

ANALYSIS OF THE EFFECT OF UNEMPLOYMENT AND EXPORTS ON CONSTANT PRICE GRDP (NORTH SUMATRA 2006-2019)

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Abstrak

This study aims to analyze and explain the effect of unemployment on gross domestic product (GDP) at constant prices and the effect of exports on gross domestic product (GDP) at constant prices. This study uses secondary data from panel data from North Sumatra BPS data, where the authors limit the research time from 2006-2018. The data processing in the research carried out is by using the eviews application. The results of this study indicate that: Unemployment variable has a negative effect on Constant Price GRDP in North Sumatra Province, Export variable has a positive effect on Constant Price GRDP in North Sumatra Province and the independent variable (unemployment, eskpro) has a significant influence on the dependent variable (Constant Price GRDP). North Sumatra Province).

Keywords: *Exports, Unemployment and GDP at Constant Prices*

INTRODUCTION

Gross Regional Domestic Product (GDP) is one of the important indicators to determine the economic conditions in an area within a certain period, both on the basis of current prices and on the basis of constant prices. GRDP is basically the amount of added value produced by all business units in a certain area, or is the total value of final goods and services produced by all economic units in a region. GRDP on the basis of current prices describes the added value of goods and services which is calculated using prices in the current year, while GRDP on the basis of constant prices shows the added value of these goods and services which is calculated using prices prevailing in one particular year as the base year. GRDP according to current prices is used to determine the ability of economic resources, shifts, and the economic structure of a region.

Meanwhile, constant GRDP is used to determine real economic growth from year to year or economic growth that is not influenced by price factors. GRDP can also be used to determine price changes by calculating the GRDP deflator (implicit index change). The implicit price index is the ratio between GRDP at current prices and GRDP at constant prices. The calculation of the Gross Regional Domestic Product conceptually uses three approaches, namely: the production approach, the expenditure approach and the income approach.

Production Approach

Gross Regional Domestic Product is the amount of added value for goods and services produced by various production units in an area within a certain period of time (usually

one year). The production units in this presentation are grouped into 9 business fields (sectors), namely: (1) agriculture, animal husbandry, forestry and fisheries, (2) mining and quarrying, (3) processing industry, (4) electricity, gas and water cleaning, (5) construction, (6) trade, hotels and restaurants, (7) transportation and communications, (8) finance, real estate and corporate services, (9) services (including government services).

Expenditure Approach

Gross Regional Domestic Product is all components of final demand consisting of: (1) consumption expenditures by households and non-profit private institutions, (2) government consumption, (3) gross domestic fixed capital formation, (4) changes in inventory and (5) exports net (represents exports minus imports).

Revenue Approach

Gross Regional Domestic Product is the amount of remuneration received by the factors of production that participate in the production process in an area within a certain period of time (usually one year). The remuneration referred to is wages and salaries, land rent, capital interest and profits; all before deducting income tax and other direct taxes. In this definition, GRDP includes depreciation and net indirect taxes (indirect taxes minus subsidies).

Relationship of unemployment to GDP Constant price

Rovia Nugrahani Pramesthi (2012) which states that unemployment has a negative effect on economic growth variables. This means that when unemployment is high, economic growth will also be low or vice versa. The relationship between unemployment and economic growth can be explained by Okun's law, named after Arthur Okun, the economist who first studied it. Which states that there is an empirical effect between unemployment and output in the business cycle. The results of the empirical study show that the addition of 1 (one) point of unemployment will reduce GDP (Gross Domestic Product) by 2 percent. This means that there is a negative influence between unemployment and economic growth and vice versa economic growth and unemployment. The decline in unemployment shows inequality. This has distributional consequences. Unemployment is also related to the availability of jobs, the availability of employment is related to investment, while investment is obtained from the accumulation of savings, saving is the remainder of income that is not consumed. The higher the national income, the lower the expectation to open new production capacity which of course will absorb new workers.

The relationship of exports to GRDP at constant prices

Tilla and Erhan (2013) examined the application of the Thirlwall model to the balance of payments balance for the Turkish economy in the period 1968-2011. This study also evaluates the procedure for testing the Thirlwall principle by estimating the income elasticity of import demand using the stationarity and cointegration methods. By using the Johansen cointegration analysis, GDP and exports have a statistically significant

positive relationship. This finding proves that Thirlwall's equilibrium growth model applies to the Turkish economy.

RESEARCH METHODOLOGY

The analytical method used to solve the problem in this research is panel data regression analysis with the help of the Eviews 9 program. The tests carried out using the Eview program are assumption tests or analysis requirements.

RESULTS AND DISCUSSION

Table 1. Data on the Number of Unemployment, Exports, and GRDP at Constant Prices in North Sumatra Year 2006 - 2018

Year	Unemployee	Export	GRDP Constant Price
	life	Billion (Rp)	Trillion (Rp)
2006	632,049.00	8,704,825.00	93,347.40
2007	571,334.00	7,841,872.00	99,792.27
2008	554,539.00	8,520,892.00	106,172.36
2009	532,427.00	8,058,927.00	110,850.00
2010	491,806.00	7,992,103.00	118,640.00
2011	402,120.00	8,161,004.00	353,150.00
2012	379,980.00	8,695,941.00	375,920.00
2013	412,202.00	9,275,890.00	398,720.00
2014	390,710.00	9,087,526.00	419,573.31
2015	428,794.00	9,008,520.00	440,955.85
2016	371,680.00	8,387,357.00	463,775.46
2017	377,288.00	8,981,772.00	487,531.23
2018	396,027.00	9,645,621.00	512,765.63

Table 2. Result of Regression

Dependent Variable: PDRBHK
 Method: Least Squares
 Date: 03/27/20 Time: 14:09
 Sample: 1 13
 Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.582771	6.668432	0.387313	0.7066
UNEM	-3.212714	0.283335	-11.33890	0.0000
EXPORT	3.024270	0.828225	3.651508	0.0045
R-squared	0.959611	Mean dependent var		5.397641
Adjusted R-squared	0.951533	S.D. dependent var		0.312220
S.E. of regression	0.068736	Akaike info criterion		-2.317916
		Schwarz		
Sum squared resid	0.047246	criterion		-2.187543
Log likelihood	18.06646	Hannan-Quinn criter.		-2.344714
F-statistic	118.7955	Durbin-Watson stat		2.268118
Prob(F-statistic)	0.000000			

Source: Eviews

Has the Regression equation, namely: $Y' = 2.582771 + (-3.212714) + 3.024270$. Based on the table above, the number (R²) (R Square) is 0.960 or (96%). This shows that the percentage contribution of the independent variable (unemployment and exports) to the dependent variable (Constant Price GDP is 96%. While the remaining 4% is influenced or explained by other variables not included in this model.

Based on the table above, the results of the simultaneous test (F-test) are known that the calculated F value is 118.795 > F table ($\alpha = 5\%$ db1=2, db2=n-k-1=13-2-1=10) of 3.80 and the value of sig is 0.000 < 0.05, so H₀ is rejected. This means that simultaneously unemployment and exports have a significant effect on GRDP at Constant Prices in North Sumatra Province.

Based on the table above, the results of the test (t-test) are known that the unemployment variable has a negative and significant effect on GRDP Constant Prices in North Sumatra Province with the acquisition value of sig 0.00 < 0.05, then H₀ is rejected. And the export variable has a positive and significant effect on GRDP at Constant Prices in North Sumatra Province with a sig value of 0.04 < 0.05, then H₀ is rejected.

Test Assumptions or Test Requirements Analysis

Multicollinearity Test

In accordance with the research method, multicollinearity in this study was tested using VIF to detect the presence of multicollinearity, as follows:

Table 3. Result of Multicollinearity

Variance Inflation Factors
 Date: 03/27/20 Time: 14:15
 Sample: 1 13
 Included observations: 13

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	44.46798	122355.5	NA
UNEM	0.080279	7059.905	1.305658
EXPORT	0.685957	90799.26	1.305658

Source: Eviews

Based on the table above with the criteria that if the VIF value <10 means that in the model there is no muticolinarity, it can be concluded that there is no muticollinearity problem in this study.

Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

Table 4. Autocorrelation Test

F-statistic	0.118240Prob. F(2,8)	0.8900
Obs*R-squared	0.373247Prob. Chi-Square(2)	0.8298

Test Equation:

Dependent Variable: RESID
 Method: Least Squares
 Date: 03/27/20 Time: 14:17
 Sample: 1 13
 Included observations: 13
 Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.007706	7.959445	0.126605	0.9024
UNEM	-0.036897	0.327512	-0.112660	0.9131
EXPORT	-0.115216	0.981554	-0.117382	0.9095
RESID(-1)	-0.142576	0.354267	-0.402453	0.6979

RESID(-2)	0.085192	0.380675	0.2237930.8285
R-squared	0.028711	Mean dependent var	-3.82E-15
Adjusted R-squared	-0.456933	S.D. dependent var	0.062747
S.E. of regression	0.075738	Akaike info criterion	-2.039355
		Schwarz	
Sum squared resid	0.045890	criterion	-1.822067
Log likelihood	18.25581	Hannan-Quinn criter.	-2.084018
F-statistic	0.059120	Durbin-Watson stat	1.858591
Prob(F-statistic)	0.992220		

Source: Eviews

Based on the value above, it is known that the chi-square probability value is > 0.05 , it can be concluded that there is no autocorrelation problem in this study.

Normality Test

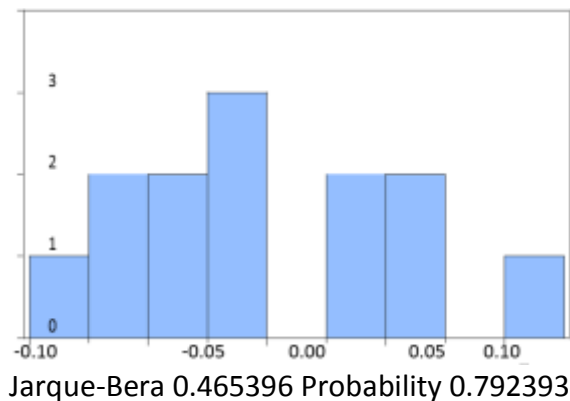


Figure 1. Normality Test

Source: Eviews

Dari hasil histogram diketahui probability sebesar $0,792393 > 0,05$. Maka dapat di simpulkan bahwa tidak terjadi pelanggaran uji normalitas dalam penelitian ini.

Uji Heteroskedasticity

Heteroskedasticity Test: White

Table 5. Heterokedasticity Test

-statistic	1.318690	Prob. F(4,8)	0.3416
Obs*R-squared	5.165582	Prob. Chi-Square(4)	0.2707
Scaled explained SS	2.071200	Prob. Chi-Square(4)	0.7227

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 03/27/20 Time: 14:22

Sample: 1 13

Included observations: 13

Collinear test regressors dropped from specification

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.607553	14.55683	-0.110433	0.9148
UNEM^2	-0.666943	0.317610	-2.099881	0.0690
UNEM*EXPORT	1.014643	0.768492	1.320305	0.2233
UNEM	0.541072	5.148729	0.105089	0.9189
EXPORT^2	-0.413912	0.312499	-1.324526	0.2219
R-squared	0.397352	Mean dependent var		0.003634
Adjusted R-squared	0.096029	S.D. dependent var		0.004404
S.E. of regression	0.004187	Akaike info criterion		-7.829992
		Schwarz		
Sum squared resid	0.000140	critierion		-7.612704
Log likelihood	55.89495	Hannan-Quinn criter.		-7.874655
F-statistic	1.318690	Durbin-Watson stat		2.391488
Prob(F-statistic)	0.341550			

Source: Eviews

Based on the value above, it is known that the chi-square probability value is > 0.05 , it can be concluded that there is no heteroscedasticity in this study.

CONCLUSION

1. Unemployment variable has a negative effect on GRDP at Constant Prices in North Sumatra Province
2. Export variables have a positive effect on GRDP at Constant Prices in North Sumatra Province
3. The independent variable (unemployment, eskpro) has a significant effect on the dependent variable (GDP at Constant Prices for North Sumatra Province).

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