

The Effect of Exports and Labor on Economic Growth in North Sulawesi

Ferly Christian Kolinug¹, Robert Winerungan²

Universitas Negeri Manado^{1,2}

Raya Tondano, Koya Minahasa Sulawesi Utara 95618, Indonesia

Correspondence Email: ferlykolinug@unima.ac.id

ORCID ID: 000-0002-8619-5923

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ABSTRACT

The purpose of this study is to analyze the influence of exports and labor on economic growth in North Sulawesi in the last ten years. This study used secondary data taken from the Central Statistics Agency of North Sulawesi for the period 2011–2021. The analysis used was regresi analysis using an analysis model on the eviews application by taking data on exports, labor and economic growth from the BPS institution of North Sulawesi Province from 2011 to 2021. By testing in the R-Square test model, Test F and T test, the result is that the export variable has an insignificant influence on the economic growth of north Sulawesi and the labor force has a positive and significant influence on economic growth in North Sulawesi.

Keywords: Export, Labor, Economic Growth

INTRODUCTION

Development if viewed as part of various dimensions called not only economic development, but can include important differences and changes in the social part or its structure, changes in behavior and institutions. The main objective of improving the economy is to promote good growth and also to strive for the poverty rate to be reduced and eliminated, the unemployment rate and income inequality and unemployment so as to create opportunities to work for the people and earn income in the community to meet their living needs. (Todaro, 1997). Regional development is a part of the integrity of national development and growth based on the principle of autonomy in the regions and a regulated part of national resources which automatically provides opportunities for democracy and the performance of each region in improving the welfare of the people.

The increase in the production of goods and services is closely related to regional economic growth, gross regional domestic product (GRDP) is part of its measurement. Economic growth is part of the increase in development which is seen from the long-term income in a region or region is (1) the creation of for the people or the community of employment, (2) increasing the balance and stability of the regional and national economy, (3) building opportunities and a diverse economic base.

The economic problem of a country in the long term is to think about sustainable economic growth which is also currently the economy is suppressed by the presence of the Covid-10 pandemic which is hit by the world and enters various sectors, one of which is economic growth. The economy and its growth can be measured as a good thing in a certain period of time. The ability of a region or region and country to produce goods and services is a good and positive thing due to production factors. According to Sukirno (2004) in a macro analysis, the achievement of national growth of a country and region is a measuring tool of the level of economic growth.

The increase in the volume of export goods and services can also be said to be economic development spurred by the level of international trade, the demand for exports of goods and services is one of the determining factors in the development of its growth because in addition to goods and services it can increase foreign exchange and employment for people who have entered the labor force category.

During the Covid-19 pandemic, it turned out that there was a lot of attention from both the government and the wider community, more specifically in the economic field of a country or region, from every problem that must be passed. One of them is the problem of labor and unemployment. how to create jobs, improve the economy and its growth as well as investment in north Sulawesi. The economic growth, Exports and labor level of north Sulawesi province in the last ten years have always experienced developments, even in the conditions of the Covid-19 pandemic experienced by the world. These conditions can be seen from Table 1.1.

Table 1. Development of Exports, Labor Force and Gross Regional Domestic Product of North Sulawesi Province in 2011 – 2021. (Rp)

Year	GRDP Based on Constant Price	Export	Workforce/Labor
2011	54,910,890,000,000.00	749,552,526,000.00	1,084,203.00
2012	58,677,586,000,000.00	954,335,516,000.00	1,038,128.00
2013	62,422,500,000,000.00	878,474,386,000.00	1,035,772.00

2014	66,360,760,000,000.00	1,175,784,210,000.00	1,060,752.00
2015	70,425,330,000,000.00	1,021,974,118,620.00	1,099,272.00
2016	74,764,660,000,000.00	1,019,924,697,000.00	1,183,719.00
2017	79,484,030,000,000.00	972,267,263,000.00	1,121,309.00
2018	84,249,720,000,000.00	974,064,109,030.00	1,175,809.00
2019	89,009,260,000,000.00	767,287,703,300.00	1,207,006.00
2020	88,126,370,000,000.00	776,322,530,690.00	1,225,050.00
2021	91,720,930,000,000.00	1,117,291,367,240.00	1,212,337.00

Source: Central Bureau of Statistics North Sulawesi Province (Processed)

From table 1.1, we can see the development of during 2011 to 2021 based on constant prices in 2010. A significant increase occurred from year to year but in 2020 it experienced a decrease of 88,126,370 (in million rupiah) from 89,009,260 (in million rupiah), but increased again significantly in 2021, namely 91,720,930 (in million rupiah). This shows that the economic growth of north Sulawesi has increased.

If you look at the development of north Sulawesi exports during the period 2011 to 2021, it turns out to be volatile, it can be seen that the development started from 2011 to 2016 where exports increased until 2016 by 1,019,924.67 (in million rupiah), but in 2017 it decreased by 972,267.26 (in million rupiah) and again increased significantly from 2017 to 2021, namely 1,117,291.36 (in million rupiah). Exports are part of the wheel of economic improvement because if exports decrease or increase, it will certainly affect economic growth. When viewed from its development, north Sulawesi's exports have fluctuated but increased because they can be compared to the increase from 2016 and 2021. The development of the north Sulawesi labor level from 2011 to 2021 has increased in line with economic growth which of course absorbs labor, which can be seen from its development in 2011, which was 1,084,203. and in 2016 it was 1,183,719. Based on the introduction above, the author is interested in writing research related to the title: **The Effect of Exports and Labor on The Economic Growth of North Sulawesi.**

LITERATURE REVIEW

According to Sadono Sukirno (2016: 421), The long-term problem of the economy is economic growth, meaning economic growth to assess the level of achievement of regional development in the sautu period, which can also be measured is the growth of Gross Regional Domestic Product (GRDP) at constant prices. Economic growth is the process of increasing per capita output in the long term (Boediono, 1997:5). From the understanding above, it can be seen that there are three aspects, namely the per capita output process.

According to Robert Sollow in his research Achmad Sjafii (2009) explained that the growth of labor, capital stocks and technology are factors that influence economic growth. Neo-Classica growth theory developed by Abramovits and Solow – economic growth depends on the development of production factors (Sadono Sukirno, 2016:437). In the equation, this view can be expressed by the equation:

$$\Delta = f(\Delta K, \Delta L, \Delta T)$$

Where:

ΔY is a change in the growth rate of the economy.

ΔK is a change in the growth rate of capital.

ΔL is a change in population growth rate.

ΔT is a change in the level of technological development.

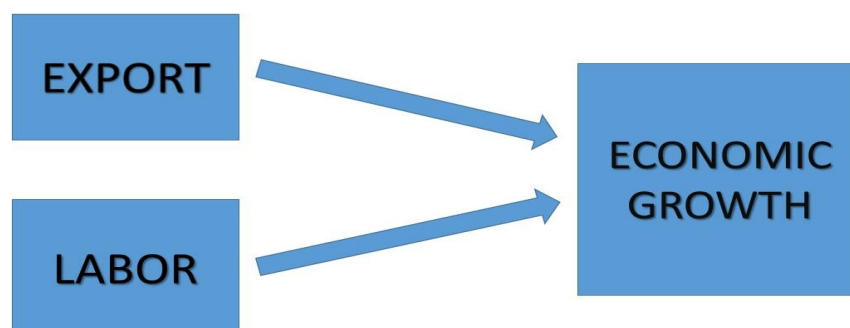
Growth can then be measured by objectively describing the expansion of labor, capital, trade volume and consumption (Jhingan,2001:5-6). And justifying economic growth or development is defined as an increase in the per capita output of material goods over a period of time (Jhinhan,2001:7). An economy is said to experience economic growth if the production of goods and services increases (Rahardja Pratama and Mandala Manurung, 2001: 177).

Population growth and labor force growth (AK) have traditionally been considered one of the positive factors that spur economic growth. Todaro (2003). A larger number of workers means that it will increase the level of production, while a larger population growth means that the size of the domestic market is larger. A function of production of a particular good or service (q) is $q = f(K, L)$ where K is capital and L is labor that shows the maximum amount of a good/service that can be produced. Payaman J. Simanjuntak (1995) mentioned that labor includes residents who are already or working, are looking for work and doing other activities, such as going to school or taking care of the household. A growing population will increase the number of workers and the addition allows a country to increase production.

Exports are the results of goods and services that have been produced and sold to other countries, this also indicates the existence of international trade that occurs, this indicates that the goods and services produced have competitiveness or are needed by other countries. Export goods are a benefit for a country, these profits will be a trigger for economic growth in exporting countries (Todaro and Stephen, 2006).

Muhammad Taufik (2014) examined the effect of investment and exports on the absorption of labor in east Kalimantan province, concluding that exports have a significant effect on economic growth, meaning that economic growth increases. The purpose of this study is to determine the influence of exports and investment on economic growth and its absorption in the workforce.

Figure 1. Frame of Mind



RESEARCH METHOD

Data Types and Sources

The data used is secondary data. Secondary data is data taken through relevant agencies in this study, namely from Central Statistics Agency of North Sulawesi

Province.

Secondary data types include:

1. Number of workers.
2. Number of exports of North Sulawesi.
3. Economic growth in North Sulawesi

Definition and Measurement of Variables

The variable variables used in this study are:

- Export is (X₁), Export is invested in the economic development of northern Sulawesi with the aim of obtaining timed profits in trade, which is measured by rupiah (Rp) per year.
- The Labor Force (X₂) is a population aged (15-64 years) who are working and not working but ready to find work as measured by the number of souls per year.
- Economic growth is the improvement of a region's ability to produce goods and services in other words economic growth refers to changes that are quantitatively proportional and usually measured using GRDP on the basis of a constant price of 2010 with a unit value of rupiah.

Data Analysis Methods

To see the effect of exports and labor on economic growth, multiple regression analysis is used. The simple linear regression method of the base model used in the study can be specified.

The formula used is as follows:

$$Y = b_0 + b_1 X_1 + b_2 X_2 + e_i$$

Where:

Y = Economic Growth

X₁ = Export

X₂ = Workforce/Labor

B₁₋₂ = Coefficients for Each Variable X₁₋₃

The formulation of this model is a regression in a linear form where this form theoretically the non-free variable to be studied has a tendency to have a linear relationship with each of its free variables. Furthermore, knowing the elasticity of the influence of exports and labor on economic growth, the model of the multiple regression equation is transformed into log form, so that the multiple regression equation becomes:

$$\text{Log } Y = b_0 + \text{Log } b_1 X_1 + b_2 X_2 + e_1$$

Test of Classical Assumptions

- a. **Normality test** is to test the model from regression, as well as to find out the spread of independent variables and dependent variables whether they have been distributed normally or not. The Kolmogorov Smirnov method, a normal distributed regression model will show significant values greater than or equal to 0.05 or 5%. The Central Limit Theorem guarantees the achievement of a normal distribution when the sample size is relatively large (Lumley, 2002).
- b. **Multicholnearity test** is to find out the relationship of influence between variables used in the study, meaning that if the value is below 1, it has a relationship between variables. And this can be tested and it will be seen whether the indigo meets on this test.
- c. **Heteroskedasticity** the test is part of the classical assumption with statistical tests measured to determine whether in this regression model a difference in variance from residual value from the time of the study period to other studies was found. To be known in this test for its value is significant >0.05 in the gleser test means that it is said to pass the heteroskedasticity test.
- d. **Autocorrelation test** is part of the testing of the classical assumption model of regression to be able to measure whether the linear regression model found a correlation

between the (residual) error in the t period and the error that occurred in the $t-1$ period (the previous period). Autocorrelation is known by conducting the Durbin Watson (DW) test.

Hypothesis Testing

1. Coefficient of Determination (R^2)
 The coefficient of determination is a measurement tool used to determine the magnitude of the value of an independent variable in a dependent variable, and the rest is caused by other factors.
2. Simultaneous Significance Test (F)
 This test is called the F test to measure and view regression models against dependent variables. This test was carried out by comparing the F value of the calculation results with the value used in the study.
3. Individual Parameter Significance Test (T)
 The T test is a measuring tool for the hypothesis part in this study that measures independent variables can have a partial effect on independent variables, assuming the variable is constant. This is done to know each hypothesis and for decision making, whether the hypothesis is accepted or vice versa, it is rejected. This T test is carried out based on the significance value on the basis of the calculated t value with the compared table t .

RESULTS

The results of research and processed data can be seen and known the influence of exports and labor on economic growth in north Sulawesi. From the data that has been processed, it can be seen the magnitude of the influence of exports and labor on economic growth in north Sulawesi. Table 1. The model below is the result of regression using eviews shown as follows:

Table 2. The results of regression

Variable	Coefficient	Std. Error	T-Statistic	Prob.
Export	16.21258	12.86306	1.260398	0.2430
Workforce	1.67E+08	25164736	6.623919	0.0002
C	-1.29E+14	3.26E+13	-3.973315	0.0041
R-squared	0.846099			
Adjusted R-squared	0.807624			
F-statistic	21.99072			
Prob(F-statistic)	0.000561			

Source: Output Eviews

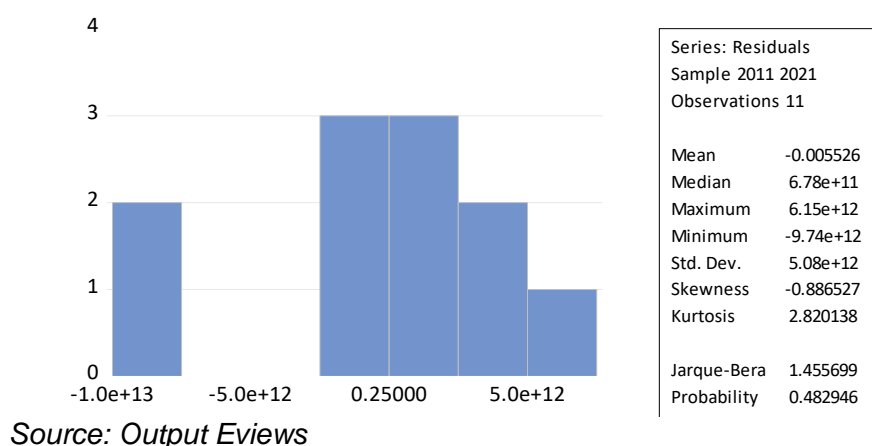
The results of this regression show the relationship between dependent variables and independent variables. The dependent variable in this case is used is economic growth based on gross regional domestic product or GRDP. While the independent variables used are the number of exports and the level of labor. If you look at the adjusted R-squared value, which is 0.807624, it explains that the independent variables in the model can explain the influence on the dependent variables by 80.7624 percent and the rest are influenced by other factors. If you look at the F-statistical value, which is 21.99072

and Prob. (F-statistic) of 0.000561 which means that < 0.5 and significantly explains that independent variables such as exports and labor have a mutual influence on economic growth. Then if the influence of the variable is partial or seen the T-value of probability statistics to find out the influence of the free variable on the bound variable in the table above explains the probability value of the export and labor variables.

When viewed from a significant level of 5%, it can be concluded that this variable has an influence on economic growth, namely labor with a value of 0.0041, and if you look at the significant level of the value of exports themselves has an insignificant influence with a value of 0.2430. So together exports and labor have an influence on economic growth. From this result, it can also be seen that when the workforce rises by 1 percent, economic growth will increase by 1.6 percent.

Normality Test

Table 3. Is the result of using evIEWS with normality test results.



The normality test can be seen from the results of the jarque-fallow can be seen from the probability is 0.48 $>$ of 0.05, it means that the regression model meets the assumption of normality.

Heteroskedasticity Test

Table 4, is the result of the Heteroskedasticity test using evIEWS.

F-statistic	0.669275	Prob. F (5,5)	0.6649
Obs*R-squared	4.410314	Prob. Chi-Square(5)	0.4920
Scaled explained SS	2.122943	Prob. Chi-Square (5)	0.8319

Source: Output EvIEWS

The Heteroskedasticity Test can find out and it can be seen that the test result is 0.49 or $>$ out of 0.05, that means it passes and meets this test.

Autocorrelaation Test

Table 5, is the result of the correlation test using evIEWS

F-statistic	0.151384	Prob. F (2,6)	0.8627
Obs*R-squared	0.528412	Prob. Chi-Square (2)	0.7678

Source: Output Eviews

The autocorrelation test can find out and it can be seen that the test result is 0.76 or > of 0.05, it means that it passed and met this test.

Multicollienarity Test

Table 6, is a multicollienarity test using eviews

	GRDP	EXPORT	LABOR
GRDP	1	0.04497283150316806	0.9030713959337228
EXPORT	0.04497283150316806	1	-0.1418238676787878
LABOR	0.9030713959337228	-0.1418238676787878	1

Source: Output Eviews

Here it can be seen the relationship of variables with other variables so as to describe the relationship with each other in each variable. It is said that passing the multicollienarity test is when the result between variables is smaller than 1, so the result is to meet on this test.

DISCUSSION

Based on the results of this study, it is explained that the number of exports has an insignificant influence on the economic growth of northern Sualwesi from 2011 to 2021. This is in line with previous research by Wulan Asnuri (2013), namely from regression data concluded that in the short-term exports have no influence on economic growth and in the long-term exports have a negative influence on their growth. This section turns out to be contrary to trade theory which means that if there is an increase in the number of exports, the demand for goods and services from other countries or regions increases and this will lead to an increase in the number of exports from that country or region. So thus means the amount of exports affecting economic growth in the north Sulawesi. The increase in the number of the labor force in this study has a very positive and significant influence on the economic growth of north Sulawesi, which means that any increase in the number of work forces has an influence on the economic growth of north Sulawesi.

CONCLUSION

Based on the results, the researchers channeled in this study is to increase the economic growth of north Sulawesi and the absorption of labor, it is necessary to improve the ability or skill of the workforce that is expected to need to be prepared which is the quality of work. Because labor has a significant influence on economic growth, while exports negatively affect economic growth in this period This research is far from perfect, so it is hoped that further research can further increase the period or time so as to improve the supporting information in order to have a more perfect conclusion.

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REFERENCES

- Achmad Sja'fii. (2009). *The Effect of Physical Investment and Human Investment on East Java's Economic Growth 1990 – 2004*. Fakultas Ekonomi Universitas Airlangga, Journal of Indonesian Applied Economics Universitas Brawijaya.
- Arman Arifin. (2020). *Analysis of the Effect of Investment, Inflation and provincial minimum wage on gross regional domestic product in Sulawesi island for the period 2010 – 2019*. (Thesis, Universitas Brawijaya Malang).
- Boediono, (1997). *Economic Growth Theory*, BPFE, Yogyakarta.
- Boediono. (2008). *Macroeconomics: Synopsis series an introduction to the fourth edition*, BPFE, Yogyakarta
- Michael P. Todaro. dan Stephen C. Smith. (2006). *Economic Development: ninth edition*. Erlangga Publishers. Jakarta.
- Muhammad Taufik. (2014). *The Effect of Investment and Exports on Economic Growth and Employment in East Kalimantan Province*. Journal of Development Economics, Mulawarman State University.
- Nopirin. (1996), *Introduction to Economics; Macro and Micro, First Edition*, BPFE, Yogyakarta.
- Pratama Raharja dan Mandala Manurung. (2000). *Microeconomic Theory an Introduction*. Publisher of the Faculty of Economics UI Jakarta.
- Pratama Raharja dan Mandala Manurung. (2000). *Macroeconomic Theory an Introduction*. Publisher of the Faculty of Economics UI Jakarta.
- Sadono Sukirno. (1997). *Introduction to Macroeconomics*, Riyagra Publisher tindo Persada, Jakarta.
- Suharjon, Sri Murwanti, Heru Irianto. (2017). *The Effect of Exports, Imports and Investment on the Growth of Indonesia's Agricultural Sector*. Faculty of Agriculture of Eleventh March University.
- Todaro. M.P. (2003). *Economic Development in the Third World*. Eighth Ed. Erlangga, Jakarta.
- Badan Pusat Statistik. (2021). "Sulawesi Utara dalam Angka", Kota Manado.
- Regional Autonomy Law No.32 of 2004, *concerning Local Government*.
- Law on Regional Autonomy No.33 of 2004, *concerning Financial Balance Between the Central and Regional Governments*.
- Wulan Asnuri. (2013). *The Effect of Sharia Monetary Instruments and Exports on Economic Growth in Indonesia*. in Al-iqtishad, Journal of Islamic Economics.