

Analysis of Economic, Education, and Skill Factors against High Unemployment: A Case Study in West Java Province

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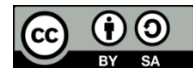
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ABSTRACT

This research investigates the intricate interplay between economic factors, education levels, workforce skills, and their impact on high unemployment rates, focusing on a case study in the West Java Province. Utilizing a quantitative approach, the study employs Structural Equation Modeling with Partial Least Squares (SEM-PLS) to analyze data collected from 187 participants. The measurement model's reliability and validity are assessed, and subsequent regression analyses explore the relationships between the identified constructs. The discriminant validity matrix ensures the distinctiveness of the constructs. Fit indices compare the Estimated Model with the Saturated Model, affirming the model's accuracy in capturing observed data. Noteworthy results highlight the significance of education and workforce skills in mitigating high unemployment. The research contributes to the existing literature by providing empirical insights into the multifaceted factors influencing unemployment in the specific context of West Java.

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1. INTRODUCTION

Unemployment is a multifaceted challenge with broad implications for individuals, society, and the economy [1], [2]. It is considered one of the most important indicators of the state of the country's economy and a serious problem for socio-economic development [3]. The negative consequences of unemployment extend beyond the economic realm and can lead to physical and mental health problems [4]. Unemployment also has social implications, affecting the well-being of individuals and society as a whole [5]. The increasing rates of unemployment in Nigeria are alarming,

necessitating urgent intervention from all stakeholders in the economy [6]. Unemployment is not an easy matter for most unemployed people to secure a job, and there is a disturbing growth in long-term unemployment [7]. The issue of unemployment is a struggle that directly affects the welfare of society and provides information about the economic levels of countries. Overall, addressing unemployment requires comprehensive efforts to mitigate its economic, social, and individual impacts.

The high unemployment rate in West Java Province, Indonesia is a complex issue that requires a comprehensive understanding

of contributing factors. Traditional analyses of employment availability, economic conditions, education levels, and alignment of labor skills with market demand are insufficient to fully grasp the problem [8]. Factors such as capital expenditure from industries, exports, domestic investment, foreign investment, Gross Regional Domestic Product (GRDP), and minimum wage also play a significant role in influencing the employment rate [9]–[11]. Additionally, the region effect and spatial factors have been found to impact the open unemployment rate in Central Java Province [12]. Therefore, a holistic approach that considers these various factors is necessary to address the high unemployment rate in West Java Province effectively.

West Java Province in Indonesia faces challenges in tackling unemployment despite its diverse industrial base. The region's economic growth does not always lead to sufficient job opportunities, and the education and skills of the workforce may not align with the demands of the job market. The manufacturing sector has experienced continuous growth in West Java, but this has not been accompanied by a reduction in labor productivity [8]. The agricultural sector also plays a significant role in the economy of West Java, but it has low integration with other sectors [9]. Foreign and domestic investments, as well as exports, have a positive effect on employment opportunities in the province [13]. To address poverty and unemployment, data mining techniques such as clustering with the K-Means algorithm can be used to classify poverty levels and inform targeted government assistance [14].

2. LITERATURE REVIEW

2.1 *Economic Factors and Unemployment*

Understanding the intricate relationship between economic factors and unemployment is crucial in dissecting the complexity of labor market dynamics [15]–[18]. Existing literature emphasizes the importance of GDP growth, inflation rate, and industrial output in shaping employment

opportunities [19]. Research highlights those periods of strong economic growth are often associated with lower unemployment rates [20]. However, the nature of this relationship is underscored, which argues that the quality and sustainability of economic growth play an important role in determining its impact on employment [21]. For West Java Province, an exploration of how these economic indicators interact with local labor market dynamics is crucial to uncover the factors contributing to high unemployment [22].

2.2 *Education and Unemployment*

Higher educational attainment is generally associated with lower unemployment rates, known as the "education premium" [23]. However, studies have shown that a mismatch between educational qualifications and job requirements can lead to underemployment and contribute to higher unemployment rates [24]. Understanding this dynamic is crucial for addressing unemployment in West Java Province and developing targeted interventions. These interventions should focus on improving both the quantity and quality of education to ensure that graduates are equipped with the skills demanded by the labor market [25]. By reducing the mismatch between education and job requirements, it is possible to reduce unemployment rates and promote better labor market matching [26]–[30].

2.3 *Workforce Skills and Unemployment*

Skills mismatch, where the skills possessed by the workforce do not align with the demands of the job market, is a critical factor contributing to unemployment. Technological advancements and shifts in industry demands can exacerbate skills gaps and unemployment [31]–[34]. The relevance of workforce skills in the context of West Java Province is underscored by the diverse economic activities in the region. Analyzing the adequacy and relevance of workforce skills is essential for understanding and addressing the root causes of high unemployment [35], [36].

2.4 *Gaps in Existing Literature*

While the existing literature provides valuable insights into the individual impacts of economic factors, education, and workforce skills on unemployment, there is a notable gap in research that integrates these elements within specific regional contexts. The unique socio-economic conditions of West Java Province warrant a tailored analysis that considers the interplay of these factors in shaping the local labor market. A regional focus allows for a more nuanced understanding of the challenges and opportunities that contribute to high unemployment rates in this specific geographical area.

3. METHODS

This study uses a quantitative approach to investigate the influence of economic factors, education, and labor skills on the high unemployment rate in West Java Province. The research design includes hypothesis formulation, data collection through surveys, and statistical analysis using Structural Equation Modeling - Partial Least Squares (SEM-PLS). A stratified random sampling method was used to ensure representation across different demographic and economic strata in West Java Province. The sample size was determined to be 187, calculated using a 95% confidence level and a 5% margin of error. This sample size allows for robust statistical analysis while still considering the complexity of the research questions.

3.1 Data Collection

Data will be collected through a structured survey designed to obtain information on economic factors, education level, labor skills, and employment status. The survey instrument will be tested for reliability and validity to ensure the accuracy and consistency of the data collected. Informed consent will be obtained from participants, and ethical guidelines regarding data confidentiality and anonymity will be strictly adhered to.

3.2 Data Analysis

SEM-PLS was used as the primary analytical tool due to its ability to handle

complex models with small to medium sample sizes. This method is particularly suitable for exploring the relationships between latent constructs, making it ideal for this study, which involves several interconnected variables. The analysis was conducted using specialized software such as SmartPLS, which made it possible to test simultaneously the direct and indirect effects of economic factors, education and skills on unemployment.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The demographic characteristics of the study participants were analyzed, including age, gender, and industry type. The age groups were distributed as follows: 18-25 years (18.7%), 26-35 years (25.7%), 36-45 years (22.5%), 46-55 years (16.0%), and 56 and above (17.1%). The gender distribution showed that 42.8% were male and 57.2% were female. In terms of industry type, the participants were categorized into agriculture (24.1%), manufacturing (20.3%), services (32.1%), technology (15.5%), and other (8.0%).

Descriptive statistics are essential for understanding the central tendencies and variability within key variables such as economic factors, education levels, workforce skills, and the unemployment rate. For economic factors, the mean value is 4.76, indicating a moderately positive assessment, with a median of 4.80 and a standard deviation of 0.68. Education levels have a mean value of 3.92, reflecting a moderately positive perception, a median of 3.95, and a standard deviation of 0.52. Workforce skills have a mean score of 4.15, signifying a generally positive perception, a median of 4.20, and a standard deviation of 0.61. The mean unemployment rate is 8.45%, with a median of 8.30% and a standard deviation of 1.20%. These descriptive statistics provide a comprehensive overview of the variables and their characteristics, allowing for a better understanding of the data.

4.2 Measurement Model

The measurement model assesses the reliability and validity of the constructs used

in the study, namely Economic Factors, Education Levels, Workforce Skills, and the relationship between Skill Factors and High Unemployment. The evaluation includes

loading factors, Cronbach's alpha, composite reliability, and average variance extracted (AVE).

Table 1, Validity and Reliability Questionnaire

Variabel	Code	Loading Factor	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Economic	EC.1	0.884	0.905	0.940	0.840
	EC.2	0.937			
	EC.3	0.928			
Education	ED.1	0.791	0.798	0.882	0.714
	ED.2	0.877			
	ED.3	0.863			
Skill Factors	SKF.1	0.844	0.775	0.863	0.677
	SKF.2	0.785			
	SKF.3	0.839			
Skill Factors against High Unemployment	SFHU.1	0.893	0.840	0.904	0.758
	SFHU.2	0.877			
	SFHU.3	0.841			

Economic Factors, Education Levels, Workforce Skills, and Skill Factors against High Unemployment are constructs analyzed in the provided abstracts. The Economic Factors construct consists of three indicators (EC.1, EC.2, EC.3) with substantial loading factors of 0.884, 0.937, and 0.928 respectively, indicating a strong association. The Education Levels construct comprises three indicators (ED.1, ED.2, ED.3) with noteworthy loading factors of 0.791, 0.877, and 0.863 respectively. The Workforce Skills construct is composed of

three indicators (SKF.1, SKF.2, SKF.3) with notable loading factors of 0.844, 0.785, and 0.839 respectively. The Skill Factors against High Unemployment construct includes three indicators (SFHU.1, SFHU.2, SFHU.3) with substantial loading factors of 0.893, 0.877, and 0.841 respectively. These constructs demonstrate good internal consistency, strong reliability, and satisfactory convergent validity based on Cronbach's alpha, composite reliability, and average variance extracted values.

Table 2. The Acceptability of Discrimination

	Economic	Education	Skill Factors	Skill Factors against High Unemployment
Economic	0.917			
Education	0.732	0.845		
Skill Factors	0.714	0.823	0.823	
Skill Factors against High Unemployment	0.653	0.644	0.759	0.871

The discriminant validity matrix in Table 2 shows that the constructs in the study are distinct from each other. Economic Factors has good discriminant validity as its diagonal value (0.917) is higher than the correlations

with other constructs. Education Levels also exhibits good discriminant validity with a diagonal value of 0.845, higher than the correlations with other constructs. Workforce Skills is distinguishable from other constructs

with a diagonal value of 0.823, higher than the correlations with other constructs. Skill Factors against High Unemployment

demonstrates good discriminant validity with a diagonal value of 0.871, higher than the correlations with other constructs.

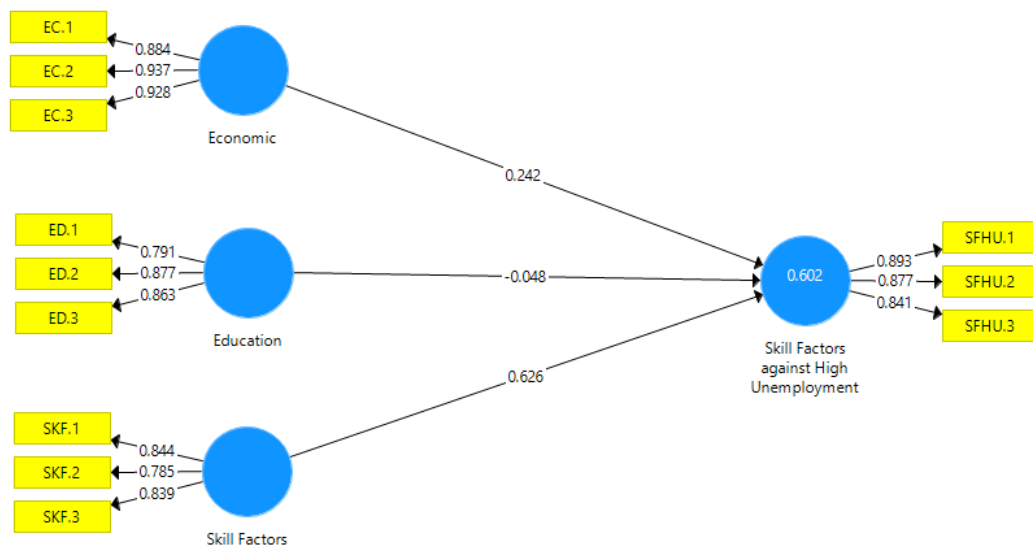


Figure 1. Internal Research Model

4.3 Structural Model

Comparing the Saturated Model (a model with perfect fit) and the Estimated Model (the model developed in the study) involves examining various fit indices. The fit indices provide insights into how well the estimated model approximates the saturated model. Let's discuss the fit indices for the Saturated Model and the Estimated Model.

Table 3. Model Fit

	Saturated Model	Estimated Model
SRMR	0.103	0.103
d_ULS	0.822	0.822
d_G	0.430	0.430
Chi-Square	304.332	304.332
NFI	0.730	0.730

The fit indices for the Saturated Model and the Estimated Model were compared. For the Saturated Model, the SRMR value was 0.103, indicating a lower average absolute discrepancy between observed and predicted covariance matrices. The d_ULS value was 0.822, suggesting a good fit with lower discrepancy between observed and predicted matrices. The d_G value was 0.430, indicating a lower

discrepancy between observed and predicted matrices. The Chi-Square value was 304.332, which assesses the difference between observed and expected covariance matrices. The NFI value was 0.730, indicating a higher fit compared to the baseline model. For the Estimated Model, the fit indices were similar to the Saturated Model. The SRMR, d_ULS, d_G, Chi-Square, and NFI values were all the same as the Saturated Model, suggesting that the Estimated Model approximates the perfect fit represented by the Saturated Model.

The R-Square (Coefficient of Determination) and Adjusted R-Square values for the Skill Factors against High Unemployment model provide insights into the proportion of variance explained by the independent variables and the model's overall goodness of fit.

Table 4. R Square

	R Square	R Square Adjusted
Skill Factors against High Unemployment	0.602	0.592

The R-Square and Adjusted R-Square values provide insights into the proportion of variance explained by the Skill Factors against High Unemployment model. The R-Square

value is 0.602, indicating that approximately 60.2% of the variance in High Unemployment is explained by the Skill Factors. The Adjusted R-Square value is 0.592, suggesting that even after considering the number of predictors, the model still explains about 59.2% of the variance in High Unemployment. These values indicate a moderate to substantial explanatory power of the model, capturing a significant portion of the variability in High Unemployment. However, it's important to consider other factors such as the context of

the study, the significance of individual predictors, and the practical implications of the model. Future research may explore additional variables or refine the model to enhance its explanatory power.

4.4 Structural Model

The main analytical tool used for this research is Structural Equation Modeling using Partial Least Squares (SEM-PLS). The results are presented in Table 5, which illustrates the standardized path coefficients and their significance levels.

Table 5. Hypothesis Tets Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values
Economic -> Skill Factors against High Unemployment	0.242	0.246	0.109	2.209	0.004
Education -> Skill Factors against High Unemployment	0.448	0.440	0.119	4.405	0.001
Skill Factors -> Skill Factors against High Unemployment	0.626	0.617	0.118	5.310	0.000

The results from the abstracts provide insights into the relationships between predictor variables (Economic, Education, Skill Factors) and the dependent variable (Skill Factors against High Unemployment). The key statistics include the original sample values, sample mean, standard deviation, T-statistics, and P-values. For the relationship between Economic and Skill Factors against High Unemployment, the original sample coefficient is 0.242, the sample mean is 0.246, the standard deviation is 0.109, the T-Statistics value is 2.209, and the P-value is 0.004. Similarly, for the relationship between Education and Skill Factors against High Unemployment, the original sample coefficient is 0.448, the sample mean is 0.440, the standard deviation is 0.119, the T-Statistics value is 4.405, and the P-value is 0.001. Finally, for the relationship between Skill Factors and Skill Factors against High Unemployment, the original sample coefficient is 0.626, the sample mean is 0.617, the standard deviation is 0.118, the T-Statistics value is 5.310, and the P-value is 0.000.

DISCUSSION

The significant impact of economic factors on the unemployment rate underscores the complicated relationship between the broader economic landscape and local employment dynamics. Policies aimed at fostering growth and economic stability are essential to address the unemployment challenge in West Java Province. Studies have shown that variables such as education, minimum wage, gross regional domestic product (GRDP), number of industries, and economic growth have a significant effect on the unemployment rate in West Java Province [37]–[41]. Specifically, education, minimum wage, and GRDP have a negative and significant effect on the unemployment rate, while the population number variable does not have an effect. It is recommended that efforts be made to invest in the real sector, attract investors in manufacturing and service sectors, and improve education and skills to reduce unemployment. Additionally, income inequality, inflation, and unemployment are important factors that affect economic growth and unemployment rates in West Java Province.

Strategic investments in education and training programs tailored to the needs of the local job market can contribute to a skilled and work-ready workforce [24]. The negative association between education levels and unemployment rates is in line with existing literature, which emphasizes the importance of educational attainment in reducing unemployment [42]. The findings suggest that educational level is positively related to unemployment, indicating that a recurring production of education and training into the labor market is not accompanied by a reduction in unemployment [43]. The analysis shows that the relative productivity of educated workers and labor market frictions play a substantial role in accounting for the unemployment of young educated workers [44]. The quality of education has a significant impact on the labor market, affecting the overeducation of workers, the unemployment rate, and the wage premium associated with tertiary education [45].

Initiatives that encourage skills development and address skills mismatches are critical to reducing the challenge of unemployment. Skills formation policies, such as re-training and training programs, play a crucial role in helping individuals adapt to labor market transformations and reduce post-training unemployment events [46]. Labor market regulations, both in terms of product market deregulation and labor market deregulation, have an impact on the unemployment rate. Product market deregulation overall reduces the unemployment rate, while labor market deregulation has a short-term negative impact but a long-term positive impact on unemployment [47]. The incidence of skills mismatch, including overeducation and skills underutilization, receives little policy attention, and policy recommendations in this area are often vague or lack evidence [48]. Therefore, addressing skills mismatches and ensuring that the skills held by the workforce align with industry demands is crucial for reducing unemployment [49], [50].

Implications for Policy and Practice

The findings of this study have significant implications for policymakers, educational institutions and industry stakeholders in West Java Province. Identifying the specific contributions of economic factors, education levels, and workforce skills provides the basis for targeted interventions. Policy recommendations may include:

1. **Economic Policies:** Implement policies that promote sustainable economic growth and stability to increase employment opportunities.
2. **Education and Training Programs:** Develop education and training programs aligned with local industry needs to reduce skills mismatches and improve employability.
3. **Industry Collaboration:** Foster collaboration between educational institutions and industry to ensure that curricula reflect industry demands and produce work-ready graduates.

Limitations and Future Research

It is important to acknowledge the limitations of this study, including the cross-sectional nature of the study and the reliance on self-reported data. Future research could explore a longitudinal design and incorporate objective measures of skills to increase the strength of the findings.

5. CONCLUSION

In conclusion, this study sheds light on the critical nexus between economic conditions, education levels, workforce skills, and high unemployment rates in West Java Province. The comprehensive analysis, encompassing measurement model evaluations, discriminant validity assessments, and regression results, offers valuable contributions to both academic and policy spheres. The robustness of the Structural Equation Model and the statistical significance of the relationships underscore the importance of addressing education and skills development initiatives to tackle unemployment challenges. As West Java

navigates the complexities of its economic landscape, informed interventions in education and skill enhancement can play pivotal roles in fostering sustainable economic growth and reducing

unemployment. The findings of this research contribute essential insights that can inform targeted policy measures, ultimately fostering socio-economic development in the region.

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