ANALYSIS OF THE INFLUENCE OF THE HUMAN DEVELOPMENT INDEX, ECONOMIC GROWTH, AND INFLATION ON THE UNEMPLOYMENT RATE IN MEDAN CITY

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Abstract: The aim of this research is to determine the influence of the human development index, economic growth and inflation on unemployment in Medan City. The approach taken in this research is a quantitative approach. The data used is secondary data originating from the Medan City Central Statistics Agency for the period 2003-2023. The analysis techniques used are classical assumption tests (normality test, multicollinearity test, heteroscedasticity test and autocorrelation test), multiple linear regression, and hypothesis testing (t test, F test and R2 test). The results of this research are based on the results of a simultaneous test (f test), it can be seen that the human development index variables, economic growth and inflation together (simultaneously) have a significant effect on the unemployment variable in Medan City for the 2003-2023 period. Based on a partial test, the human development index variable and inflation have a significant effect on unemployment in Medan City for the 2003-2023 period and the economic growth variable has no significant effect on unemployment in Medan City for the 2003-2023 period.

Keywords: Human development index, economic growth, inflation, unemployment.

Introduction

Unemployment is one of the fundamental economic problems in Indonesia (Nisa and Sugiharti 2023). Unemployment impacts various aspects of life, including economic, social and political. Although the government has made various efforts to reduce the unemployment rate, this challenge remains a significant issue. Unemployment in Medan City, like in other big cities in Indonesia, is a complex issue. As one of the economic centers in North Sumatra, Medan faces various challenges in creating sufficient job opportunities to meet the needs of an ever-increasing workforce. The current unemployment problem is a very complex problem to research because the unemployment problem is related to several economic indicators, for example the human development index, economic growth and inflation, minimum wages for workers and so on.

Based on data obtained from the Medan City Central Statistics Agency, it is known that the unemployment rate in percentage terms in the city of Medan during the 2003-2023 period experienced fluctuations. Fluctuations in the unemployment rate in Medan City during the 2003-2023 period reflect local, national and global economic dynamics that influence employment. This is caused by economic conditions, government policies that are not in favor of the people, development of the non-real economic sector, low education and lack of skills, limited job opportunities available which are smaller than the number of job seekers, the competency of job seekers does not match the market. work, have a high level of education but do not have job opportunities because they do not have access, so there is the potential for

education program graduates not being able to accommodate the job market every year, always increasing and never decreasing, the culture of a region where only women work while men do not. work, apart from that, there is also a lack of effective job market information for job seekers.

The Human Development Index has a significant influence on the number of unemployed in a region or country. This is because the Human Development Index reflects people's quality of life, including their ability to compete in the job market. The Human Development Index is an urgent matter for assessing the success of quality development for human life. Improving economic conditions up to the Human Development Index will reduce the percentage of unemployment because the quality of human resources as workers will improve and demand for labor will increase. If the workforce has good health, higher education and a decent life then the results of the work carried out will be of good quality, conversely if the three conditions of the workforce are bad then the output will be of low quality. So the Human Development Index can also be used as a reference for assessing and absorbing human resources (HR) and if the index value of human development is high then the percentage of unemployment in an area will decrease (Yuniarti and Imaningsih 2022).

Apart from the Human Development Index (HDI), another factor that also influences the unemployment rate is economic growth. Adam Smith's classic theory explains that unemployment can be reduced when an area experiences rapid and high economic growth. So it can be said that there is an opposite direction of relationship between economic growth and unemployment. When economic growth in a region increases, it means that production activities also increase. This will increase the demand for labor and reduce the unemployment rate (Diniyah 2022). Continuous economic growth will be able to encourage business opportunities to be wide open, the resulting output will increase, and labor absorption will be optimal. In reality, economic growth in Medan City during 2003-2023 has not been able to absorb the additional workforce that occurs every year plus the number of unemployed that already exist.

Furthermore, inflation is also a factor that influences the number of unemployed. Inflation is any increase in prices that prevail in the economy. Meanwhile, the inflation rate is the percentage increase in the price of goods over a certain period of time. Higher inflation can slow economic growth, resulting in increased unemployment rates (Sahara and Iryani 2023). Inflation in Medan City is also experiencing fluctuations, making investors reluctant to invest their capital due to a lack of security and financial stability, and also reducing job opportunities for residents through investment.

Literature Review

Human Development Index

The concept of human development is a development effort that focuses on improving the quality of human resources which is promoted along with economic growth. Human resources are built in the form of skills and competencies, as well as mental health, and refer to human performance and the workforce in order to be able to compete in the world of work and, as a result, play a role in sustainable development. The indicator that can measure the achievement of human capital development is the Human Development Index (Wilujeng and Prasetyia 2024). The success of human development can be judged by how big problems can be overcome, especially the most basic problems. The existing problems include poverty, unemployment, incomplete education and the problem of successful human development from other economic aspects. Achieving development goals as reflected in the human development index is very dependent on the government as the provider of supporting facilities (Simbala, Walewangko, and Niode 2024). The Human Development Index is a development method that

aims to obtain many choices, especially in terms of income, education and health. In measuring development performance, the human development index is designed using a three-dimensional approach which includes a long, fit life as well as insight and a dignified life. All these dimensions are marked with indicators. The dimensions of longevity and health are characterized by the life expectancy dimension, the insight dimension along with the literacy dimension and average school attendance, the decent living dimension and the ability to buy dimension. The three indicators that represent the dimensions of human development are combined into a value, namely the Human Development Index number (Syera and Ningsih 2024).

Economic Growth

Economic growth is a process where there is a continuous and prolonged increase in production capacity for the better which can be seen from the realization of an increase in national income (Gross Domestic Product) and regional income (Gross Regional Domestic Product) in the long term. Economic growth that is not accompanied by equal distribution of income will result in an inability to reduce poverty, therefore it is necessary to increase economic growth accompanied by equal distribution of income so that poverty can be reduced and people can have a more prosperous life (Supit, Kalangi, and Tumangkeng 2023). Economic growth is one way to overcome poverty. High economic growth will increase economic capacity, create new jobs, increase per capita income (meaning reducing poverty and unemployment), increase demand and supply, and so on following the economic mechanism (Fadillah and Sabar 2023). Economic growth which is getting better from year to year will have a positive impact on development. Economic growth is closely related to unemployment and poverty levels, because increasing economic growth will be followed by an increase in people's productivity in producing goods and services (Hasibuan 2023).

Inflation

Inflation is a tendency to increase the prices of goods and services continuously. If inflation increases, the prices of goods and services in the country will increase. Rising prices of goods and services cause a decline in the value of the currency. So, inflation can also be interpreted as a decrease in the value of the currency relative to the value of goods and services in general (Rahmah et al. 2024). Inflation is defined as a general and continuous increase in prices. The impact of inflation on the economy affects the prosperity of society. Where in the distribution of income there are parties who suffer losses, namely those with fixed incomes, those who store wealth in the form of cash, and creditors. The impact of inflation on output is that it causes an increase in production. In inflationary conditions, increases in the price of goods will precede increases in wages, this can make work easier and as a result the unemployment rate will remain at a low level (Mudawamah, Mustafarida, and Yuliani 2024). The inflation rate has a positive or negative relationship with the unemployment rate. If the calculated inflation rate is inflation that occurs in prices in general, then a high inflation rate will result in an increase in the interest (loan) rate. Therefore, a high interest rate will reduce investment to develop productive sectors. This will affect the high number of unemployed due to low employment opportunities as a result of low investment (Tamala et al. 2024).

Unemployment

Unemployment is a macroeconomic problem that has a direct impact on human survival. Indeed, unemployment is a topic that is often discussed in political debates by bureaucrats, who often conduct studies and find that the measures they offer can be a solution to the availability of suitable employment opportunities. The bad impact of unemployment is a decrease in

people's income levels, which ultimately leads to a decrease in the level of welfare. When people's welfare worsens due to unemployment, they tend to fall into poverty due to lack of income. When a country has very high unemployment rates, the resulting political and social unrest has a negative impact on societal well-being and long-term prospects for long-term economic development. The large number of unemployed will contribute to increasing poverty in Indonesia (Syera, Tanjung, and Triana 2023). Unemployment is a macroeconomic problem that directly affects human survival. For most people losing a job is a decline in the standard of living. So it is not surprising that unemployment is a topic that is often discussed in political debates by politicians who often argue that the policies they offer will help create jobs (Handayani 2022). The increase in unemployment in an area can be caused by an increase in population, because the population also functions as a workforce, so when there is a large population without providing many job opportunities, it will result in more and more unemployment (Kumayas, Kumenaung, and Siwu 2024).

Method

A quantitative approach was chosen in this research to see the impact of increasing changes in the dependent variable which is influenced by the independent variable. The dependent variable in this research is unemployment, while the independent variables used are the human development index, economic growth and inflation. The data used is secondary data originating from the Medan City Central Statistics Agency for the period 2003-2023. The analysis techniques used are classical assumption tests (normality test, multicollinearity test, heteroscedasticity test and autocorrelation test), multiple linear regression, and hypothesis testing (t test, F test and R2 test).

Result and Discussion

Result

1. Classic Assumption Test

a. Normality Test

The normality test is useful for determining whether the residual value (the gap between the original data and the predicted data) is normally distributed or not. The normality test carried out in this research was the Kolmogorov-Smirnov test. The output result is:

Table 1: Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		20
Normal Parameters[a,b]	Mean	0E-7
	Std. Deviation	1.32159762
Most Extreme Differences	Absolute	.113
	Positive	.099
	Negative	-.113
Kolmogorov-Smirnov Z		.504
Asymp. Sig. (2-tailed)		.962

a. Test distribution is Normal.
b. Calculated from data.

Based on the output above, the asymp value can be seen. sig (2-tailed) is 0.962 > 0.05, so in accordance with the basis for decision making in the Kolmogorov-Smirnov normality test

above, it can be concluded that the data is normally distributed. Thus, the normality assumptions or requirements in the regression model have been met.

b. Multicollinearity Test

Multicollinearity is a problem in regression analysis. The multicollinearity test aims to determine whether two or more independent variables are correlated with each other. The multicollinearity test carried out in this research was the VIF test. The output result is:

Table 2: Multicollinearity Test

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	human development index	.657	1.521
	economic growth	.744	1.345
	inflation	.864	1.157

a. Dependent Variable: unemployment

The basis for decision making for the multicollinearity test is a tolerance value of more than 0.1 and a VIF value of less than 10. From the output above it is known that:

a. The human development index variable has a tolerance value of 0.657 > 0.1 and VIF of 1.521 < 10, so it can be concluded that the data does not have symptoms of multicollinearity.
b. The economic growth variable has a tolerance value of 0.744 > 0.1 and VIF of 1.345 < 10, so it can be concluded that the data does not have symptoms of multicollinearity.
c. The inflation variable has a tolerance value of 0.864 > 0.1 and VIF of 1.157 < 10, so it can be concluded that the data does not have symptoms of multicollinearity.

c. Heteroscedasticity Test

The heteroscedasticity test is to see whether there is an inequality of variance from the residuals of one observation to another. The heteroscedasticity test used in this research is the Glejser test. The output result is:

Table 3: Heteroscedasticity Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.320	9.243		-.035	.973
	human development index	.016	.153	.031	.106	.917
	economic growth	.116	.122	.261	.953	.355
	inflation	-.043	.045	-.244	-.960	.352

a. Dependent Variable: ABS_RES

The basis for decision making for the heteroscedasticity test is a significance value > 0.05. From the output above it is known that:

a. The human development index variable has a significance value of 0.917 > 0.05, so it can be concluded that the data does not have symptoms of multicollinearity.

b. The economic growth variable has a significance value of 0.355 > 0.05, so it can be concluded that the data does not have symptoms of multicollinearity.
c. The inflation variable has a significance value of 0.352 > 0.05, so it can be concluded that the data does not have symptoms of multicollinearity.

d. Autocorrelation Test

The Autocorrelation test aims to determine whether there is a correlation between the data in the observed variables. A good regression model is a regression that is free from autocorrelation. If a correction occurs, it will be called an autocorrelation problem. One of the tests commonly used to determine the presence of autocorrelation is the statistical run test. The output result is:

Table 4: Autocorrelation Test

Runs Test

	Unstandardized Residual
Test Value[a]	.04623
Cases < Test Value	10
Cases >= Test Value	10
Total Cases	20
Number of Runs	9
Z	-.689
Asymp. Sig. (2-tailed)	.491

a. Median

Based on the output results in the table above, it shows that the value of asymp. sig (2-tailed) 0.491 > 0.05. So it can be concluded that the data does not have symptoms of autocorrelation.

2. Multiple Linear Regression Test

Multiple linear regression analysis is an analytical tool for forecasting the value of the influence of two or more independent variables on the dependent variable to prove whether or not there is a functional relationship between two or more independent variables and one dependent variable. The output results are:

Table: 5 Multiple Linear Regression Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	91.619	14.474		6.330	.000
	human development index	-1.396	.240	-.991	-5.816	.000
	economic growth	-.311	.191	-.261	-1.628	.123
	inflation	-.204	.070	-.432	-2.907	.010

a. Dependent Variable: unemployment

The multiple linear regression equation obtained in this research is: Y=91.619 – 1.396X1 – 0.311X2 – 0.204X3 + e. The analysis is:

a. The human development index variable has a negative regression coefficient of 1,396, meaning that if the human development index increases by 1 percent, then unemployment will decrease by 1,396 percent, and vice versa.
b. The economic growth variable has a negative regression coefficient of 0.311, meaning that if economic growth increases by 1 percent, then unemployment will decrease by 0.311 percent, and vice versa.
c. The inflation variable has a negative regression coefficient of 0.204, meaning that if inflation increases by 1 percent, unemployment will decrease by 0.204 percent, and vice versa.

3. Hypothesis Test

a. Simultaneous Test (F-test)

The simultaneous test (F test) is a test carried out to see whether all independent variables together (simultaneously) have an effect on the dependent variable or not by comparing the F_{count} value with F_{table}. The output result is:

Table: 6 Simultaneous Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	75.538	3	25.179	12.140	.000[b]
	Residual	33.186	16	2.074		
	Total	108.724	19			

a. Dependent Variable: unemployment
b. Predictors: (Constant), inflation, economic growth, human development index

Based on the output results above, it can be seen that the Fcount value is 12,140 and the Ftable value is 3.24, so Fcount > Ftable (12,140 > 3.24). The significant value is 0.000 < 0.05, so the human development index, economic growth and inflation variables are significant simultaneously (simultaneously) to the unemployment variable.

b. Partial Test (t-test)

This test is to find out whether the influence of each independent variable on the dependent variable is significant or not. Testing is carried out by comparing the calculated t_{count} value of each independent variable with the t_{table} value. The output result is:

Table: 7 Partial Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	91.619	14.474		6.330	.000
	human development index	-1.396	.240	-.991	-5.816	.000
	economic growth	-.311	.191	-.261	-1.628	.123
	inflation	-.204	.070	-.432	-2.907	.010

a. Dependent Variable: unemployment

Based on the results of the partial test (t test) it is known:

a. The calculated t value of the human development index variable is -5.816 and t table 2.10092 so that the calculated t value > t table (-5.816 > 2.10092). If we look at the significance of the human development index variable, it is 0.000, so 000 > 0.05 percent. This shows that the human development index has an effect on unemployment in Medan City in 2003 - 2023.
b. The calculated t value of the economic growth variable is -1.628 and t table 2.10092 so that the calculated t value < t table (-1.628 < 2.10092). If we look at the significance of the economic growth variable, it is 0.108 so 0.123 > 0.05 percent. This shows that the economic growth variable has no effect on unemployment in Medan City in 2003 - 2023.
c. The calculated t value of the inflation variable is -2.907 and t table 2.10092 so that the calculated t value > t table (-2.907 > 2.10092). If we look at the significance of the economic growth variable, it is 0.010, so 0.010 < 0.05 percent. This shows that the economic growth variable has an influence on unemployment in Medan City in 2003 - 2023.

c. Coefficient of Determination Test (R^2)

The coefficient of determination is used to find out how big the relationship between several variables is in a clearer sense. The coefficient of determination will explain how much change or variation in a variable can be explained by changes or variations in other variables. The output result is:

Table: 8 Coefficient of Determination Test

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.834[a]	.695	.638	1.44018

a. Predictors: (Constant), inflation, economic growth, human development index

Based on the output results of table 8, it is known that the R Square (Summery Model) in the regression output results is 0.695 (69.5%). So, it can be explained that the human development index, economic growth and inflation variables have a joint influence of 69.5% on the unemployment variable.

Discussion

The Influence of the Human Development Index on Unemployment in Medan City for the 2003-2023 Period

Based on the partial test, the results obtained are that the Human Development Index variable has a significant effect on unemployment in Medan City in 2003-2023. The results of this research are in line with the research conducted (Syera and Ningsih 2024) namely the human development index influences the unemployment rate in Medan City in 2003-2023. The results of this study are not in line with research conducted by (Harati 2024) which states that the human development index does not have a significant influence on the level of open unemployment in Palangkaraya City.

The Effect of Economic Growth on Unemployment in Medan City for the 2003-2023 Period

Based on the partial test, the results obtained are that the Economic Growth variable has no significant effect on Unemployment in Medan City in 2003 - 2023. The results of this study are in line with (Simbala et al. 2024) which states that economic growth has no significant effect on the number of unemployed in Bolaang Mongondow Raya Regency in 2013-2022. The results of this study are not in line with research conducted by (Asri and Haryatiningsih 2024) which states that Economic Growth has an effect on the unemployment rate in Banten City in 2008-2022.

The Effect of Inflation on Unemployment in Medan City for the 2003-2023 Period

Based on the partial test, the results obtained are that inflation has a significant effect on unemployment in the city of Medan in 2003-2023. The results of this research are in line with the research conducted (Nuraeni et al. 2024) namely the relationship between the inflation rate in the Central Java region and the unemployment rate in the Central Java region has a significant relationship. The results of this study are not in line with research conducted by (Yehosua, Rotinsulu, and Niode 2019) which states that partially the inflation variable has a negative effect in theory but is not significant on the unemployment rate in the city of Manado.

Conclusion

The conclusion is that based on the results of the simultaneous test (f test), it can be seen that the human development index variables, economic growth and inflation together (simultaneously) have a significant effect on the unemployment variable. Based on the partial test (t test) it can be seen that the human development index variables and inflation have an influence on unemployment in Medan City in 2003–2022. The economic growth variable has no effect on unemployment in Medan City in 2003 - 2023.

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