



## Analysis of the Determinants of Unemployment on Poverty in North Sumatera Province

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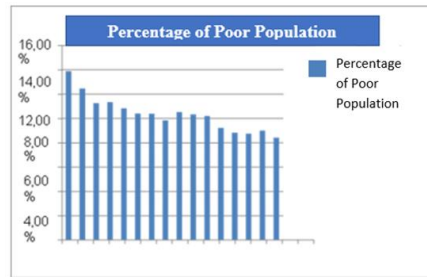
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**Abstract.** This research to analyze whether Interest Rates, Consumption, Employment Opportunities, Unemployment, and Minimum Wages have an effect on Inflation and GRDP in North Sumatra Province. This study uses the Simultaneous regression analysis method, with testing using Eviews 10 and a difference test using SPSS. Based on the results of the simultaneous regression analysis, the Interest Rate and GRDP variables do not have a significant effect simultaneously on Inflation in North Sumatra Province. The results of the simultaneity analysis show that the Consumption variable has a significant effect simultaneously on inflation in North Sumatra Province. While the Employment Opportunities, Unemployment, and Inflation variables do not have a simultaneous effect on GRDP in North Sumatra Province. The Minimum Wage variable has a significant effect simultaneously on GRDP in North Sumatra Province. In the analysis of the difference test on the inflation variable during the Covid-19 pandemic, there was an increase and the results showed that there was no significant difference in Inflation before and during the Covid-19 pandemic in North Sumatra Province. While the GRDP variable during the Covid-19 pandemic decreased and the results also showed that there was a significant difference in GRDP before and during the Covid-19 pandemic in North Sumatra Province.

**Keywords** Unemployment, Population, GRDP, Education, Minimum Wage

### 1. INTRODUCTION

Poverty is a global problem that affects and concerns everyone everywhere. The problem of uneven growth and income distribution continues to occur in poor countries. Meanwhile, many developing countries are experiencing rapid economic development, but their poor people receive fewer benefits. Poverty is a challenge that Indonesia, like many other developing countries, cannot ignore. (Dwi Radila et al., 2021). The problem of poverty can affect all aspects of human life, although those affected are often unaware of it. According to (S Gopal et al., 2021), the inability of people to have production components or poor quality can lead to poverty if they are not involved in the transformation process. North Sumatra Province is one of the provinces with significant poverty areas according to the Central Statistics Agency (BPS) in 2022. North Sumatra Province had a poor population of 1,463.67 people in 2015, ranking fourth out of 34 provinces in Indonesia after West Java, East Java, Java, and Central Java. In 2022 it was ranked first out of ten islands in Sumatra.

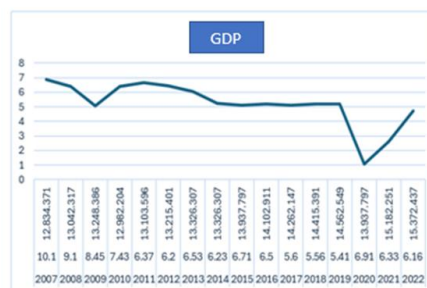


Source: Central Statistics Agency 2022

**Figure 1. Percentage of Poor Population in North Sumatera Province by Regency/City**

Based on Figure 1 the number of poor people in North Sumatera Province has increased significantly from year to year. In North Sumatera Province, the percentage of poor people over the past 15 years, starting in 2007, was 13.90 percent. Due to the impact of the increase in fuel prices (BBM) which affected North Sumatera Province, this statistic has increased significantly from the number of poor people in previous years. However, from 2015 to 2020, the poverty rate in North Sumatera is expected to decrease every year. Data from 2015 to 2017 shows that the percentage of poor people is still high, namely 10.22%. The percentage of poor people decreased in 2019 and 2020, reaching 8.75 percent. People can now meet their daily needs, which has led to a decrease in the unemployment rate and an increase in the minimum wage. In addition, government spending also contributes to the decline in poverty rates.

According to (Dwi Radila et al., 2021), high poverty rate of a region is caused by various factors, including high Gross Regional Product (GRDP), high unemployment rates, and a large population. Here, GDP serves as a measure of the rate of economic expansion of a region. A large population is one of the causes of poverty problems. A high population will create a large enough workforce. Although (Irhamni, 2018) argues that stable population growth is very important to meet increasing demand, there are concerns that rapid population growth can have a negative impact on economic expansion.

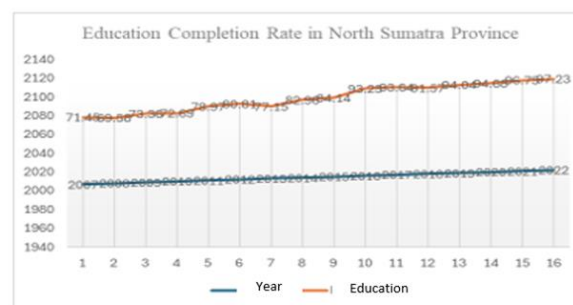


Source: Central Statistics Agency 2022

**Figure 2. The Open Unemployment Rate**

Based on figure 2 the open unemployment rate, especially in urban areas in North Sumatera Province, has fluctuated from year to year. Starting in 2007, the unemployment rate was 10.10 percent, but this figure gradually decreased to 5.41 percent in 2019, and in 2020 the

unemployment rate increased again to 8.98 percent. The significant increase in the unemployment rate in North Sumatra was due to the increasing number of working-age people affected by COVID-19. When compared to the increase in the workforce and the number of people working, this pandemic has resulted in a higher unemployment rate. One of the causes of the increasing poverty rate in North Sumatra Province is the increasing population. The population of North Sumatra Province continues to increase every year, according to BPS statistics in 2023. Starting in 2007 as many as 12,834,371 people, this number increased until 2019, when there was a significant decrease to 13,937,797 people in 2020, the peak year of the population of North Sumatra Province. The Covid-19 outbreak that hit North Sumatra Province was the cause of the decline in population.



Source: Central Statistics Agency 2022

**Figure 3. Education Completion Rate in North Sumatra Province**

According to (Sabihi et al., 2021) the level of education is one of the indicators of labor demand in an area. The more education obtained through work, the higher the amount of production produced, thereby reducing and minimizing poverty levels. Based on Table 1.3 above, it can be seen that the level of education completion according to the senior high school level in North Sumatra province in 2007 was 71.45 percent and experienced a significant increase in 2022, namely 97.23 percent. This increase was motivated by the awareness of the people of North Sumatra province of the importance of education for the future, especially in the world of work. The large number of SMA/equivalent graduates means the same as the number of labor supply. Development of the education sector is an important aspect that needs to be carried out by the government to reduce poverty.

Poverty rate is also affected by minimum wage. Because it increases average income, In the last 15 years from 2007-2022 the UMP figure for North Sumatra has continued to increase, namely IDR 761,000 in 2007, the increase in the UMP for North Sumatra continues to increase until 2022, namely IDR 2,522,609. The increase in the UMP for North Sumatra aims to increase wages for low-wage workers, so as to minimize poverty. As mentioned earlier,

discussions regarding the impact of this policy are still ongoing. Proponents argue that raising the minimum wage will help fight poverty and increase wages for low-wage workers.

## **2. LITERATURE REVIEW**

According to (Chamsyah in Nasution et al., 2020) A person or group is considered poor if their standard of living is below the federal poverty level. as a result of high income inequality, relatively poor living standards, etc. Comparison of income, housing, education, health, mortality rates, and job prospects is expressed as "standard of living". When discussing the problems of unemployment, poverty, and unequal distribution of income in developing countries and between developed and developing countries, the trickle-down effect hypothesis regarding the development patterns used in poor areas in developing countries is considered ineffective. (Witari, 2023).

According to BPS (2023) The inability to pay for necessities such as food and non-food at the economic, material, and physical levels is defined as poverty. The Poverty Line is used to calculate the level of poverty. Includes GKM (food poverty line) and GKNM (non-food poverty line). The non-food poverty line is determined by taking into account the minimum needs for clothing, health, education, and other needs, while the food poverty line is determined by subtracting the expenditure value from the minimum food needs, which is estimated to be 2,100 kcal per capita per day.

According to (Saragih et al., 2022) When someone in the workforce wants to work but has not found a job, they are said to be unemployed. Unemployment does not apply to someone who is not working but is not actively looking for work. Instead, the unemployment rate is a presentation that compares the number of unemployed or job seekers to the total number of workers during a certain period. Indayani & (Hartono, 2020) The most significant problem caused by labor market imbalance is unemployment, a macroeconomic problem that has a direct impact on society. This shows that more labor is provided than is demanded, which will lower the standard of living and increase psychological and psychological stress. This happens when not the entire current workforce is absorbed into the workforce because the rate of labor force growth (population growth rate) is much greater than the rate of employment growth. (Kalsum, 2017).

According to (Abdhul, 2021), a high workforce can cause unemployment if it is not balanced with the number of jobs and a small percentage of workforce absorption. This is due to the slow rate of job creation to meet the needs of a workforce that is ready to work. According to (Vania Grace Sianturi et al., 2021), it states that: There are several reasons why

unemployment will always occur in an economy. The first explanation is the length of time it takes to get a job through the job search process. The second factor is wage rigidity. absorption of labor with a moderate proportion and extensive work. This is due to the slow rate of job creation to meet the needs of a workforce that is ready to work.

The concept of diminishing returns appears throughout his writings. Malthus explained the general tendency for a country's population to increase geometrically, doubling every thirty to forty years. Rapid population growth has a number of negative economic impacts, which are important problems that Third World countries must face. They continued by saying that the backwardness that ensnares developing countries is caused by the excessive population growth rate, which ultimately causes various economic, social, and psychological problems. (Akhirul et al., 2020). The government's capacity to improve the living conditions of future generations and prevent lower-middle class households from becoming poor is severely limited by the increasing financial pressures on the budget that can be applied with GDRP, education, minimum wage.

According to (Dama et al., 2016) Gross Regional Domestic Product (GRDP) is the sum of all final outputs created at the regional level by an economy, including the output of local residents and residents of other regions. (Subandi, 2011) defines economic growth as an increase in GDP/GNP, regardless of changes in economic structure or not, or whether the increase is greater or lower than population growth. (I Wayan Cong Sujana, 2019) argues that education is an effort to foster and develop individuals that include spiritual and physical components. We can conclude that one of the most important things in life is education based on the reasons put forward by the two experts above. Another important tool for advancing the country is education. Because education produces human resources that can be used for growth, educators who use it effectively will never make mistakes in teaching.

According to (Izzaty & Sari, 2013) The amount paid to employees for their contribution in creating wealth is known as their wages. Workers receive wages, or payment for their services, just like any other component of production. In other words, wages represent labor costs for the services they provide during production. The minimum wage is the lowest amount that a business will use as a guide for calculating the real compensation of employees at its company.

### 3. METHODS

This research This study discusses the determinants of unemployment on poverty in North Sumatra province (2015-2022 period) with Confirmatory Factor Analysis analysis including: unemployment, population, GRDP, education, minimum wage by using Multiple Linear Regression with the equation:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon \dots\dots\dots 1$$

### 4. RESULTS

Multiple linear regression data processing results using the SPSS data processing application

**Table 1. Multiple Linear Regression Analysis Techniques**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Unemployment (X1)	911,126	978,114		,932	,374		
Total Population (X2)	,007	,071	,012	,096	,925	,310	3,227
GRDP (X3)	,739	,204	,363	3,622	,004	,480	2,081
Education (X4)	,892	,096	,840	9,268	,000	,586	1,706
Wage (X5)	-,583	,191	-,247	-3,046	,011	,729	1,371
	,766	,254	,721	3,015	,013	,222	4,510

Based on the table above, the multiple linear regression is obtained as follows  $Y = 911.126 + 0.007 X_1 + 0.739 X_2 + 0.892 X_3 + -0.583 X_4 + 0.766 X_5 + \varepsilon$ . The interpretation of the multiple linear regression equation is: 1) If everything in the independent variables is considered constant, the Poverty value is 911.126. 2) If variable X1 (unemployment) has a positive coefficient of 0.007, it means that every 10% increase in the population level, poverty will increase by 0.07%. 3) If variable X2 (population) has a positive coefficient of 0.739, it means that every 10% increase in the population level, poverty will increase by 7.39%. 4). If variable X3 (GRDP) has a positive coefficient of 892, it means that every 10% increase in GRDP, poverty will increase by 8.92%.

**Table 2. t-test**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	911,126	978,114		,932	,374		
Unemployment (X1)	,007	,071	,012	,096	,925	,310	3,227
Total Population (X2)	,739	,204	,363	3,622	,004	,480	2,081
GRDP (X3)	,892	,096	,840	9,268	,000	,586	1,706
Education (X4)	-,583	,191	-,247	-3,046	,011	,729	1,371
Wage (X5)	,766	,254	,721	3,015	,013	,222	4,510

The effect of Unemployment on Poverty T count  $932 < t$  table 1.812 with a significance value of  $0.925 > 0.05$ , it can be concluded that the variable Unemployment (X1) has no positive and insignificant effect on Poverty in North Sumatra. The effect of Population on Poverty T count  $3.622 > t$  table 1.812 and significant  $0.004 < 0.05$ , it can be concluded that the variable Population (X2) has a positive and significant effect on Poverty in North Sumatra. The effect of GRDP on Poverty T count  $9.268 > t$  table 1.812 and significant  $0.000 < 0.05$ , it can be concluded that the GRDP variable (X3) has a positive and significant effect on Poverty in North Sumatra. The effect of Education on Poverty T count  $-3.046 > t$  table 1.812 and significant  $0.011 < 0.05$ , it can be concluded that the variable Education (X4) has a positive and significant effect on Poverty in North Sumatra. The effect of Minimum Wage on Poverty T count  $3.015 > t$  table 1.812 and significant  $0.013 < 0.05$ , it can be concluded that the Minimum Wage variable (X5) has a positive and significant effect on Poverty in North Sumatra.

**Table 3. F-Test**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	331422,193	4	82855,548	16,389	,000 <sup>b</sup>
Residual	55611,557	11	5055,596		
Total	387033,750	15			

Based on the table above, it can be seen that F count of 16.389 > F table of 3.33 and the significance is much smaller than 0.05, namely  $0.000 < 0.05$ , so  $H_a$  is accepted that unemployment, population, GRDP, education, and minimum wages simultaneously have a significant effect on poverty in North Sumatra.

**Table 4. Determinant Coefficient Test**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,973 <sup>a</sup>	,947	,928	43,16115	1,694

Based on the table above, it can be seen that the adjusted R Square figure is 0.928 which can be called the coefficient of determination which in this case means that 92.8% of North Sumatra Province Poverty can be obtained and explained by unemployment, population, GRDP, education, and minimum wages. While the rest is explained by other factors or variables outside the model that are not studied.

## 5. DISCUSSION

Based on the results of data processing output using the SPSS 22 data processing application, the regression coefficient value of the Internet User variable (X1) is 9.069; this means that if the other independent variables remain the same and Internet Users increase by

10%, Indonesia's GDP (Y) will increase by 9.69%. The coefficient between Internet Users and Indonesia's GDP is positive, this means that if Internet Users increase, Indonesia's GDP will also increase. Based on the results of simultaneous hypothesis testing or the (F) test, it was obtained that Internet Users (X1), E-commerce Transactions (X2) and Digital Payments (X3) have an F count greater than the F table value ( $16.064 > 3.81$ ) and a sign value. of 0.000 which is smaller  $<$  than the significance level ( $0.000 < 0.05$ ). So it can be concluded that the variables Internet Users, Digital Payments and E-commerce together have a significant effect on the GDP variable. Based on the results of partial hypothesis testing or t-test, it was obtained that the Internet User variable (X1) has a t-count value smaller than the t-table value ( $0.66 < 1.77$ ) and has a sig. value greater than the significance level ( $0.948 > 0.05$ ). So in this case  $H_a$  is accepted and  $H_o$  is rejected. This means that there is no influence and partial significance between the internet user variable and GDP.

Based on the results of data processing output using the SPSS 22 data processing application, the regression coefficient value of the E-commerce variable (X2) is 4.948; this means that if the other independent variables remain the same and Internet Users increase by 10%, Indonesia's GDP (Y) will increase by 49.48%. The coefficient between Internet Users and Indonesia's GDP is positive, this means that if Internet Users increase, Indonesia's GDP will also increase. It can be concluded that E-commerce has a significant effect on Indonesia's GDP. Based on the results of simultaneous hypothesis testing or the (F) test, it was obtained that Internet Users (X1), E-commerce Transactions (X2) and Digital Payments (X3) have an F count greater than the F table value ( $16.064 > 3.81$ ) and a sig. value of 0.000 which is smaller  $<$  than the significance level ( $0.000 < 0.05$ ). So it can be concluded that the variables of Internet Users, Digital Payments and E-commerce together have a significant effect on the GDP variable. Based on the results of partial hypothesis testing or t-test, it was obtained that the E-commerce variable (X2) has a t-count value greater than the t-table value ( $6.833 > 1.77$ ) and has a sig. value smaller than the significance level ( $0.000 < 0.05$ ). So in this case  $H_a$  and  $H_0$  are accepted. This means that there is a partial and significant influence between the E-commerce Transaction variable and Indonesia's GDP.

Based on the results of data processing output using the SPSS 22 data processing application, the regression coefficient value of the Digital Payment variable (X3) is -3.922; this means that if the other independent variables remain the same and Internet Users increase by 10%, Indonesia's GDP (Y) will increase by -39.22%. The coefficient between Internet Users and Indonesia's GDP is negative, this means that if Internet Users decrease, Indonesia's GDP will also decrease. Based on the results of simultaneous hypothesis testing or the (F) test, it was



obtained that Internet Users (X1), E-commerce Transactions (X2) and Digital Payments (X3) have an F count greater than the F table value ( $16.064 > 3.81$ ) and a sig. value of 0.000 which is smaller  $<$  than the significance level ( $0.000 < 0.05$ ). So it can be concluded that the variables Internet Users, Digital Payments and E-commerce together have a significant effect on the GDP variable. Based on the results of partial hypothesis testing or t-test, it was obtained that the Digital Payment variable (X3) has a t-count value greater than the t-table value ( $-0.515 < 1.77$ ) and has a sig. value greater than the significance level ( $0.616 > 0.05$ ). So in this case  $H_a$  and  $H_0$  are rejected. This means that there is no partial and significant influence between the E-commerce Transaction variable and Indonesia's GDP.

Based on the results the population included in the open unemployment group consists of several types of unemployed, namely those who are looking for work, those who are preparing a business, those who are not looking for work because they feel it is impossible to get a job and the last is those who already have a job but have not started working. Among the four categories of open unemployment, some of them are included in the informal sector, and there are also those who have jobs with working hours of less than 35 hours a week. There are those who are trying or preparing their own business, are waiting to start working, there are also those who have part-time jobs but with incomes exceeding those who work normally, and all of these groups are included in the category of open unemployment. The results of this study are also in accordance with the theory of Marginalization, poverty is considered a result of apathetic, fatalistic, dependent, low self-esteem, wasteful and consumptive nature.

Likewise, the large population has a positive effect on poverty. This is proven in the calculation of the Foster Greer Thorbecke (FGT) index, which states that if the population increases, poverty will also increase. Too many people or too high a population density will be an obstacle to economic development in developing countries. Low per capita income and low capital formation rates make it increasingly difficult for developing countries to support the population explosion. Even if output increases as a result of better technology and capital formation, this increase will be swallowed up by the excessive population. As a result, there is no improvement in the real growth rate of the economy.

There are three main factors or components in economic growth. One of these factors is technological progress. Regional development is carried out to achieve three important goals, namely achieving growth, equity, and sustainability (Darma & Wulansari, 2021). Likewise, the government plays an important role in improving human capital development and encouraging research and development to increase human productivity. In reality, it can be seen that by investing in education, it will be able to improve the quality of human resources as shown by

the increase in a person's knowledge and skills. The higher a person's level of education, the more knowledge and skills will increase, thus encouraging an increase in their work productivity. The low productivity of the poor can be caused by their low access to education.

For wages the results of this study are in accordance with David Ricardo's theory, which states that the Theory of Natural Wages explains new growth that explains that in the market there will be wages according to market prices where wages that occur in the market will be determined by supply and demand. Market price wages will change along with wages according to nature. In the labor market, it is very important to determine the amount of wages that companies must pay to their workers. The minimum wage law sets the lowest price for labor that must be paid. The main purpose of setting the minimum wage is to meet the minimum or lowest standard of living such as for the health, efficiency, and welfare of workers. The minimum wage is an effort to raise the status of low-income people, especially poor workers.

The results of the multiple linear regression test show that of the five factors, four factors are likely to influence poverty in North Sumatra Province, namely population, GRDP, education, and minimum wage. The unemployment variable (X1) has no positive and insignificant effect on poverty in North Sumatra Province, the population (X2) has a positive and significant effect on poverty in North Sumatra Province, the GRDP variable (X3) has a positive and significant effect on poverty in North Sumatra Province, the education variable (X4) has a positive and significant effect on poverty in North Sumatra Province, the minimum wage variable (X5) has a positive and significant effect on poverty in North Sumatra Province.

## **LIMITATION**

Based on the background and identification of the problem, This research is limited considering the identification of the problems above so that the discussion is more focused, directed, and does not deviate from the goal. Therefore, the author limits this problem to the study of unemployment and poverty in North Sumatra Province. (Period 2007-2022).

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