

The Effect of Population Growth, Human Development Index, City Minimum Wage, and Sectoral Economic Growth on the Open Unemployment Rate In Jambi City

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ABSTRACT

This study examines the impact of population growth, the Human Development Index (HDI), municipal minimum wage, and sectoral economic growth on the open unemployment rate in Jambi City. This study uses time-series data from 2000 to 2023, obtained from the Central Statistics Agency (BPS) of Jambi Province and Jambi City. The data were analyzed using a multiple linear regression model, supported by quantitative descriptive techniques and a series of relevant statistical tests. The results indicate that Jambi City's open unemployment rate has increased because population growth has outpaced job creation, the HDI has not effectively absorbed the workforce, the high municipal minimum wage is not supported by productivity, and the industrial and service sectors have slowed. From 2000 to 2023, the service and industrial sectors have been the most influential in reducing unemployment during periods of economic growth in Jambi City. Policy implications emphasize the need for balanced economic development and labor market alignment.

Keywords: *Population Growth, HDI, Minimum Wage, Agricultural Sector, Industrial Sector, Service Sector, Unemployment*

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1. INTRODUCTION

Unemployment remains a critical macroeconomic and social issue, particularly in developing economies experiencing rapid demographic changes. Unemployment is the condition in which individuals in the labor force are without jobs and are actively seeking work. This phenomenon occurs because of an imbalance between the growing number of workers and the labor market's capacity to absorb them. The gap between labor force growth and job availability creates complex challenges. Although the government has implemented various policies and programs to create job opportunities, job growth often fails to keep pace with overall workforce growth. As a result, the unemployment rate increases, which can trigger broader social and economic impacts.

The unemployment rate in Indonesia is an important indicator for assessing the labor market's ability to absorb the labor force. When the unemployment rate rises, it affects individuals and contributes to higher poverty rates, crime, and overall economic deterioration. The unemployment rate is not merely an economic issue; it is also a complex social issue shaped by many interacting factors. The mismatch between a growing labor force and limited job opportunities creates a gap that can worsen social conditions and increase the risk of poverty.

According to Todaro (2003), the unemployment rate is closely related to the poverty rate. High unemployment can reduce community income, hindering the ability to meet basic needs and increasing poverty levels. An economy's success can be evaluated through three main indicators: output, unemployment rate, and inflation. These three macroeconomic variables are interrelated. When a country's real output exceeds its potential output capacity, inflation tends to rise. This indicates that, in the process, labor utilization increases, pushing output beyond its potential limits. The negative relationship between the gap between real output and potential output and the unemployment rate is explained by Okun's Law (Darman, D. 2013).

Based on BPS (2024) data, although Indonesia's unemployment trend has declined in recent years, the rate remains higher than in neighboring countries such as Malaysia, Thailand, and Vietnam. For instance, in 2015, Indonesia's national unemployment rate reached around 6%, while those countries' rates were below 4%. Data from the Indonesian Central Statistics Agency for 2019 to 2023 indicate that the number of employed people declined by an average of 0.04% per year. This decline reflects slow job growth that cannot keep pace with population growth, particularly among the productive age group, which increasingly faces difficulty finding employment. Although the percentage decrease is relatively small, its impact on the economy is significant. Conversely, the unemployment rate has increased, with an average annual growth rate of 1.75% during the same period. This rise indicates increasingly complex employment challenges, especially in rapidly urbanizing areas. The labor market's limited capacity to absorb the growing labor force has led to a surge in unemployment, which can ultimately worsen social issues such as rising poverty and declining quality of life. Therefore, more effective strategies are needed to create job opportunities and enhance workforce skills to improve competitiveness in the job market.

The impact of the unemployment rate on society is significant and complex. Beyond losing a reliable source of income, job loss also makes it difficult for individuals to afford necessities such as clothing, food, and housing. This often triggers larger social issues, including rising poverty rates, economic inequality, and deteriorating social cohesion. A high unemployment rate can also cause social instability, increase the risk of criminal activity under economic pressure, and worsen public safety and order. Furthermore, widespread unemployment can amplify public dissatisfaction with the government, thereby increasing the risk of social unrest and political instability. More broadly, chronic unemployment can disrupt economic and social development and exacerbate structural injustices in the distribution of resources and economic opportunities. Thus, unemployment cannot be viewed solely from an economic perspective; it must be understood as a multidimensional issue that requires a holistic approach to resolve.

The success of poverty reduction efforts depends not only on economic growth but also on how the benefits of that growth are fairly distributed across all segments of society. High income inequality, poorly managed urbanization, and population growth that is not matched by job-creation capacity will worsen the effects of unemployment and poverty. Therefore, addressing this issue requires a more comprehensive, integrated approach that combines economic development strategies with sustainable social policies.

Previous research has identified various factors contributing to the Open Unemployment Rate (OUR). Studies by Suroya & Erdkhadifa (2023), Astuti et al. (2019), and Lestari & Woyanti (2020) indicate that population size significantly affects the unemployment rate. All three studies emphasize that population growth not matched by increased job opportunities is a major factor in high unemployment. When the number of individuals in the productive age group continues to rise but job creation does not keep pace, the unemployment rate tends to increase.

Beyond demographic factors, Hasibuan (2023), Qamariyah et al. (2022), and Suroya & Erdkhadifa (2023) examined the relationship between the Human Development Index (HDI) and the open unemployment rate. Their findings show that HDI significantly affects the unemployment rate, but in opposite directions. An increase in human resource quality not accompanied by job growth can lead to a surge in unemployment, as a more skilled workforce seeks jobs with higher standards. However, in some contexts, an increase in HDI can help reduce the unemployment rate when improvements in workforce quality are accompanied by enhanced job opportunities. Therefore, the relationship between HDI and unemployment greatly depends on local economic dynamics and the employment policies implemented in a given area.

On the other hand, research conducted by Pasuria & Triwahyuningtyas (2022), Simbolon et al. (2023), and Putra & Hidayah (2023) reveals that minimum wage policies significantly reduce the open unemployment rate. An increase in the minimum wage increases the workforce's purchasing power, ultimately stimulating economic growth and expanding job opportunities. This study argues that appropriate minimum wage policies can effectively reduce unemployment, especially when supported by economic policies that promote job creation.

Furthermore, research by Azis et al. (2021), Syahputra et al. (2019), and Syahril (2014) indicates that economic growth is significantly related to the open unemployment rate. As economic growth increases, more job opportunities are created, thereby absorbing more labor. This is consistent with economic theory, which holds that economic expansion increases investment, production, and labor demand, ultimately reducing the unemployment rate.

These studies suggest that factors such as population size, the Human Development Index (HDI), minimum wage policies, and economic growth significantly determine the open unemployment rate. Therefore, in the context of Jambi City, further analysis of these factors is crucial for designing effective policy strategies to reduce unemployment and improve community welfare.

This study examines how population growth, the Human Development Index (HDI), the city's minimum wage, and sectoral economic growth influence the open unemployment rate in Jambi City. As an economic and governmental center, Jambi City faces complex population dynamics and labor market challenges, in which the gap between labor skills and market needs often drives unemployment. The variables used in this study are consistent with previous research, particularly regarding economic growth. However, this study differs in that it considers not only overall economic growth but also sectoral growth in agriculture, manufacturing, and services. This approach aims to understand how each sector contributes to the open unemployment rate, given that each sector plays a different role in job creation.

2. LITERATURE REVIEW

2.1 Population Growth

Population refers to all individuals who meet the requirements of the applicable laws in a state and have resided in a certain geographic area for a specified period of time. The term "population" refers to the number of individuals living in a given area over a specified period (Prabowo et al., 2023). A population is a group of people domiciled in a country. A person is categorized as an Indonesian resident if he has lived there for at least six months or intends to stay longer, even if he has not yet lived there for six months.

2.2 Human Development Index

The Human Development Index (HDI) is an instrument used by the United Nations Development Programme (UNDP) to assess the success rate of human development. The index compares life expectancy, literacy rates measured by recent educational attainment, and individual purchasing power across countries. An increase in HDI contributes to economic growth by strengthening people's capacity for productivity and creativity (Muqorrobin & Soejoto, 2017).

2.3 City Minimum Wage

Wages are the rewards that an organization or agency must pay its employees. The amount paid affects labor supply and demand (Arida et al., 2015). To meet workers' basic needs, the government has set minimum wage requirements. However, the salaries they earn at work are sometimes still below the minimum wage, leaving them and their families unable to cover the cost of living. So often, many people resign and move to other workplaces because the wages they receive are not appropriate.

2.4 Sectoral Economic Growth

Sectoral economic growth is economic growth assessed by the contributions of specific economic sectors in a region. Each economic sector, including trade, industry, services, construction, and agriculture, plays a unique role in driving regional economic growth. Sectoral economic growth offers a deeper understanding of how each sector contributes to the growth of Gross Domestic Product (GDP) or Gross Regional Domestic Product (GDP). Kuznets defines economic growth as the long-term expansion of a country's ability to provide a wide range of products and services to its people. Technological advances, along with institutional and ideological adaptations to changing circumstances and needs, have driven this increase in capacity. (Ma'ruf & Wihastuti, 2008).

2.5 Unemployment and Open Unemployment Rate

In terms of employment statistics, the Central Statistics Agency (BPS) defines the unemployment rate as the number of unemployed people who are actively looking for work or starting new businesses. It also includes people who have been hired but have not yet started working. This definition reflects different aspects of the Unemployment problem, so understanding labor market dynamics is crucial to formulating effective policies to address it. The unemployment rate is a macroeconomic problem that directly impacts society and is one of the toughest challenges. Job loss causes psychological discomfort and a decline in living standards for many people. Therefore, it is not surprising that unemployment often comes up in political discussions, where politicians claim their proposed policies can contribute to job creation (Aswanto, 2021).

3. METHODOLOGY

3.1 Data and Approach

This type of research uses quantitative and descriptive analysis techniques. According to Sujana and Ibrahim in Sundari (2012), descriptive research describes a symptom, event, or phenomenon. The main purpose of this research is to analyze and solve real-world problems based on the circumstances at the time of the research. Secondary data, or information collected, organized, and published by various organizations, institutions, or agencies, including BPS reports, is the source of data used in this study. In addition, this study uses time-series data for the years 2000–2023.

3.2 Model Specification

This study used quantitative and descriptive analyses as its statistical approaches. Multiple regression models are used to determine the impact of sectoral economic growth, wages, human development indices, and population growth on open unemployment rates. The basic formula is as follows:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + e_i$$

Distributed into research variables, it can be written as follows:

$$TPT = \beta_0 + \beta_1 PP + \beta_2 HDI + \beta_3 UMK + \beta_4 PEA + \beta_5 PEMn + \beta_6 PES + e_i$$

It is further transformed in the form of logarithms as follows:

$$\text{Log}(TPT) = \beta_0 + \beta_1 \text{Log}(PP) + \beta_2 \text{Log}(HDI) + \beta_3 \text{Log}(UMK) + \beta_4 \text{Log}(PEA) + \beta_5 \text{Log}(PEMn) + \beta_6 \text{Log}(PES) + e_i$$

Where:

β_0	= Constant
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$	= Variable coefficient
TPT	= Open Unemployment Rate
PP	= Population Growth
HDI	= Human Development Index
UMK	= City Minimum Wage
PEA	= Economic Growth of the Agricultural Sector
PEMn	= Economic Growth of the Industrial Sector
PES	= Economic Growth in the Service Sector
e_i	= Disruptive coefficient.

3.3 Analytical Techniques

To determine how much influence independent variables have on dependent variables, the Coefficient of Determination (R²) is used. The coefficient of determination ranges from zero to one; a small value indicates that an independent variable has very little power to predict changes in the dependent variable, while a value close to one indicates that an independent variable offers almost all the information needed to predict changes in the dependent variable (Kuncoro, 2003).

To ascertain whether each independent variable in the model simultaneously affects the dependent variable, F-statistical tests are used. The Quick Look approach can be used to perform the F test by comparing the calculated F value with the F table value, or the calculated probability with the confidence level reported in the study. An independent variable has a significant effect on the dependent variable if the probability value is less than or equal to 5% (0.05) and the calculated F value exceeds the F value in the table (Kuncoro, 2003). The test criteria applied are as follows, with a significance level of 5%: Accepted if F calculated < F table, meaning that neither the explanatory factor alone nor its combination has a significant influence on the described variable. Rejected and accepted if F calculated > F table, indicating that the explanatory factors together or simultaneously have a considerable influence on the described variable.

When all other factors are held constant, the t-test determines how significantly each independent variable affects the dependent variable. Compare the calculated t-value with the table's t-value to assess each independent variable's impact. Examining the distribution table, with degrees of freedom n-k, will yield the value t of the table. Thus, the following hypotheses are tested in this test: 1) H₀: $\beta_1 = 0$. The independent variables have no effect on the dependent variable. 2) H₁: $\beta_1 \neq 0$ Independent variables affect dependent variables. In addition to the above approach, the Quick Look method can also be used to perform a t-test, which compares the t-count with the t-table or with the probability values and confidence levels established in the study. Reject or accept is indicated if the probability value is less than 0.05 or equal to 5%, and the calculated value is greater than the table value, and vice versa. This shows how each independent variable affects its own dependent variable and vice versa (Kuncoro, 2003).

4. FINDINGS AND DISCUSSION

Based on the results of multiple linear regression equations to see the influence of independent variables, namely population growth (X₁), human development index (X₂), minimum wage (X₃), economic growth in the agricultural sector (X₄), economic growth in the manufacturing sector (X₅) and economic growth in the service/services sector (X₆) on the bound variable (independent variable), namely open unemployment in Jambi City, the EViews 12 analysis tool was used to obtain regression equations. Based on the calculation using EViews 12, the following results were obtained:

Table 1: Estimation of Multiple Linear Regression Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1	-0.000302	0.000134	-2.258679	0.0373
X2	-0.182261	1.195752	0.152425	0.0206
X3	-1.780069	8.16E-06	2.181431	0.0435
X4	-18.86669	8.630854	-2.185958	0.0431
X5	-10.94677	5.641027	-1.940562	0.0309
X6	-12.08135	5.752966	-2.100021	0.0490
C	1325.383	613.1567	2.161573	0.0452

Model Summary

Statistic	Value	Statistic	Value
R-squared	0.398448	Mean dependent var	8.332539
Adjusted R-squared	0.861399	S.D. dependent var	4.267423
S.E. of regression	3.849830	Akaike info criterion	5.772428
Sum squared resid	251.9603	Schwarz criterion	6.116027
Log likelihood	-62.26914	Hannan-Quinn criter.	5.863585
F-statistic	1.876709	Durbin-Watson stat	2.714929
Prob(F-statistic)	0.014358		

Source: Eviews (data processed), 2024

It can be formulated as follows:

$$TPT = \beta_0 + \beta_1 PP + \beta_2 HDI + \beta_3 UMR + \beta_4 PEA + \beta_5 PEMn + \beta_6 PES + E$$

Based on Table 1, the results of the analysis used in multiple linear regression are obtained, the following equation is obtained.

$$Y = 1.325,3 - 0,0003 X_1 - 0,182 X_2 - 1,788 X_3 - 18,866 X_4 - 10,946 X_5 - 12,018 X_6 + E$$

4.1 Model Fit

The coefficient of determination seen in Table 1 is obtained as 0.398448; the open unemployment rate is explained by population growth factors, human development index, minimum wage, economic growth of the agricultural sector, growth of the manufacturing economy, and growth of the service economy, which is 39.84 percent, while the remaining 60.16 percent is influenced by other variables outside the research.

4.2 Simultaneous Effect

The simultaneous test or F test is a test used to understand whether the independent variables of population growth (X1), human development index (X2), minimum wage (X3), economic growth in the agricultural sector (X4), economic growth in the manufacturing sector (X5) and economic growth in the service/services sector (X6) together (simultaneously) have an influence on the dependent variable, namely open unemployment in Jambi City. If the significant value is < 0.05 , then it can be concluded that the hypothesis is accepted and the independent variables together have an influence on the dependent variable. On the other hand, if the significance value is > 0.05 , then the hypothesis is rejected, and the independent variables together have no influence on the dependent variables.

Table 2

Statistical F Test Results

Statistic	Value	Statistic	Value
R-squared	0.398448	Mean dependent var	8.332539
Adjusted R-squared	0.861399	S.D. dependent var	4.267423
S.E. of regression	3.849830	Akaike info criterion	5.772428
Sum squared resid	251.9603	Schwarz criterion	6.116027
Log likelihood	-62.26914	Hannan-Quinn criterion.	5.863585
F-statistic	1.876709	Durbin-Watson stat	2.714929
Prob(F-statistic)	0.014358		

Source: EViews (data processed), 2024

Based on Table 2, it is explained that the results of the simultaneous significance test (F Test) show that the F-statistical probability value of 0.01 is smaller than 0.05, and the F calculated value of 1.876 is greater than the F table value (2.741), indicating that the independent variable simultaneously affects the dependent variable. This means independent variables; population growth (X1), human development index (X2), minimum wage (X3), economic growth in the agricultural sector (X4), economic growth in the manufacturing sector (X5) and economic growth in the service/services sector (X6) have a significant effect on the dependent variable, namely the open unemployment rate in Jambi City simultaneously (together).

Partial test or t-test on the independent variables of population growth (X1), human development index (X2), minimum wage (X3), economic growth in the agricultural sector (X4), economic growth in the manufacturing sector (X5) and economic growth in the service/services sector (X6) against the bound variable (independent variable), namely open unemployment in Jambi City. If the significance value is < 0.05 , it can be concluded that the independent variables influence the dependent variable, and the hypothesis is accepted. However, if the significance value is > 0.05 , then it can be concluded that there is no significant relationship between the independent variables and the dependent variable.

Table 3

Statistical t-test results

Dependent Variable: LNNY

Method: Least Squares

Date: 04/22/25 **Time:** 21:52

Sample: 1 24

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1	-0.000302	0.000134	-2.258679	0.0373
X2	-0.182261	1.195752	-0.152424	0.0206
X3	-1.780069	8.16E-06	-2.181430	0.0435
X4	-18.86669	8.630854	-2.185958	0.0431
X5	-10.94677	5.641027	-1.940563	0.0309
X6	-12.08135	5.752966	-2.100021	0.0490
C	1325.383	613.1567	2.161573	0.0452

Source: EViews (data processed), 2024

Based on Table 3 above, the population growth variable (X1) shows a significance value of $< \alpha$ ($0.037 < 0.05$), and the calculated t-value (-2.258) is smaller than the t-table value (2.119), so H_0 is rejected. This means that the variable population growth has a significant effect on the open unemployment rate. The human development index variable (X2) showed a significance value of $< \alpha$ ($0.020 < 0.05$) and the calculated t-value (-0.152) was smaller than the t-table value (2.119), so H_0 's hypothesis was rejected. This means that the human development index variable had a significant negative effect on the open unemployment rate, as indicated by a t-statistic of -0.152. The minimum wage variable (X3)

showed a significance value of $> \alpha$ ($0.043 < 0.05$) and a calculated t-value (2.181) greater than the t-table value (-2.119), so H_0 was rejected. This means the minimum wage variable has a significant effect on the open unemployment rate.

The economic growth variable of the agricultural sector (X4) showed that the significance value of $< \alpha$ ($0.043 < 0.05$) and the calculated t-value (-2.185) were smaller than the t-table value (2.119), so H_0 's hypothesis was rejected. This means the agricultural sector's economic growth variables significantly affect the open unemployment rate. The economic growth variable of the industrial sector (X5) showed a significance value of $< \alpha$ ($0.030 < 0.05$), and the calculated t-value (-1.940) was smaller than the t-table value (2.119), so H_0 's hypothesis was rejected. This means that the industrial sector's economic growth variable has a significant negative effect on the open unemployment rate, as indicated by a t-statistic of -1,940. The economic growth variable for the service/services sector (X6) showed a significance value of $< \alpha$ ($0.049 < 0.05$) and a calculated t-value (-2.100) smaller than the t-table value (2.119), so the null hypothesis (H_0) was rejected. This means that the economic growth variable for the service sector has a significant negative effect on the open unemployment rate, as indicated by a t-statistic of -2,100.

4.3 Partial Effects

4.3.1 Population Growth

Regression results show that population growth significantly affects the open unemployment rate in Jambi City. With a significant value of $0.037 < 0.05$, where the value of the coefficient is -0.000, which means that every increase in population growth of 1 percent will reduce the open unemployment rate by 0.000 percent. This result is in line with the theory put forward by Sukirno (2016), the view of classical economists that if the population is already large, an increase will reduce the level of economic activity because the productivity of each person has become negative. So the community's prosperity declines again.

The economy will reach a low level of development. When this state is reached, the economy is said to have reached a state of non-development. In this situation, the worker's income is only sufficient for living expenses. If the population is in short supply and marginal production exceeds per capita income, then population growth will increase per capita income. But if the population is increasing and additional products are decreasing, it will affect the production function: marginal production will begin to decrease. Therefore, national income and per capita income are growing more slowly. Meanwhile, the population of Jambi City continues to grow, and job opportunities must be maintained in step with this growth. When job growth is out of balance with population growth, the unemployment rate gets higher. Rising unemployment adds to the population's problems. The results of this study are in line with (Habel Taime and Putri Nadya Djaelani, 2021), who stated that population growth does not have a significant effect on the open unemployment rate in Mimika district. The results of this study are supported by research (Malak et al., 2023), which finds that population size does not significantly influence the open unemployment rate in Manokwari Regency.

4.3.2 Human Development Index (HDI)

Based on Table 1, it is stated that the human development index has a significant negative effect on the unemployment rate with a significant level of 0.020 and a coefficient value of -0.182, which means that an increase of 1 unit in the human development index has an effect of 0.182 percent on the decrease in the unemployment rate. The decline in the percentage of open unemployment with increased HDI shows that HDI can improve access to education, public health, and living standards. This can help reduce the open unemployment rate by improving people's skills and education, making it easier for them to get jobs. This result is in accordance with Okun's Law, which holds that increased productivity, as measured by the human development index, will encourage economic growth. An increase in economic growth is expected to expand employment opportunities and labor demand, allowing more people to be absorbed into the labor market and ultimately reducing the unemployment rate. If a region's HDI is high, it will lead to a lower unemployment rate, and vice versa. When the HDI value is low, it can increase the unemployment rate in that area. This is in line with the research (Puan Mahesa et al., 2024), which shows that the human development index variable has a partial negative and significant influence on open unemployment in DKI Jakarta Province. This research is supported by Muhammad Baihawafi & Asnita Frida Sebayang (2023), who state that the Human Development Index (HDI) has a negative and significant effect on the unemployment rate in the Regencies/Cities of West Java Province.

The findings indicate that the Human Development Index has a negative effect on unemployment in Indonesia. This means that as the Human Development Index increases, it reduces Indonesia's open unemployment rate. The results of this study are supported by the theoretical basis put forward by Michael P. Todaro and Stephen C. Smith (2011), which suggests that increasing human resource development can increase human productivity. Through investment in education, the quality of resources is expected to improve. Human Resources (HR) is characterized by an increase in a person's knowledge and skills, which will spur an increase in their work productivity. Increased productivity can affect job opportunities: with higher productivity, production costs per unit decrease. Lower production costs per unit reduce the price per unit. If the price of goods falls, demand increases, encouraging entrepreneurs to increase labor demand; with increased labor absorption, the high unemployment rate can be reduced.

4.3.3 Minimum Wage

Based on Table 1, it is stated that the minimum wage has no significant effect on the open unemployment rate with a significant level of 0.043 and a coefficient value of -1.788, which means that every increase or decrease in the minimum wage in Jambi City of 1 rupiah has an impact on decreasing the open unemployment rate. The effect of the minimum wage on the unemployment rate is that, overall, the minimum wage in Jambi City continues to increase every year. An increase in the minimum wage raises the unemployment rate because the demand for labor continues to grow alongside production. The results of this study align with the theory that the wage relationship influences the unemployment rate, as described by Kaufman and Hotchkiss (1999).

Workers who determine their minimum wage at that level if all wages offered are below it. A person will refuse the wage and decline the job offer. As a result, it will cause unemployment. If the wage set in an area is below the minimum wage, it will increase unemployment in that area. This situation will increase the open unemployment rate. Based on the results of the study (Suhendra & Wicaksono, 2016) it is stated that the provincial minimum wage has a significant effect on the number of unemployed in Indonesia. This aligns with the theory that increasing wages can reduce unemployment. Of course, wage increases must also align with an individual's performance. This result is in agreement with the theory put forward by Mankiw (2012), which states that unemployment is caused by wage rigidity, namely the inability of wages to adjust to the equilibrium point, where the supply of labor equals the demand for labor.

4.3.4 Agricultural Sector Growth

According to Okun's theory, as stated in Samuelson (2005), for every 2 percent decline in GNP from its potential GNP, the unemployment rate increases by 1 percent. So if the GNP was originally 100 percent of potential and then fell to 98 percent, the unemployment rate jumped from 6 to 7 percent. Based on Table 1, the economic growth of the agricultural sector has a significant positive effect on the open unemployment rate, with a coefficient of 0.043. At the 0.05 significance level, the results indicate a significant relationship between agricultural sector economic growth and the unemployment rate. Economic growth significantly affects the unemployment rate. With a coefficient of -18.866, a 1 percent increase in economic growth in the agricultural sector reduces the open unemployment rate by 18.866 percent. This is consistent with Darman (2013), who finds that the economic growth variable has a negative and significant effect on Indonesia's unemployment rate.

The same research was conducted by Yoyok Soesatyo (2015), and the results showed that economic growth variables have a negative and significant effect on the open unemployment rate in the city of Surabaya. Then, supported by research (Farouk, 2013) in East Kalimantan, the increase in added value from the agricultural sector has a significant and positive influence on labor absorption. This is due to a decline in agricultural growth, which leads to an increase in national unemployment. This research places hope on the government for the agricultural sector, namely, the acceleration of agricultural growth will increase the income of the population which has an impact on increasing the demand for goods and services in the non-agricultural sector and the development of agroindustry along with the growth of agriculture and the growth of the agricultural sector, especially in the agricultural business sector, will increase the income of the population so that it will result in an increase in savings.

4.3.5 Industrial Sector Growth

Based on the regression results, economic growth in the industrial sector has a significant negative effect on the open unemployment rate in Jambi City. With a significant value of $0.030 < 0.05$, where the coefficient value is -10.946, which means that any increase in economic growth in the industrial sector by 1 percent will reduce the open unemployment rate

by 10.946 percent. This result aligns with Okun's theory. According to Lessiwal (2072-94), Okun's law states that a 1% increase in the unemployment rate will cause a decrease in economic growth. Conversely, a 1% increase in output will decrease the unemployment rate. When industrial production declines, economic growth tends to decline. This is because the industrial sector contributes little to GDP. As industrial goods production declines, consumer spending, investment, and exports will decrease. The results of this study align with Anggi Erlangga et al. (2024), who state that economic growth has a significant negative effect on the open unemployment rate in provinces on the island of Sumatra. This result aligns with Samuelson (2004), who argues that economic growth in Indonesia can be measured through changes in GDP, as GDP is an indicator related to unemployment.

Theoretically, economic growth is expected to absorb labor, thereby reducing unemployment. Economic growth affects the open unemployment rate in the provinces of Sumatra by absorbing labor in line with growth in each sector. Economic growth absorbs labor in line with increases in each sector of GDP. The presence of an industry in an area will require labor, and the surrounding community will usually have more opportunities to be absorbed into the industrial sector. In other words, industrialization has indirectly affected the unemployment rate in a region. In addition to absorbing labor, it can also create opportunities for businesses around the industry. This aligns with research (Martin Fajar & Indah Pratiwi, 2021), which states that industrial investment and labor absorption positively affect economic growth, thereby increasing human resources and reducing unemployment.

4.3.6 Services Sector Growth

Based on the results of the t-test in the table, it shows that economic growth has a significant value ($0.049 < 0.05$), where the coefficient value is -12.081, which means that the economic growth variable of the service/service sector has a significant negative effect on open unemployment in Jambi City in 2000-2023. With a coefficient value of -12.081, which means that every increase in the economic growth of the service sector by 1 percent will reduce the open unemployment rate by 12.081 percent, this study is in accordance with Okun's law, which states that there is an empirical influence between unemployment and output in the business cycle. The results of the empirical study show that the addition of 1 (one) point of unemployment will reduce GDP (Gross Domestic Product) by 2 percent. This means unemployment and economic growth have a negative relationship, and vice versa.

The results of this study are in accordance with the results of previous research conducted by (Fatimah & Prihadi Utomo, 2023), which stated that the GDP of the service sector has a significant and negative influence on the open unemployment rate, which means that every 1 percent increase in the proportion of GDP in the service/service sector will decrease the open unemployment rate. Rusmana (2018) also found that investment in the service/service sector has a significant positive effect on economic growth, which can suppress the growth of the open unemployment rate. The service/service sector is the main driver of people's daily mobility and the various services that support the economy. Uneven development also supports this by making people prefer available public services for greater efficiency and effectiveness. If Jambi City's service sector continues to grow, demand for goods and services will increase, and eventually all economic units will grow. Improvements in goods and services in an area will indirectly open new job opportunities in Jambi City. This indicates that unemployment levels depend on a region's economic growth, especially in Jambi City. Economic growth in Jambi City will reduce the number of unemployed people.

This study's policy implications emphasize the need for a comprehensive, integrated approach to reducing unemployment in Jambi City. The government should prioritize strengthening the industrial and service sectors as primary drivers of job creation, given their significant contribution to labor absorption. At the same time, education and training systems must better align with industry requirements to ensure the workforce has the skills and competencies the labor market demands. In addition, wage policies should be carefully designed to balance minimum wage increases with productivity growth, avoiding potential negative effects on employment. Finally, efforts to reduce unemployment should be supported by promoting inclusive and sustainable economic growth, ensuring that the benefits of development are equitably distributed while continuously expanding employment opportunities.

This study contributes to the literature by integrating sectoral economic analysis into unemployment research, thereby offering a better understanding of how different economic sectors influence labor market outcomes. It also provides robust long-term time-series evidence from 2000 to 2023, enabling a comprehensive examination of trends and dynamics over time. Furthermore, the study delivers policy-relevant insights that are particularly valuable for regional labor market planning and decision-making, especially in the context of developing economies.

5. CONCLUSION

This study concludes that unemployment in Jambi City is influenced by demographic, human capital, wage, and sectoral economic factors. While population growth increases labor supply, the Human Development Index (HDI) and sectoral economic growth, especially in the industrial and service sectors, play a crucial role in reducing unemployment. The analysis results for 2000–2023 show that population growth, the HDI, the City Minimum Wage (MSE), and sectoral economic growth are interrelated and interdependent in their contribution to the Open Unemployment Rate (TPT) in Jambi City. Population growth contributes significantly to labor force growth, but without adequate job creation, it will increase TPT. Meanwhile, an increase in HDI that reflects improved education, health, and living standards should reduce the unemployment rate, but its contribution will be optimal only if the improved quality of human resources is well absorbed by the job market.

The City Minimum Wage also makes an important contribution in influencing the labor market. An increase in MSEs not accompanied by growth in the business sector can reduce labor absorption because companies must bear a high wage burden. On the other hand, if the increase in MSEs is accompanied by higher productivity, its contribution to the decrease in TPT becomes more real. The largest contribution to the decline in TPT appears to come from sectoral economic growth, especially in the service and industrial sectors. While these sectors experience strong growth in certain years, TPT tends to decline due to increased job opportunities. Conversely, when these sectors slow or contract, TPT increases again.

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