.[4] Inflation occurs when market prices rise, inflation indicators are based on a weighted average price index of individual product prices. The long-term impact of inflation will result in people's purchasing power decreasing, production levels decreasing, income redistribution, and unemployment increasing.

2 Research Methods

The method in this research is explanatory research Multiple Linear Regression Analysis (Multivariate Linear Regression Analysis) with Ordinary Least Square (OLS) econometric techniques to see if the hypothesis about the factors' effects is correct studied. The assumptions of the model built are as follows:

$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e_i$

Where:

Y_i = The value of the change in response in the *i* observation

e_i = Residual or $e_i = Y_i - \bar{Y}_i$

β_0 ; β_1 = parameter (coefficient)

X_1, X_2, X_3… = i.e. the value of the independent variable from the *i* observation

The variables studied were: Exports (X_1), Imports (X_2), Government Expenditures (X_3), and Inflation (X_4) as independent variables, while Economic Growth (Y). as the dependent variable (dependent).

2.1 Statistics Test

Classic Assumption Test

a. Test for normalcy The Jarque-Bera method is used to determine whether the data is regularly distributed. Parameters for the test: H0: If the Jarque-Bera probability value is less than 0.05, the data is not normally distributed. H1: If the Jarque-Bera probability value is larger than 0.05, the data is consistently distributed.

b. Test for multicollinearity The Variance Inflation Factor is used to see if the regression model discovered an association between the independent variables (independent) (VIF) test. Test parameters: If If the Variance Inflation Factor (VIF) score is greater than 10, reject H0, indicating that the data has multicollinearity symptoms. If the Variance Inflation Factor (VIF) number is less than ten, then accept H_0, meaning that the data does not have multicollinearity symptoms.

c. Test for heteroscedasticity Determine whether the residuals of one observation and the residuals of another in the linear regression model have an inequality of variance The White technique was employed in this case Hypothesis: H_0: homoscedasticity, H_1: Heteroscedasticity. Outcome parameter of White's test: If the value of Obs*R-square or prob Chi-square > α (0.05) accept H_0. If the value of Obs*R-square or prob Chi-square > α (0.05), reject H_0.

d. Test for autocorrelation In the linear regression model, the goal is to examine if there is a link between the confounding error in period t and the confounding error in period t-1 (previous). To perform an autocorrelation test, the Breusch-Godfrey Test can be utilized. H0: no autocorrelation; H1: autocorrelation exists. Parameters of the Breusch-Godfrey Test H0 is approved if the Prob. Chi-Square value is greater than 0.05 (); H0 is denied if the Prob. Chi-Square value is less than 0.05 ().

Multiple Linear Regression Test

The goal of a multiple linear regression the purpose of the test is to evaluate the effect of the independent variable on the dependent variable or simultaneously.

a. Partial t-test was carried out to see if the independent variable influenced the dependent variable in any way. Hypothesis: H_0: $\beta_0 = \beta_1 = 0$: Has no significant effect; H_1: $\beta_0 = \beta_1 \neq 0$: Has a significant effect; Test Parameters: If prob t-statistic < 0.05 (α) or If the t-statistic is greater than the t table, Ho is ruled out. If the prob t-statistic is more than 0.05 () or the t-statistic is greater than t table, Ho is acceptable.

b. Simultaneous F Test conducted to assess the influence of the independent variable on the dependent variable simultaneously (simultaneously). Hypothesis: H_0: $\beta_0=\beta_1=\beta_2=\beta_3=\beta_4=\beta_5=0$ There is no substantial effect of independent variables (X) on the dependent variable at the same time (Y). H_1 ; $\beta_0 \neq \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$ There is a significant effect of independent variables (X) on the dependent variable at the same time (Y). Parameters for testing: If F-count > F-table or P-value 0.05, reject H0; If F-count > F-table or P-value > 0.05, reject H1 or accept H0.

Research Model

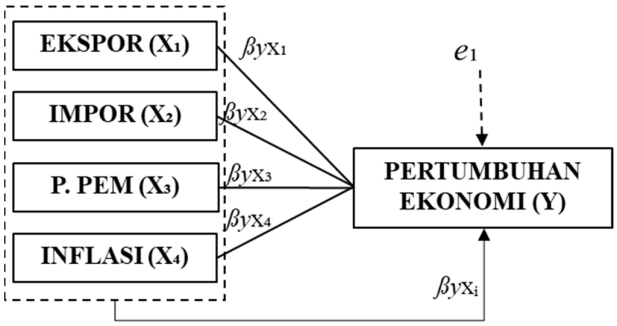

Fig.2. Research Model

The schema of the relationship between economic growth and the variables that influence it can be modeled as follows:

$Y_i = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + e_i$

Information:

X_1 = Export

X_2 = Import

X_3 = Government Expenditure

X_4 = Inflation

Y = Economic Growth

$\beta y x_i$ = The relationship of the Independent variable (X) with the dependent variable (Y)

e_1 e_2 = Residual.

3 Results and Discussion

3.1 Classic Assumption Test

Data Normality Test

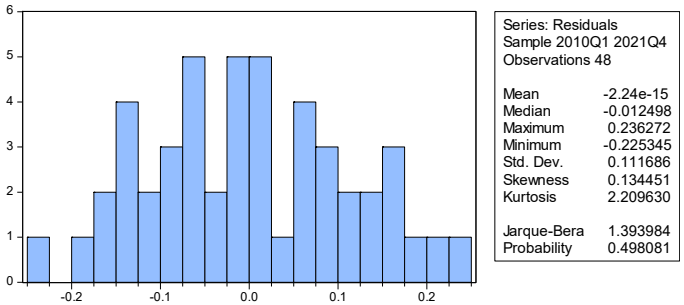

Fig.3. Normality Histogram
Source: Results of secondary data processing software eviews-9

The normalcy test's findings (figure 1.) show that the Jarque-Bera value is 1.3939 and the Jarque-Bera probability value is 0.4980, the value is greater than the value of degrees of freedom (df) 0.05 (α) or (0.4980 > 0.05), then reject H_0 it means that the independent variable and the dependent variable follow the normal residual.

Multicollinearities Test

Table 1. Multicollinearities Test Result

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.979483	3448.363	NA
PPEM	0.004535	3820.106	1.785701
EKSPOR	0.002090	393.2541	1.839841
IMPOR	0.011511	2508.033	1.278324
INF	0.001720	13.64958	1.719698

Source: Eviews-9 Software data processing results

As a result of the study's findings Variance Inflation Factor (VIF) test (table 1), it is known that the Variance Inflation Factor (VIF) independent variable PPEM: 1.7857, Exports: 1.8398, Imports: 1.2783, Inflation: 1.7196, the value is smaller than the number 10 (VIF < 10) then H_0 is accepted meaning that All of the independent variables in question do not show any signs of multicollinearity.

Heteroskedasticities Test

Table 2. Output Estimation of White Test

Heteroskedasticity Test: White

F-statistic	0.549545	Prob. F(4,43)	0.7003
Obs*R-squared	2.334446	Prob. Chi-Square(4)	0.6745
Scaled explained SS	1.133081	Prob. Chi-Square(4)	0.8890

Source: Eviews-9 Software Secondary Data Processing Results

The results of the white test (table 2) show the Obs*R-squared value of 2.3344 and the Prob. Chi-Square value of 0.6745 > 0.05 (α), which means that the data used in this study does not have symptoms of heteroscedasticity.

Autocorrelation Test

Table 3. Breusch-Godfrey Test Result

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.740065	Prob. F(2,41)	0.4833
Obs*R-squared	1.672458	Prob. Chi-Square(2)	0.4333

Source: Eviews-9 Software Secondary Data Processing Results

The results of the Breusch-Godfrey test (table 3.) show an Obs*R-squared value of 1.6724 with a Prob. Chi-Square value of 0.4333 > 0.05 (α), so it can be explained that the data used in this study does not contain autocorrelation.

3.2 Hypothesis Test

F-Simultaneous Test

Table 4. Multiple Linear Regression Output

Dependent Variable: PDRB
Method: Least Squares
Date: 04/01/22 Time: 02:21
Sample: 2010Q1 2021Q4
Included observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.130203	0.989688	8.214914	0.0000
EKSPOR	0.273173	0.045715	5.975534	0.0000
IMPOR	0.062319	0.107289	0.580845	0.5644
PPEM	0.516321	0.067343	7.667030	0.0000
INF	-0.015865	0.041474	-0.382524	0.7040

R-squared	0.866410	Mean dependent var	18.57515
Adjusted R-squared	0.853983	S.D. dependent var	0.305570
S.E. of regression	0.116765	Akaike info criterion	-1.358975
Sum squared resid	0.586264	Schwarz criterion	-1.164059
Log likelihood	37.61541	Hannan-Quinn criter.	-1.285316
F-statistic	69.72018	Durbin-Watson stat	1.790711
Prob(F-statistic)	0.000000		

Source: Eviews-9 Software Secondary Data Processing Results

In table 4, the prob (F-statistics) value of 0.0000 is smaller () than 0.05 () and/or the F-statistic value of 69.72018 is greater (>) than the F-table of 2.58, so reject H0 and accept H1, which means that Exports, Imports, Government Expenditures, and Inflation all have a significant impact on Economic Growth at the same time. While the R-squared adjusted value of 0.8539 can explain simultaneously the level of confidence affects 85.39% Other variables outside the model influence the remaining 34.61 percent.

T-Partial Test

a. Based on table 4, the partial effect of exports, imports, government spending, and inflation on economic growth can be explained as follows:

b. Exports have a t-statistic probability value of 0.0000 <0.05 (α) and or a 5.9755 t-statistic value > from the t-table value (df=n-k-1) = 1.6802, then Ho is rejected, meaning that exports have a substantial positive impact on economic growth.
c. If imports have a t-statistic probability value of 0.5644 > 0.05 () and/or a t-statistic value of 0.5808 (df = n-k-1) = 1.6802 from the t-table, then Ho is accepted, indicating that imports have no substantial positive effect on Economic Growth.
d. Ho is rejected if Government Expenditure has a probability t-statistic value of 0.0000 0.05 () or a t-statistic value of 7.6670 > from the t-table value (df=n-k-1) = 1.6802.
e. Inflation has a probability t-statistic value of 0.7040 > 0.05 (α) and or a -0.3625 t-statistic value from the t-table value (df=n-k-1) = 1.6802, then Ho is accepted, meaning that inflation has a negative effect. significant to Economic Growth.

4 Conclusion

a. Exports make a significant positive contribution to Economic Growth. The value of the regression coefficient (β_{11}) of 0.2731 can explain statistically if exports unit increase Economic Growth will grow by 0.2731 units when multiplied by 1.
b. Imports have an insignificant positive contribution to Economic Growth. The value of the regression coefficient (β_{12}) of 0.0623 can explain statistically if the imports unit increase Economic Growth will grow by 0.0623 units when multiplied by 1.
c. Government Expenditure (Government Expenditure) provides a significant positive contribution to Economic Growth. The regression coefficient value (β_{13}) of 0.5163 can explain statistically, that if Government Expenditure increases by 1 unit, it will increase Economic Growth by 0.5163 units.
d. Inflation has a substantial negative impact on economic growth. The regression coefficient (14), which is -0.0158, may statistically explain how if inflation rises by one unit, Economic Growth will fall by 0.0158 units.

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