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Analysis of Factors Affecting Employment Opportunities in North Sumatra for the Period 2002 – 2022

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Abstrak

Provinsi Sumatera Utara, sebagai salah satu wilayah dengan populasi besar di Indonesia, menghadapi tantangan terkait kesempatan kerja dan pertumbuhan ekonomi yang inklusif. Penelitian ini bertujuan untuk menganalisis faktor-faktor yang mempengaruhi keadaan angkatan kerja di Sumatera Utara, dengan fokus pada jumlah penduduk, inflasi, dan tingkat pengangguran terbuka. Metode kuantitatif digunakan untuk menguji hipotesis dan mengkaji hubungan antara variabel-variabel tersebut. Hasil analisis regresi menunjukkan bahwa jumlah penduduk memiliki pengaruh positif dan signifikan terhadap angkatan kerja, sementara inflasi dan tingkat pengangguran terbuka menunjukkan pengaruh positif namun tidak signifikan. Secara simultan, ketiga variabel mampu menjelaskan 91% variasi dalam angkatan kerja di Sumatera Utara. Temuan ini memberikan wawasan penting bagi pembuat kebijakan dalam merancang intervensi yang efektif untuk meningkatkan kesempatan kerja dan mendorong pertumbuhan ekonomi yang lebih inklusif. Pengelolaan yang strategis atas pertumbuhan penduduk, inflasi, dan pengangguran terbuka diperlukan untuk menciptakan pasar tenaga kerja yang lebih produktif dan berkelanjutan di Sumatera Utara. Penelitian ini berkontribusi pada pemahaman yang lebih komprehensif mengenai dinamika ketenagakerjaan di wilayah tersebut.

Kata Kunci: *Kesempatan Kerja, Jumlah Penduduk, Inflasi, TPT*

Abstract

North Sumatra Province, one of the regions with a large population in Indonesia, faces challenges related to employment opportunities and inclusive economic growth. This study aims to analyze the factors affecting the state of the labor force in North Sumatra, focusing on population, inflation, and open unemployment rate. Quantitative methods test hypotheses and examine the relationships between these variables. The regression analysis results show that population size positively and significantly influences the labor force. In contrast, inflation and the open unemployment rate show a positive but insignificant influence. Simultaneously, these three variables could explain 91% of the variation in the labor force in North Sumatra. These findings provide important insights for policymakers in designing effective interventions to increase employment opportunities and promote inclusive economic growth. Strategic management of population growth, inflation, and open unemployment is needed to create a more productive and sustainable labor market in North Sumatra. This research contributes to a more comprehensive understanding of employment dynamics in the region.

Keywords: *Employment Opportunity, Number of Population, Inflation, TPT*

INTRODUCTION

As a developing country with a large and diverse population, Indonesia faces various challenges related to employment opportunities, economic growth, and poverty alleviation. Rapid economic growth has resulted in a significant increase in population, while unemployment and economic inequality remain severe problems in many regions. In this context, an in-depth understanding of the relationship between population and independent variables such as labor force, inflation, and domestic investment is crucial.

Inflation, according to N. In his book "Macroeconomics," Gregory Mankiw defines a general increase in the price level of an economy's goods and services over an economy's goods and services over time. This causes each unit of money to have less purchasing power than before, reducing the value of money over time.

The corresponding theory in this relationship is the Keynesian theory. Keynesian theory proposes that when inflation occurs, an increase in aggregate demand can lead to growth in labor demand, reducing the unemployment rate. That is, Keynesianism asserts that in an inflationary situation, government actions to increase spending can spur total spending in the economy. It is believed to encourage firms to hire more workers to meet the high demand for goods and services. This theory emphasizes that economic stimulus implemented by the government can trigger economic growth, reducing the unemployment rate. However, this theory also warns of the importance of caution in using fiscal and monetary policy to maintain macroeconomic balance, especially in the face of the risk of excessive inflation or volatile business cycles.

Another theory that states that inflation also hurts the labor force is the production theory. Production theory explains that inflation can harm the labor force. When inflation causes an increase in the price of raw materials, energy, and labor, it can cause production costs to rise. As a result, firms may look for ways to cope with the rising costs. One possible option is to reduce production, which may result in reduced working hours or layoffs. Another alternative is to increase the selling price of the product. However, this move may risk causing a decrease in demand from consumers, which in turn may reduce output and employment opportunities. It can be concluded that inflation has a 2-way relationship with the labor force, i.e., inflation can have a positive impact, and inflation can have a negative impact.

According to N. In his book, G, Gregory Mankiw defines *conditiashich* as a person who does not have a job, is actively looking for work, and is ready to work. Mankiw categorizes unemployment into three types, one of which is Open Unemployment, which is included in the category of fractional and structural unemployment. As explained by Mankiw, open unemployment refers to individuals who do not have a job, are actively looking for a job, and are willing to work at the current wage. The unemployment rate then becomes a measure of open unemployment, which is the percentage of the labor force that is currently unemployed. Meanwhile, the labor force is defined as those aged 15 years and above working or looking for work.

The theory that corresponds to the relationship between open unemployment and the labor force is the "Phillips Curve" theory. In the context of the relationship with the labor force, the Phillips Curve shows that when the open unemployment rate is high, the labor force has more individuals looking for work, which can depress wages as there is more competition in the labor market. Conversely, when the open unemployment rate is low, the labor force has fewer individuals looking for work, thus putting upward pressure on wages as firms have to compete for the best workers. So, in the context of employment opportunities, this theory states that the relationship between open unemployment and the labor force is negative, where when unemployment is high, the employment opportunities that job seekers have are smaller.

According to the Central Bureau of Statistics, the concept of employment opportunities refers to labor market dynamics that can be analyzed through the availability of employment, both in terms of the industrial sector and potential employment in a region. This concept involves evaluating the number of jobs available to job seekers, both in terms of the availability of jobs and the potential of existing jobs. As Sumarsono 2003 states in his book, policies to expand employment opportunities are closely related to population

policies. In general, employment opportunities for workers are influenced by several factors, one of which is the labor force. The labor force is a term that refers to a group of individuals in a population who are in the working age range, which includes those who have worked, who have not worked, or who are looking for work. Professor Soemitro Djojohadikusumo defines the labor force as part of the total population actively in employment or looking for productive work opportunities.

Economic activity is not considered part of the labor force in this concept. The term often refers to individuals who work in various contexts, such as within a single firm, industry, or geographical area. It also includes both workers who have jobs and those who experience unemployment. The labor force participation rate (LFP) or economic activity rate (EAR) measures the proportion of the labor force to the population. In common usage, the term does not include employers or management and refers more to those engaged in manual labor. The labor force is divided into two groups: workers, who are fully employed, and the unemployed, who have yet to find employment opportunities despite being of working age.

According to the Central Bureau of Statistics (BPS), population refers to the total number of individuals living in a specific area at a certain period. This definition includes everyone living in the area, regardless of their status or demographic characteristics such as age, gender, or employment status. Population is one of the essential indicators used to analyze and understand an area's population structure and to plan development policies and community services. BPS regularly conducts population surveys and censuses to update population data across Indonesia.

The theory of economic growth corresponds to the relationship between population and labor force. This theory explains that economic growth can increase labor demand, increase employment opportunities, and reduce unemployment. An increase in population can increase market potential and encourage economic growth, which can positively impact employment opportunities. It can be said that the labor force positively affects the population.

The labor force is an essential component of a country's economy. They are the working-age population who are actively working, have a job but are temporarily unemployed, and are looking for work. The labor force is classified into two groups: the working population and the unemployed population. The working population is those working at least 1 hour a week or 20 hours a month. Meanwhile, the unemployed are those who are not working, are looking for work, and want to work.

Tabel 1. Population Chart



From the table above, it can be seen that the labor force in North Sumatra continues to grow from time to time. Although 2011 was the most drastic decline from 2009 to 2022, North Sumatra, one of Indonesia's largest provinces, has a significant role in contributing to national economic growth. However, the province is also faced with similar challenges related to employment opportunities and inclusive economic growth. A growing population amplifies the pressure on the labor market, while a growing labor force poses challenges in creating enough jobs to meet demand.

In the context of employment opportunities, the labor force is one of the critical factors to consider. A high population can create vast economic opportunities, but if not matched by sufficient employment growth, this can lead to an increase in unemployment and poverty. Meanwhile, stable and controlled inflation is essential in creating an economic environment conducive to business growth and investment, which can increase employment opportunities. The same applies to the open unemployment rate.

Therefore, this study examines the interaction between the labor force and the independent variables of population, inflation, and open unemployment rate in North Sumatra in the context of employment opportunities. A better understanding of the factors affecting employment opportunities in the province is expected to provide a more holistic view and more effective solutions in addressing the challenges of unemployment and advancing inclusive economic growth. As such, this research is expected to contribute to developing development policies at the regional and national levels, particularly in creating broader and more sustainable employment opportunities for the people of North Sumatra.

RESEARCH METHOD

The quantitative method applied in this research aims to provide a clear and detailed description of the observed phenomenon. The main focus is an in-depth understanding of existing facts and explaining the investigated phenomena, intending to test relevant theories. The quantitative approach adopted in this study is based on the positivism paradigm, which emphasizes using quantitative or statistical data analysis to test previously formulated hypotheses (Sugiyono, 2013). The research was conducted in North Sumatra Province, using secondary data from the Central Bureau of Statistics (BPS), which is publicly available through the official website www.bps.go.id. The secondary data collection method is the documentation method, where the data obtained is sourced directly from BPS. The equation used to analyze the research results is a simple linear regression model.

RESULT AND DISCUSSION

The labor force in Indonesia, especially in North Sumatra, is only sometimes stable; sometimes, it experiences a decline, as has been described, namely in 2011. Various internal and external factors caused Indonesia's labor force to decline in 2011. The main underlying factors were the impact of the 2008-2009 global financial crisis, changes in economic structure, government policies, and demographic factors.

The global financial crisis caused a decline in global demand for Indonesia's export products, which resulted in layoffs and reduced hiring of new employees. On the other hand, the economy's transition from the agrarian sector to manufacturing and services was not accompanied by an adequate improvement in the quality of the labor force, so the new sector did not absorb many workers from the agrarian sector. The increase in the minimum wage by the government in 2011 was also feared to cause companies to be reluctant to recruit new employees due to the higher cost burden. The demographic bonus that occurred at that time was not accompanied by an adequate increase in the quality of the workforce, so the labor market needed to absorb more people of productive age. The following will present the test results on the factors that influence the state of the labor force in North Sumatra. First, we will show the results of multiple regression tests on the data used. The results are:

Multiple Regression

Table 1. Multiple Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.68207	0.377477	30.94773	0.0000
LOG(JP)	1.512224	0.135550	11.15625	0.0000
INFLASI	0.002255	0.001842	1.224571	0.2374
TPT	0.005184	0.004628	1.120109	0.2782
R-squared	0.926614	Mean dependent var		15.65747
Adjusted R-squared	0.913664	S.D. dependent var		0.112458
S.E. of regression	0.033044	Akaike info criterion		-3.812338
Sum squared resid	0.018562	Schwarz criterion		-3.613381
Log likelihood	44.02955	Hannan-Quinn criter.		-3.769159
F-statistic	71.55108	Durbin-Watson stat		1.104707
Prob(F-statistic)	0.000000			

Based on the regression test results above, there are equation results and explanations as follows:

Labor Force

$$11.68207 + 1.512224 (Jp) + 0.002255 \text{ Inflation} + 0.005184 \text{ Tpt} + e$$

The C value of 11.68207 indicates the number of the labor force in North Sumatra Province if the variables of the population (Jp), inflation rate (Inflation), and open unemployment rate (Tpt) have zero value. Thus, when there is no population growth, no inflation, and no open unemployment, the labor force in North Sumatra Province is estimated to reach 11,68207 people. This shows the number of the labor force that becomes potential in the regional economy under ideal conditions or when no factors affect economic activity, such as population growth, price level changes, or unemployment rates.

The regression coefficient β_1 for the population variable (Jp) of 1.512224 indicates a positive relationship between population and labor force in North Sumatra Province. If the population increases by one person, the labor force in North Sumatra Province is expected to increase by 1.512224 people. It indicates that population growth will positively impact the existence of the labor force, which in turn can affect economic activity and the labor market in the region.

The positive regression coefficient of inflation of 0.002255 indicates that every one percent increase in the inflation rate will result in an increase of 0.002255 in the size of the labor force in North Sumatra Province. It may be due to the impact of inflation, which

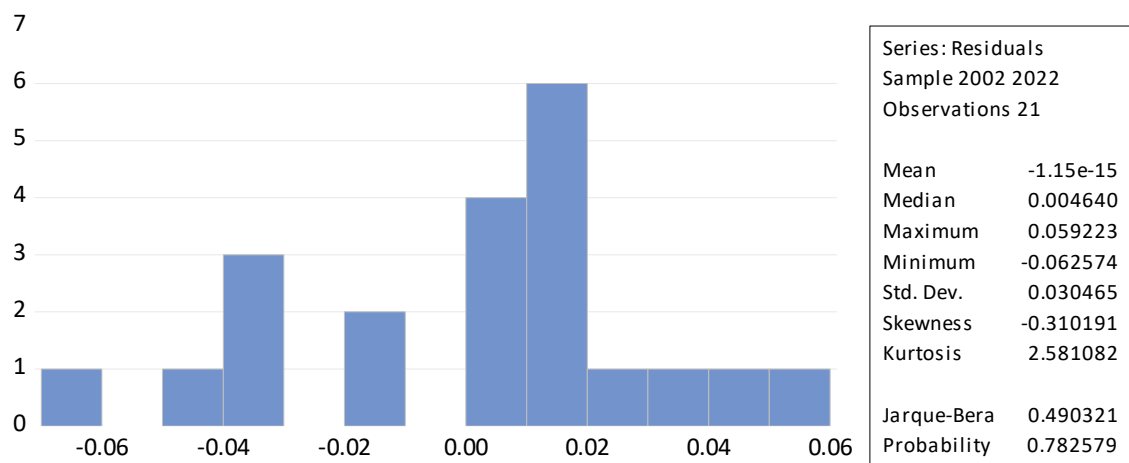
increases the demand for goods and services, encourages economic growth, and triggers investment, increasing the need for labor.

The regression coefficient of the open unemployment rate of 0.005184, which is positive, indicates that every one percent increase in the open unemployment rate can lead to an increase of 0.005184 people in the labor force in North Sumatra Province. The reason may be that an increase in the open unemployment rate may encourage individuals not previously looking for work to enter the labor market and seek employment, increasing the size of the labor force.

Classical Assumption Test

1. Normality Test

Table 2. Normality Test



The normality test results above show that the data examined has a distribution that meets the normality assumption. The Jarque-Bera probability value of 0.7825, which exceeds the 0.05 significance level, indicates insufficient statistical evidence to reject the assumption that the data comes from a normal distribution. It illustrates that the data distribution tends to be symmetrical and has a proportional degree of concentration around the mean, meeting the requirements for parametric statistical analysis that assumes a normal distribution. As such, the data can be considered representative and reliable for further analysis using appropriate statistical methods.

2. Uji Multikolinearitas

Tabel 3. Multicollinearity Test

Variable	Coefficient	Uncentered	Centered
	Variance	VIF	VIF
C	0.142489	2740.487	NA
LOG(JP)	0.018374	2379.285	2.153728
INFLASI	3.39E-06	3.840988	1.372431
TPT	2.14E-05	25.80039	2.001620

In multicollinearity analysis, the main focus is on the centered Variance Inflation Factor (VIF) value. The data presented in the table shows that the multicollinearity test criteria are met as the Centered VIF value is 2. This is much lower than the commonly used limit of 10, indicating no significant multicollinearity problem in the model. Therefore, this result provides confidence that there is no severe problem in the relationship between the independent variables, allowing for a more confident interpretation of the regression results.

3. Heteroscedasticity Test

Tabel 4. Heteroscedasticity Test

Heteroskedasticity Test: White			
Null hypothesis: Homoskedasticity			
F-statistic	0.562532	Prob. F(9,11)	0.8016
Obs*R-squared	6.618934	Prob. Chi-Square(9)	0.6767
Scaled explained SS	3.429034	Prob. Chi-Square(9)	0.9448

Based on the information in the table above, it can be concluded that the statistical test results show that the data meets the test requirements as the Chi-Square probability value is 0.67, exceeding the pre-set significance level of 0.05. This indicates that there is not enough statistical evidence to reject the assumptions proposed in the analysis. Therefore, the data can be considered qualified within the statistical tests' framework, and the results can be interpreted more confidently.

4. Uji Autokorelasi

Tabel 5. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	2.366848	Prob. F(2,15)	0.1278
Obs*R-squared	5.037456	Prob. Chi-Square(2)	0.0806

Based on the table above, it can be concluded that the data used in this study successfully passed the autocorrelation test because it meets the criteria with a Chi-Square probability value of 0.08, which is greater than the predetermined significance value of 0.05. Therefore, this result confirms that there is insufficient statistical evidence to reject the assumption that the data has no autocorrelation. Thus, this conclusion suggests that the data used can be considered free from autocorrelation issues, allowing for more reliable and accurate analysis in the study context.

Hypothesis Test

1. Partial Test (t)

Based on the data in Table 1, it can be seen that the direction has made the hypothesis test results of the theory. In this test, the thing that needs to be observed is the prob value only.

Based on the data from Table 1, a positive correlation exists between population and labor force. It follows the economic principle, which states that the larger the population, the greater the potential labor force available. In 2020, the population of North Sumatra reached 14,799,361 people, of which 8,104,679 were in the labor force, accounting for 54.8% of the total population. The statistical analysis shows a deficient probability value of 0.0000, indicating that the population variable significantly impacts the size of the labor force in this region. Some of the factors that support this positive correlation include an increase in the working age due to longer life expectancy, urbanization, which opens up new job opportunities, and an increase in education levels, which improves the qualifications of the workforce.

Data from Table 1 shows no significant relationship between the inflation rate and the labor force in North Sumatra. The obtained probability value (prob) of 0.2374, exceeding the standard significance threshold of 0.05, indicates a lack of statistical evidence to support the claim that inflation significantly impacts labor force growth in the region. Although the inflation rate experienced minor fluctuations from 2020 to 2022, the labor force continued to increase, suggesting that other factors such as economic growth, urbanization, and

increased education may have a more significant influence. For example, the increase in urbanization rates in North Sumatra from 2010 to 2020, as well as the development of industrial estates such as Sei Mangkei Industrial Estate and Kuala Tanjung Industrial Estate, have opened up new job opportunities in the manufacturing sector and attracted many workers from different regions.

The third variable, the open unemployment rate, shows an effect not in line with previously known theory. It is surprising because it is generally assumed that high unemployment should harm employment opportunities. However, in this case, a different result is found. With a probability value of 0.2782, which exceeds the standard significance threshold of 0.05, insufficient statistical evidence supports the claim that the open unemployment rate significantly impacts employment opportunities in the North Sumatra region. It may be due to specific factors that affect the labor market in the region, such as economic structure, employment policies, and social dynamics. The possibility of specific growing sectors or government policies that support job creation may offset the negative impact of a high open unemployment rate. For example, agriculture in the region may continue to grow due to stable demand or government programs that support local farmers. In addition, the tourism sector can also be a significant source of employment, especially in North Sumatra's prosperous natural or cultural tourism industry. Government programs or private investment in tourism infrastructure can continue to drive the sector's growth and create new employment opportunities, even if the open unemployment rate remains high. Thus, while in theory, the open unemployment rate should affect employment opportunities, the impact may be less significant in the North Sumatra region due to other factors that play an essential role in the labor market.

2. Simultaneous Test (f)

Based on the regression test results in Table 1, it can be seen that the probability value (F-statistic) is 0.0000, which is significantly smaller than the predetermined significance level of 0.05. This result indicates that the combination of the independent variables, including Population, Inflation Rate, and Open Unemployment Rate, significantly influences the dependent variable, namely Employment Opportunities (Labor Force). Notably, this low probability value indicates the minimal likelihood of the regression results being obtained by chance. In other words, the observed relationship between the variables is unlikely to be due to random or chance factors alone. Instead, this result confirms a consistent and reliable pattern in the influence of the independent variables on the dependent variable in the regression model.

Therefore, this finding provides strong evidence that Population, Inflation Rate, and Open Unemployment Rate significantly determine Employment Opportunities or Labor Force. This provides essential insights for economic and employment policies, highlighting the factors that need to be considered and managed to increase employment opportunities in a population.

3. Determinant Test (R²)

In the regression results in Table 1, attention is drawn to the Adjusted R-Square value, which indicates how well the independent variables (Total et al. Unemployment Rate) explain the variation in the dependent variable (Employment Opportunities or Labor Force) in the regression model. A recorded value of 0.91 (after rounding) indicates that about 91% of the variation in Employment Opportunity can be explained by the combination of independent variables in the model.

This finding implies that Population, Inflation, and Open Unemployment Rate contribute significantly to the variation in Employment Opportunity by 91%. Meanwhile, the remaining 9% is influenced by other factors not included in the regression model. This interpretation emphasizes the importance of the selected independent variables in explaining variations in employment opportunities. As such, these results provide greater insight into the factors that influence employment conditions, which can be used to inform more effective policymaking in addressing unemployment issues and increasing employment opportunities.

CONCLUSION

The population has a positive and significant influence on the labor force in the region. Every one-person increase in population contributes to a 1,512-person increase in the labor force. Meanwhile, although the inflation rate has a positive influence, it does not significantly affect the labor force. A 1% increase in the inflation rate only increases the labor force by 0.002 people. Similarly, the open unemployment rate has a positive but insignificant influence on the labor force. A 1% increase in the open unemployment rate only contributes to a 0.005 increase in the labor force. However, when the three variables are considered together, namely population, inflation, and the open unemployment rate, they can explain about 91% of the variation in the labor force in North Sumatra. This finding emphasizes the importance of managing population growth, inflation, and open unemployment to increase regional employment opportunities. These results provide valuable insights for policymakers to design more effective interventions to promote

inclusive economic growth and create adequate employment for the people of North Sumatra.

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