Application Of Technology To Economic Growth In South Sulawesi

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Abstrak

Economic growth is defined as the acceleration of a country's economic capacity in producing goods and services, and is an important phenomenon that greatly influences national development. The process of economic growth is called modern economic growth because there is a process of growth in output per capita over a long period of time. The aim of this research is to look at technology in the agricultural sector and the industrial sector which influences economic growth in the southern provinces, especially in terms of the access index, usage index and skills index. The data used is data taken in a time series of the last ten years. This data comes from the South Sulawesi Central Statistics Agency which facilitates data in the form of information and communication technology development (IP-ICT) indices and economic growth for 2013-2022. This research uses time series data analysis with the eviews 10 application for data management using the multiple linear regression analysis method. The test results show that the independent variable is 0.432811 or 43.2%. This shows that the dependent variable is not influenced by the independent variable. 56.8% of the dependent variable is influenced by other variables not related to this research. Technology and economic growth have no influence on the relationship between variables.

Keywords: Access Index, Usage Index, Skill Index, Economic Growth

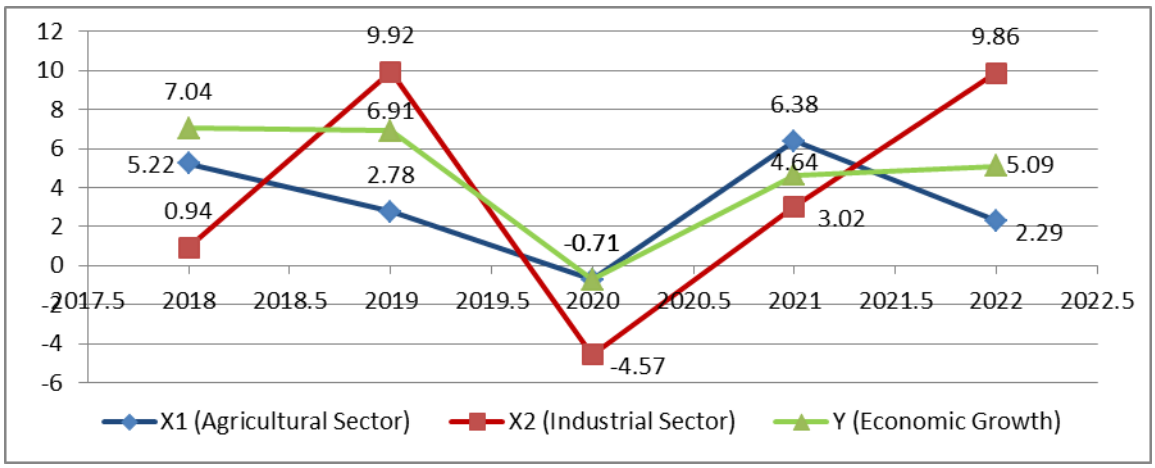
1. Introduction

In general, economic growth is defined as the acceleration of a country's economic capacity to produce goods and services. Economics shows how economic activity in current circumstances will result in an increase in the average level of living of society at some time in the future. Because the basic meaning of economic activity is the use of production factors to produce output, this process will ultimately result in a balance analysis related to the production factors owned by the general public [1].

Economic growth is an important phenomenon that greatly influences national development. The process of economic growth is called modern economic growth because there is a process of growth in output per capita over a long period of time. thus, it has an impact on community welfare, increasing per capita output as well as National Development and increasing purchasing power [2]. Indonesia is known as an agricultural country which has a significant impact on the national economy. Especially in the agricultural sector, which makes a large contribution to Gross Domestic Product (GRDP) and serves as the main benchmark for most of the population [3].

The Indonesian economy in the second quarter of 2023 grew by 5.17% on an annual basis (yoy), higher than growth in the first quarter of 2023 of only 5.04%. These indicators show that Indonesia's economic growth is still stable. The main sectors supporting GDP in the second quarter of 2023 on an annual basis are the agriculture, forestry, fisheries and trade

sectors at 5.25%. Furthermore, if we look at the distribution of our economy, the most dominant sectors are the agricultural sector and the industrial sector.



Based on the graph above, it shows that economic growth in South Sulawesi in 2018 was 7.04%, in 2019-2020 it experienced a decline of 6.91%, to -0.71%. Furthermore, in 2021-2022 there will be an increase of 4.64 to 5.09%. Looking at the two sectors above shows that the agricultural sector in 2018 was 5.22%, then in 2019 to 2020 it experienced a decline with values of 2.78% and -0.71. Then in 2021 there was an increase of 6.38%, in 2022 there was a decrease again of 2.29%. Then in 2018 the industrial sector obtained a value of 0.94%, then in 2019 it rose drastically with a figure of 9.92%. Then in 2020 there was a decrease with a value of -4.57%, then from 2021 to 2022 there was an increase again of 3.02% to 9.86%. Thus we can see that in 2018-2022 the industrial sector has greater numbers than the agricultural sector.

The agricultural sector is the only sector that receives the greatest attention from national development projects, especially those related to strategic planning and utilization of food commodity products [4]. During the economic crisis, the agricultural sector is one of the economic sectors that can survive on its own and is able to contribute to national development [5]. Currently, the agricultural sector relies on an internal regulatory framework that has significant problems due to modernization. This modernization really helps farmers, but there are still obstacles in implementing this modernization, especially in rural areas where people tend to find it difficult to adapt to the changes that occur. In Sulawesi today, it can be said that every sector in the telecommunications industry uses modern systems, with installation and maintenance procedures that involve the use of machine tools. The role and equipment of life or technology used to develop the economy will also experience development, both in terms of materials, quality and quantity [6].

According to research [7] The industrial sector is very important for economic development because it has the capacity to increase economic growth. Apart from that, the industrial sector contributes to progress with productive components. The Industrial Sector refers to forms of economic activity that use industrial raw materials to produce goods of higher value, including industrial services, such as manufacturing. Convince The industrial sector is determined as the main priority in a region based on economic factors, high

competitiveness, workforce, raw materials and markets, technological progress, and human capital [8]. There are several factors that cause the industrial sector to be hampered, including a lack of knowledge about the use of technology and a lack of confidence that technology can help the business processes being developed. Therefore, the majority still use conventional methods to run their business [9].

Current technological developments have touched the economic sector of society. In line with technological developments, internet use also dominates all people's daily activities. The application of technology in the agricultural and industrial sectors in South Sulawesi to contribute through increased productivity, product diversification, wider market access and innovation can be one of the factors or keys in encouraging sustainable and inclusive economic growth in South Sulawesi. This will have a huge impact on every business actor. Where technology has three indicators, namely the access index, usage index and skills index.

Based on the results of several previous studies, there are different results. In research [10] Economic growth is positively and significantly influenced by technology. The opposite is true in research [11] Economic growth is influenced positively and not significantly by technology. The problem that can be raised in this research is the impact of technology on economic growth.

According to Samuelson's theory (1995), which says that a country has a strong economy, it is important to understand the potential of each economic sector. The expansion of one sector into another sector is facilitated by the expansion of that sector. And as a result, the economy as a whole is also facilitated by this expansion [12]. The new economic theory developed by Solow, which was later referred to as the Solow model, focuses on the importance of technological progress in a country's economy. This technological progress is supported by several strategic positions from each new economic theory, therefore, technological knowledge and intelligence are important factor in economic growth and development [13].

This research aims to find out whether technology has an effect on economic growth in the cycle of the agricultural sector and the industrial sector. Apart from that, this research also aims to determine the influence of technology on economic growth which is carried out using regression testing. Based on these objectives, it can be seen how digital technology influences economic growth in South Sulawesi. Not only that, the role of the community is also quite significant in increasing economic growth, where later the community can contribute to implementing good policies in the economic growth process in South Sulawesi.

Based on the following hypothetical problems:

Ha_1: The access index has a significant influence on Gross Regional Domestic Product (GRDP) in South Sulawesi province.

Ha_2: The user index has a significant effect on Gross Regional Domestic Product (GRDP) in South Sulawesi province.

Ha_3: The skills index has a significant effect on Gross Regional Domestic Product (GRDP) in South Sulawesi province

2. Methodology

This research is research that examines the contribution of the agricultural sector and industrial sector to economic growth in South Sulawesi. In this research, the data used is secondary data from time series data covering 2013 to 2022 which is also the data study used in this research. The Time Series data mentioned includes information on technology and economic growth in South Sulawesi. The population used in this research uses BPS South Sulawesi to collect data on the Access subindex, usage subindex, skills subindex and economic growth with a time series of the last ten years using a sampling technique. Written data on access index, usage index, skills index and economic growth which have been archived at BPS South Sulawesi are the source of this research. The research techniques used in this research are direct research data collection techniques and library research. This research also uses the eviews version 10 application to process data. To understand the relevance of the independent variable to the dependent, this research uses a multiple linear regression equation which is written in the following formula:

$$Y = \beta 0 + \beta 1\ X1 + \beta 2\ X2 + \beta 3\ X3 + ei$$

Where :
Y = Economic growth
X1 = Access Index
X2 = Usage Index
X3 = Skill Index
β0 = constant
β1 = regression coefficient X1
β2 = Regression coefficient X2
β3 = Regression coefficient X3
ei = standard error or nuisance in linear equations

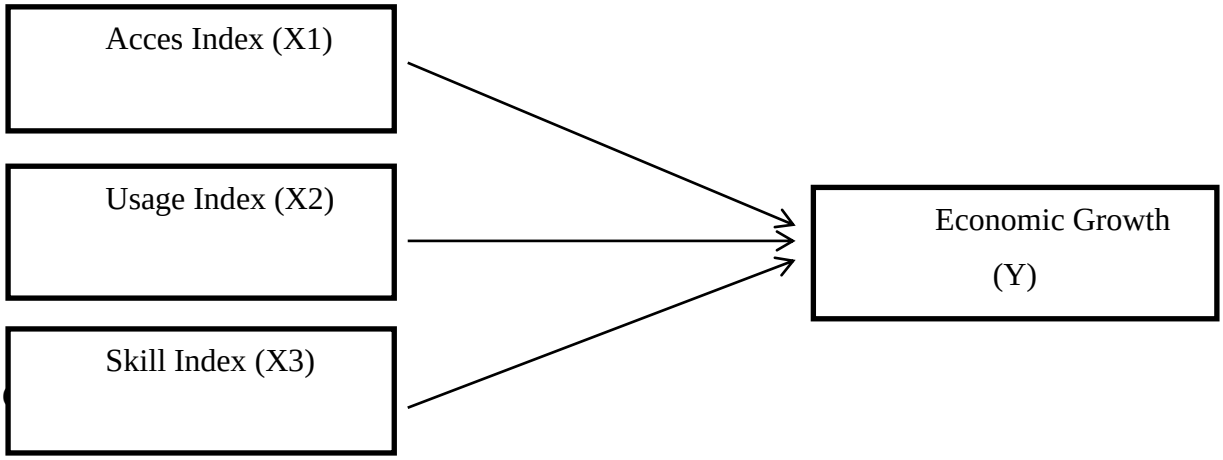


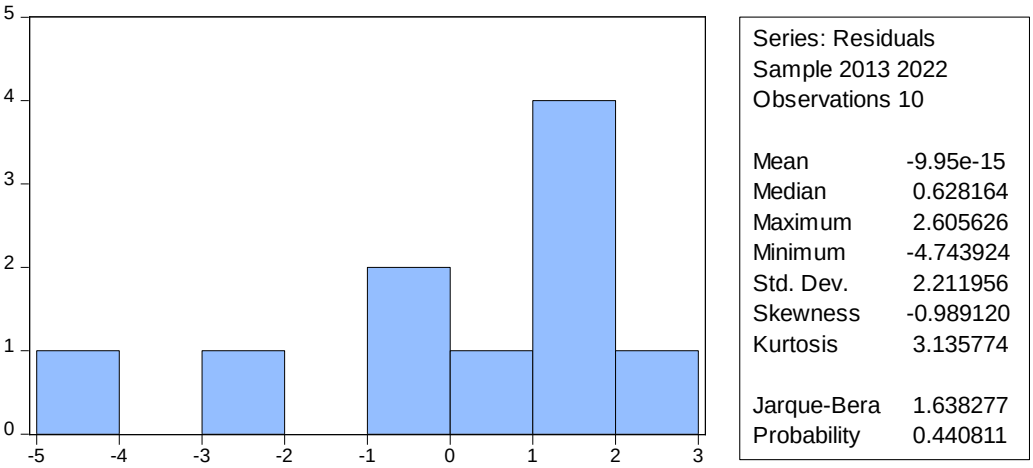
Figure 1 framework of thinking

3. Result and Discussion

1. Classic Assumption Test

a. Normality test

The normality test is used to see whether the distribution of data on a variable is normally distributed or not. The Jarque-Bera method is used to see whether the residuals are normally distributed or not by looking at the probability value. The following is the normality test in this research:



Sumber : output eviews 10, diolah 2023

Based on the results of the normality test, it can be seen that the Jarque-bera p-value of 0.44 is greater than 0.05 so the data is not normally distributed.

b. Heteroscedasticity Test

Table 1. Heteroscedasticity test of the Glejse method

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-69,15814	36,53057	-1,893158	0,1072
LOG(X1)	17,49073	21,23264	0,823766	0,4416
LOG(X2)	0,653553	4,055169	0,161165	0,8773
LOG(X3)	21,58983	12,82992	1,682772	0,1434

Sunber: output eviews 10, diolah 2024

Based on the results of the heteroscedasticity test, it shows that the probability value of each independent variable is above 0.05. This means that it can be concluded that in this study there was no heteroscedasticity problem.

c. Multicollinearity Test

The multicollinearity test is used to determine whether or not there is a relationship between the independent variables in a model. In this study, multicollinearity was detected by testing high pairwise correlation coefficients between independent variables. With the criteria that if the variable VIF value is smaller than 10.00, it is concluded that it has passed the multicollinearity test. The following multicollinearity test is as follows:

Table 2. Multicollinearity Test

	Coefficient	Uncentered	Centered
Variable	**Variance**	**VIF**	**VIF**
C	7158,334	9753,665	NA
LOG(X1)	2418,283	9637,124	14,65855
LOG(X2)	88,20982	211,5670	18,85303
LOG(X3)	882,9719	4153,817	3,095593

Source: eviews 10 output, processed 2024

Based on the results of the multicollinearity test, it shows that the VIF value of the independent variable is greater than 0.05, it can be concluded that the meltcollinearity test is not fulfilled or does not pass the multicollinearity test.

d. Autocorrelation Test

The autocorrelation test is carried out to determine whether there is a correlation between variables. The Durbin-Watson method is used for autocorrelation testing, the DW test decisions are as follows:

Table 3. Autocorrelation Test

DL	DU	DW
0,525	2,016	2,626

Source: eviews 10 output, processed 2024

From table 3, the Durbin Watson value of 2.626 is obtained, located between DL and DU. Or it can be said that the value of DL < DU < DW (0.525 < 2.016 < 2.626 so that this research does not exist or does not pass the autocorrelation test

2. Hypothesis test

a. Multiple linear regression

This regression analysis is used to determine the impact between technology and economic growth in South Sulawesi. This analysis is needed to find deeper regressions. Regression equation

Table 4. Multiple Linear Regression Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	137,8426	84,60694	1,629211	0,1544
LOG(X1)	-18,34789	49,17604	-0,373106	0,7219
LOG(X2)	-4,575971	9,392008	-0,487220	0,6434
LOG(X3)	-51,30604	29,71484	-1,726613	0,1350

Source: eviews 10 output, processed 2024

Y = 137,842 – 18,347*LOG(X1) – 4,575*LOG(X2) – 51,306*LOG(X3)

So it is explained that:

1. Constant/alpha value = 137.842 This number is a constant/alpha number with a value of 137.842, meaning this value will remain constant if the independent variable does not change.

2. Coefficient values Bx1, Bx2, and Bx3 = -18,347 -4,575 and -51,306 The negative value above indicates that economic growth will follow a decline in technology in the access index, usage index and skills index

b. Individual Parameter Significance Test (t test)

The t test is used to determine the effect of the independent variable on the dependent variable. The t test can be carried out to find the calculated t on the coefficient from the Eviews output. H0 will be accepted if the calculated t value < t table and Ha is rejected. Meanwhile, if the calculated t value > t table H0 is rejected and Ha is accepted. This means that there is an influence between the independent variable and the dependent variable.

Table 5. T test

Variable	t-statistics	t-table	prob	conclusion	Information
LOGX1	-0,373106	1,943	0,7219	Reject Ha_1	Not Significant
LOGX2	-0,487220	1,943	0,6434	Reject Ha_2	Not Significant
LOGX3	-1,726613	1,943	0,1350	Reject Ha_3	Not Significant

Source: eviews 10 output, processed 2024

1) Access index variable

Based on table 5, the results show that the t-statistic value is (-0.373) < t-table (1.943) and p-value (0.72) > 0.05, so Ha_1 is rejected, so it can be concluded that the access index variable has a negative and insignificant effect on economic growth in South Sulawesi 2013-2022.

2) Usage Index Variable

Based on table 4, the results show that the t-statistic value is (-0.487) < t-table (1.943) and the p-value (0.64) > 0.05, so Ha_2 is rejected, so it can be concluded that the Usage Index variable has a negative and insignificant effect on economic growth in South Sulawesi 2013-2022.

3) Skill Index Variable

Berdasarkan tabel 4diperoleh hasil nilai t-statistik (-1,726) < (1,943) dan *p-value* (0,13) > 0,05 maka Ha_3 ditolak, sehingga dapat disimpulkan bahwa variabel Indeks Keahlian berpengaruh negatif dan tidak signifikan terhadap pertumbuhan ekonomi di sulawesi selatan 2013-2022.

c. Simultaneous Significance Test (f test)

The f test is a test used to determine the effect of the independent variables together on the dependent variable.

Table 6. f test

Df (k-1;n-k)	a	F-table	F-statistics	Prob	Information
(3;6)	0,05	4,757	1,526162	0,301256	Ha_{123} rejectide

Source: Eviews 10 output, processed 2024

Table 6 shows that the F-statistic value (1.526) < F-table (4.757) and the p-value (0.30) > 0.05 means that Ha_{123} is rejected or $H0_{123}$ is accepted, so it is concluded that all the independent variables consist of the access index. , usage index, and skills index together have a negative and insignificant effect on the economic growth of South Sulawesi.

d. Coefficient of Determination (R2)

Coefficient of determination analysis is used to calculate the proportion of influence of the independent variable on the dependent variable simultaneously. Based on the results of regression analysis of time series data, a coefficient value (R2) of 0.432811 was obtained, which means that the Access Index, Usage Index and Skills Index have an influence of 43.2% on economic growth, while other factors from outside this research have an impact of 43.2%. 56.8%.

3. Discussion

From the results of research conducted, the Access Index variable on economic growth in South Sulawesi shows a sig value of 0.72 > 0.05 and the coefficient of the access index is -18.34. The Usage Index variable on economic growth in South Sulawesi shows a sig value of 0.64 <0.05 and the coefficient of the usage index is -4.57. The Skills Index variable on economic growth in South Sulawesi shows a sig value of 0.13 > 0.05 and the coefficient of the skills index is -51.30. The three index variables are factors that do not play an important role in economic growth, because factors outside the three indices have a big influence on economic growth. The findings of this research are not in line with the initial hypothesis which states that the Access Index, Usage Index and Skills Index have a significant effect on economic growth.

The findings of this study are in line with the findings [11] and [14] which states that technology has an insignificant effect on economic growth. This means that society needs to improve technology in the access index, use index and skills index so that the development

of the agricultural sector and industrial sector can increase economic growth well. And this research is inconsistent with the findings [10] and [15] which states that technology has a positive and significant effect on economic growth. This research is not in line with Solow's theory explaining the importance of technological progress in a country's economy. This technological progress is supported by several strategic positions from each new economic theory, therefore, technological knowledge and intelligence are important factors in growth and development.

4. Conclusion

From the results of this research, it can be concluded that the access index, usage index and skills index have a negative and insignificant effect on economic growth. This research shows that these three indices cannot significantly increase the rate of economic growth in South Sulawesi. Judging from the R square value of 0.432811 or 43.2%, this means that the access index, usage index and skills index have no influence on economic growth in South Sulawesi, while 56.8% is influenced by other factors or variables outside of this research. not care.

As a result of this research, the author hopes that society will be more serious about managing technology well. In this case, society is able to improve technology, especially in the access index, usage index and skills index so that society is able to adapt to the modernization that has been developed in the agricultural and industrial sectors to create a good economy.

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