



## ANALYSIS OF REGIONAL MINIMUM WAGE DETERMINANTS IN CENTRAL JAVA

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<p><b>Info Article</b></p>	<p><b>Abstract:</b> <i>Wages are important for workers and their families to meet their clothing needs. The minimum wage is the government's determination of the lowest limit that employers should pay to workers for a given period. It is a standard to protect workers from paying poverty wages and to ensure that workers receive fair compensation for their work. . With the minimum wage, the government aims to avoid exploitation of labor and ensure that workers receive sufficient wages to meet their basic needs. The purpose of this study is to identify the factors that influence the regional minimum wage in Central Java. The data used is secondary data from BPS and uses SUR (Seemingly Unrelated Regression) panel model. The results of this study found that Gross Regional Domestic Income, Labor Productivity, Human Development Index and Labor Force Participation Rate have a positive effect on the Regional Minimum Wage in Central Java.</i></p>
<p>Received : 02 September 2024 Revised : 03 Oktober 2024 Accepted : 01 November 2024 Publication : 30 November 2024</p>	<p><i>Wages are important for workers and their families to meet their clothing needs. The minimum wage is the government's determination of the lowest limit that employers should pay to workers for a given period. It is a standard to protect workers from paying poverty wages and to ensure that workers receive fair compensation for their work. . With the minimum wage, the government aims to avoid exploitation of labor and ensure that workers receive sufficient wages to meet their basic needs. The purpose of this study is to identify the factors that influence the regional minimum wage in Central Java. The data used is secondary data from BPS and uses SUR (Seemingly Unrelated Regression) panel model. The results of this study found that Gross Regional Domestic Income, Labor Productivity, Human Development Index and Labor Force Participation Rate have a positive effect on the Regional Minimum Wage in Central Java.</i></p>
<p><b>Keywords:</b> <i>Wages, Minimum Wage, GRDP, Labor Productivity, HDI, Labor Force Participation Rate, Positive, Central Java</i></p> <p><b>Kata Kunci:</b> Upah, Upah Minimum, PDRB, Produktivitas Tenaga Kerja, IPM, Tingkat Partisipasi Angkatan Kerja, Positif, Jawa Tengah</p>	<p><b>Abstrak:</b> Upah merupakan hal penting untuk para pekerja dan keluarganya untuk mencukupi kebutuhan sandang. Upah minimum adalah penentuan pemerintah sebagai batas terendah yang perlu dibayar para pengusaha kepada pekerja untuk suatu periode tertentu. Upah ini merupakan standar untuk memberi perlindungan pekerja dari pembayaran upah yang amat minim dan memastikan bahwa pekerja menerima kompensasi yang layak untuk pekerjaan mereka. Dengan adanya upah minimum, pemerintah bertujuan untuk menghindari eksploitasi tenaga kerja dan menjamin pekerja memperoleh upah yang mencukupi guna pemenuhan kebutuhan dasar mereka. Tujuan dari penelitian ini adalah untuk mengidentifikasi faktor-faktor yang mempengaruhi upah minimi mum regional di Jawa Tengah. Data yang digunakan adalah data sekunder yang berasal dari BPS dan menggunakan model panel SUR (Seemingly Unrelated Regression). Hasil penelitian ini menemukan bahwa Pendapatan Domestik Regional Bruto, Produktivitas Tenaga Kerja, Index Pembangunan Manusia dan Tingkat Partisipasi Angkatan Kerja berpengaruh positif terhadap Upah Minimum Regional di Jawa Tengah.</p>
<p><b>Licensed Under a Creative Commons Attribution 4.0 International License</b></p> 	<p><b>Abstrak:</b> Upah merupakan hal penting untuk para pekerja dan keluarganya untuk mencukupi kebutuhan sandang. Upah minimum adalah penentuan pemerintah sebagai batas terendah yang perlu dibayar para pengusaha kepada pekerja untuk suatu periode tertentu. Upah ini merupakan standar untuk memberi perlindungan pekerja dari pembayaran upah yang amat minim dan memastikan bahwa pekerja menerima kompensasi yang layak untuk pekerjaan mereka. Dengan adanya upah minimum, pemerintah bertujuan untuk menghindari eksploitasi tenaga kerja dan menjamin pekerja memperoleh upah yang mencukupi guna pemenuhan kebutuhan dasar mereka. Tujuan dari penelitian ini adalah untuk mengidentifikasi faktor-faktor yang mempengaruhi upah minimi mum regional di Jawa Tengah. Data yang digunakan adalah data sekunder yang berasal dari BPS dan menggunakan model panel SUR (Seemingly Unrelated Regression). Hasil penelitian ini menemukan bahwa Pendapatan Domestik Regional Bruto, Produktivitas Tenaga Kerja, Index Pembangunan Manusia dan Tingkat Partisipasi Angkatan Kerja berpengaruh positif terhadap Upah Minimum Regional di Jawa Tengah.</p>

## INTRODUCTION

Labor progress plays an important role in rapid economic development, especially related to the production process of a country. One of the objectives of national development is to improve economic performance by opening employment opportunities and managing a better life to achieve prosperity (Wibowo & Khoirudin, 2019). The employment sector is interrelated with social problems such as unemployment, lack of productivity, and also wages that tend to be below the minimum standard (Izzaty & Sari, 2013). The labor market in Indonesia is known for its dualistic policies with high labor supply and low labor quality, but on the other hand, wages are the main focus in the labor sector (Izzaty & Sari, 2013). When a person has a better education, it will increase the opportunity to choose jobs in various sectors (Yuniarti & Sukarniati, 2021). Economic growth can be interpreted as an increase in economic productivity (Jannatunnisa & Khoirudin, 2024).

According to (Izzaty & Sari, 2013), the determination of provincial minimum wage must be based on economic and labor conditions in the area concerned, including considering important variables such as the purchasing power of the community, the level of labor absorption in the area, to the median value of the prevailing wage. Meanwhile, the district/city minimum wage is determined by considering the conditions of economic growth and inflation in the region. district/city minimum wages are set according to the average level of economic development in the district / city in the last 3 years. In addition, income is closely related to changes and improvements in family food consumption, where changes in income can directly affect changes in the consumption of a family (Wahyuni & Sukarniati, 2018). The value of economic growth is a valuable aspect to estimate the achievement of economic development progress in a region (Rengganis & Khoirudin, 2024).

From time to time, the population is getting higher, including encouraging economic activities that are no longer just residential but also commercial (Pujiningsih et al, 2024). Based on the Central Bureau of Statistics (2023), the highest minimum wages in Indonesia was recorded by Karawang Regency with a wage of IDR 5,176,179. Then followed by Bekasi City and Bekasi Regency which are in the second and third positions with figures of IDR 5,158,248 and IDR 5,137,574. The region exceeds the minimum wage of the capital city, DKI Jakarta, which is Rp.4,901,789, followed by wage records in Depok City, Cilegon City and Bogor City.

In Indonesia, one of the main drivers of economic growth is micro and small industry (Hastuti et al, 2024) Central Java is currently known to be the region with the lowest wage in the entire island of Java. The province has the smallest Provincial Minimum Wage (UMP) in Indonesia, at Rp1,958,169.69 in 2023. Meanwhile, the minimum wage in Central Java cannot exceed the UMP. However, the difference between the provincial minimum wage and minimum wage regions is not too large, meaning that Central Java has a relatively low district/city minimum wage. This raises concerns, because minimum wages affect people's ability to fulfill their lives such as education, health, recreation, and security. Therefore, steps are needed to achieve an efficient minimum wage. Below is a graph of the 10 lowest minimum wage regions in Indonesia in 2023:

Figure 1.1. Regions with the Lowest Minimum Wages in Indonesia 2023



Source: BPS

Based on the graph above, the Central Java region dominates the 10 lowest 2023 minimum wages in Indonesia. Banjarnegara Regency, Central Java is the region with the lowest 2023 regions minimum wage in Indonesia with a value of IDR 1,958,170. The next two regions with the lowest minimum wages also come from the same province, Wonogiri Regency, and Sragen Regency. The disadvantages include human resources, facilities, infrastructures and low income level (Suripto & Istanti, 2009). Furthermore,

the world bank emphasizes unequal access to education which can have a long-term impact on the quality of human resources resulting in low wages (Hayat et al, 2023). important to recognize that understanding and addressing this issue must be sustainable (Mufida & Khoirudin, 2024).

According to the Central Statistics Agency (2022), the majority of the livelihoods of Central Java residents are in the processing industry. This indicates that most of the people depend on income from working in this sector. However, setting the minimum wage is usually based on several factors such as economic conditions, inflation rate, consumer price index, and labor market situation. In this regard, economic growth is often used as a measure of a region's economic performance. However, economic growth is not always directly proportional to the level of community welfare in the region. In other words, although a region experiences economic growth, it does not necessarily mean that the welfare of its people has also increased. (Kokop et al, 2024) Table economic growth requires quite large funds or financing, one of which is through investment.

The study of the impact of GRDP, the level of labor productivity, the Human Development Index, and the labor force participation rate in regencies/cities in Central Java Province is particularly relevant as these regions are often in the lower-middle income stage. The purpose of this study is to examine the determinants of minimum wages in the regions of Central Java Province, focusing on the use of the previously mentioned variables in order to obtain a comprehensive overview of the aspects that affect minimum wages. Thus, this study can contribute both in conceptual aspects followed by practical implications for policy makers in Central Java Province, more specifically for the Regency / City government to create a strategy to improve community welfare through an increase in minimum wages.

## **METHOD**

This study uses secondary data and quantitative methodology using annual data of 245 observations, the objects studies are 35 city and district in Central Java for the period the time span of 2017 to 2023. This statistical analysis was carried out using Stata 17 software. The data used was obtained from the Central Statistics Agency (BPS) website. This research uses the Seemly Unrelated Regression (SUR) panel data regression method. Descriptive analysis was generated for 5 variables, namely City Minimum Wage

(Y), GRDP (X1), Labor Productivity (X2), HDI (X3), and Labor Force Participation Rate (X4). The following is a brief explanation of each variable:

Table 2.1 Operational Definition

Variabel	Definition	Parameters	Symbol	Unit
<b>Regional Minimum Wage</b>	The lowest wage (including fixed benefits, but excluding overtime compensation) given to employees based on their position or type of work.	BPS	UMK	Million Rupiah
<b>Gross Regional Domestic Product (GRDP)</b>	The total services earned by the various factors of production that contribute to a country's production process over a period of time (generally one year).	BPS	PDRB	Billion Rupiah
<b>Labor Productivity</b>	The efficiency of labor calculated by comparing GRDP to the number of workers. It can illustrate the macroeconomic level of worker output.	BPS	PTK	Billion/ People
<b>Human Development Index (HDI)</b>	A composite measure used to assess development achievements in terms of human quality of life.	BPS	IPM	Indeks
<b>Labor Force Participation Rate</b>	The ratio of the economically active population to the total population of working age.	BPS	TPAK	Persentase

The use of panel data regression is expected to provide consistency between theory, testing and estimation results. Econometric models are applied in this panel data analysis to help find research results. The basic model equation is as follows:

$$UMK_{it} = \alpha + \beta_1(PDRB)_{it} + \beta_2(PTK)_{it} - \beta_3(IPM)_{it} - \beta_4(TPAK)_{it} + et$$

Where UMK is the Regional Minimum Wage,  $\alpha$  is a constant;  $\beta_1, \dots, \beta_6$  are regression coefficients; PDRB is gross regional domestic product; PTK is labor productivity; IPM is human development index; and TPAK is labor force participation rate.  $i$  is for cross-section;  $t$  is for time series; and  $et$  is error term.

In this study, a panel data regression test was conducted, which resulted in the finding that the study did not pass the heteroscedasticity test. By using SUR, researchers

can overcome classical assumption violations and improve the reliability of panel data regression, resulting in more accurate and reliable estimates. When autocorrelation and heteroscedasticity problems are detected in the model, one of the appropriate estimation methods is Feasible Generalized Least Squares (FGLS). This method is not only suitable for overcoming autocorrelation and heteroscedasticity problems, but SUR is also appropriate for this study because of the similarity between the variables, namely Labor Productivity and Labor Force Participation Rate (TPAK). The SUR test is considered a good enough model to handle situations where there is a correlation between regression equations involving variables that have similar characteristics.

## RESULTS AND DISCUSSION

### Results

Descriptive statistics is a method used to gather, organize, summarize, and display data in a systematic way, allowing for insights into the data's key features without drawing conclusions about populations beyond the sample.

Table 3.1. Descriptive Statistic

Variabel	Obs	Mean	St.Dev	Min	Max
UMK	245	1904588	286612.1	1370000	3060349
PDRB	245	2.83e+07	2.59e+07	5820532	1.62e+08
PTK	245	57.01668	35.22717	24.3739	185.3182
IPM	245	72.62931	4.482.745	64.86	84.99
TPAK	245	70.001	3.501.553	58.73	82.45

Source : Data Processing Result, 2024

Based on table 2, show that minimum wage in 35 city and regency in Central Java in the 2017-2023 periode had an average of 904588 million rupiah, with a standard deviation 286612.1 million rupiah, the lowest value was 1370000 million rupiah in the regency Banjarnegara in 2017, while the highest value was 3060349 in the Semarang city in 2023.

Gross Regional Domestic Product (GRDP) variable has an average 2.83e+07 billion rupiah, with a standard deviation 2.59e+07 billion rupiah, the lowest value is 5820532 billion rupiah in the Magelang city in 2017, while the highest value is 1.62e+08 in the Semarang city in 2023.

The Labor Productivity variable has a average 57.01668 billion/people, with a standard deviation 35.22717 billion/people, the lowest value is 24.3739 billion/people in the Grobogan regency in 2017. While the highest value is 185.3182 in the Semarang city in 2023.

Furhermore, the HDI variable has an average of 72.62931%, with a standard deviation of 35.22717%, the lowest value is 64.86% in the Brebes regency in 2017 and highest value is 84.99% in the Salatiga city in 2023.

Labor Force Participation Rate variable has an 70.001%, with a standard deviation of 3.501.553%, the lowest value is 58.73% in the Temanggung regency in 2020, and highest value is 82.45 in the Wonogiri regency in 2023.

Table 3.2 Panel Data Estimation Result

Variabel	CEM	FEM	REM	SUR
<b>PDRB</b>	0.003128 (3.58)***	0.008101 (3.33)***	-0.001448 (-0.75)	0.0031286 (4.07)***
<b>PTK</b>	0.274453 (2.53)**	-0.610851 (-2.76)**	1.22703 (14.31)***	0.2744536 (1.96)***
<b>IPM</b>	26368.54 (5.99)***	210437.5 (25.59)***	112848.6 (14.31)***	26368.54 (3.55)***
<b>TPAK</b>	19481.78 (4.72)***	1481.451 (0.52)	4553.401 (1.05)	19481.78 (4.17)***

Source : Data Processing Result, 2024.

Table 3 shows that in the four pooled data models including the Common Effect Model (CEM), Fixed Effect Model (FEM), Random Effect Model (REM), and Seemingly Unrelated Regression (SUR), the best modeling was obtained using SUR. Statistically, based on the test results using CEM, it shows that there are 4 independent variables that affect the dependent variable, where GRDP (X1), Labor Productivity (X2), HDI (X3), TPAK (X4), affect the Minimum Wage (Y). Then based on the results of FEM testing, there are 3 variables that affect the dependent variable, namely GRDP (X1), Labor Productivity (X2), and HDI (X4). However, TPAK (X4) has no effect on the Minimum Wage (Y). Meanwhile, the results of testing using REM show that there are 2 independent variables that affect the dependent variable, including Labor Productivity (X2) and HDI (X3). However, GRDP and TPAK have no effect on the minimum wage.

Table 3.3 SUR Estimation Results

Variabel	Coefficient	Standar Error	z	P> Z
PDRB	0.0031286	0.0007694	4.07	0.000
PTK	0.2744536	0.1398085	1.96	0.050
IPM	26368.54	7424.575	3.55	0.000
TPAK	19481.78	4670.833	4.17	0.000
Cons	-1604122	857663.4	-1.87	0.061

Source : Data Processing Result, 2024.

Utilizing dynamic panel data regression with the Seemingly Unrelated Regression (SUR) or Feasible Generalized Least Squares (FGLS) methods, the resulting panel data regression equation is as follows:

$$UMK = -1604122 + 0.0031286 * PDRB - 0.2744536 * PTK + 26368.54 * IPM + 19481.78 * TPAK$$

The coefficient value for the GRDP variable is positive 0.0031286, which means it indicates that if GRDP increases by 1 billion while other variables in the model are considered constant or unchanged, then the value of Regional Minimum Wage will increase by 0.0031286 million rupiah.

The coefficient value for Labor productivity variable is positive 0.2744536, which indicates that if Labor productivity increases by 1 billion/person, while other variables in the model are considered constant or unchanged, the value of Regional Minimum Wage will decrease by around 0.2744536 million rupiah. The coefficient value for HDI is positive 26368.54, which indicates that if HDI increases by 1 index, while other variables in the model are considered constant or unchanged, the value of Regional Minimum Wage will increase by around 26368.54 million rupiah.

The coefficient value for Labor Force Participation Rate variable is positive 19481.78, which indicates that if Labor Force Participation Rate increases by 1 percent while other variables in the model are considered constant or unchanged, then the value of Regional Minimum Wage will increase by around 19481.78 million rupiah.

## Discussion

### Analysis of the Effect of GRDP on Regional Minimum Wage in Central Java

The findings of the analysis show that GRDP positively and significantly affects the Regional Minimum Wage in Central Java. This finding is in line with the research of



(Sutama et al, 2019) and also (Bersales & Lucagbo, 2014) that GRDP has a positive and significant influence on the Regional Minimum Wage (UMR). This study is also supported by the theory of which argues that the minimum wage should be increased if labor productivity increases as seen from the amount of GRDP. When GRDP increases, it also increases the economic growth rate of a region which will make the regional minimum wage value also increase.

### **Analysis of the Effect of Labor Productivity on Regional Minimum Wage**

The findings of the analysis show that Labor Productivity positively and significantly affects the Regional Minimum Wage in Central Java. This is relevant to the findings of that TPK has a positive and significant effect on regional minimum wage. This study is also supported by Adam Smith's theory, through the book "The Wealth of Nations" explaining that workers' wages are influenced by their productivity. He argued that increasing productivity through division of labor would produce a relatively large output, thus increasing workers' wages. Smith believed that when workers become more productive, they create greater value which can translate into higher wages.

### **Analysis of the Effect of HDI on Regional Minimum Wage in Central Java**

The findings of the analysis show that HDI positively and significantly affects the Regional Minimum Wage in Central Java. This is relevant to the research of (Husada & Yuhan, 2022) and (Aprilia & Aida, 2024) HDI has a significant positive effect. This means that if the HDI increases, the minimum wage will also increase. Economic growth has a negative and significant impact on minimum wages. This means that if economic growth increases, the minimum wage tends to decrease. Together HDI and economic growth have a significant impact on the minimum wage.

### **Analysis of the Effect of Labor Force Participation Rate on Regional Min. Wage**

The findings of the analysis show that the Labor Force Participation Rate positively and significantly affects the Regional Minimum Wage in Central Java. This finding is relevant to the study of (Bersales & Lucagbo, 2014) where the TPAK variable has a positive and significant impact on the Minimum Wage. Then this is supported by the research of the labor force participation rate has a positive-significant effect on the minimum wage. TPAK plays an important role in standardizing and determining the value of regional minimum wages, namely by which the value of labor demand can be adjusted to labor wages. In this case, the level of wages set can be affected by an increase

in labor supply given that wages are able to place themselves with the supply of labor in the market.

Table 3.4 Simultaneous Significance Test Result

<b>Prob&gt;Chi2</b>	<b>Wald Chi2</b>
0.0000	401.83

Source : Data Processing Result, 2024.

Base on table 5, shows the simultaneous significant results with a Wald Chi2 value of 401.28 exceeding the Wald Chi2 table value of 2.48 smaller than the significance level of 0.05. Thus the test results show that the alternative hypothesis is accepted, which means that the independent variables such as GRDP, Labor Productivity, HDI, and Labor Force Participation Rate simultaneously affect the Regency/City Minimum Wage in Central Java Province.

## CONCLUSION

Gross Regional Domestic Product has a positive and also significant impact on the Regency / City Minimum Wage in 35 Districts / Cities in Central Java. GRDP is a measure of the total economic output of a region, which reflects the level of economic activity and welfare in the region. Regions with high GRDP tend to have relatively large economic capabilities to set high MSEs. This is because regions with greater economic output usually have higher per capita income, always productive companies, and a fairly good standard of living. Labor Productivity has a positive and significant effect on the Regency/City Minimum Wage in 35 regencies/cities in Central Java. The relationship between labor productivity and MSE is generally positive, where an increase in productivity can support an increase in MSE. This is based on the argument that more productive workers produce more output and income, allowing firms to pay higher wages. Meanwhile, a large MSE can increase worker motivation and productivity.

The Human Development Index has a positive and significant impact on the Regency/City Minimum Wage in 35 regencies/cities in Central Java. HDI is an indicator to reflect the level of community welfare through three main aspects: health (life expectancy), education (literacy rate and years of schooling), as well as living standards (income per capita). Regions with an excellent HDI usually show a fairly good quality of life, which is often reflected in the high income levels of their residents. Regions with better education and better health usually have a more productive and skilled workforce, which can attract higher wages. The Labor Force Participation Rate has a positive and

significant influence on the District/City Minimum Wage in 35 Districts/Cities in Central Java. TPAK measures the percentage of the population in the economically active working age group, including those working or looking for work. Regions with high TPAK have relatively more labor and are also economically active, which can support the setting of higher MSEs. A larger workforce adds to the productivity and economic output of the region, allowing companies to pay higher wages.

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