Analysis of the Effect of Inflation and Regional Minimum Wage on the Total Poor Population of North Sumatra the Period of 2001-2021

Leonardo Siahaan[1], Erli Dayinati[2] Ulfah Nabilah Azizah Manurung [3]

[1,2,3] Economics Education Study Program, Faculty of Economics, State University of Medan, Indonesia

A R T I C L E I N F O	ABSTRACT
	Poverty in the community at the national and regional levels is a complex social problem and requires an appropriate and sustainable strategy to overcome it. In North Sumatra, the number of poor people can be influenced by various factors, both economic and non-economic. The purpose of this research is to analyze the effect of inflation and minimum wages on the number of poor people in North Sumatra from 2001 to 2021 simultaneously and partially. The type of data used in this study is secondary time series data from the official website of the Central Bureau of Statistics (BPS) of North Sumatra. The analytical method used is multiple linear regression using the Eviews 10 econometric software. The results of the study partially prove that the Regional Minimum Wage has a negative and significant effect on the number of poor people in North Sumatra from 2001 to 2021 with a probability value of 0.000005. Simultaneously, the Inflation and Regional Minimum Wage variables have a significant influence on the number of poor people in North Sumatra in the same period. The R test shows that 74.0850% of the variability can be explained by these two factors, while the rest is influenced by other factors not examined in this study.

Corresponding Author:

Leonardo Siahaan
Economics Education Study Program, Faculty of Economics,
State University of Medan,
Jalan Williem Iskandar, Pasar v Medan Estate Kec. Medan Tuntungan, Kota Medan, Sumatera Utara 20221, Indonesia
Email: leonardosiahaan@mhs.unimed.ac.id

1. INTRODUCTION

North Sumatra, the province with the fourth largest population in Indonesia, has a long history of developing the economic and agricultural sectors. However, like other regions in Indonesia, North Sumatra experiences poverty problems. Poverty is a complex problem related to social, cultural and economic aspects. A significant problem that must be considered by an area is poverty as an effort to improve in that area (Ihsan & Ikhsan, 2018: 153). Poverty can cause community and individual productivity to be low due to cost dependencies and problems getting education, health, decent living needs and increasing unemployment. Therefore, all parties must play an important role in supporting the government in overcoming the problem of poverty. By reducing the poverty rate, it is expected to

achieve better welfare for society as a whole. Table of the number of poor people in North Sumatra Province from 2001-2021 can be seen in the figure:
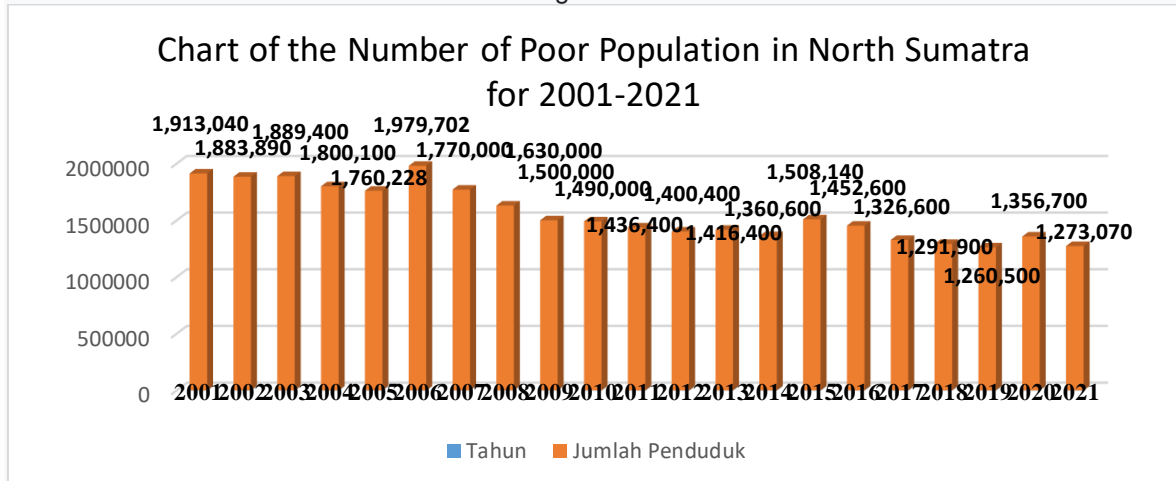

Figure 1. Number of poor people in North Sumatra Province from 2001-2021
Source: Processed data, BPS 2023

Based on the table, North Sumatra has experienced a change in the number of poor people over the last 20 years. In 2006 was the largest number of poor people in the last 20 years. According to the Central Statistics Agency (BPS), in 2021 the percentage of poor people will be 8.94 percent with as many as 1,273,070 poor people. The percentage of poor people has decreased from 2020 by 0.20 points, namely 9.14 percent, to 2021.

Kuncoro (Niswati, 2014) says poverty is caused by various factors, including wages, economic growth, employment opportunities, inflation, taxes, and income distribution will be imposed. Primandari dalam (Helwani & Rusdiansyah, 2022:219) Inflation is related to poverty because the price of goods and services is one of the factors that determines the poverty threshold, if inflation increases, the poverty threshold will also increase. Inflation occurs when the prices of goods and services continue to increase within a certain period of time. In the long run, inflation can affect people's purchasing power, especially those with low incomes. The development of inflation in North Sumatra fluctuates every year. Inflation rates from 2001-2021 with the highest rate occurring in 2005 of 22.41%, while the lowest inflation rate occurred in 2021 of 0.46%. (Central Bureau of Statistics, 2023).

In addition to inflation, regional minimum wages also affect poverty rates. The regional minimum wage is the minimum amount that must be paid to workers for each hour worked. If the regional minimum wage is too low workers cannot meet their basic needs and can be trapped in poverty. Sumarsono (Fajriansyah & Chandriyanti, 2022) said that the minimum wage is sufficient to meet his and his family's needs and encourage increased work productivity and worker welfare. Same with Todaro & Stephen (Priseptian Laga & Primandhana Priana Wiwin, 2022:47) explaining that minimum wages can increase worker welfare and can reduce poverty. The effect of too high inflation and regional minimum wages, causes employers to experience difficulties in paying the salaries of their workers and may have to reduce the size of their workforce. This policy can have an impact on unemployment which then affects the level of poverty in the region.

Therefore, the formulation of the problem in this research is as follows: "how and how much influence does inflation and the minimum wage have on the number of poor people in North Sumatra in 2001-2021?". The purpose of this study is to understand the effect of inflation and regional minimum wages on the number of poor people in North Sumatra in 2001-20021. And find out the magnitude of Inflation and Regional Minimum Wage on the Number of Poor People in North Sumatra in 2001-2021.

2.   RESEARCH METHOD

2.1   Research variable
This study uses inflation and minimum wages as independent variables and the number of poor people as the dependent variable. The measurement of each variable is presented as follows:
a. Inflation (X1) is the magnitude of the change in inflation presented every year in North Sumatra. Inflation is measured in percent units. Meanwhile, to find the inflation rate, it is obtained by using the formula:
b. Regional Minimum Wage (UMR) (X2). In this study the regional minimum wage for North Sumatra is used as the dependent.
c. Number of Poor Population (Y). is the total poor population in North Sumatra.

2.2   Definition of Research Poverty
Sumedi and Supadi, (Helwani & Rusdiansyah, 2022) say poverty is a condition in which a person or group experiences a state of being unable or having difficulty meeting their needs. base and raise their standard of living. A person is considered poor if his income is far below the average income and it is difficult to achieve prosperity. Meanwhile, according to Suryawati (Fajriansyah & Chandriyanti, 2022) explains two types of poverty measures, namely absolute poverty refers to the inability of a person to reach a predetermined poverty line and relative poverty is related to differences in income between certain groups and other groups. Based on the opinion above, it can be concluded that poor people are a condition where people experience an inability to meet their basic needs for life.

2.3   Definition of Research Inflation
Natsir (2015: 253) inflation is a generally accepted term for a general and continuous increase in prices for goods and services. This definition is in line with the definition of BPS, Inflation is a tendency to increase in general the price of goods and services takes place continuously. If in a country there is an increase in the price of goods and services, then inflation will increase. The negative relationship between the price of goods and services and the value of money causes a decrease in the value of money. Meanwhile, according to Sukirno (Silaban et al., 2020) inflation is a certain process, namely the prevailing prices increase as a change in the price of an economy. Meanwhile, the inflation rate is a presentation of the increase in the prices of goods in the form of numbers for a certain period of time. Based on the expert's opinion, inflation is a process of increasing prices of goods and services in general and continuously in a certain period. Inflation is divided into four categories, namely: mild inflation (<10%/year), moderate inflation (10% - 30%/year), heavy inflation (30% - 100%/year), hyperinflation (> 100%/year).

2.4   Definition of Research Regional Wage
The Regional Minimum Wage is a wage level/standard determined by the regional government as well as a standard in providing wages. The determination of the nominal UMR is useful for maintaining proper wage rights as well as a safety net for workers. Ningrum (Anggriawan et al., 2016) Wages are the only source of income, if the source of income fluctuates or remains the same, then welfare will also change or survive, this will also affect the level of poverty. Referring to PP Wages No. 78 of 2015 Article 41, the minimum wage is the lowest monthly wage consisting of: (1) Basic wage without allowances or (2) Basic wage including fixed allowance. The minimum wage is the lowest wage consisting of the basic wage and regional allowances or is a minimum standard applied by industry players or employers in providing wages to employees/workers. Each province has different appropriate needs, so there is a provincial minimum wage. Ningrum (in Putri & Putri, 2021) said the government's goal of establishing a minimum wage policy is to find out the proper needs according to developments in an area for business actors and workers and employers in paying wages to new workers not arbitrarily

2.5   Previous Research Results
The results of research (Priyono & Yunitasari, 2022) on "The Influence of Economic Growth, Inflation, Minimum Wage and Government Expenditures on Poverty in Yogyakarta in 2013-2019" state that the variable "inflation has a positive relationship and has a significant effect on the number of poor people in Yogyakarta in 2013 – 2019". Then (Nurlana et al., 2021) with the research title "The Influence of the Human Development Index, Minimum Wage, Economic Growth Rate and Inflation

on the Number of Poor Population in West Java in 2005-2019" shows the results of the research that inflation has a positive relationship but has no significant effect against unemployment in West Java. Furthermore, research (Ningrum, 2017) research title "Analysis of the Influence of the Open Unemployment Rate, Human Development Index, and the Minimum Wage on the Number of Poor Population in Indonesia in 2011-2015" explains that the minimum wage variable has a negative relationship and has a significant effect on the number of poor people in 2011-2015 years. In addition, based on research conducted by (Helwani & Rusdiansyah, 2022) with the research title "Analysis of Factors Affecting the Number of Poor People in South Kalimantan Province" shows that the minimum wage has a negative and significant effect on the number of poor people in West Kalimantan.

2.6   Data Types and Sources

This research uses secondary data for annual calculations obtained from the Central Bureau of Statistics of North Sumatra via the internet with a time range of 2001-2021, the data used is time series data which includes inflation, minimum wages, number of poor population the period 2001-2021.

2.7   Multiple Linear Regression

The analysis used in research with quantitative analysis uses statistical calculation tools, namely multiple linear regression to analyze the relationship between the dependent variable and the independent variable. The software used for data processing is Eviews 10. It is systematically formulated with the following equation:

$$Y = a + b_1 X_1 + b_2 X_2 + e$$

Y   = Number of poor population
a   = Constanta
b   = Coefisien regression
X_1 = Inflation
X_2 = Regional Minimum Wage

3.   RESULTS AND DISCUSSIONS

3.1   Classic Assumption Test

a.   Normality test

Before the data is reviewed, the data is first tested for data normality. Criteria for drawing conclusions in the normality test if the probability value is > 0.05, the data will be normally distributed. And if the probability value is <0.05, the data will be not normally distributed. The data is declared normal because it is known that the probability value = 0.8676 > 0.05 is in line with the conclusion criteria in the normality test. To see the the normality of the data shown in figure 2 below
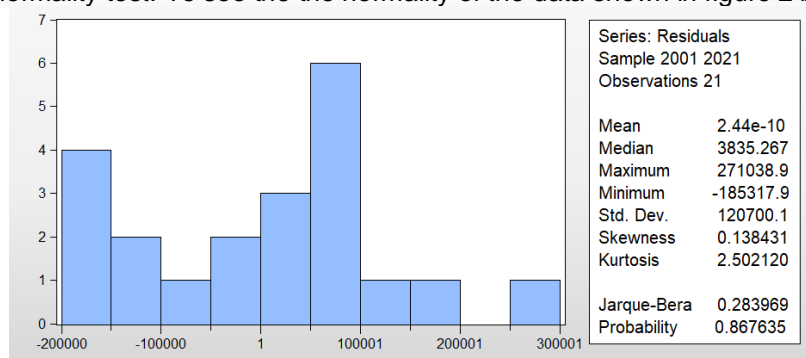

Figure 2. Normality test results

b.   Multicollinearity Test

Table 1. Multicollinearity Test (Correlation Matrix)

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1.05E+10	13.64331	NA
X1	48662403	4.253835	1.582658
X2	0.002585	6.956940	1.582658

Source: Eviews 10 processed data

In making multicollinearity test decisions, if VIF < 10, it can be concluded that there are no multicollinearity problems in this study. However, if VIF > 10 it can be concluded that there is a multicollinearity problem in the research model. In the table it is known that the VIF Factor Inflation Variance is 1.582658 <10. This shows that there is no multicollinearity problem in this data.

c.   Autocorrelation Test

In making a decision on the autocorrelation test, if the calculated Dw value is between dL and 4-dU (dL<Du<4-dU), it can be concluded that there is no autocorrelation problem in this study.

Based on the results of the eviews output, the Dubin Watson (Dw) value is between dL = 1.5385 and 4-dU = 2.462, which is 1.978750. This indicates that there is no autocorrelation in the research data.

Table 2. Test Durbin Watson

Dependent Variable: Y Method: Least Squares	
Durbin-Watson stat	1.978750

Source: Eviews 10 processed data

3.2   Estimated Coefficient of Determination (R2)

In measuring how much the dependent variable simultaneously is able to explain the independent variable by using the coefficient of determination (R2). From the table it is known that the R-squared value is 0.740850 which means that the Inflation and Regional Minimum Wage (UMR) variables can affect the number of poor people in the province of North Sumatra in 2001-2021 by 74.0850% while other factors not examined influence by 25.0150%.

Table 3. Test the coefficient of determination R2

Dependent Variable: Y	
Method: Least Squares	
R-squared	0.740850
Adjusted R-squared	0.712055

Source: Eviews 10 processed data

3.3   Statistical Test

a.   F-statistics test

To see the independent variable simultaneously influencing the dependent variable, a test was carried out using the F. Prob test (F-statistic) compared to using a significance level of 0.05. Based on the analysis of the Prob value (F statistic) of 0.000005 <0.05, it proves that inflation and the Regional Minimum Wage (UMR) simultaneously have a significant effect on the number of poor people in North Sumatra in 2001-2021.

Table 4. F Test Results

Dependent Variable: Y	
Method: Least Squares	
F-statistic	25.72888
Prob(F-statistic)	0.000005

Source: Eviews 10 processed data

b.   T-Statistics Test

In knowing the partial significance level of the independent variable to the dependent variable can be done with the t test. By looking at the comparison of the prob value (t statistic) with a significance level of 0.05, testing can be done. By looking at the results of the analysis, it proves that the Prob (t statistic) value of the Inflation variable (X1) is 0.9348> 0.05, proving that inflation has no significant and partial effect on the number of poor people in North Sumatra in 2001-2021.

However, the prob value (t statistic) of the Regional Minimum Wage (UMR) (X2), which is 0.0000 <0.05, can prove that the Regional Minimum Wage has a partially significant effect on the number of poor people in North Sumatra in 2001-2021.

Table 5. T-Statistics Test

Dependent Variable: Log_ Y				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1917101.	102550.3	18.69425	0.0000
X1	578.7446	6975.844	0.082964	0.9348
X2	-0.287307	0.050839	-5.651341	0.0000

3.4   Discussion

a.   Results of Testing the Inflation hypothesis on the Number of Poor People.

Based on data from the results of multiple linear regression analysis, it can be concluded that there is a positive relationship between inflation and the number of poor people in the province of North Sumatra in 2001-2021. With the coefficient value of the Inflation variable (X1) is 578.7446, it means that every 1 percent increase in inflation can increase the number of poor people by 578.7446 percent. However, partially the inflation variable (X1) has no significant effect on the number of poor people in North Sumatra in 2001-2021 because the prob value is 0.9348> 0.05.

In line with research (Nurlana et al., 2021) with the research title "The Influence of the Human Development Index, Minimum Wage, Economic Growth Rate and Inflation on the Number of Poor Population in West Java in 2005-2019" proves that the inflation variable has no significant effect on the number of poor people and has a positive relationship with the number of poor people in West Java in 2005-2009. Then it is supported by the results of research conducted by (Ihsan & Ikhsan, 2018) with the title "Analysis of the Influence of Ump, Inflation and Unemployment on Poverty in Aceh Province" which proves the effect on the number of poor people in Aceh is not significant and positive. In accordance with the statement of the central bank (Natsir (2015: 253) views that inflation has an influence on price stability, if inflation fluctuates, prices will also fluctuate causing people's real income to fluctuate and ultimately affect the number of poor people.

b.   Results of Testing the Regional Minimum Wage Hypothesis on the Number of Poor People

Based on data from multiple linear regression analysis, there is an effect between the regional minimum wage and the number of poor people in North Sumatra province in 2001-2021. Because the value of the Regional Minimum Wage (X2) -0.287307, proves that the variable coefficient of the Regional Minimum Wage (X2) is negative, which means that every 1 percent increase in the value of the Regional Minimum Wage (UMR) will reduce the number of poor people by 0.287307 percent if other independent variables remain. If the Regional Minimum Wage increases, it can reduce the number of poor people. The regional minimum wage on the number of poor people in North Sumatra in 2001-2021 has a partially significant and negative effect because the prob value is 0.9348> 0.05.

In accordance with the findings of previous studies, such as research (Ningrum, 2017) which shows that the minimum wage has a significant and negative effect on the number of poor people in 2011-2015. With the research title "Analysis of the Effect of Open Unemployment Rate, Human Development Index, and Minimum Wage on the Number of Poor Population in Indonesia in 2011-2015". In addition, another study by (Helwani & Rusdiansyah, 2022) supports this finding by proving that the minimum wage has a negative and significant effect on the number of poor people in West Kalimantan with the research title "Analysis of Factors Affecting the Number of Poor People in South Kalimantan Province". In accordance with Putri and Yuliarni (Maipita, 2013: 392) said an increase in wages can increase the level of welfare of workers, so that wages have a negative effect on the level of poverty which results in a reduction in the number of poor people.

4.   CONCLUSION

Based on the results of testing and data analysis carried out in this study, the following conclusions can be drawn: Inflation has partially had a positive and insignificant effect on the number of poor people in North Sumatra Province in the 2001-2021 period, meaning that any increase in inflation can increase the number of poor people in North Sumatra Province in 2001-2021. The Regional Minimum Wage (UMR) partially had a negative and significant effect on the Number of Poor People in North Sumatra Province in the 2001-2021 period, meaning that any increase in the Regional Minimum Wage (UMR) could reduce the number of poor people in North Sumatra Province in 2001 -2021. Inflation and Regional Minimum Wage (UMR) simultaneously have a significant effect on the Number of Poor People in North Sumatra in 2001-2021.
4. The Regional Minimum Wage (UMR) is the most dominant and significant variable for the number of poor people in North Sumatra in 2001-2021

REFERENCES
Anggriawan, S. Y., Soelistyo, A., & Susilowati, D. (2016). Pengaruh Upah Minimum Dan Disitribusi Pendapatan Terhadap Jumlah Penduduk Miskin Jawa Timur. *Jurnal Ekonomi Pembangunan*, *14*(2), 218–231.
BPS. (2023). *Upah Minimum Regional/Propinsi (Rupiah), 1997-2020.* sumut.bps.go.Id. https://sumut.bps.go.id/indicator/6/188/1/upah-minimum-provinsi-ump-dan-upah-minimum-kabupaten-kota-umk-menurut-kabupaten-kota.html
BPS. (2023). *Upah Minimum Regional/Propinsi (Rupiah), 1997-2020.* Sumut.bps.go.Id. https://sumut.bps.go.id/indicator/6/188/1/upah-minimum-provinsi-ump-dan-upah-minimum-kabupaten-kota-umk-menurut-kabupaten-kota.html
Fajriansyah, S., & Chandriyanti, I. (2022). Analisis Pengaruh Pertumbuhan Ekonomi, Upah Minimum Provinsi (UMP) dan Tingkat Pengangguran terhadap Tingkat Kemiskinan di Provinsi Kalimantan Selatan. *JIEP: Jurnal Ilmu Ekonomi Dan Pembangunan*, *5*(2), 558–570.
Helwani, A. S., & Rusdiansyah, R. (2022). Analisis Faktor-Faktor yang Mempengaruhi Jumlah Penduduk Miskin di Provinsi Kalimantan Selatan. *JIEP: Jurnal Ilmu Ekonomi Dan Pembangunan*, *5*(1), 217–233.
Ihsan, K., & Ikhsan, I. (2018a). Analisis Pengaruh Ump, Inflasi dan Pengangguran terhadap Kemiskinan di Provinsi Aceh. *Jurnal Ilmiah Mahasiswa Ekonomi Pembangunan*, *3*(3), 408–419.
Ihsan, K., & Ikhsan, I. (2018b). Analisis Pengaruh Ump, Inflasi dan Pengangguran terhadap Kemiskinan di Provinsi Aceh. *Jurnal Ilmiah Mahasiswa Ekonomi Pembangunan*, *3*(3), 408–419.
Maipita, I. (2013). Simulasi dampak kenaikan upah minimum terhadap tingkat pendapatan dan kemiskinan. *EKUITAS (Jurnal Ekonomi Dan Keuangan)*, *17*(3), 390–410.
Mardiatillah, R., Panorama, M., & Sumantri, R. (2021). Pengaruh pengangguran dan inflasi terhadap tingkat kemiskinan di sumatera selatan tahun 2015-2019. *KINERJA*, *18*(2), 279–287.

Ningrum, S. S. (2017). Analisis Pengaruh Tingkat Pengangguran Terbuka, Indeks Pembangunan Manusia, Dan Upah Minimum Terhadap Jumlah Penduduk Miskin Di Indonesia Tahun 2011-2015. *Jurnal Ekonomi Pembangunan*, *15*(2), 184–192.

Niswati, K. (2014). Faktor-faktor yang mempengaruhi kemiskinan di daerah istimewa yogyakarta tahun 2003-2011. *Eko-Regional: Jurnal Pembangunan Ekonomi Wilayah*, *9*(1).

Nurlana, H. F., Haviz, M., & Mafruhat, A. Y. (2021). Pengaruh Indeks Pembangunan Manusia, Upah Minimum, Laju Pertumbuhan Ekonomi dan Inflasi Terhadap Jumlah Penduduk Miskin di Jawa Barat Tahun 2005-2019. *Prosiding Ilmu Ekonomi*, 97–103.

Priseptian Laga, & Primandhana Priana Wiwin. (2022). Analisis faktor-faktor yang mempengaruhi kemiskinan. *FORUM EKONOMI, 1*, 45–53. http://journal.feb.unmul.ac.id/index.php/FORUMEKONOMI

Priyono, T. H., & Yunitasari, D. (2022). PENGARUH PERTUMBUHAN EKONOMI, INFLASI, UPAH MINIMUM, DAN PENGELUARAN PEMERINTAH TERHADAP KEMISKINAN DAERAH ISTIMEWA YOGYAKARTA TAHUN 2013-2019. *Jurnal Ilmiah Ekonomi Bisnis*, *27*(2), 259–273.

Putri, E. M., & Putri, D. Z. (2021). Pengaruh Upah Minimum, Tingkat Pengangguran Terbuka, Pendidikan Dan Pengeluaran Pemerintah Terhadap Kemiskinan di Indonesia. *Ecosains: Jurnal Ilmiah Ekonomi Dan Pembangunan*, *10*(2), 106–114.

Ramdhan, D. A., Setyadi, D., & Wijaya, A. (2017). Faktor-faktor yang mempengaruhi tingkat pengangguran dan kemiskinan di kota samarinda. *Inovasi*, *13*(1), 1–18.

Romi, S., & Umiyati, E. (2018a). Pengaruh pertumbuhan ekonomi dan upah minimum terhadap kemiskinan di Kota Jambi. *E-Jurnal Perspektif Ekonomi Dan Pembangunan Daerah*, *7*(1), 1–7.

Romi, S., & Umiyati, E. (2018b). Pengaruh pertumbuhan ekonomi dan upah minimum terhadap kemiskinan di Kota Jambi. *E-Jurnal Perspektif Ekonomi Dan Pembangunan Daerah*, *7*(1), 1–7.

Silaban, P. S. M. J., Sembiring, I. P. S. B., & Sitepu, V. A. B. (2020). Analisis Pengaruh PDRB dan Inflasi terhadap Pengangguran Terbuka di Sumatera Utara Periode 2003-2019. *Jurnal Ilmiah Ekonomi Global Masa Kini*, *11*(2), 127–132.