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THE EFFECT OF HDI AND MACROECONOMIC VARIABLES ON ECONOMIC GROWTH IN INDONESIA 2015-2020

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ABSTRACT

The Human Development Index (HDI) measures the achievement of human development based on several basic components of quality of life. HDI is built through a basic three-dimensional approach to measure the quality of life. These dimensions include life expectancy and health, knowledge, and a decent life. Stable inflation is a prerequisite for the realization of economic growth and social welfare. Different economic conditions and natural conditions make inflation between regions in Indonesia varied. This study aims to examine HDI, inflation, investment and labor on Indonesia's economic growth. The data source used in the form of panel data that obtained from the Badan Pusat Statistik (BPS) for the 2015-2020 period. Using panel regression data with the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) approach processed with E-Views 10. The results of this study indicate that the estimated model chosen in this study is Fixed Effect Models (FEM). The partial test shows that the HDI, CPI, and INV variables have a significant positive effect on economic growth. In contrast, the probability value of labor (L) does not have a significant effect on economic growth. Meanwhile, in the simultaneous test, the F-statistic probability value is 0.000000 < 0.05, which means that the four independent variables simultaneously affect economic growth. Furthermore, the Adjusted R-Square value is 0.0994749, which means 99% of the HDI, CPI, INV, and L variables in this study can explain the variation of economic Article Error @ growth variables. While the remaining 1% is explained by other variables outside the model.

Keywords: HDI, Inflation, Investment, Labor

ABSTRAK

Indeks Pembangunan Manusia (IPM) mengukur capaian pembangunan manusia berbasis sejumlah komponen dasar kualitas hidup. Sebagai ukuran kualitas hidup, IPM dibangun melalui pendekatan tiga dimensi dasar. Dimensi tersebut mencakup umur panjang dan sehat; pengetahuan, dan kehidupan yang layak. Inflasi yang stabil merupakan syarat bagi terwujudnya pertumbuhan ekonomi serta kesejahteraan masyarakat. Kondisi perekonomian dan keadaan alam berbeda-beda membuat inflasi antar wilayah di Indonesia menjadi bervariasi. Tujuan dari penelitian ini adalah untuk menguji IPM dan inflasi, investasi dan tenaga kerja terhadap pertumbuhan ekonomi Indonesia. <mark>Sumber data yang di-</mark> gunakan berupa data panel diperoleh dari Badan Pusat Statistik (BPS) Periode 2015-2020. analisis data menggunakan data panel regresi dengan Common Effect Model (CEM), Fixed Effect Model (FEM), dan Pendekatan Random Ef-

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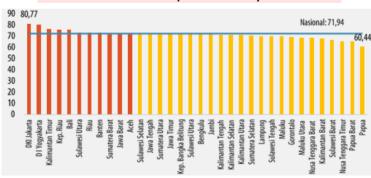
fect Model (REM) diproses dengan E-Views 10. Hasil penilitian ini menunjukkan bahwa estimasi model yang terpilih dalam penelitian ini yaitu Fixed Effect Model (FEM). Uji parsial menunjukkan hasil variabel HDI, IHK, INV pengaruh positif signifikan terhadap pertumbuhan ekonomi. <mark>Sedangkan nilai probabilitas</mark> TK tidak berpengaruh signifikan terhadap pertumbuhan ekonomi. Sedangkan pada uji simultan nilai prob F-Statistic sebesar 0.000000 < 0.05 yang berarti ke empat variabel independen secara simultan berpengaruh terhadap pertumbuhan ekonomi. Dan nilai Adjusted <mark>R-Square</mark> sebesar 0.0994749 yang berarti 99% variabel HDI, IHK, INV, dan TK p<mark>ada pene</mark>litian ini mampu menjelaskan variasi variabel pertumbuhan ekonomi. Sedangkan sisahnya sebesar 1% dijelaskan oleh variabel lain diluar model.

Kata Kunci: IPM, Inflasi, Investasi, Tenaga Kerja JEL: E22; E31; O15.

Introduction

Development is a series of efforts to make changes for the better. The development process includes various changes based on social status, the value of community life, and national institutions, in addition to pursuing accelerated economic growth, handling income inequality, and poverty alleviation programs. Where in the point, development reflects more on the total change in society or the adjustment of the social system as a whole by not ignoring the diversity of basic needs and desires of individuals and social groups that exist to move forward towards a better living condition, materially and spiritually (Todaro & Smith, 2011).

The development process is being carried out in Indonesia. Increasing economic growth is often the primary target, this is because economic growth is often related to an increase in goods and services produced by the community. Based on this, the government as the implementer of development certainly requires excellent Human Resources as capital to carry out the development process. Indonesian has indicators to measure success in efforts to build the guality of human life commonly referred to as the Human Development Index (HDI).



Gambar 1: Human Development Index by Province 2020

Source: BPS (2020a)

Based on Figure 1, it can be seen that HDI growth during the COVID-19 pandemic slowed down in all provinces. In terms of position, the comparison of HDI between provinces doesn't change much. The highest HDI in 2020 was still achieved by DKI Jakarta (82.77), while the lowest was occupied by Papua (60.44). When compared with the national HDI, there are 11 provinces that have HDI above the national.

Since it was first calculated, DKI Jakarta Province has always had the highest HDI. During the COVID-19 pandemic, DKI Jakarta's HDI experienced the lowest increase in the past decade, increasing by 0.01 points. The slowdown in the HDI of DKI Jakarta in 2020 was due to a decrease in adjusted real per capita spending. This indicator decreased by 1.62% compared

to 2019. The number of confirmed cases of covid-19 which resulted in weakening economic activity contributed to the slowdown in the HDI figure for DKI Jakarta until the end of 2020. Positive cases of COVID-19 in DKI Jakarta were the highest in Indonesia with contribution of 25% of all cases.

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On the other hand, Papua occupies the last position in the human development index in the 2010-2020. In addition, the Papua's HDI in 2020 decreased compared to the previous year. This is inseparable from the impact of the pandemic that has spread to the easternmost region of Indonesia. The main factor in the decline in HDI in this Province is the decline in adjusted real per capita spending (BPS, 2020a).

Inflation is a process of increasing the prices of goods continuously or an economic condition that shows a tendency to increase the price level in general. It is said to be a general price level because the goods and services on the market have very diverse quantities and types, so most of the prices of these goods always increase and result in inflation. The inflation rate increases or decreases in inflation from period to period or from year to year (Indriyani, 2016).

Stable inflation is a prerequisite for the realization of economic growth and social welfare. Different economic conditions and natural conditions make inflation between regions in Indonesia varied. To maintain and control the inflation rate in a steady and stable condition in each region, the government has formed a National Inflation Control Team. The team consists of a central, provincial and district/city inflation control team that coordinates with each other.

Table 1 shows the inflation rate of several regions in 2018 that experienced inflation was higher than national inflation. The island of Sumatra mostly experienced inflation below the national inflation rate. However, several cities have high inflation rates that above 5%, namely Tarakan, Merauke, Manokwari, Palu, and Papua. Jakarta itself became the center of the nation's capital in 2018, experiencing inflation exceeding the national inflation which reached 3.27%.

City	2018	2019	2020
Batam	3.65	1.97	1.12
Tanjung Pinang	2.36	2.40	1.66
Tarakan	5.00	1.47	1.15
Merauke	5.42	-0.65	1.06
Manokwari	6.02	4.76	-0.89
Palu	6.46	2.30	1.81
Meulaboh	0.96	4.28	4.24
Banjarmasin	2.63	4.15	1.67
Jakarta	3.27	3.23	1.59
Indonesia	3.13	2.72	1.68

Table 1: Inflation Rate of Cities in Indonesia in 2018-2021 (January-June)

Source: BPS (2020b)

National inflation in 2019 was the lowest in recent years. However, not all cities in Indonesia have low inflation rates. There are 22 cities in Indonesia whose inflation rate is higher than the national inflation rate. Even in 2019, there was one city that experienced deflation, namely Merauke by -0.65%. The city that experienced the highest inflation in 2019 was Manokwari (4.76%) followed by Meulaboh and Banjarmasin with inflation rates of 4.28% and 4.15%, respectively. Meanwhile, the city of Jakarta as the center of the nation's capital has an inflation rate above the national inflation rate of 3.23%.

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The rapid spread of the COVID-19 outbreak that began to spread throughout Indonesia made the government begin to limit community activities. In 2020 the mobility and activities of the community began to decrease. Consumption, production, and distribution were limited. However, the government strives to maintain commodity prices by maintaining the availability of food supplies in the community, increasing the flow of food production and distribution. The island of Java is the most vulnerable and has a very high spread of the Covid-19 outbreak. There are 10 cities out of 26 cities in Java that have inflation rates below the national inflation rate. Even Jakarta, which always had an inflation rate above the national inflation rate in 2020, experienced inflation below the national rate, which only reached 1.59%.

These problems are often triggered by low and stable inflation. This can be achieved from various obstacles that contribute to minimized inflation. This problem often occurs be cause inflation is most likely due to high distribution costs, low production efficiency, and expensive access to financing. In addition, the imperfect market structure factor also triggers an increase in the price of goods. The presence of these obstacles will ultimately affect the competitiveness of domestic products (Utari et al., 2015).

Economic growth is one indicator to see the economy's performance both at the national and regional levels. According to Todaro, economic growth is defined as a process in which the production capacity of an economy increases over time to produce greater levels of income (Yanti & Meirinaldi, 2021).

According to Todaro & Smith (2003), various factors that influence economic growth manifest in three main components. First is capital accumulation, which includes all new forms or types of investments invested in land, physical equipment, and human capital or human resources. Second is population growth, which will increase the workforce. Third, technological progress in its simplest sense occurs because of the discovery of new ways or improvements to old ways of handling a job (Lumbantoruan & Hidayat, 2014).

Duraviana		Economic Growth	
Province	2018	2019	2020
DI Yogyakarta	6.20	6.59	2.65
DKI Jakarta	6.11	6.60	17.56
Bali	6.31	6.61	1.42
Sulawesi Tengah	20.56	6.64	4.86
Maluku Utara	7.86	6.67	4.92
Papua	6.25	6.68	2.32

Table 2: Economic Growth and Contribution by Province (%) 2018-2020

Source: BPS (2020b)

From Table 2 it can be explained that the province that experienced the highest economic growth in 2020 was DKI Jakarta, with a GDRP value of 17.56%—then followed by North Maluku and Central Sulawesi 4.92% and 4.86%. This means that economic activity in the area is getting better.

Based on Neo-Classical states that economic growth depends on the development of production factors, such as capital growth, population growth, and technological progress. Human contribution as analysis from a micro and macro view. The assumption from a micro point of view is that human capital is part of the production function of other individuals, so it is related to the quality of human resources. Knowledge can impact mastery of technology and the availability of innovations carried out as a production process. At the macro level, the contribution of human capital can be analyzed from the integrated micro contribution as a form of national economic development. Human capital is an investment in human capital development to create good quality of human capital and will have a positive impact on eco-

nomic activities (Todaro & Smith, 2011). If a country has affordable and compatible human capital, that country's economy can be more productive. According to Meier & Stiglitz, (2000), it is necessary to have knowledge, skills, and good health for a productive development process to encourage economic growth. In line with the findings of Lachler & Aschauer (1998), which explains that human capital is closely related to the quality of human resources through the results of the educational process. Education will increase knowledge and skills which in turn have an impact on productivity and economic growth (Suhendra, 2020).

Literature Review

Human Development Index (HDI)

a. Concept of Human Development Index (HDI)

The concept of human development was first introduced in 1990 by the United Nations Development (UNDP) in its report "Global Human Development Report" which contains that human development is formulated as an expansion of population choices in an effort to have the opportunity to live long and healthy, adequate knowledge and skills in creating opportunities to realize their skills in productive activities to improve their standard of living (BPS, 2020a).

Human resource development is the most important thing. The success of human development is reflected in the Human Development Index (HDI). HDI is an indicator that reflects the performance of human development in a region. Thus, the increase in the human development index is the progress of development in the region (Todaro & Smith, 2011).

Then it can be concluded that the Human Development Index is a measurement of the level of health, education and decent living of the population in an area that is used as an indicator. This is to assess the quality of a country's development. In addition, it is used as a form of classification to see whether a country is a developed country or a backward country. To see the quality of the population of an area, the first thing that becomes the center of attention is how the HDI level is. If a region has a high HDI then an area of the region is said to be of high quality. One of the proofs is that when a region has a population that is highly educated, it will give an idea that the region is included in the prosperous category.

The Human Development Index (HDI) measures the achievement of human development based on a number of basic components of quality of life. As a measure of quality of life, HDI is built through a basic three-dimensional approach. These dimensions include longevity and health; knowledge, and a decent life. These three dimensions have a very broad meaning because they are related to many factors. To measure the dimensions of health; life expectancy at birth is used. Furthermore, to measure the knowledge dimension, a combination of literacy rate indicators and average years of schooling is used. As for measuring the dimensions of decent living, indicators of people's purchasing power are used for a number of basic needs seen from the average amount of per capita expenditure as an income approach that represents development achievements for a decent life.

D. Component Index Calculation

Each HDI component is standardized with minimum and maximum values before being used to calculate HDI. The formula used is as follows:

1) Health Dimension (long and decent life)

Life expectancy is a forecast for the number of years the average human can live. Future life expectancy is a tool to assess government implementation in working on government assistance to the community as a whole and creating welfare status specifically in the health sector (Wibowo, 2019). Here's how to measure the health index by BPS: Soleman, R. et al. The Effect of HDI and Macroeconomic Variables on Economic Growth in Indonesia 2015-2020

$$I_{Health} = \frac{AHH - AHH_{\min}}{AHH_{\max} - AHH_{\min}}$$
(1)

2) Dimension of Education (knowledge)

Dimension of Education can be measured by population's average years of schooling.

$$I_{HLS} = \frac{HLS - HLS_{\min}}{HLS_{\max} - HLS_{\min}}$$
(2)

$$I_{RLS} = \frac{RLS - RLS_{\min}}{RLS_{\max} - RLS_{\min}}$$
(3)

$$I_{education} = \frac{I_{HIS} + I_{RLS}}{2}$$
(4)

Where:

AHH : life expectancy

HLS : Expected years of schooling

RLS : Average years of schooling

3) Expenditure Dimension (decent standard of living)

The standard of living is measured by adjusted real per capita expenditure (BPS, 2020a). The dimensions of expenditure are measured by the following formula.

$$I_{exp} = \frac{\ln(Exp) - \ln(Exp_{min})}{\ln(Exp)}$$
(5)

To calculate the HDI, the geometric mean of the health, education and expenditure indices is calculated.

$$HDI = \sqrt[3]{I_{health} x I_{education} x I_{exp}} \times 100$$
(6)

Inflation

Natsir (2014) argues that inflation is the desire and continuous price of goods and services in general and continuously. Inflation is an event that shows the level of prices in general and takes place continuously. Inflation is a tendency to increase the price of goods and services in general, which lasts continuously. If the price of domestic goods and services increases, then inflation will increase. The increase in goods and prices causes a decrease in the value of money. Thus, inflation can also be interpreted as a decrease in the value of money for general goods and services (BPS, 2020b).

Inflation as a gradual increase in the general price level (price level). Blanchard & Johnson (2017) say that Inflation is an economic phenomenon that shows a continuous increase in the general price level. Based on the above definition, inflation is an increase in the price of goods and services in one period. The increase in price of goods occurs gradually and extends to increases in other goods (Indriyani, 2016).

Inflation is the tendency of prices to rise in general and continuously (Mankiw, 2006). This does not mean that the prices of various goods rise by the same percentage. Perhaps the increase may not occur simultaneously, the important thing is that there is an increase in the price of general goods continuously during a certain period. The increase that occurred only once, even though in a large percentage, was caused by inflation (Purba et al., 2021).

investment

Sutha (2000) argues that investment is the placement of a number of funds in the hope of maintaining, increasing value, or providing a positive return. Investment is the investment of money in the hope of getting results and added value. Investment is the expenditure ror *(context)*

of goods that are not consumed at this time based on the time period. Investment is also divided into three, namely, short-term investment, medium-term investment and long-term investment (Sulistiawati, 2012).

Labor

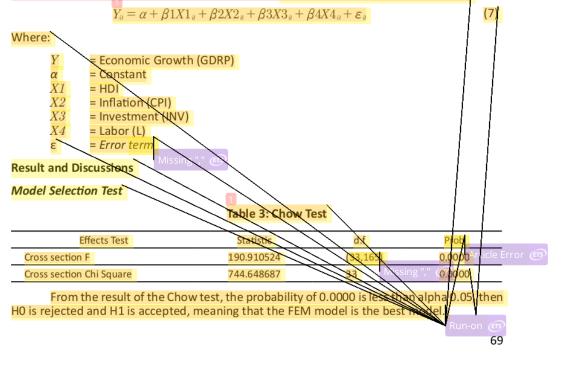
Human factors of production are fickle. The value of labor as reflected by wages is strongly influenced by the quality of these human resources, the higher the quality of the workforce, the higher the wages received, and conversely if the quality of the workforce is low, the level of wages received is also low.

The employment problem was put forward by Lewis that overwork is an opportunity and not a problem. Excess workers in one sector will contribute to output growth and the supply of workers in other sectors. (Todaro & Smith, 2011).

Research methods

This study uses a quantitative research approach. Quantitative research is research with data in the form of numbers and analysis using statistics (Sugiyono, 2018). In this study, we will use secondary data, in the type of panel data from 34 provinces in Indonesia for the period 2015 to 2020. The data we use is economic growth data as a projection of the dependent variable. The HDI, inflation, investment and labor data are projections of the independent variables. We got this data from the publication of the Central Statistics Bureau (Badan Pusat Statistik).

According to Gujarati & Porter (2009) harvest analysis is "the development of a simple regression analysis tool for applications that include two or more independent variables or predicate variables to estimate the dependent variable or response variable". The analytical tool that we will use in this study is in the form of a static panel data regression method consisting of Random Effect Model (REM) and Fixed Effect Model (FEM). Panel data is data that has a cross section and also a time dimension (time series). Panel data regression methods can be divided into two, namely static panel data regression and dynamic panel data regression. The static panel data regression can be divided into three approaches: common effect, random effect and fixed effect. (Widarjono, 2018). In this study the model is as follows:



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Table 4: Hausman Test

Test Summary	Chi Sq. Statistic	Chi Sq. df	Prob
Cross section Random	371.378258	4	0.0000

The Hausman test is used to identify the best regression model among the results of the fixed effect and random effect regression models that have been carried out previously. To determine the best model between the two, it is necessary to look at the Probability Chisquared value that has been generated. Assuming that the significance level used is 0.05, then in assessing the resulting probability will also use the value of 0.05 as a benchmark. If the resulting Chi-squared probability value is ≥0.05, then the random effects model is a better model. However, if the Chi-squared probability is < 0.05, then the fixed effects model is a better model and will be selected for further analysis.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	-616642.3	200738.1	-3.071874	0.0025
HDI	12775.68	2.936327	4.350906	0.0000
ІНК	2628.065	2.013266	1.305374	0.1936
INV	4.074774	0.483390	8.429577	0.0000
L	-5.057925	1.017006	-0.497335	0.6196

Based on the results of the Hausman test above, it is known that the resulting probability value is 0.0000 which is less than the 0.05 significance level, so it is determined that the model to be selected for analysis is the Fixed Effect Model (FEM).

Partial Test (T-test)

Table 6: Result of t-statistics Test (Partial)

	Article Error (675)
Variable	Prob.
HDI	0.0000
ІНК	0.1936
INV	0.0000
L	0.6196

Based on the results of the Fixed Effect Model, for the HDI variable (X1) with a probability value of 0.000 < 0.05 and for the CPI variable (X2) with a probability of 0.1936 < 0.05, and for the Investment variable (X3) with a probability of 0.0000 < 0.05 while the Power variable Employment (X4) with a probability of 0.6196 < 0.05, which means that HDI. Inflation and Investment have a significant positive effect on economic growth, while Labor has a significant negative effect on economic growth.

Simultaneous Test (F-test)

Based on the results of processing or estimation of the Fixed Effect Model, it is known that the F-Statistic is 0.000000 > 0.05. it means that the variables HDI, inflation, investment, simultaneously affect economic growth while labor has a negative effect on economic growth.

Coefficient of Determination Test (R²)

Based on the results of the Fixed Effect Model, the Adjusted R-Square value is 0.0994749 which or 99% means that the independent variables (HDI, CPI, Investment and Labor) can explain the dependent variable (economic growth) while the remaining 1% is influenced by variables outside the model.

The Effect of HDI on Economic Growth

Based on the results of the study, it was stated that the HDI variable had a significant positive effect on Economic Growth because it had a value of 0.0000, where the value was smaller than the significance level of 0.09. This means that it states that the level of the Human Development Index always develops and grows in an economic growth.

This study is in line with research conducted by Dewi & Sutrisna (2014) which states that HDI has a significant effect on economic growth.

The Effect of Inflation on Economic Growth

Based on the results of the study, it states that inflation has a significant positive effect with a significance value of 0.1936, where the value is smaller than the significance level of 0.05. This means that the effect of inflation is quite good on economic growth. Even though we know in general that inflation can also reduce the rate of economic growth, but in this test, inflation is quite a significant impact on economic growth.

This research is in line with research conducted by Salim et al. (2021) which states that inflation has a positive effect on economic growth.

The Effect of Domestic Investment on Economic Growth

Based on the results of the study, it was stated that investment had a significant positive effect with a significance value of 0.0000, where the value was smaller than the significience cance level of 0.05. This means that the influence of investment on economic growth has the potential to increase economic growth. Investment will also create a business climate. The more investments or investments made, the newer businesses will emerge such as MSMEs, medical devices and housing which are some of the business sectors that grew during the pandemic. And of course, businesses will appear everywhere that open up jobs.

The results of this study received support from several previous studies, such as the research of Alice et al. which stated the relationship between Domestic Investment and economic growth which had a significant impact on economic growth in Indonesia (Alice et al., 2021). Furthermore, research by Yunita and Santosa which states that there is a good relationship between economic growth and domestic investment is assumed that investment can encourage the development of the business world and create job opportunities that stimulate economic development in an area or region (Yunita & Sentosa, 2019).

These findings are reinforced by the theory of Harrod Domar assuming that investment is the key to the process of economic growth and to grow an economy requires an investment as additional capital (Boediono, 2018).

The findings above clearly prove that PMDN has a positive effect on economic growth in Indonesia. Domestic Investment encourages investors to take advantage of high returns. However, the entry of foreign capital can also be beneficial for the country itself.

The Effect of Labor Force Participation Rate on Economic Growth

Based on the results of the study stated that the workforce had a negative effect with a value of 0.6196. This means that the influence of labor has not yet had an impact on economic growth.

According to Todaro & Smith (2003) population growth and labor force growth are traditionally considered as one of the positive factors that spur economic growth. A larger number of workers means an increase in the level of production, while a larger population growth means a larger market size. However, it is still questionable whether it really has a positive or negative impact on its economic development.

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This research is in line with the research of Purnamasari et al. (2017) which states that labor has an insignificant effect on economic growth.

The results of this study cannot prove the theory of Lincoln (1996) which states that an increase in employment is seen as a positive indicator to encourage economic growth. This is due to an increase in total production in an area, while in measuring the economic growth of an area one of the methods used is seen from the total productivity. After testing, the results show that the variable labor force participation rate (LFPR) shows a negative interaction in stimulating economic growth.

This result is in line with research conducted by Rozmar et al. (2017) which states that LFPR does not have a significant effect on economic growth, this is due to the quality of the workforce, even though the workforce is high, but if the quality is inadequate, shifting to quality and the quantity of goods and services produced is also reduced (Rozmar et al., 2017). Then the research of Maulana (2015) which states that the workforce has no significant effect on economic growth. Local governments must be able to realize what indicators are driving investment levels in order to reduce unemployment, whether it is due to increasing the level of education and training of local workers or changes in the economic structure towards a more modern one (Maulana, 2015).

Conclusions

Based on the results of data processing and the discussion above, it can be concluded that the model chosen in this study is the Fixed Effect Model (FEM). The partial test shows the results of the HDI, CPI, INV variables of 0.0000 <0.05 (alpha 5%) which means it has a significant positive effect on economic growth. While the probability value of Labor has a probability value greater than 0.05, which means that the variable Labor has no significant effect on economic growth. Meanwhile, in the simultaneous test, the F-Statistic prob value is 0.000000 < 0.05, which means that the four independent variables simultaneously affect economic growth. And the Adjusted R-Square value is 0.0994749, which means 99% of the HDI, CPI, INV, and L variables in this study are able to explain the variables outside the model.

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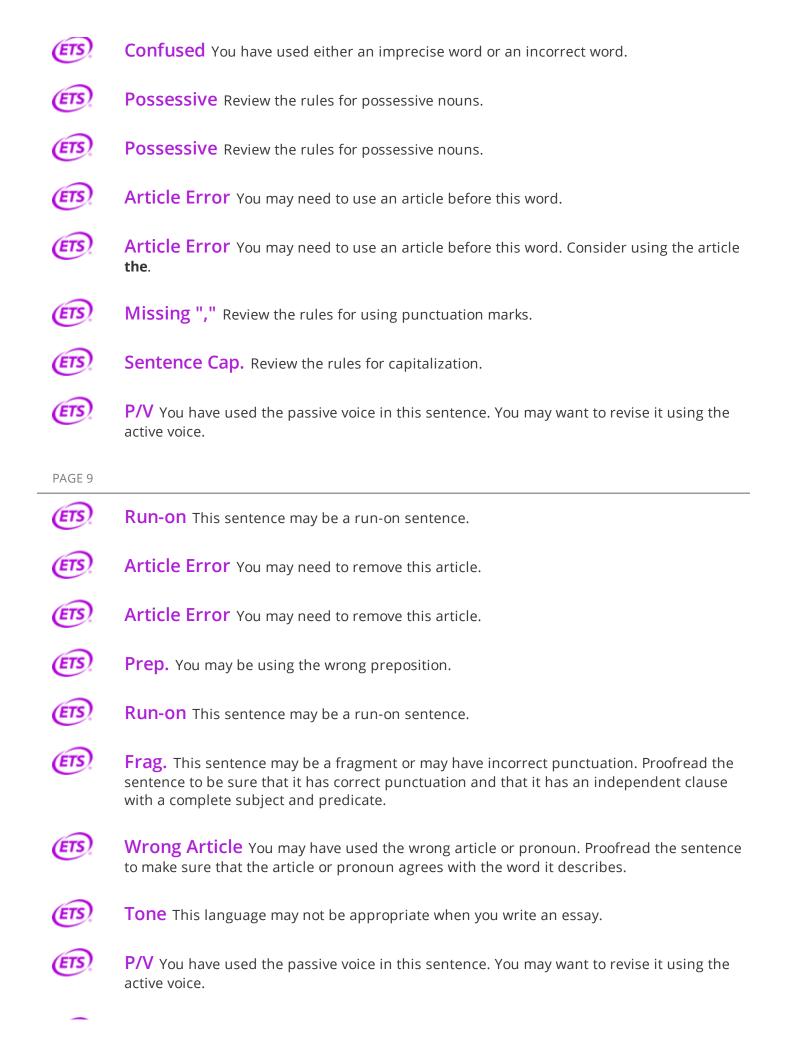
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