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MORALITY BEFORE KNOWLEDGE

The influence of regional minimum wages on unemployment rates in Indonesia: Multiple linear regression analysis

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ABSTRACT

Background: This study investigates the influence of regional minimum wages (RMW), gross domestic product (GDP), and inflation on Indonesia's unemployment rates from 2012 to 2020. **Methods:** Multiple linear regression analysis examines the relationships between these economic variables. **Findings:** The findings reveal that RMW significantly negatively affects unemployment rates, indicating that a 1% increase in the minimum wage leads to a 3.951% decrease in unemployment, ceteris paribus. GDP also exhibits a significant negative influence, aligning with Okun's law, which suggests an inverse relationship between economic growth and unemployment. In contrast, inflation does not significantly impact unemployment rates during the studied period. Collectively, the three variables positively and significantly affect Indonesia's unemployment rate, with an adjusted R-squared value of 0.749. This implies that 74.9% of the variation in unemployment can be explained by GDP, inflation, and minimum wages, while other factors account for the remaining 25.1%. **Conclusion:** The study highlights the complex interplay between these macroeconomic indicators and unemployment, providing insights for policymakers to develop effective strategies for managing employment challenges in Indonesia. **Novelty/Originality of this article:** This empirical analysis reveals the dynamic relationship between RMW, GDP, inflation, and unemployment in Indonesia (2012—2020). The findings provide an evidence-based basis for formulating more effective and responsive employment and economic policies for Indonesia's labour market conditions.

KEYWORDS: GDP; Indonesia; inflation; regional minimum wage; unemployment rate.

1. Introduction

Economic development is essentially a series of policies aimed at improving people's living standards, expanding employment opportunities, and equalizing income. In Indonesia's economic development, employment opportunities are still a significant problem (Yulianita et al., 2023). This is because there is an imbalance between the number of jobs and the number of people who need work, where the number of people who need work is greater than the number of jobs available.

Indonesia is one of the countries where the main problem faced is the high unemployment rate. If this problem is not addressed immediately, it will cause social insecurity and potentially lead to poverty. Indonesia is also still faced with the dilemma of economic conditions that experience internal imbalances and external imbalances. Internal imbalances occur with indicators that the level of national output and the level of

employment opportunities in Indonesia do not reach full employment opportunities (unemployment). In contrast, external imbalances occur with indicators that the level of national output only shows an increasing level of gross domestic product (GDP), but is not followed by the welfare of the community as indicated by wages (Indonesian Banking Statiscm, 2015).

Unemployment is a problem that needs to be solved in the Indonesian economy because it is not only a social problem, but also an economic problem. This is because unemployment, apart from causing social issues, also influences Indonesia's economic growth. Table 1 presents data on the unemployment rate in Indonesia from 2012 to 2020.

Table 1. Unemployment rate in Indonesia 2012—2020

Year	Unemployment rate (%)
2012	6.13
2013	6.17
2014	5.94
2015	6.18
2016	5.61
2017	5.5
2018	5.3
2019	5.23
2020	7.07

(Central Bureau of Statistics, 2020)

Based on Table 1, it can be seen that the number of unemployment fluctuates and has increased in 2020. This shows that Indonesia is experiencing a severe problem, so the government needs to take intensive handling so that the number of unemployed people can be reduced as much as possible. Many factors increase the unemployment rate in Indonesia.

The first factor that can affect the number of unemployed is GDP. According to Silaban et al. (2020), GDP influences the number of working people. If the value of GDP increases, the amount of value-added output in all economic units in a region will increase. The increased output will cause an increase in the amount of labour absorption requested. The following table shows Indonesia's GDP percentage in 2012—2020.

A factor that can influence the number of unemployed is the minimum wage. Wages are one of the factors that influence the unemployment rate. The emergence of unemployment is due to an increase in the minimum wage which will reduce the demand for labour, whereas from the labour side wages are what should be received in return for their time and energy. The minimum wage set by the Indonesian government continues to increase from year to year, causing the demand for labour to decrease. See the Table 2 below.

Table 2. Regional minimum wage (RMW) in Indonesia 2012—2020

Year	Regional minimum wage (rupiah)
2012	1.088.903
2013	1.296.908
2014	1.584.391
2015	1.790.342
2016	1.997.819
2017	2.079.618
2018	2.268.874
2019	2.455.662
2020	2.672.371

(Central Bureau of Statistics, 2020)

Based on Table 2, it can be seen that the minimum wage level for workers in Indonesia from 2012—2020 has increased every year. This is due to economic growth, which has increased yearly. Increasing wage levels will have an impact on employment in the future. The determination of wage levels must be in accordance with income, which provides a decent standard of living for humanity.

According to Tutupoho (2019), unemployment is one of the socio-economic benchmarks used to assess the success of government development in a country or region. Many negative social problems arise due to increasing unemployment. Unemployment in Indonesia until 2020 shows that the number of people classified as unemployed is still relatively high. This indicates that the Indonesian government's policies in overcoming the unemployment problem have not been optimal.

UMR is the minimum wage that applies to one region, namely one province or regency/city. Minimum wage is a minimum (lowest) monthly income as compensation from employers to employees for work or services that have been or will be performed and expressed or valued in the form of money determined based on an agreement or statutory regulations and paid based on a deal of work between employers and employees including benefits, both for the employees themselves and for their families. Companies operating in an area must adjust their lowest wages to the minimum wage in that area. Provisions regarding the *UMR* are contained in the Minister of Manpower Regulation Number 1 of 1999 concerning minimum wages (Ramadhan & Bukhari, 2020).

Wages, according to Article 1 of Law Number 13 of 2003 concerning employment, are the rights of workers/labourers which are received and expressed in the form of money as compensation from entrepreneurs or employers to workers/labourers, which are determined and paid according to a work agreement, agreement or statutory regulations. - invitations, including allowances for workers/labourers and their families for work and or services that have been or will be performed. The amount of wages and method of payment that the worker and entrepreneur have agreed upon are stated in the work agreement in writing. The main purpose of setting a minimum wage is a safety net, which prevents wages from continuing to decline below workers' purchasing power. Therefore, the minimum wage must support purchasing power so that workers can meet the standard level of basic needs. The government sets the minimum wage because it only reaches a small number of workers/labourers. Apart from that, the minimum wage is also often used as a standard wage to determine wages in companies (Izzaty & Sari, 2013).

Wages are remuneration a company or organization provides to workers in an amount agreed upon by both parties. RMWs are divided into two, namely minimum wages (the amount of wages received) and real wages (the number of goods and services that can be purchased with the wages). The government issues the minimum wage decree based on proposals or input from the Wage and social security commission from the regional labour council regarding the company's obligation to pay wages to workers at the lowest level (Rahyu et al., 2022).

The minimum wage policy has become an essential issue in employment in several developed and developing countries. This minimum wage policy aims to cover the minimum living needs of workers and their families. The minimum wage policy guarantees workers' income so that it is not lower than a certain level, increases worker productivity, and develops and improves companies with more efficient production methods (Sabyan & Widyanti, 2022).

The unemployment rate is a condition or situation where a person in the workforce does not work at all and is actively looking for work at a certain wage level, which is expressed as a percentage. Unemployment is a problem that cannot be taken lightly. It greatly influences the condition of a region because the number of unemployed individuals indicates the progress of a region's economy, which can show whether the level of income distribution is equal in that region (Mentari & Yasa, 2016).

Unemployment is a macroeconomic problem that directly affects human life. Unemployment is currently a significant problem that must be resolved immediately. The increase in unemployment in developing countries is caused by slow growth in employment opportunities rather than rapid growth in the labour force. High unemployment is an economic and social problem; unemployed people can one day lose their self-confidence, leading to criminal acts and disputes with society (Wahyuni et al., 2018).

One indicator that can be used to measure the unemployment rate is the open unemployment rate (*TPT*). The large *TPT* value indicates the size of the unemployed

working-age population. Open unemployment consists of people who do not have a job, are looking for work, are preparing a business and someone who is not looking for a job because they feel it is impossible to get a job, as well as someone who already has a job but has not yet started working. One factor causing high unemployment levels is population growth. Basically, population increase has two different sides. A large population is an asset in achieving national development goals, but on the other hand, with inappropriate arrangements, a large population can give rise to very crucial population problems, especially in the field of employment (Mahroji & Nurkhasanah, 2019).

The economic development of a country is measured by economic growth, which shows the growth of the production of goods and services in an economic region at a certain time interval. This production is measured in terms of the value added by economic sectors in the area, which in total is known as GDP. GDP is one indicator of the success of economic growth. Economic growth is one of the most important indicators in measuring the success of economic development in a country. Economic growth measures the extent to which the country's economic activity will generate additional income for the community in a certain period (Bonokeling, 2016).

GDP is the sum of products in the form of goods and services produced by production units in a country (domestic) during one year. This GDP calculation consists of state revenues obtained from the production of goods and services produced by companies or foreigners operating in the territory of the country concerned. The goods produced include capital goods for which depreciation has not been taken into account. Hence, the amount obtained from GDP is considered gross or gross. To a certain extent, the GDP per capita figure can reflect the productivity level of a country. The GDP value of a certain period actually results from multiplying the price produced by the number of goods produced. To compare productivity between countries, several things need to be considered, namely the number and composition of the population, the number and structure of employment opportunities, and economic factors (Retnowati & Nalle, 2022).

One way to measure GDP is using the income approach, which sums corporate profits, employee compensation, and taxes on production and imports. When the U.S. Bureau of Economic Analysis (BEA) measures GDP using this approach, it relies on the annual tabulation of corporate income tax returns prepared by the Internal Revenue Service (IRS) as its primary source of corporate profit information. Although accounting profits differ from taxable income and exclude profits from private firms, aggregate accounting profits are an attractive ex-ante proxy for corporate profits for at least two reasons. First, corporate income tax return data are less timely, whereas accounting earnings data are reported immediately after the end of the quarter. Second, prior literature suggests that accounting earnings predict future cash flows better than current ones (Konchitchki & Patatoukas, 2014).

Inflation is one of the economic indicators that has an indirect negative influence on issuers and the capital market. The impact of inflation is felt directly by the company (inflation occurs in the long term), namely the swelling of the company's production costs. This high cost will affect the price of the company's increased products. This increase in the price of goods may not necessarily be matched by the ability or purchasing power of the community. If this happens, it will certainly affect the company's declining profitability, so that the dividends received by shareholders will also decrease and result in the diversion of funds by investors to other more profitable investments (Salim & Fadilla, 2021).

The relationship between stock prices and investment is that the higher the interest, the stronger the desire to invest. The reason an entrepreneur will increase his investment expenditure is if the expected profit from investment is greater than the interest that must be paid for investment funds; the lower the interest rate, the entrepreneur will be encouraged to invest because the cost of using funds is also less (Hidayat et al., 2017). The exchange rate is a foreign currency exchange rate against another currency. Similarly, there will be an exchange between two different currencies where there will be a comparison of values or prices between the two currencies. The effect of fluctuations in the value of the rupiah against a stable foreign currency will affect the investment climate in the country.

The inflation of imported commodities in Indonesia is also influenced by rising prices (imported inflation) and ballooning foreign debt due to the depreciation of the rupiah against the US dollar and other foreign currencies. These drastic jumps in the exchange rate will make it difficult for producers to obtain raw materials, capital goods and capital goods that have a high import content it will then have an impact on increasing the cost of importing goods for the production process so that it will affect the domestic price level which is a reflection of the inflation rate (Panjaitan & Wardoyo, 2016).

2. Methods

This research uses a quantitative approach, meaning that quantitative research explains a phenomenon in depth and is carried out by collecting data as much as possible. The research method used to determine the research location is the purposive or deliberate selection of the place. Sampling was carried out deliberately because there was a certain reason so that it could follow the purpose of the research. This selection was based on certain considerations in accordance with the research objectives.

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The recording technique is a data collection technique using a recording medium by the researcher about important data or information obtained from the research subject and recording secondary data from agencies or institutions related to this research. This is the opinion of Hasanah (2016), who states that recording or recording is an effort to record events with field notes, category systems, and other methods. Recording can help to remember the events observed. Researchers chose Indonesia as the place of research. Indonesia was chosen because of various considerations, including Indonesia has become a developed country, but still has unemployment-related problems. The next consideration is that Indonesia had a large labour force from 2012 to 2020, as shown in Table 3.

Table 3. Labour force in Indonesia 2012—2020

Year	Workforce (person)
2012	119.849.734
2013	120.172.003
2014	121.872.931
2015	122.380.021
2016	125.443.748
2017	128.062.746
2018	133.355.571
2019	135.859.695
2020	138.221.938

Based on Table 3, it can be seen that Indonesia has a labour force that continues to increase from year to year. The highest number in the labour force in 2020 was 138.221.938 people. This number shows that more and more Indonesians need jobs from year to year. Data is information about something. It can be something that is known. Data is described through numbers, symbols, codes, and others. The type of data used in this research is quantitative data, namely statistical data based on its nature obtained from existing sources. Meanwhile, the data source used as research material is secondary data. Secondary data has been collected by data collecting institutions or agencies and published to the data user community. The secondary data used is data on Gross Domestic Product, inflation, and minimum wage collected from a related agency, namely the Central Bureau of Statistics.

Multiple linear regression is a linear regression analysis used to determine the relationship of a dependent variable (Y) with two or more independent variables (X). The

regression function is closely related to the correlation test (Pearson Correlation), as this regression test is a continuation of the correlation test. This paper is compiled using multiple regression data analysis techniques, specifically the ordinary least square (OLS) method. Multiple regression is the relationship between two or more independent variables $(X_1, X_2, X_3...X_n)$ with the dependent variable (Y). This analysis is to determine the relationship between the independent variables and the dependent variable, whether each independent variable has a positive or negative relationship, and to predict the value of the dependent variable if the value of the independent variable increases or decreases (Smalheiser, 2017). The data used is usually on an interval or ratio scale. The equation for multiple linear regression is as follows.

$$Y = A + B_1X_1 + B_2X_2 + B_3X_3 + \mu \qquad \text{(Eq. 1)}$$

In the regression model used, the intercept (A) represents the starting point or value of unemployment when all independent variables are zero. The regression coefficients (B_1, B_2, B_3) represent the amount of influence each independent variable has on the dependent variable. For example, B_1 shows how much influence gross domestic product has on unemployment, B_2 describes the influence of inflation, and B_3 represents the influence of the regional minimum wage. In addition, this model also considers the error term (μ) which represents other factors that are not included in the model, but still affect unemployment. This error term is important to ensure that the model is not only dependent on the variables included, but also takes into account variables that may not be measured directly but affect the results.

Then, hypothesis testing is an important step in statistical analysis to determine whether there is an influence between the independent and dependent variables. One of the methods used is the *t* test, which aims to measure how much influence the independent variable individually has on the dependent variable (Bevans, 2020). If the significance level in the sig. column is smaller than the significant level (α) of 5%, then the alternative hypothesis (Ha) is accepted, which means that the independent variable has an effect on the dependent variable. However, if the significance level is greater than 5%, then the null hypothesis (H_0) is accepted, which indicates that the independent variable has no influence individually.

In addition to the *t* test, the F test is also carried out to test the effect of the independent variables on the dependent variable, but as a whole or together. This test helps in assessing whether the combination of all independent variables in the regression model affects the dependent variable. As in the *t* test, the guideline used is based on the level of significance. If the significance level in the sig. column is smaller than 5%, the alternative hypothesis is accepted, which means that all independent variables jointly affect the dependent variable.

Conversely, if the significance level is greater than 5%, the null hypothesis is accepted, which indicates that there is no collective effect of the independent variables on the dependent variable. Thus, both the t-test and the F-test are important tools in hypothesis testing, each of which focuses on the individual and collective effects of the independent variables on the dependent variable. An understanding of these two tests helps the researcher in evaluating the regression model used, whether the variables included in the model actually affect the expected results.

The coefficient of determination (R^2) is used to measure how well the regression model is able to explain the variation in the dependent variable. Its value ranges from zero to one, where a value close to one indicates that the independent variable is almost completely able to predict the dependent variable (Chicco et al., 2021). In this study, because it involves more than two independent variables, adjusted R^2 is used which provides more accurate results compared to ordinary R^2, especially when there are several independent variables. In addition, before proceeding to regression analysis, a classical assumption test is required to ensure that there are no problems that can interfere with the validity of the model, such as normality, multicollinearity, heteroscedasticity and autocorrelation problems. The

normality test is conducted using the Kolmogorov-Smirnov Z test to see the distribution of the data. Multicollinearity test uses Tolerance Value and Variance Inflation Factor (VIF), where VIF value above 10 indicates multicollinearity. The heteroscedasticity test is conducted through the Scatter plot to see if there is a pattern in the residual variation, while the autocorrelation test uses the Durbin-Watson test to detect any correlation in confounding errors between time periods or space.

This classic assumption test is important to ensure that the regression model used can produce valid and reliable results. If these assumptions are not met, the results of the regression analysis can be misleading and affect the conclusions of the study. Thus, this process is a crucial first step before researchers can make proper interpretations of the results of statistical analysis.

3. Results and Discussion

3.1 The effect of regional minimum wage on the unemployment rate

Indonesia is the 14th largest country and the largest archipelago in the world, with an area of 1.904.569 km^2, and the 6th largest island country, with 17.504 islands. Indonesia is one of the countries in Southeast Asia that is crossed by the equator and is located between the continents of Asia and Australia, as well as between the Pacific Ocean and the Indian Ocean (FAO, 2022). Astronomically, Indonesia is located between 6° 04' 30'' North latitude and 11° 00' 36'' South latitude and between 94° 58' 21'' to 141° 01' 10'' East longitude and is traversed by the equator line, which lies at 0° latitude.

Indonesia is the largest archipelago in the world, consisting of 17.504 small and large islands, of which about 6000 are uninhabited. Indonesia's population was 271.9 million in 2020, making it the fourth most populous country in the world. Its natural resources include petroleum, tin, natural gas, nickel, timber, bauxite, fertile soil, bricks, fisheries, gold and silver, with a land division consisting of agricultural land by 10%, plantations by 7%, grasslands by 7%, forests and wooded areas by 62%, and others by 14% with an irrigated land area of 45,970 km^2.

Abundant natural resources support the needs of the Indonesian population, such as food, fuel, clothing, and employment. However, in reality, abundant natural resources do not affect abundant employment opportunities as well. This is one of the causes of the high unemployment rate in Indonesia. In addition, a rapidly growing population can create pressure on the labour market, so the unemployment rate can increase if there are not enough jobs available for all job seekers. The unemployment rate in Indonesia is also affected by regional inequality. Some regions may have more limited employment opportunities than other regions. This can lead to labour migration from regions with high unemployment rates to regions with better employment opportunities.

Based on the results of the tests that have been carried out, it was found that the RMW variable has a negative and significant influence on the unemployment rate in Indonesia. Based on the t-test, the results obtained were that the RMW variable had a significance level of 0.011 < 0.05 and had a coefficient value of -3.951. These results show that for every 1% increase in the RMW, the unemployment rate will decrease by 3.951% and vice versa, assuming other independent variables. Workers who set their minimum wage level at a certain wage level, if all the wages offered are below that wage level, a worker will refuse to get that wage, and as a result, this will cause unemployment. If the wages set in an area are too low, it will result in many unemployed people in that area. However, from the entrepreneur's perspective, if wages increase and the costs incurred are quite high, this will reduce expenditure efficiency, so entrepreneurs will adopt a policy of lowering labour to reduce production costs. This will increase unemployment.

Economist Arthur Okun (1962) suggested that there is a link between GDP and the unemployment rate. The explanation of the relationship is known as Okun's law. Okun's law explains that there is a negative relationship between unemployment and GDP, where a 1 per cent decrease in the unemployment rate is associated with GDP growth of close to 2 per

cent. In other words, GDP, which is the national GDP, has a positive influence on employment, so if there is an increase in the amount of GDP, it will affect the increase in employment, and vice versa; a decrease in the amount of GDP will affect the decline in employment.

Thus, the results of this study follow Okun's Law, where when GDP increases, there will be labour absorption, and the number of unemployed will decrease. In addition, the results of this study follow classical theory, which has the view that there is a relationship between output growth (Lee et al., nn) and population. In classical economic theory, population reflects the amount of labour available. GDP is the output value of goods and services in the national economy. In the classical view, increasing production in producing output can be done by increasing the use of labour or by increasing productivity through improving the quality of the existing workforce. This follows the opinion of Suhadi & Setyowati (2022), which states that an increasing GRDP will have an influence on the number of unemployed because the amount of value added of final goods and services in all economic units in a region will increase, so that an increase in the value added of final goods and services can absorb higher labour.

3.2 Classical assumptions test

The multicollinearity test aims to detect whether there is a high correlation between the independent variables in the regression model. If the independent variables have a high correlation, the results of the regression analysis may be less valid. To test for multicollinearity, the tolerance value and Variance Inflation Factor (VIF) are used. Based on the test results in Table 4, all independent variables, namely GDP, inflation, and *UMR*, have VIF values below 10 and tolerance above 0.1, which indicates the absence of multicollinearity symptoms in this model.

Tabel 4. Multicollinearity test

Model (Constant)	Collinearity Statistics	
	Tolerance	VIF
GDP	0.328	3.049
Inflation	0.498	2.008
UMR	0.249	4.010

Furthermore, the heteroscedasticity test is conducted to ensure that the residual variance remains the same from one observation to another. The scatterplot results in Fig. 1. show that the points spread randomly and do not form a particular pattern, which means there is no heteroscedasticity problem. This indicates that the regression model used is feasible to predict the dependent variable, the unemployment rate, based on the independent variables of GDP, inflation, and minimum wage.
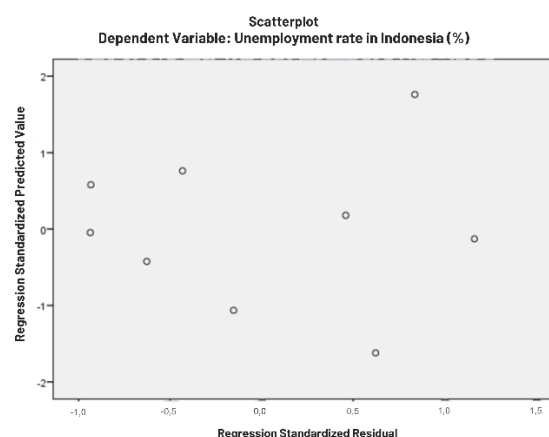

Fig. 1. Heteroscedasticity test chart

For the autocorrelation test, the Durbin-Watson result in Table 5 below shows a value of 1.271. With a dL value of 0.4548 and a dU of 2.1282, the DW value is between dU and 4-dU, so it can be concluded that there is no autocorrelation in this model. The table of autocorrelation test as follows.

Tabel 5. Autocorrelation test

Model	R	R^2	Adj. R^2	Std. Error of the Estimate	Durbin-Watson
1	0.918	0.843	0.749	0.28739	1.271

Based on the classification of DW (Durbin-Watson), (Jeong & Chung, 2001) values, namely α = 5%, k = 3, n = 9, the following results are obtained: dL = 0.4548; dU = 2.1282; 4-dL = 3.5452; 4-dU = 1.8718. These classification results and Fig. 2. have proven the way of obtaining dL and dU. The following is Fig. 2. which has clarified the autocorrelation process. In addition, the normality test using the Kolmogorov-Smirnov method (Mishra et al, 2019) shows that the data distribution is normally distributed, with a Z value below 1.97, which means that the data matches the theoretical distribution and is valid for use in regression analysis. Each variable has a sample size (N) of 9. The "Normal Parameters" section shows the mean and standard deviation for each variable (Muktiadji et al., 2024), indicating the central tendency and variability of the data. For instance, the mean for GDP is 5.0344 with a standard deviation of 0.91350, while the mean for UMR is 1.914.987.56 with a standard deviation of 526.121.066.

Fig. 2. Autocorrelation test

The "Most Extreme Differences" section shows the absolute, positive, and negative deviations between the observed data and the expected normal distribution. These values provide an indication of how closely the data matches a normal distribution. The critical part of the test is the "Test Statistic" and the corresponding "Asymptotic Significance (2-tailed)" values. The test statistic for GDP is 0.300, and its significance value (Asymp. Sig.) is 0.19, which is greater than 0.05. This suggests that the GDP data is normally distributed. Similarly, *UMR* and the Unemployment Rate also show significance values greater than 0.05 (0.200 each), indicating normal distribution. However, inflation has an asymptotic significance of 0.046, which is less than 0.05, suggesting that the inflation data may not follow a normal distribution.

Table 6. One-sampel kolmogorov smirnov test

		GDP	Inflation	*UMR*	Unemployed rate
N		9	9	9	9
Normal Parameters[a,b]	Mean	5.0344	4.2833	1914987,56	5.9033
	Std. Deviation	0.91350	2.42059	526121,066	0.57311
Most Extreme Differences	Absolute	0.300	0.276	0,118	0.204
	Positive	0.202	0.276	0,102	0.204
	Negative	-0.300	-0.176	-0,118	-0.120
Test Statistic		0.300	0.276	0,118	0.204
Asymp. Sig. (2-tailed)		0.19	0.046	0,200	0.200

3.3 Multiple linear regression analysis

Multiple linear regression analysis was used to determine the direction of the relationship between the GDP, inflation and minimum wage variables and the unemployment rate variable. The regression equation can be seen from the coefficien *t* test results table based on SPSS output on the three independent variables. Output the tree independent variables can be seenn from Table 7 as follows.

Table 7. SPSS output on the three independent variables

Model	B	Std. error	Beta	t	Sig.
Constant	13.898	1.667		8.337	0.000
GDP	-1.002	0.194	-1.597	-5.157	0.004
Inflation	-0.006	0.059	-0.025	-0.101	0.923
UMR	-1.528E-6	0.000	-1.403	-3.951	0.011

(Processed SPSS 22 output, 2023)

Based on Table 7, it can be seen that the constant value is 13.898 and the regression coefficient B1 is -1.002; B2 -0.006; B3 -1.528E-6 so that the following regression equation is obtained. A constant value of 13.898 means that if the variables GDP X_1, inflation X_2, and *UMR* X_3 have a value of 0 or have a constant effect, then the unemployment rate (Y) is 13.898. The GDP regression coefficient value is -1.002. This means that every 1% increase in GDP will cause a decrease in the unemployment rate in Indonesia by 1.002%. The inflation regression coefficient value is -0.006. This means that every 1% increase in inflation will cause a decrease in the unemployment rate in Indonesia by 0.006%. The *UMR* regression coefficient value is -1.528E-6. This means that every 1% increase in the *UMR* will cause a decrease in the unemployment rate in Indonesia by 0.000001528%.

$$Y = A + B_1X_1 + B_2X_2 + B_3X_3 + \mu$$
$$Y = 13.898 + (-1.002)X_1 + (-0.006)X_2 + (-1.528E)^{-6} \qquad \text{(Eq. 2)}$$

The regression results in Table 8 show that the significance level of the independent variables (GDP, inflation, and minimum wage) is 0.019. The value of $0.019 < \alpha = 0.05$. This means that the independent variables (GDP, inflation, and minimum wage) together have a real effect on the dependent variable (unemployment rate).

Table 8. Regression results

Model	Sum of squares	df	Mean square	F	Sig.
Regression	2.215	3	0.738	8.938	0.019
Residual	0.413	5	0.083		
Total	2.628	8			

Inflation is the phenomenon of a generalized and sustained rise in the prices of goods. Inflation generally refers to consumer prices, but it can also refer to other prices, such as wholesale prices, wages, asset prices and so on. Typically, inflation is expressed as a percentage change in an index number. An economy with a high inflation rate can cause changes in output and employment opportunities. The inflation rate impacts the high unemployment rate so that the development of employment opportunities becomes smaller or the amount of labour absorbed will also be smaller.

The result of the test shows that the inflation variable has a negative influence on the unemployment rate in Indonesia. Based on the t-test, the result indicates that the inflation variable has a significance level of 0.923 > 0.05, which indicates that the Inflation variable individually has no real effect on the unemployment rate in Indonesia. The regression coefficient value of the inflation variable is -0.101, so every 1% increase in inflation causes a decrease in the unemployment rate by 0.101%. The results of this test are in line with the

results of research conducted by Bintang & Prana (2020), which states that the inflation variable has no significant effect on unemployment.

The results of this study simultaneously show that GDP, inflation and RMW have a positive and significant effect on the unemployment rate in Indonesia with a probability value (F-statistic) smaller than the α level, namely 0.019 <0.05. The determination test seen from the adjusted R-squared value also shows that it is around 74.9%. GDP, inflation and RMW variables can explain Indonesia's unemployment rate in the 2012—2020 period, while the remaining 25.1% is explained by other factors.

4. Conclusions

The research findings presented here offer a comprehensive understanding of the factors influencing Indonesia's unemployment rates from 2012 to 2020. The three key variables examined are GDP, inflation, and the RMW. The GDP has a significant negative influence on the unemployment rate in Indonesia. This is evidenced by the t-test results, which show a significance level of 0.004, less than 0.05. This indicates that the GDP variable significantly influences the unemployment rate when considered individually. In contrast, inflation has a negative impact on the unemployment rate in Indonesia. However, the t-test results show a significance level of 0.923, which is greater than 0.05. This suggests that the inflation variable does not significantly influence the unemployment rate when considered individually. The RMW also has a significant negative influence on the unemployment rate in Indonesia. The t-test results show a significance level of 0.011, which is less than 0.05, and a coefficient value of -3.951. This indicates that the RMW variable significantly influences the unemployment rate when considered individually. The research findings also indicate that the GDP, inflation, and RMW collectively have a significant positive impact on the unemployment rate in Indonesia. The probability value (F-statistic) is 0.019, which is less than 0.05. The Adjusted R-squared value also shows that approximately 74.9% of the variation in the unemployment rate in Indonesia during the period 2012—2020 can be explained by these three variables. The remaining 25.1% is explained by other factors not included in this study.

The result shows that the GDP variable negatively and significantly influences Indonesia's unemployment rate. Based on the t-test, the significance level of the GDP variable is 0.004 <0.05, so it can be concluded that the GDP variable individually has a real effect on the unemployment rate. The regression coefficient value of the GDP variable is -1.002. This means that every increase in GDP causes a decrease in the unemployment rate in Indonesia by 1.002%. This study's results align with research conducted by Wirawan (2018), where the coefficient is negative, meaning that there is a negative relationship between GRDP and open unemployment; the more GRDP increases, the more open unemployment will decrease in number.

The independent variables, namely GDP, inflation, and RMW, simultaneously have a positive effect on the unemployment rate in Indonesia but do not directly affect it. This can be seen from the probability, which is smaller than the significance level α = 0.05 (5%). The test results simultaneously on the three variables, namely Gross Domestic Product (GDP), inflation, and RMW on the unemployment rate, give a positive and significant influence on the unemployment rate in Indonesia. This can also be seen from the probability value, which is smaller than the significance level, namely 0.019 <0.05, which means that the three variables simultaneously are one of the causes of the unemployment rate of 74.9%, either by increasing or decreasing in Indonesia. Therefore, changes in the unemployment rate in Indonesia can be explained by the independent variables tested.

In conclusion, while these economic factors have an individual impact on the unemployment rate, their collective influence is also significant. Policymakers should consider these findings when formulating strategies to address unemployment in Indonesia. Understanding these variables' complex interplay is crucial to manage and reduce unemployment rates effectively. Further research could explore the other factors

that account for the remaining 25.1% variation in the unemployment rate. This would provide a more holistic understanding of the unemployment situation in Indonesia.

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Author Contribution

This study was collaboratively conducted by R. A., T. A., R.A., A. L., and A. E. R. A., T. A., A. E. was responsible for the research design, data collection, and drafting of the manuscript, while R.A., A. L., A. E contributed to data analysis, interpretation of results, and manuscript revision.

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