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Determinants of Unemployment Rate in Central Java Province in the Last Decade

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ABSTRACT
This research aims to analyze the influence of wages, population growth, economic growth, and inflation on the unemployment rate in Central Java Province over the last decade. This study is a desk study that utilizes secondary data spanning 10 years, from 2013 to 2022. The required data includes wages, population growth, economic growth, inflation, as well as the unemployment rates of both women and men in Central Java Province. The independent variables in this study are wages, population growth, economic growth, and inflation, while the dependent variable is the unemployment rate in Central Java Province. The research object includes 35 regencies/cities in Central Java. Multiple Linear Regression is used for data analysis. The research findings indicate that wages, population growth, and economic growth significantly impact the unemployment rate, while inflation does not have a significant effect on the unemployment rate in Central Java Province over the last decade.

Keywords: Determinants, Unemployment, Central Java

INTRODUCTION

The Central Statistics Agency (BPS) explains that in the employment indicator, unemployment refers to the population who are not working but actively seeking employment or preparing to start a new business, or those who are not seeking employment because they have been accepted for work but have not yet started working (BPS, 2021). The definition of unemployment is the labor force who do not have jobs, and open unemployment refers to voluntary unemployment, deliberately choosing to be unemployed in order to seek better job opportunities. An individual is considered unemployed when they are willing to work and have actively sought employment but have not found any. In population science, individuals actively seeking work are part of the labor force. Based on age categories, the working-age population is considered to be between 15 to 64 years old, but not all individuals within this age range are counted as part of the labor force (Zurisdah, 2016). On the other hand, Chappelow (2020) argues that, "Unemployment occurs when a person who is actively searching for employment is unable to find work. Adding that unemployment is often used as a measure of the health of the economy. Supporting the thought."

The increasing number of unemployed individuals in each country has an impact on the economic growth of that country. In Indonesia, as of February 2023, the number of unemployed individuals reached 7.99 million (BPS, 2023). This is a pressing issue that needs immediate attention. The rising number of unemployed individuals in a country affects its economy (Franita, 2016).

Several factors influence unemployment, such as wages, population growth, economic growth, the labor force, and inflation. The increasing population in Indonesia leads to an increase in the labor force. Due to limited job opportunities, the labor force cannot be fully absorbed, resulting in a significant number of unemployed individuals. Consequently, this observation aligns with the classical view, which posits that a growing population can lead to a decrease in national income, and, as a result, indirectly contribute to the rise in unemployment. Economic growth, as measured by the addition of Gross Regional Domestic Product (GRDP), has an impact on the unemployment rate. It is expected that any increase in the percentage of economic growth will lead to job creation. Labor-intensive growth provides greater opportunities and job prospects for workers, thus reducing the number of unemployed individuals. On the other hand, the relationship between economic growth and unemployment is positive. This is because economic growth is not accompanied by an increase in production capacity, resulting in a continuous rise in unemployment alongside economic growth. Labor-intensive economic growth only prioritizes higher national income without providing greater employment opportunities for workers, leading to a lack of labor absorption. This indicates that an increasing economic growth will be followed by an increase in unemployment (Putra & Iskandar, 2018).

Unemployment has several impacts. It hinders society from maximizing its potential level of prosperity. Unemployment also leads to actual national income being lower than its potential level. This situation means that the achieved level of societal prosperity is lower than what could be achieved. Moreover, unemployment reduces government tax revenue. The low level of economic activity resulting from unemployment leads to reduced government tax revenue.

Furthermore, unemployment acts as an inhibiting factor for social welfare. It creates various new problems such as poverty, inflation, and criminal activities, which, in turn, affect economic growth. These effects are undeniable, as consequences stem from causes. With the current high unemployment rate in Indonesia, the most significant impact is evident in poverty, leading to a decline in social welfare (Sejati, 2020).

High unemployment also diminishes the government's ability to carry out development activities. Unemployment hampers economic growth and leads to two adverse effects on the private sector. Firstly, the surplus of labor is followed by the excess capacity of machines in companies, discouraging future investments. Secondly, the sluggishness in business activities due to unemployment reduces profits, which in turn reduces the desire for investment. Both of these circumstances discourage future economic growth.

The labor force comprises the adult population who are either currently working or actively seeking employment (BPS, 2021). The labor force consists of two groups: the employed and the unemployed. The employed group comprises individuals who are actively engaged in productive activities, producing goods and services, while the unemployed group includes individuals who are ready to work and actively seeking employment. The labor force is defined as individuals aged between 15 to 64 years old (BPS, 2020). Those not in the labor force are part of the labor force but are not working or actively seeking employment, such as students, homemakers, and individuals receiving income from other sources (Sukirno, 2020).

Research from LPEM Universitas Indonesia reveals that inflation and unemployment, along with other variables such as the poverty line-to-average income ratio, the poverty rate in the previous period, demographic variables, and the Gini Index, significantly influence the poverty rate, including head-count poverty, poverty gap, and squared poverty gap. Specifically, unemployment has a significant and positive impact on the poverty rate, while the effect of inflation tends to be inconsistent with a lower level of significance. When using BPS data, inflation appears to have a significant effect, but when using alternative data, there is a tendency for inflation to have an insignificant effect. This implicitly demonstrates the complexity of poverty issues in Indonesia (Susanto, et al., 2017).

Based on data from BPS Provinsi Jawa Tengah, the unemployment rate has experienced fluctuations over the years. Starting from 4.16% in 1997, it reached 6.21% in 2010. The highest unemployment rate in the table occurred in 2007, where the unemployment rate reached 7.70%. On the other hand, the lowest unemployment rate in the table was in 2001, which was 3.70%. It is worth noting that the highest inflation rate in Jawa Tengah occurred in 1998, reaching 67.19%. This is not surprising, considering the turmoil Indonesia experienced that year, which had significant impacts on almost all sectors, including the economy. Although the inflation rate in 1998 was the highest during the research period, it did not correlate with the unemployment rate.

The open unemployment rate in Jawa Tengah Province has fluctuated from 2007 to 2022, as shown in Table 1 below:

Table 1. Unemployment Rate in Central Java

Year	Unemployment Rate
2007	7,70%
2008	7,35%
2009	7,33%
2010	6,21%
2011	7,07%
2012	5,61%

2013	6,01%
2014	5,68%
2015	5,78%
2017	4,57%
2018	4,51%
2019	4,33%
2020	4,45%
2021	5,27%
2022	5,33%

Source: BPS Central Jawa, 2023

The increase in the population in Central Java has resulted in a surge in the labor force. However, due to the limited job opportunities, these members of the labor force will not be fully absorbed, and many will remain unemployed. As a consequence, the unemployment rate increases. This is consistent with the classical view, which states that a growing population will lead to a decrease in national income, indirectly affecting the unemployment rate (Putra & Iskandar, 2018).

Based on the description above, the purpose of this research is to analyze the influence of wages, population growth, economic growth, and inflation on the unemployment rate in Central Java over the last decade.

Literature Review

Unemployment

Unemployment occurs due to a gap between the availability of job opportunities and the number of job seekers. In other words, there are more people seeking employment than available job openings. Unemployed individuals are those who are actively searching for jobs but cannot find employment at prevailing wages. Full employment is achieved when all job seekers have found employment at prevailing wages (Suparmoko, 2007).

The unemployment rate is a measure of the percentage of the labor force in a country who are jobless and actively seeking employment but have not been successful in finding it. The unemployment rate is a crucial indicator in economic analysis as it reflects the health and condition of the labor market. A high unemployment rate can indicate low economic growth, job scarcity, and a lack of job opportunities for the labor force. Conversely, a low unemployment rate indicates healthy economic growth and better job availability for citizens (USDL, 2023).

The unemployment rate can be calculated by dividing the number of active unemployed individuals (job seekers) by the labor force and then multiplying the result by 100 to express it as a percentage. However, it is important to note that the unemployment rate has some limitations as an indicator. For instance, it does not include those who are not actively seeking employment, such as individuals who have lost hope of finding a job or who have retired prematurely. Therefore, in addition to the unemployment rate, economists also often consider the labor force participation rate, which includes all members of the labor force, including those who are employed and those seeking employment (Blanchard & Summer, 1986).

A low unemployment rate is considered a positive indicator for a country's economic growth as it reflects a wide range of job opportunities and higher welfare for the population. On the other hand, a high unemployment rate indicates issues in the labor market and can affect economic stability and social welfare in society.

Wages

Wages refer to the compensation or remuneration given to workers for their services or work contributions provided to employers or companies. The definition of wages involves payment in the form of money or salary received by workers as a reward for the time, effort, and skills they contribute to performing agreed-upon job tasks. Wages are a critical aspect of the labor-employer relationship and play a central role in the economy and society. In practice, wages can be paid in various forms, including daily, weekly, or monthly wages, or based on production rates or worker performance. Wage levels can vary based on the type of job, level of education, experience, and qualifications held by workers. Additionally, wages can be influenced by external factors such as the inflation rate, unemployment rate, and government policies related to minimum wages (Borjas, 2015).

The definition of wages differs from the concept of profit, which is the part of income received by employers or companies as a result of producing and selling goods or services. Wages specifically refer to the reward given to workers to compensate for their involvement and contribution to the production and service process.

Economic Growth

Economic growth refers to the increase in the quantity of production and the value of goods and services produced by a country or region over a specific period. Economic growth indicators are usually measured by Gross Domestic Product (GDP), which records the total value of all goods and services produced in an economy. Economic growth is measured by the percentage change in GDP from year to year. Economic growth is a primary goal for many countries as it can enhance the welfare of society, create jobs, and expand economic opportunities (Mankiw & Taylor, 2017). Factors influencing economic growth include investment in infrastructure, productivity improvements, technological innovation, the quality of human resources, political stability, and security, as well as government policies that support economic growth. Sustainable and stable economic growth is desirable as it creates a conducive environment for long-term economic development. Economic growth has broad impacts on society and the economy. When the economy grows, jobs increase, and the income of the population rises, leading to higher levels of consumption. Economic growth also provides larger resources for the government to fund social programs and public infrastructure. However, economic growth can also cause environmental issues and social disparities if not balanced with appropriate policies to protect the environment and reduce income inequality (Barro et al., 2003).

Population Growth

Population growth refers to the change in the number of inhabitants in a specific region or country over a given period. Population growth can be measured by the growth rate or the difference between the birth rate and the death rate. The main factors influencing population growth are the birth rate, death rate, and migration. If the birth rate exceeds the death rate, population growth will be positive, whereas if the birth rate is lower than the death rate, population growth will be negative (UNDESA, 2019).

The growth rate of the population can have significant impacts on the economy and society. Rapid population growth can put pressure on natural resources, infrastructure, and public services. Conversely, slow population growth can lead to issues such as population aging and a decline in the workforce. Therefore, wise policy planning regarding population growth is crucial to achieving social and economic balance (Cincotta & Engelman, 2000).

Inflation

Inflation is the phenomenon of a general and sustained increase in the prices of goods and services in an economy over a specific period. Inflation can be measured using the Consumer Price Index (CPI) or the Producer Price Index (PPI), which records the average changes in the prices of goods and services purchased by consumers or produced by producers. The inflation rate is calculated as the percentage change in the price index from year to year. Inflation can occur due to various factors, including high demand growth, increased production costs, currency devaluation, and loose monetary policies (Mankiw & Taylor, 2017).

The impact of inflation can vary depending on its level and stability. Mild and stable inflation can stimulate economic growth by encouraging consumption and investment. However, high and unstable inflation can cause economic uncertainty, hinder business and investment planning, and reduce the purchasing power of the population. To address inflation, central banks and governments can implement monetary and fiscal policies, such as raising interest rates, reducing the money supply, or adopting price control measures (Blanchard & Fischer, 1989).

In economic analysis, inflation is an important issue as it can influence economic stability and the welfare of society. A good understanding of the causes and effects of inflation is necessary to design appropriate economic policies to address inflation challenges and achieve sustainable economic growth (Parkin & Bade, 2017).

METHOD

This research is a desk study that utilizes secondary data for a period of 10 years, from 2013 to 2022. The required data includes wages, population growth, economic growth, inflation, and the unemployment rate in Central Java. The independent variables in this study are wages, population growth, economic growth, and inflation. The dependent variable in this study is the unemployment rate in Central Java. The research object comprises 35 districts and cities in Central Java. Data analysis is conducted using Multiple Linear Regression with the assistance of SPSS version 25.

RESULT

The results of the Multiple Linear Regression calculation are presented in the following Table 2.

Table 2. Multiple Linear Regression Analysis

Variable	Regression Coefficient	t-value	Sig.	Description
Contant	-16329.652			
Wages X_1)	-0,018	3,490	0,001	Significant Negative
Population Growth (X_2)	0,071	22,539	0,000	Significant Positive
Economic Growth (X_3)	3662.595	2,296	0,023	Significant Positive
Inflation (X_4)	349,601	0,623	0,534	Significant Positive

Source : Results of Data Analysis, 2023

Table 2 shows that the regression equation obtained from the analysis is:

$$Y = -16329.652 - 0,018X_1 + 0,071X_2 + 3662,595X_3 + 349,601X_4$$

From the regression equation above, it is found that there is a negative effect of X1 on Y; a positive effect of X2 on Y; a negative effect of X3 on Y; and a positive effect of X4 on Y.

Hypothesis Test

Based on the test results shown in Table 2, the p-value for wages is 0.001. Since the p-value is smaller than the significance level α = 5% or 0.001 < 0.05, it can be concluded that wages have a significant influence on the unemployment rate in Central Java in the last decade.

Based on the test results shown in Table 2, the p-value for population growth is 0.000. Since the p-value is smaller than the significance level α = 5% or 0.000 < 0.05, it can be concluded that population growth has a significant influence on the unemployment rate in Central Java in the last decade.

Based on the test results shown in Table 2, the p-value for economic growth is 0.023. Since the p-value is smaller than the significance level α = 5% or 0.023 < 0.05, it can be concluded that economic growth has a significant influence on the unemployment rate in Central Java in the last decade.

Based on the test results shown in Table 2, the p-value for inflation is 0.534. Since the p-value is larger than the significance level α = 5% or 0.534 > 0.05, it can be concluded that inflation does not have a significant influence on the unemployment rate in Central Java in the last decade.

Coefficient of Determination

The coefficient of determination is used to measure the extent of contribution of independent variables to the dependent variable. The results of the coefficient of determination are shown in Table 3 below:

Table 3. The coefficient of determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,435	0,575	0,546	39553,45154

Sources : Results of Data Analysis, 2023

The value of the Adjusted R-square (R^2) of 0.546 indicates that the contribution of the variables: wage, population growth, economic growth, and inflation to the unemployment rate in Central Java over the past decade is 54.6%. The remaining 45.4% is explained by other variables outside the four variables examined in this study.

The Influence of Wages on the Unemployment Rate in Central Java Over the Past Decade

Based on the test results, it was found that wages have a significant negative effect on the unemployment rate in Central Java. This study is in line with the research by Pratomo & Setyadharma (2019) who found that wages have a significant impact on unemployment. Additionally, Bicerli & Kocaman (2019) in their study found that when the wages offered by the labor market increase, jobs tend to be more attractive to prospective employees. Higher wages can serve as an incentive for individuals to actively seek and accept employment, reducing the number of people who are inactive job seekers or unemployed.

Furthermore, higher wages can increase the motivation of job seekers to participate more actively in job searching. When the offered wages meet or exceed the cost of living and living standards, they are more motivated to continue job hunting and strive to engage in the labor market. A fair wage rate can also increase the labor supply, as more people will be interested in joining or staying in the labor market. With an increased labor supply, the likelihood for companies to find suitable employees for their needs becomes greater, thereby reducing the unemployment rate.

The Influence of Population Growth on the Unemployment Rate in Central Java Over the Past Decade

Based on the test results, it was found that population growth has a significant positive effect on the unemployment rate in Central Java. This finding is consistent with Yusuf's research (2021) which found that population growth has a significant impact on unemployment in Somalia. Additionally, in the study by Ali et al. (2021), it was found that population growth has a significant impact on the high unemployment rate in Zanzibar.

The results of this study implicitly indicate that an increase in the population in Central Java also leads to an increase in the number of open unemployment. This can happen due to the imbalance between the growth of the population and the available labor demand. Consequently, more people are searching for jobs, but not all of them can be accommodated as the requirements for job applications become higher. As a result, the number of open unemployment in Central Java increases over time. Furthermore, policies to control population growth have not been entirely successful, so local governments need to reintroduce programs such as family planning (KB) to control the growth rate of the population.

Rapid population growth can lead to an increase in the number of labor force with similar educational and qualification levels. If the job market cannot absorb all the labor force with certain educational and qualification levels, the unemployment rate will increase as many individuals cannot find jobs that match their qualifications. In some industries, rapid population growth can present challenges in coping with technological advancements and automation. If companies shift to automation to improve efficiency, it can reduce the need for human labor and lead to an increase in the unemployment rate.

Population growth can also lead to a concentration of people in specific areas, resulting in geographic disparities between labor supply and demand. Some areas may experience high unemployment rates while others face labor shortages.

The Influence of Economic Growth on the Unemployment Rate in Central Java Over the Past Decade

Based on the test results, it was found that economic growth has a significant negative effect on the unemployment rate in Central Java. This finding is consistent with the research by Diakhoumpa (2020) which found that economic growth has a significant impact on unemployment in Senegal. However, this result contradicts the study by Pratomo & Setyadharma (2019).

This indicates that there is a relationship between the existing economic growth and the unemployment rate. This could be because economic growth leads to increased labor demand in Central Java, or policies promoting economic growth may tackle unemployment by creating growth in labor-intensive sectors, thus influencing the unemployment rate in the region.

Economic growth has a significant negative impact on the unemployment rate due to the interconnection between economic growth and the demand for employment in the economy. Strong and sustained economic growth tends to create more job opportunities across various sectors. Expanding companies require more labor force to meet the rising production demands. As a result, job opportunities for both men and women increase. Economic growth is often driven by increased investments in infrastructure, industries, and technology. These investments create new job opportunities and stimulate the emergence of new or rapidly growing industries. Technological innovation can also create a demand for workers with specific skills, thereby reducing the unemployment rate.

Positive economic growth can also enhance the purchasing power of the population, leading to increased consumption of goods and services. Increased consumption generates higher demand across economic sectors, consequently requiring additional labor force.

Overall, the significant negative impact of economic growth on the unemployment rate can be attributed to the dynamics of job creation and increased demand for labor in a growing economy.

The Influence of Inflation on the Unemployment Rate in Central Java Over the Past Decade

Based on the test results, it was found that inflation does not have a significant effect on the unemployment rate in Central Java. This finding is in line with the research by Ramzan (2021) which found that inflation does not have a significant impact on unemployment in Pakistan. This means that there is no relationship between inflationary increases and the existing unemployment rate. This could be because inflation does not affect sectors related to labor demand, allowing companies to operate normally without the need for financial efficiency measures that could lead to layoffs.

Changes in inflation do not directly impact the unemployment rate immediately. The labor market's response to inflationary changes tends to have a lag due to the time required for wage and price adjustments and economic decision-making by companies and individuals. Many employment contracts and wage agreements have provisions that establish periodic adjustments, for example, annually. During this period, the inflation rate may fluctuate, but its impact may not be immediately evident on the unemployment rate since wages have already been set beforehand.

Employers are more likely to adjust their operations to inflation fluctuations rather than immediately reducing the workforce when inflation increases. Employers may try to improve efficiency or adjust the prices of their products to cope with inflationary pressures before considering workforce reductions. If inflation remains within a moderate range considered normal, these changes may not be significant enough to drastically affect the unemployment rate. Typically, low or moderate inflation rates are seen to have a limited impact on the unemployment rate.

CONCLUSION

Based on the data analysis and discussion, it can be concluded that wages have a significant negative effect on the unemployment rate in Central Java over the past decade. Higher wages can increase the motivation of job seekers to actively participate in job hunting. When wages offered are in line with or exceed the cost of living and living standards, individuals are more motivated to continue seeking employment and engage in the labor market.

Population growth has a significant negative effect on the unemployment rate in Central Java over the past decade. With an increasing population in Central Java, the number of open unemployment also rises. This imbalance between population growth and labor demand results in a situation where many job seekers cannot find suitable employment due to the increasing requirements for job applications. Consequently, the number of open unemployment increases over time in Central Java.

Economic growth has a significant negative effect on the unemployment rate in Central Java over the past decade. This means there is a relationship between economic growth and the unemployment rate. Economic growth leads to increased labor demand in Central Java, or policies that foster economic growth can mitigate unemployment by promoting growth in labor-intensive sectors, thereby influencing the unemployment rate in Central Java.

Inflation has no significant effect on the unemployment rate in Central Java over the past decade. This might be because inflation does not affect sectors related to labor demand, allowing companies to operate normally without the need for financial efficiency measures that could lead to layoffs. The impact of inflation on the unemployment rate may have a delayed response due to the time required for wage and price adjustments and decision-making by companies and individuals. Furthermore, moderate inflation rates are generally seen to have limited effects on the unemployment rate.

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