

Analyzing Educated Unemployment in West Sumatra from a Macroeconomic Viewpoint

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Abstract

Educated unemployment is a structural phenomenon that is increasingly prominent in various regions in Indonesia, including West Sumatra Province. This condition is characterized by a relatively high Open Unemployment Rate (TPT) among population groups with secondary and tertiary education, which has the potential to hamper regional economic performance. This study aims to analyze the phenomenon of educated unemployment in West Sumatra from a macroeconomic perspective based on the highest level of education completed. The research method used is a descriptive quantitative approach by utilizing secondary data from the Central Statistics Agency (BPS) of West Sumatra Province, specifically TPT data by education for the period February and August 2025. The results show that groups with high school, vocational high school, diploma, and university education still face relatively higher unemployment rates than those with low education, with higher education graduates showing significant unemployment vulnerability. This finding indicates a structural imbalance between the supply of educated labor and the absorption capacity of the regional labor market. The implications of this study emphasize the need for integrated regional macroeconomic policies, particularly in strengthening knowledge-based productive sectors, increasing the match of graduate competencies with labor market needs, and optimizing the role of education in driving economic growth and sustainable labor absorption.

INTRODUCTION

Unemployment is a macroeconomic indicator that reflects the imbalance between labor supply and demand in an economy. In the context of national development, unemployment is not only a social issue but also a structural one that directly impacts productivity, economic growth, and social welfare. In recent years, attention to the phenomenon of educated unemployment has increased, along with the increasing proportion of unemployed people coming from

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Population groups with secondary and higher education levels. (Hidayat, N. 2025).

Nationally, employment data shows that high school and college graduates still dominate the open unemployment structure, even though education is seen as the main instrument for improving the quality of human resources. (Farliana, N. 2025) This condition indicates that increased access to education has not been fully accompanied by an increase in the capacity of the labor market to optimally absorb educated workers. (Maryati, S. 2015) From a macroeconomic perspective, this phenomenon reflects the existence of structural unemployment and labor market mismatch, namely the mismatch between the structure of labor qualifications and the needs of developing economic sectors. (Dayat, H. 2025).

The phenomenon of educated unemployment is also evident at the regional level, including in West Sumatra Province. Based on the Open Unemployment Rate (TPT) data based on highest education level, released by the West Sumatra Provincial Statistics Agency in 2025, it appears that the population with secondary and tertiary education has a relatively higher unemployment rate than the population with primary education. This empirical picture can be seen in Table 1 below.

**Table 1. Open Unemployment Rate (TPT) of West Sumatra Province
According to Highest Education Graduated in 2025 (Percent)**

Highest Education	February 2025	August 2025
High School	6,02	7,24
Vocational School	8,97	7,07
Diploma I/II/III	8,30	8,03
University	10,12	7,82

Source: BPS West Sumatra Province, 2025 (processed)

Table 1 shows that university graduates recorded the highest unemployment rate in February 2025, at 10.12 percent, followed by vocational high school (SMK) and diploma graduates. Despite a decline in the unemployment rate in August 2025, the unemployment rate among those with higher education remained above that of those with primary education. This pattern suggests that increasing educational attainment does not necessarily reduce the risk of unemployment; in some cases, it even increases vulnerability among educated groups.

From a human capital theory perspective, education is viewed as an investment that increases individual productivity and job opportunities (Arifin, A. S. 2023). However, empirical findings in West Sumatra indicate that the economic benefits of education have not been fully realized due to the limited regional economic structure in providing jobs that match graduate qualifications (Tria Wulandari, E. 2018). The economic structure, still dominated by the primary and informal sectors, results in low demand for highly educated workers, thus creating a surplus of educated workers in the regional labor market (Bappeda Sumbar, 2024).

Contemporary research in Indonesia also confirms that educated unemployment is closely related to macroeconomic factors such as regional economic growth, investment, and the quality of formal job creation (Rozaini, N. 2023). Furthermore, the mismatch between the education system and the needs of the workforce exacerbates the phenomenon of educated unemployment, particularly among recent college and vocational school graduates (Mada, M., & Ashar, K. 2015).

Thus, educated unemployment in West Sumatra Province cannot be understood solely as an individual's failure to find employment, but rather as a structural problem in the regional economy.

Therefore, this study aims to analyze the phenomenon of educated unemployment in West Sumatra quantitatively and descriptively from a macroeconomic perspective, emphasizing unemployment patterns by educational level and their implications for economic development and regional employment policies.

METHODS

This study uses a descriptive quantitative approach. This approach was chosen because the research objective was to systematically describe and explain the phenomenon of educated unemployment in West Sumatra Province based on the highest level of education completed, without testing the causal relationship between variables. Descriptive quantitative research allows researchers to objectively present the empirical conditions of the labor market through the processing and interpretation of official statistical data (Kurniawan, C. 2016).

From a macroeconomic perspective, a quantitative descriptive approach is relevant because the analysis focuses on regional aggregate data that reflects the structure and dynamics of the regional labor market, particularly in the context of the imbalance between the supply of educated labor and the absorption capacity of the regional economic sector (Syahputra, A. 2022).

This research is limited to analyzing educated unemployment in West Sumatra Province, focusing on population groups who have completed secondary and higher education, namely high school, vocational high school, diploma, and university. The analysis was conducted between February and August 2025, considering that this period represents the most recent employment conditions based on official data from the Central Statistics Agency.

The data used in this study is secondary data sourced from the Central Statistics Agency (BPS) of West Sumatra Province, specifically the Open Unemployment Rate (TPT) data by highest education attainment. The selection of BPS data was based on methodological validity, data reliability, and consistency with the operational definitions of employment indicators used nationally (BPS, 2025).

Secondary data was chosen because it is able to provide a comprehensive macro picture of regional labor market conditions and allows for efficient and measurable analysis in macroeconomic research (Hardana, A., Nurhalimah, N., & Efendi, S. 2022).

This study uses two main variables, namely: first, education level, education level is defined as the highest level of education completed by the workforce population, which is classified into Senior High School, Vocational High School, Diploma, and University according to the BPS classification. The second variable is the Open Unemployment Rate (TPT), the Open Unemployment Rate is the percentage of the population in the workforce who are not working and are looking for work or preparing a business to the total workforce.

TPT is used as the main indicator to describe the level of educated unemployment in West Sumatra.

The operational definition of variables follows the standards used by BPS so that the research results are consistent and can be compared with similar research (BPS, 2025).

The data collection technique was conducted through a documentary study, namely by collecting and processing official statistical data published by the Statistics Indonesia (BPS) of West Sumatra Province. The data were obtained from employment statistics tables available in BPS publications and online databases, then selected according to the research analysis requirements.

Data analysis was carried out using quantitative descriptive analysis, with the following stages: Grouping Open Unemployment Rate data based on education level, Comparing unemployment rates between education levels to identify education groups with the highest unemployment rates, Analyzing changes and trends in the Open Unemployment Rate between time periods (February and August 2025), Interpreting statistical findings within the framework of macroeconomic theory, especially the theory of structural unemployment, human capital, and labor market mismatch.

The analysis results are presented in tables and narrative descriptions, explaining the patterns and trends of educated unemployment without using inferential statistical tests or econometric modeling. This study has several limitations. First, the analysis is limited to aggregate data, thus incapable of explaining the behavior of individual job seekers. Second, this study does not directly examine causal factors such as wages, job preferences, or labor mobility. Nevertheless, this study remains relevant in providing a macro-level overview of educated unemployment as a basis for formulating employment policies and regional economic development.

Conceptually, this study views educated unemployment as a result of an imbalance between the increasing supply of educated labor and the limited demand for labor in developing economic sectors in the region. Education level is positioned as a labor force characteristic, while the unemployment rate (TPT) is used as an indicator of labor market performance from a macroeconomic perspective.

RESULT AND DISCUSSION

Based on the analysis of Open Unemployment Rate (TPT) data by highest level of education, the phenomenon of educated unemployment in West Sumatra Province shows a consistent and structural pattern. Population groups with secondary and higher education, particularly high school (SLTA), vocational high school (SMK), diploma (D3), and university degrees, have a higher aggregate unemployment rate than those with primary education. This finding reinforces the indication that increased educational attainment does not automatically translate into increased labor absorption at the regional level (BPS, 2025).

From a macroeconomic perspective, this situation reflects an imbalance between the supply of educated labor and the demand for available labor within the regional economic structure. The growth in the number of secondary and tertiary education graduates is not matched by the creation of formal jobs that match the qualifications and expectations of educated workers (Pane, S. G., Pramudya, W., Amalya, R. C., Aulia, S. N., & Pebriani, P. N. 2024).

Comparison of Unemployment Rates by Education Level

The descriptive quantitative approach in this study aims to systematically and objectively describe the pattern of educated unemployment in West Sumatra Province based on the last level of education completed.

Quantitative descriptions are not intended to test causal relationships, but rather to capture structural trends in the labor market and the distribution of unemployment in certain educational groups as a basis for macroeconomic analysis (Hariyanto, W. 2022).

In the context of educated unemployment, quantitative descriptions are important because they can demonstrate the paradox of educational development: the situation where increased educational attainment does not automatically translate into increased job opportunities. This phenomenon often occurs in regions with economic growth that has not yet fully absorbed the workforce with secondary and tertiary education (Sakernas, 2023; Bappenas, 2020).

Table 2. Open Unemployment Rate (TPT) by Education in West Sumatra in 2025 (Percent)

High School	6,02	7,24	6,63
Vocational School	8,97	7,07	8,02
Diploma	8,30	8,03	8,17
University	10,12	7,82	8,97

Source: BPS West Sumatra Province, 2025 (processed)

Table 2 shows that the unemployment rate does not decrease with increasing educational level; in fact, it exhibits the opposite pattern. University graduates recorded the highest average TPT, followed by diploma and vocational high school graduates. Meanwhile, the educated group... This pattern confirms that the job market in West Sumatra is more readily absorbing workers with low education than those with higher education.

Descriptively, this condition indicates a mismatch between the structure of labor supply and the structure of labor demand in the region. Higher education graduates generally prefer working in the formal sector with a certain level of wage and stability, while West Sumatra's economic structure is still dominated by informal trade, agriculture, and MSMEs, which do not yet fully require a highly educated workforce (BPS, 2025).

From a macroeconomic perspective, educated unemployment reflects the inefficient allocation of human capital. Public and private investments in higher education have not yet fully generated optimal contributions to regional output (GRDP), because some educated workers are not productively absorbed (Putri, C.S.A., Didu, S., & Desmawan, D. 2025). This has the potential to reduce aggregate productivity and slow regional economic growth in the long term.

Furthermore, a quantitative descriptive approach also shows that fluctuations in the Open Unemployment Rate (IPT) between periods (February and August 2025) do not significantly alter the main pattern of educated unemployment. The decline in the Open Unemployment Rate (IPT) for university graduates in August 2025, for example, was not enough to displace this group as the main contributor to educated open unemployment. This fact strengthens the argument that educated unemployment in West Sumatra is structural, not merely cyclical or seasonal (Pasuria, S., & Triwahyuningtyas, N. (2022).

Thus, the quantitative description presented through this table and analysis confirms that educated unemployment in West Sumatra is a real phenomenon that requires serious attention in the formulation of regional macroeconomic policies, particularly in aligning the education system with the direction of economic development and the needs of the regional labor market.

Descriptive Explanation of the Dynamics of Educated Unemployment Between Periods

The quantitative descriptive approach in analyzing the dynamics of educated unemployment between periods aims to describe the numerical changes in the Open Unemployment Rate (TPT) over time, without conducting causal hypothesis testing. In this context, the description does not only function as a presentation of statistical data, but also as an analytical tool to identify structural and temporal trends in the labor market in West Sumatra Province (Selfi, M. (2025).

Descriptive analysis between periods is important because the labor market is dynamic and influenced by both short-term and long-term macroeconomic factors. By comparing data from February and August 2025, this study attempts to capture the direction of changes in educated unemployment, whether it indicates structural improvement, stagnation, or simply temporary seasonal fluctuations (Saputri, R. N., Hayati, M., & Taufiqurrahman, T. 2025).

Table 3. Changes in the Open Unemployment Rate (TPT) by Education in West Sumatra in 2025 (Percent)

Education	Changes (Feb–Aug) 2025
High School	+1,22
Vocational School	–1,90
Diploma	–0,27
University	–2,30

Source: BPS West Sumatra Province, 2025 (processed)

Based on Table 3, descriptively, there is a non-uniform pattern of changes in the unemployment rate across educational levels. The low- to middle-educated group experienced an increase in the unemployment rate, while the vocational and higher-educated groups (vocational high school, diploma, and university) showed a decrease. However, the decline in the unemployment rate in this educated group cannot be directly interpreted as a structural improvement in the labor market.

From a descriptive perspective, the decline in the unemployment rate for university graduates by 2.30 percent and vocational high school graduates by 1.90 percent should be interpreted with caution. Although numerically indicating a positive trend, the unemployment rate for this group remains relatively high compared to the lower-education group, as shown in the previous analysis. This confirms that interperiod changes reflect short-term fluctuations in the economic cycle, such as temporary employment, expansion of the informal sector, or increased seasonal economic activity, rather than sustained structural transformation (Diana, B. 2025).

From a macroeconomic perspective, this dynamic indicates that the decline in educated unemployment has not been accompanied by an expansion of the knowledge-based productive sector. Without growth in high-value-added industries and the creation of formal jobs commensurate with graduate qualifications, the decline in the TPT risks being temporary and vulnerable to a rebound in the following period (Bappenas, 2022).

Thus, descriptively, it can be concluded that the dynamics of educated unemployment in West Sumatra in 2025 still exhibit strong structural characteristics, where changes between periods are more quantitative in nature and do not yet reflect

fundamental improvements in the linkages between the education system and the labor market.

This descriptive approach provides an important foundation for understanding the complexities of educated unemployment before moving on to formulating more responsive and sustainable regional macroeconomic policies.

Educated Unemployment in Macroeconomic Perspective

From a macroeconomic perspective, the high rate of educated unemployment in West Sumatra reflects the phenomenon of structural unemployment. The regional economic structure, still dominated by the primary and informal sectors, has limited demand for highly educated workers (Bappeda Sumbar, 2024). Consequently, there is a surplus of educated workers who cannot be absorbed by existing productive sectors.

Furthermore, human capital theory states that education increases productivity and job opportunities (Lukman, M.D. 2025). However, in the context of West Sumatra, these educational benefits have not been fully translated into decent employment opportunities due to low economic diversification and a lack of knowledge-based industries (Jo, J. 2021). This situation reinforces the argument that the problem of educated unemployment lies not with individuals, but rather with a systemic failure to connect education with regional macroeconomic needs.

From a regional macroeconomic perspective, educated unemployment also directly impacts the efficiency of human resource utilization and regional economic growth.

Unemployed highly educated workers or those working in the low-productivity informal sector create a potential output gap, the difference between actual output and the potential output that could be achieved if the workforce were optimally utilized (Putri, R. F. 2015). In the long term, this condition has the potential to suppress the growth rate of Gross Regional Domestic Product (GRDP) and reduce West Sumatra's economic competitiveness compared to other provinces.

Furthermore, educated unemployment also has implications for socioeconomic stability and the effectiveness of development policies.

High unemployment rates among secondary and tertiary education graduates can trigger underemployment, social frustration, and reduce the return on public investment in the education sector (Bappenas, 2022; Ministry of Manpower, 2023). Therefore, from a macroeconomic perspective, educated unemployment must be understood as an indicator of failed coordination between education policy, employment policy, and regional economic development strategies, rather than simply a labor market issue.

Implications for Regional Economic Growth and Development

Educated unemployment has serious implications for regional macroeconomic performance. First, this phenomenon reflects the inefficient allocation of human resources, where substantial investments in education do not produce optimal economic output (Todaro, 2020; Suryahadi, 2021). Second, high levels of educated unemployment have the potential to create brain waste and encourage the migration of educated workers out of the region, ultimately hampering local economic development (Yanti, N., Nurtati, N., & Misharni, M. 2020).

Third, from a public policy perspective, this situation demands a transformation of the regional economic structure by strengthening the industrial

sector, innovation-based MSMEs, and increasing the linkage between secondary and higher education and labor market needs (Ministry of Manpower, 2023; BPS, 2025). Without integrated policy intervention, educated unemployment has the potential to become a major obstacle to inclusive and sustainable economic growth in West Sumatra Province.

Overall, this study confirms that the phenomenon of educated unemployment in West Sumatra is a complex and multidimensional macroeconomic issue. The high unemployment rate among high school and university graduates indicates a disconnect between the education system and the regional economic structure.

Therefore, educated unemployment must be understood as a structural problem that requires a cross-sectoral policy approach, not simply a matter of increasing access to education.

Theoretical Discourse and Empirical Validation in the Phenomenon of Educated Unemployment

Academically, the results of this study open up a discussion between existing theory and the reality found in the field. In the context of human capital theory, education is considered an investment that increases individual productivity while opening up greater opportunities for better employment and income. Therefore, theoretically, the higher a person's education, the lower their likelihood of unemployment (Jo, J. 2021).

However, the results of this study actually show the opposite situation. Data on the Open Unemployment Rate (TPT) in West Sumatra Province shows that higher education graduates, especially those from universities and diplomas, have a higher unemployment rate compared to those with lower education. This finding questions the fundamental validity of human capital theory in the context of a regional economy whose structure is not yet fully developed (Pasay, N. H., 2012). The difference between what is predicted theoretically and the existing reality can be understood using the labor market mismatch and structural unemployment approaches.

From this perspective, the main issue lies not solely in individual quality, but in the mismatch between the skills taught by the education system and actual labor market needs. This means that even though educated workers have higher education, this does not always match the demand in the local economic sector. Furthermore, neoclassical economic theory, which emphasizes the importance of flexibility in the labor market, cannot fully explain this situation (Aulia, M. 2017). In reality, the labor market in regions like West Sumatra experiences structural rigidity, whether due to limited formal employment opportunities, low levels of industrialization, or the dominance of the informal sector. This situation results in market mechanisms not functioning properly in absorbing educated workers (Maryati, S., 2018).

Thus, the findings of this study confirm that classical theory must be understood within the context of regional economic structural conditions. The phenomenon of unemployment among educated workers cannot be explained by a single theoretical approach but requires a broader perspective that combines human capital theory, labor-labor mismatch, and the dynamics of regional economic development. This academic discussion demonstrates that educational advancements

that are not accompanied by structural transformation of the economy will only create a surplus of educated workers that cannot be optimally absorbed.

CONCLUSION

The phenomenon of educated unemployment in West Sumatra Province indicates that the increase in the population's education level has not been fully matched by the regional labor market's ability to absorb workers with secondary and tertiary education. Based on quantitative descriptive analysis, high school (SMA), vocational high school (SMK), diploma, and university graduates consistently experience relatively higher open unemployment rates than those with lower education. This finding confirms the existence of structural problems in the regional economy, particularly the mismatch between the supply of educated labor and the structure of labor demand.

From a macroeconomic perspective, educated unemployment reflects the inefficient use of human capital, potentially reducing productivity and hampering regional economic growth. The under-utilization of educated workers leads to missed opportunities to increase regional output and weakens the education sector's contribution to economic development. This situation demonstrates that investment in education does not fully deliver commensurate economic returns unless supported by structural economic transformation capable of creating quality jobs.

Based on these findings, this study recommends aligning regional economic and employment development policies with educational development. Local governments need to encourage the growth of knowledge- and skills-based productive sectors, strengthen the investment climate that creates formal employment for educated workers, and enhance the role of vocational education and job training that address real labor market needs. Furthermore, strengthening collaboration between education, the business world, and the government is a strategic step to reduce the competency gap among graduates.

Implications suggest that educated unemployment cannot be viewed solely as an individual issue, but rather as an indicator of the overall performance of regional economic development. Therefore, addressing it requires an integrated, sustainable, and data-driven macro approach. With well-targeted policies, educated unemployment in West Sumatra can be reduced while optimizing the role of educated human resources as the primary driver of economic growth and public welfare.

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