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Analysis of Determinants of Factors Affecting Unemployment Rates in West Java Province 2017-2024

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ABSTRACT
This study aims to analyze the effect of the Human Development Index (HDI), Labor Force Participation Rate (LFPR), and population size on the Open Unemployment Rate (OUR) in West Java Province for the period 2017–2024. The method used is panel data regression on 27 districts/cities with a Fixed Effect Model. The results show that the HDI does not have a significant effect on the OUR, while the LFPR and population size have a significant effect. Simultaneously, all variables affect the OUR. These findings confirm that unemployment dynamics are more influenced by labor market factors than by the quality of human development.

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INTRODUCTION

Unemployment is one of the important macroeconomic indicators that reflects the imbalance between labor supply and demand in an economy. High unemployment rates indicate economic inefficiencies that have the potential to cause a loss of output, a decline in public income, and an increase in various social problems such as poverty and inequality (Jahan & Mahmud, 2013). In developing countries such as Indonesia, the challenge of creating inclusive and quality employment remains a major issue, as relatively high economic growth has not been fully accompanied by adequate labor absorption capacity (World Bank, 2020).

In the national context, West Java Province presents contradictory employment conditions. As one of the provinces with the largest contribution to Indonesia's Gross Regional Domestic Product and playing a major role in driving national economic growth, West Java consistently records the highest open unemployment rate nationally. In August 2023, West Java's open unemployment rate reached 7.44%, much higher than the national average (5.32%) and higher than neighboring provinces such as Central Java (5.13%) and East Java (4.88%) (BPS, 2023). This situation makes West Java a crucial region and a critical point in national employment issues, requiring in-depth analysis to identify the determining factors.

The high rate of open unemployment in West Java is thought to be due to the complex interaction of various factors. The main determining factor is the quality of human resources as indicated by the Human Development Index, with health, education, and living standards still varying between regions. The economic theory explained by Becker (1964) through the Human Capital Theory states that humans are not just resources, but also a form of capital whose value can be optimized through investment in education, training, and health. The higher the investment in these aspects, the more productive individuals will be in economic activities, thereby potentially reducing unemployment rates.

In addition, the dynamics of labor supply, as indicated by the high labor force participation rate, could potentially lead to an increase in open unemployment if labor demand stagnates (Sari & Sugiharti, 2022). Theoretically, the LFPR concept is closely related to the Labor Force Participation Theory proposed by Mincer (1962), which explains that an individual's decision to enter the labor force is influenced by the expected wage and the opportunity cost of the time spent working. This means that a person will choose to participate in the labor market when the benefits gained from working are considered higher than the benefits gained from leisure time.

On the other hand, demographic pressure in the form of a large population (around 50 million people) creates an explosion of new workers every year. Malthus (1798) theory states that if population growth is not balanced with job growth and adequate resource availability, it will lead to an increase in unemployment. Malthus also asserted that overpopulation would lead to a decline in public welfare because people would no longer be able to meet their basic needs, including forming families in a proper manner.

The World Bank (2020) noted that West Java's economic structure, which remains dependent on the informal sector and MSME's with low productivity, could limit the region's ability to absorb labor. The increase in the HDI, which reflects improvements in human resources through education, health, and living standards, has not been accompanied by a decrease in unemployment. The increase in labor force participation, which indicates optimism and labor force participation that should expand the labor market base, has not led to a decline in the open unemployment rate. Similarly, population growth, which has not been accompanied by the creation of sufficient high-quality jobs, has put demographic pressure on the labor market.

The factors that affect unemployment have been the subject of conflicting findings in earlier research. While the study by Himo et al. (2022) found that the HDI has a significant negative impact on unemployment in North Maluku, suggesting that improvements in the community's purchasing power, health, and educational quality can reduce unemployment. Meanwhile, a study by Ibiyantoro & Imaningsih (2022) demonstrated that HDI had no significant impact on unemployment in Maluku Province, as improvements in human quality were not accompanied by improvements in skills that met the requirements of the labor market. With regard to employment variables, Simbolon et al. (2023) showed that LFPR had no significant impact on unemployment in Indonesia. However, the study conducted by Kantari et al. (2024) found a significant negative effect, meaning that as labor force participation increased, employment opportunities increased and unemployment declined in East Java. However, according to a study by Mouren et al. (2022), the unemployment rate in North Toraja was negatively and significantly affected by population size, suggesting that population growth in the region could stimulate economic activity. However, these findings contradict those of Sambaulu et al. (2022), who came to to the conclusion that Manado's population size had a positive and significant impact on unemployment, as employment opportunities could not keep pace with population growth.

Empirical findings on the key determinants of open unemployment remain inconclusive, particularly for the roles of the Human Development Index, Labor Force Participation Rate, and population size, whose impacts are heavily moderated by regional disparities and varying study periods. Within this landscape, focused research on West Java Province an economically significant region yet characterized by persistently elevated unemployment remains notably scarce, especially analyses offering extensive sub-provincial and longitudinal scope. Addressing this dual gap, the present study provides novel empirical insights by examining district and city level unemployment dynamics across West Java from 2017 to 2024. It thereby contributes to advancing the regional labor market literature and offers a robust, evidence-based foundation for designing spatially and temporally informed unemployment alleviation strategies.

The differences in these findings indicate that the impact of HDI, LFPR, and population size on unemployment is greatly influenced by the socioeconomic conditions and labor absorption capacity of each region. Analysis during the

2017-2024 period is important to examine the resilience and patterns of employment recovery and to identify the strengths of influence on each of the determining factors in the post-crisis context. Based on this description, this study aims to analyze the significant influence of the Human Development Index (HDI), labor force participation rate (LFPR), and population size on the open unemployment rate in 27 districts/cities in West Java Province.

LITERATURE REVIEW

Human Capital Theory

The relationship between HDI and unemployment is grounded in Human Capital Theory (Becker, 1964), which asserts that investments in education, health, and training enhance individual productivity and employability, thereby reducing unemployment. However, empirical evidence remains inconclusive. Salsabila et al. (2022) found that HDI had no significant effect on open unemployment in West Java Province in 2020. Similarly, Marliana (2022) reported that HDI did not significantly affect unemployment in Indonesia. In contrast, Suffah et al. (2025) demonstrated that HDI negatively and significantly influenced unemployment in West Java during 2019-2023. International evidence from Khalifa (2024) in Tunisia also confirmed HDI's significant effect on regional unemployment. These contradictory findings suggest that the HDI-unemployment nexus is context-dependent and may be influenced by local labor market structures and the alignment between human capital improvements and industry skill requirements.

Labor Force Participation Theory

The LFPR-unemployment relationship is anchored in Labor Force Participation Theory (Mincer, 1962), which posits that individuals' decisions to enter the labor market depend on expected wages and opportunity costs. Higher LFPR indicates a larger pool of job seekers, which theoretically could increase unemployment if job creation lags behind. Empirical findings vary across studies. Salsabila et al. (2022) found that LFPR significantly affected open unemployment in West Java. Musa et al. (2024), examining 46 Sub-Saharan African countries, also confirmed significant relationships between both male and female LFPR and unemployment. However, Rusydan & Wijaya (2024) reported that LFPR had no significant impact on unemployment in Sidoarjo Regency. This inconsistency indicates that the effect of labor force participation on unemployment depends on regional economic conditions and the labor market's capacity to absorb additional workers.

Population Growth Theory

The connection between population size and unemployment derives from Malthusian Population Theory (Malthus, 1798), which argues that population growth without commensurate expansion of employment opportunities leads to increased unemployment. Empirical evidence presents mixed results. Wati et al. (2024) found that population size significantly affected unemployment in East Java Province. Suffah et al. (2025) demonstrated that population negatively and significantly influenced unemployment in West Java. Rusydan & Wijaya (2024)

also confirmed population's significant effect in Sidoarjo. However, studies show geographical variations: Mouren et al. (2022) found negative significant effects in North Toraja Regency, while Sambaulu et al. (2022) reported positive significant effects in Manado City. International evidence from Alam et al. (2020) in Bangladesh found population insignificant, whereas Idriss & Enad (2024) in Algeria found significant long-run but insignificant short-run effects. These disparities suggest that population's impact on unemployment is mediated by local economic structures, employment absorption capacity, and the extent to which population growth translates into productive labor force participation.

METHODOLOGY

Panel data analysis techniques were used in conjuction with a quantitative methodology to conduct this study. Because the goal of the study was to measure the impact of independent variables on dependent variables empirically, a quantitative technique was selected.

The Central Statistics Agency of West Java Province and Bandung City provided the secondary data used in this study. The data used spans 27 West Javan districts and cities between 2017 and 2024.

Chow's Test, Hausman's Test, and Lagrange Multiplier Test must be performed in order to identify the optimal model among Pooled OLS, Fixed Effect Model (FEM), or Random Effect Model (REM) in panel data analysis, according to Gujarati & Porter (2009). To guarantee the accuracy of the estimation findings in panel data regression analysis, it is necessary to verify traditional assumptions such multicollinearity and heteroscedasticity after choosing the proper model (FEM/REM).

The two primary statistical tests used in this study's hypothesis testing are the T-test (partial) and the F-test (simultaneous), which are used to the panel data regression model. Furthermore, the coefficient of determination (R^2), which quantifies the amount to which the independent variables in the regression model can explain the variance in the dependent variable, is investigated (Gujarati & Porter, 2009).

The analytical model used in this study is a panel data regression model with the following equation:

$$TPT_{it} = \beta_0 + \beta_1 IPM_{it} + \beta_2 TPAK_{it} + \beta_3 JP_{it} + \varepsilon_{it} \quad \text{.....(1)}$$

TPTit = Open Unemployment Rate of district/city i year t; IPMit = Human Development Index of district/city i year t; TPAKit = Labor Force Participation Rate of district/city i year t; JPit = Population of district/city i year t; β0 = Constant; β1, β2, β3 = Regression Coefficients; εit = error term.

RESEARCH RESULT

Chow Test

Table 1. Chow Test

Effects Test	Statistic	d.f	Prob.
Cross-section F	9.775205	(26,186)	0.0000
Cross-section Chi-Square	186.058297	26	0.0000

Based on the test results, a probability value of 0.0000 was determined, which is below the statistical significance level of 0.05. Therefore, the fixed-effect model (FEM) was selected as the most appropriate model for this study.

Hausman Test

Table 2. Hausman Test

Test Summary	Chi-Sq Statistic	Chi-Sq. d.f.	Prob.
Cross-section Random	21.299216	3	0.0001

The test findings yielded a probability value of 0.0001, which fall below the significance level of 0.05. Based on the findings of the Chow and Hausman tests, the Fixed Effect Model (FEM) was chosen over the Lagrange Multiplier Test for this study.

Multicollinearity Test

Table 3. Multicollinearity Test

	HDI	LFPR	P
HDI	1.000000	-0.107693	-0.034331
LFPR	-0.107693	1.000000	-0.145851
P	-0.034331	-0.145851	1.000000

The correlation values between independent variables are less than 0.80, according to the correlation matrix. The independent variables in this research model are therefore appropriate for use in regression analysis since there is no multicollinearity issue.

Heteroscedasticity Test

Table 4. Heteroscedasticity Test

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	-1.221479	2.134842	-0.572164	0.5679
HDI	0.106954	0.036789	2.907190	0.0041
LFPR	-0.059132	0.023229	-2.545622	0.0117
P	-0.000954	0.000526	-1.813104	0.0714

Variables HDI and LFPR had probability values of 0.0041 and 0.0117, respectively, which were less than the significance level of 0.05, according to the findings of the heteroscedasticity test using the ABSRES regression method. This suggests that variables HDI and LFPR had a heteroscedasticity issue. It can be inferred that variable population does not exhibit heteroscedasticity because its probability value of 0.0714 is higher than 0.05. Therefore, in order to improve the reliability of the estimate and statistical testing results, remedial actions utilizing robust standard errors must be taken because the regression model in this study has a heteroscedasticity problem overall.

Heteroscedasticity Correction

Table 5. Heteroscedasticity Correction

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	-1.221479	3.189793	-0.382933	0.7131
HDI	0.106954	0.043014	2.486489	0.0418
LFPR	-0.059132	0.013967	-4.233692	0.0039
P	-0.000954	0.000425	-2.242489	0.0599

The regression coefficient values remained constant with the use of White cross section robust standard errors; however, the standard errors had been modified to increase the reliability of the statistical tests. The previously identified heteroscedasticity issue no longer compromised the validity of the statistical test results, especially the t-test and f-test, when these robust standard errors were used.

Even though the homoscedasticity assumption is broken, the regression findings that have been corrected using robust White cross section yield more trustworthy statistical conclusions. Consequently, it can be said that the regression model's heteroscedasticity issue has been methodologically resolved, making it appropriate for use in the analysis and debate that follows.

Panel Data Regression Results

Table 6. Panel Data Regression Results

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	27.61169	4.170638	6.620497	0.0000
HDI	-0.066128	0.071872	-0.920080	0.3587
LFPR	-0.128552	0.045380	-2.854834	0.0048
P	-0.003441	0.001028	-3.347830	0.0010
R Square	0.744411	Mean dependent var		8.070880
Adjusted R Square	0.704561	S.D. dependent var		2.281459
S.E. of regression	1.240070	Sum squared resid		286.0260
F-statistic	18.68040	Durbin-Watson stat		1.047537
Prob (F-statistic)	0.000000			

Source: Data Processing Results, E-views 12

The fixed effects estimation results indicate that the influence of the human development index, labor force participation rate, and population on the open unemployment rate is represented by the following regression equation:

$$TPT_{it} = 27.61169 - 0.066128IPMit - 0.128552TPAKit - 0.003441JPit \ldots\ldots\ldots (2)$$

The model's constant of 27.61 indicates a baseline unemployment rate of 27.61 percent when all independent variables are assumed to be zero. This value represents the cumulative effect of factors outside the model. The negative coefficient for HDI (–0.066) shows that a one-unit increase in the HDI is associated with a 0.066 percent decrease in unemployment, ceteris paribus. Similarly, the LFPR coefficient (–0.129) confirms that a one-percentage-point rise in labor force participation is linked to a 0.129 percent reduction in unemployment. Conversely, the positive population coefficient (0.003) reveals

that a one-unit increase in population is followed by a marginal 0.003 percent rise in the unemployment rate.

Partial Test (T-test)

Table 7. T-test Result

Variable	t-statistic	Prob.
HDI	-0.920080	0.3587
LFPR	-2.854834	0.0048
P	-3.347830	0.0010

The partial (t-) test was employed to assess the individual effect of each independent variable on the dependent variable, holding other predictors constant. A significance level of 0.05 was used as the threshold for statistical significance.

According to the panel data regression output, where the calculated t-statistic for the Human Development Index (HDI) is compared against the critical T-table value of 1.971, the variable shows a t-statistic of -0.920, with a probability value of 0.3587, which exceeds the 0.05 threshold. Hence, HDI does not exert a statistically significant partial effect on the open unemployment rate.

Conversely, when evaluated against the critical T-table value of 1.971, the Labor Force Participation Rate (LFPR) yields a t-statistic of -2.855 and a probability value of 0.0048 (< 0.05), indicating a significant negative impact on open unemployment. This implies that, ceteris paribus, an increase in LFPR is associated with a reduction in the open unemployment rate.

Similarly, when compared with the T-table critical value of 1.971, the population variable has a t-statistic of -3.348 and a probability value of 0.0010 (< 0.05). These results confirm that population size also has a statistically significant and negative partial effect on open unemployment, suggesting that population changes influence unemployment levels in the observed context.

Simultaneous Test (F-test)

Table 8. F-test Result

F-statistic	18.68040
Prob (F-statistic)	0.000000

The F-test was conducted to examine whether the independent variables collectively influence the dependent variable. The regression results yield an F-statistic of 18.680, which significantly exceeds the critical F-table value of 2.65, with a probability value (p-value) of 0.0000 that is well below the conventional significance threshold of 0.05.

This demonstrates that the Human Development Index (HDI), Labor Force Participation Rate (LFPR), and population size jointly exert a statistically significant effect on the open unemployment rate. Consequently, the estimated model is deemed valid and suitable for explaining the overall relationship between the set of predictors and the outcome variable.

Coefficient of Determination (R^2)

Table 9. Determination Coefficient Results

R Square	0.744411
Adjusted R Square	0.704561

The model's explanatory power is indicated by an R-squared value of 0.7444 and an adjusted R-squared of 0.7046. This suggests that approximately 70.46 percent of the variation in the open unemployment rate is jointly explained by the included predictors: population, labor force participation rate, and the human development index. The remaining 29.54 percent of the variance is accounted for by factors outside the specified model. The coefficient of determination thus confirms that the regression model provides a substantial explanation for the fluctuations in the dependent variable.

DISCUSSION

The Effect of the Human Development Index on the Open Unemployment Rate

The analysis reveals an insignificant relationship between the Human Development Index (HDI) and the open unemployment rate within the specified regression model. This empirical finding appears to contradict the theoretical propositions of Becker's (1964) human capital theory. According to the theory, investments in education, skill development, and health enhance individual productivity, widen employment opportunities, and are thus expected to lower unemployment. Consequently, from a theoretical perspective, improvements in aggregate human capital should cultivate a more skilled, adaptive, and productive labor force, contributing to a reduction in unemployment levels.

However, in the context of this study, the increase in HDI has not shown a significant effect on unemployment in West Java Province. This condition indicates that improvements in human resource quality have not been fully accompanied by increased labor absorption, particularly in the formal sector. This phenomenon can be explained by the skill mismatch theory, which emphasizes the discrepancy between the competencies of the workforce and the skills required by the job market. The OECD (2016) shows that around 22% of highly educated workers in various countries experience over-qualification, which is a condition where their level of education and skills exceed the requirements of available jobs. In line with this, the ILO (2017) explains that structural unemployment is largely influenced by the mismatch between the output of the education system and the needs of the industrial sector, so that improving educational attainment without creating relevant jobs has the potential to leave highly educated workers unemployed or working in jobs that do not match their qualifications.

This condition is also reflected in the research area, where major cities such as Bandung, Bekasi, and Depok have relatively high average HDI due to better access to education and social services, but still record unemployment rates that are not much different from areas with lower HDI such as Cianjur and Pangandaran Regencies. This shows that a high HDI is not sufficient to guarantee

a decline in the open unemployment rate if job growth and the demand for specific skills do not develop in line with improvements in human quality.

According to a study by Wilujeng & Prasetyia (2024), HDI has a negative but negligible relationship with unemployment on the island of Java. This suggests that increases in the quality of human resources have not yet been statistically able to lower unemployment rates. These findings, however, are at odds with those of Zambrano & Parrales (2025) who discovered that the HDI significantly and negatively impacted the unemployment rate in Ecuador between 1991 and 2023. Ecuador's labor productivity and competitiveness have increased as a result of the HDI's rise, creating more job opportunities and lowering unemployment rates. These disparities in findings suggest that regional context, specifically the capacity of labor markets and economic systems to absorb highly educated persons, greatly influences how HDI affects unemployment. As a result, HDI's potential to lower unemployment varies by location and is impacted by the fit between labor absorption capacity and human resource quality.

The Effect of Labor Force Participation Rates on Open Unemployment Rates

Other research findings show that LFPR has a significant negative impact on the open unemployment rate in West Java province. This conclusion is consistent with the labor force participation theory proposed by Mincer (1962), which states that an individual's decision to enter the labor market is influenced by considerations of the costs and benefits of work, including income opportunities and labor market conditions. This means that as labor force participation increases, more people of working age are actively seeking work or are employed, which can accelerate the absorption of available labor and contribute to a decline in the unemployment rate. This conclusion is consistent with the basic logic of labor economics, which states that high labor force participation is often associated with a dynamic labor market structure and increased employment opportunities.

This correlation is reflected in regions with relatively high average LFPR, such as Pangandaran Regency, which shows a high level of participation of the working-age population in the labor market. This condition reflects that most of the productive-age population is active, either working or looking for work. This high level of participation has the potential to accelerate the process of labor absorption, especially in the informal sector and sectors based on local potential such as tourism, fisheries, and agriculture, which are the main characteristics of the region (Pangandaran News, 2024). Conversely, some urban areas show a relatively lower average LFPR, indicating that not all working-age residents are actively involved in the labor market. This difference in participation rates shows that regions with higher labor force participation tend to have more dynamic labor market mechanisms, so that an increase in the number of job seekers can be offset by faster labor absorption. This condition explains why the increase in LFPR in this study was accompanied by a decrease in the unemployment rate.

This study's result, indicating a significant negative effect of labor force participation on unemployment, aligns with prior empirical evidence. Notably,

the findings are consistent with Musa et al. (2024), who, in a panel of 46 sub-Saharan African countries from 1991 to 2023, documented a similar negative and significant impact. Such congruence suggests that rising labor force participation may foster more dynamic labor market adjustments, where increments in the labor supply are counterbalanced by mechanisms of long-term employment absorption. Their analysis further identified a unidirectional causality from labor force participation to unemployment, underscoring the pivotal role of participation rate fluctuations in shaping unemployment levels, particularly in developing economies characterized by relatively flexible labor market structures.

In contrast, a study Rusydan & Wijaya (2024) in the Sidoarjo administrative district of Indonesia found the labor force participation rate to have an insignificant negative effect on unemployment a divergence from the present results. This disparity may be attributed to distinct local labor market characteristics, particularly a high concentration of informal sector activity. In such contexts, a substantial portion of the labor force is absorbed into informal or underemployment, which is not captured in official open unemployment statistics. Consequently, elevated participation rates may not translate into a measurable reduction in recorded unemployment if not matched by adequate formal job creation. This comparison underscores that the observed impact of labor force participation is critically mediated by the labor market's structural capacity to absorb additional workers. In West Java Province, the concurrent expansion of labor force participation and economic activity appears to have facilitated effective employment absorption, thereby yielding the significant negative relationship empirically observed in this study.

The Effect of Population Size on the Open Unemployment Rate

The regression test results show that population size has a negative and significant effect on the open unemployment rate in West Java Province, indicating that changes in population size also affect the unemployment variable. Theoretically, this finding is inconsistent with the classical population growth theory proposed by Malthus (1798), which states that population growth tends to increase faster than the economy's ability to provide jobs and resources, thereby putting pressure on the labor market and potentially increasing unemployment. According to Malthus' perspective, population growth that is not accompanied by the creation of comparable jobs will increase competition in the labor market and increase unemployment.

However, empirical findings in this study show a significant negative relationship between population size and unemployment rate, which means that an increase in population size is actually associated with a decrease in unemployment rate. This phenomenon can occur when population growth, particularly in the workforce, is accompanied by growth in economic sectors capable of absorbing that labor, as well as effective human resource empowerment strategies. This condition is reflected in areas with high population density such as Bogor Regency, Bandung Regency, and Bekasi Regency, which show that despite their large populations, unemployment rates

are relatively under control. This indicates that these regions tend to have adequate labor absorption capacity across various sectors, both formal and informal, so that population growth does not automatically increase unemployment.

These results are consistent with those of Suffah et al. (2025), who discovered a negative and substantial relationship between population trends and unemployment in West Java between 2019 and 2023. According to the study, a big population can have economic potential provided it is backed by strong labor participation and regional economic activity, preventing unemployment from rising as a result of population growth. The findings of Khalifa (2024) in Tunisia, on the other hand, indicate that unemployment is positively impacted by population size. Population growth actually puts more strain on the labor market, as these disparities can be explained by regional economic structural imbalances and limited labor absorption ability. This comparison demonstrates how the structural backdrop and economic potential of the area have a significant influence on the relationship between unemployment and population size.

In addition, several empirical studies in Indonesia have also shown that population growth can create economic opportunities through structural shifts in sectors and the development of informal sectors that absorb a significant amount of labor. The availability of jobs in the informal sector, trade, and local services in West Java appears to be sufficient to absorb the increase in the workforce. Therefore, the negative and significant correlation between population size and the open unemployment rate indicates that demographic growth in West Java can be interpreted as a demographic bonus rather than a burden, as long as the region is able to provide employment opportunities that are relevant to the growth of the labor force.

CONCLUSIONS AND RECOMMENDATIONS

The regression analysis yields the following key findings: first, the Human Development Index (HDI) does not exhibit a statistically significant effect on the official unemployment rate. Second, the Labor Force Participation Rate (LFPR) demonstrates a significant negative influence, indicating that a higher LFPR is associated with lower unemployment. Third, population size also shows a significant negative relationship with the unemployment rate. Furthermore, the F-test confirms that, taken collectively, HDI, LFPR, and population size exert a statistically significant joint impact on the official unemployment rate.

Several suggestions were submitted to the local government, namely to optimize the improvement of human resources quality to make it more relevant to the needs of the labor market, particularly through the strengthening of vocational education and competency-based training; to encourage increased labor force participation by creating an inclusive labor market climate, especially for the productive age population; to manage population growth as an economic potential by strengthening labor-intensive sectors; and to integrate human resources development, labor, and population policies in an integrated manner so that these policies are expected to create an adaptive labor market, increase

labor absorption, and reduce the open unemployment rate in West Java Province in a sustainable manner.

ADVANCED RESEARCH

Future research should address this study's limitations by incorporating additional variables (economic growth, minimum wage, inflation), expanding geographic coverage beyond West Java, extending the time period for long-run analysis, employing alternative methods (dynamic panels, spatial econometrics), conducting subgroup analyses by regional characteristics, and integrating qualitative approaches to capture institutional factors behind unemployment dynamics.

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