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Determinants and Solutions for Youth Unemployment in East Java Province in 2023

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Abstract
Youth unemployment remains a problem in East Java Province. This study aims to analyse the determinants of youth unemployment in East Java Province in 2023. Secondary data from the 2023 National Labor Force Survey (Sakernas), with individual-level observations, were analysed using binary logistic regression. The results showed that gender, marital status, education level, age, work experience, the district/city minimum wage (UMK), and economic growth significantly affected youth unemployment. Synchronisation is needed between the education system and market needs so that graduates can enter the workforce immediately. In addition, quality and inclusive economic growth are essential in increasing youth labour absorption.

Keywords: Youth Unemployment, Sakernas, Binary Logistic Regression

Faktor Penentu dan Solusi Pengangguran Usia Muda di Provinsi Jawa Timur Tahun 2023

Abstrak
Pengangguran usia muda masih menjadi permasalahan ketenagakerjaan pada Provinsi Jawa Timur. Penelitian ini bertujuan untuk menganalisis determinan yang mempengaruhi status pengangguran pada pemuda di Provinsi Jawa Timur pada tahun 2023. Data sekunder dari Survei Angkatan Kerja Nasional (Sakernas) 2023 dengan amatan individu, dianalisis menggunakan regresi logistik biner. Hasil penelitian menunjukkan bahwa jenis kelamin, status kawin, tingkat pendidikan, umur, pengalaman kerja, upah minimum Kabupaten/Kota (UMK), dan pertumbuhan ekonomi berpengaruh signifikan terhadap pengangguran di usia muda. Diperlukan sinkronisasi antara sistem pendidikan dan kebutuhan pasar agar lulusan dapat segera memasuki dunia kerja. Selain itu, pertumbuhan ekonomi yang berkualitas dan inklusif juga merupakan elemen penting untuk meningkatkan penyerapan tenaga kerja di kalangan pemuda.

Kata Kunci: Pengangguran Usia Muda, Sakernas, Regresi Logistik Biner

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INTRODUCTION

Indonesia is one of the developing countries facing unemployment, which remains a significant challenge to its economic development. This problem is closely related to the transition from education to work faced by individuals aged 15-24 (ILO, 2020). Unemployment is the population that is included in the workforce but does not work, actively looking for a job, or even preparing to start a business. The added value of an

individual or human being will increase if driven by training or education. It is related to the workforce and a country's high unemployment rate. The human resources population has a positive or negative influence because their role is seen through their activities as workers.

High levels of youth unemployment hamper efforts to achieve the Sustainable Development Goals (SDGs), particularly those related to sustainable economic growth and job creation (Abdullah et al., 2024). Based on the SDGs 4 and 8 on education and employment, this goal aims to ensure that everyone has access to quality education. Good education improves an individual's knowledge and skills and increases their competitiveness in the job market. Meanwhile, creating decent jobs is key to reducing unemployment, especially among the younger generation (Iduseri et al., 2022).

Providing them with opportunities to work in good conditions helps them become financially independent and contributes to sustainable economic growth. Thus, investment in education and decent work is crucial for broader social and economic development. The problem of youth unemployment has far-reaching implications and affects various aspects of life. Focusing on solutions to unemployment is essential to achieve the Sustainable Development Goals (SDGs). Therefore, efforts to reduce youth unemployment must be a priority to achieve broader development goals and create more prosperous and united societies (Kumar & Shobana, 2024).

Unemployment among youth is a serious issue in employment that needs to be addressed immediately. This young age group has great potential as development asset. The high unemployment rate shows that a country has failed to optimize human resources (Alawad et al., 2020). The more productive age population that is unemployed means that the age group generates less income. As a result, their purchasing power becomes low, so demand for goods and services will also decrease. It can hamper economic growth, leading to stagnation or even a decline in economic activity. On the other hand, the unemployed in the productive age group will be a burden on those already working and earning income. In addition, increasing unemployment will increase the number of people living in poverty.

Maximizing the potential of the productive-age population is essential to a country's economic growth. Efforts such as improving human resources, providing jobs, and developing social security systems can increase their contribution. Young people are three times more likely to be unemployed than adults, especially during the transition from education to work. They must adapt to the work environment, meet expectations, and adjust to the organizational culture. Limited experience and skills, along with fierce competition, increase the risk of unemployment among young people (Hatibu & Hafidh, 2021).

Young people also face other challenges, such as a mismatch between their skills and industry needs and a lack of work experience that can be a barrier to finding suitable employment. Therefore, comprehensive efforts are needed to support young people's transition from education to work, for example, through training programs, internships, and close collaboration among educational institutions, industry, and government. This can help reduce the risk of unemployment among young people and assist their transition process.

Young people's role is vital in a region's economic development. However, in reality, unemployment is dominated by young people and is still a significant problem. Young people should continue to be encouraged to improve their quality of life through education and training (Tsokhla & Polishchuk, 2018).

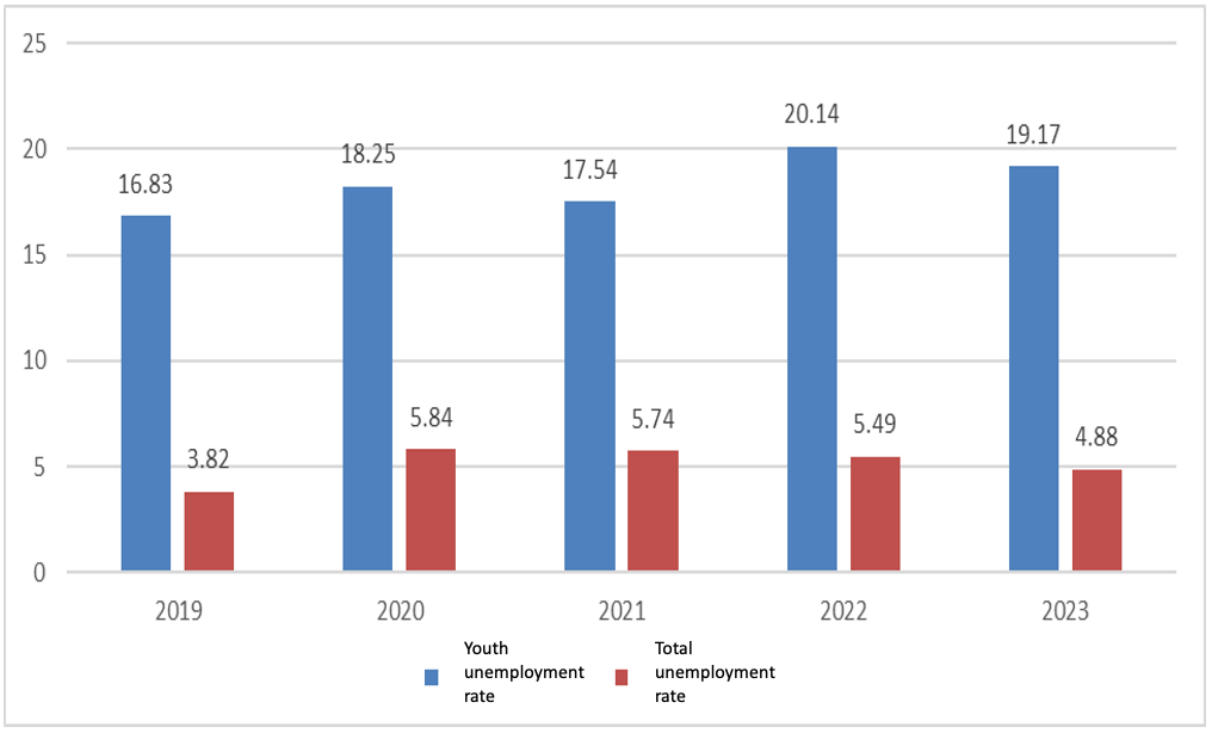

Figure 1. Youth Unemployment Rate and Total Unemployment Rate in East Java, 2019-2023 (Source: Sakernas 2023, processed)

The highest Open Unemployment Rate (TPT) in the Southeast Asia region is in Indonesia. According to Manning and Pratomo (2018), Indonesia does not rank highly in workforce utilisation. Indonesia is faced with the problem of high unemployment rates, both general unemployment and youth unemployment, when compared to other countries in the Southeast Asian region, except for the Philippines, which also has a high unemployment rate. The proportion of working-age youth in Indonesia who are neither working nor attending school is also relatively high, reaching around 20% in recent years. It indicates that Indonesia's workforce utilisation remains suboptimal. In addition, Indonesia's high unemployment rate indicates that many workers have not found suitable jobs. This is a significant challenge for the government and stakeholders in creating new jobs, especially given population growth and the number of new graduates each year. There are still many productive workers who have not been absorbed, so continuous efforts are needed to accommodate the increase in the workforce. The above problems also occur in East Java Province, one of Indonesia's provinces with the largest workforce. The challenge of suboptimal workforce utilisation in East Java underscores the need to increase youth participation in productive activities. The low rate of labour absorption, especially among young people, can be caused by a range of factors, including mismatches between labour

skills and market requirements, limited job opportunities, and structural barriers in the labour market.

There is a significant difference between the unemployment rate at the young age group and the overall unemployment rate (Figure 1). Over 5 years, the unemployment rate for the young age group tends to be much higher, ranging from 18% to 21%. Meanwhile, the unemployment rate across all age groups is lower, ranging from 4% to 7%. This indicates that those at the young age group face more significant job challenges than others. This can be caused by several factors, such as limited work experience, skills that are not yet fully aligned with labour-market needs, or limited job opportunities for young people. Although there are fluctuations in increases and decreases from year to year, in general, the unemployment rate among young people tends to be much higher than the overall unemployment rate. This condition indicates the need for special efforts to overcome the problem of unemployment among young people.

There are several studies on unemployment in Indonesia and East Java. Sitinjak and Ghuzini (2023) studied the spatial distribution of youth unemployment (15–24 years old) in 33 provinces in Indonesia between 2010 and 2018. The study's spatial analysis showed that higher minimum wage ratios increased youth unemployment, while higher real wages slightly reduced it. In addition, absorption of labour in the industrial sector reduced youth unemployment, but absorption in the service sector worsened the condition. Furthermore, Sari et al. (2024) examined the factors influencing youth open unemployment in Indonesia (2016–2019). The results showed that regional gross domestic product had a significant effect in rural areas, while registered job seekers and foreign investment had an impact in urban areas. Specifically in East Java, Safitri and Endang (2024), who studied educated unemployment, highlighted that the large population on the island of Java creates intense job competition, leading to unemployment. East Java faces similar problems due to uneven development and a lack of adequate employment opportunities.

Moreover, Rizaldi & Utomo (2021) analysed the factors influencing youth unemployment in East Java in 2019 using negative binomial regression. The results showed that minimum wages, labour absorption in the agricultural and industrial sectors, economic growth, and high school APK had a significant effect. In contrast, high school graduates/equivalent and investment had no effect. Huda et al. (2017) analysed the factors influencing educated unemployment in East Java using data from BPS and explanatory methods. The results showed that minimum wages, working-age population, and GRDP influenced educated unemployment. Research on NEET (Not in Employment, Education, and Training) youth conducted by Purwa et al. (2023) utilizing micro Sakernas data, found that the 2020 pandemic increased the NEET rate, especially in Mataraman, but decreased in 2021. The variables of gender and the interaction of age and education had different effects between regions. In contrast, the factors of location, age, marital status, activities, and education of the head of the household had a consistent effect. These findings underscores the pandemic's role in shaping youth employment challenges and policy needs.

Based on the research findings above, demographic and socio-economic characteristics influence youth unemployment. In this study, the variables include gender, marital status, age, education level, and residential area classification, all of which are demographic characteristics. Furthermore, this study uses work experience, district/city

minimum wage (UMK), and economic growth as socio-economic characteristics. These variables are based on theoretical studies and previous research findings, as explained in the following discussion.

Unemployment is more likely among men. However, although women get jobs faster, according to data from the Ministry of Women's Empowerment and Child Protection (2016), their jobs tend to be less productive, reflecting the theory of labour market segmentation, which shows the influence of gender on women's employment opportunities and welfare. Furthermore, the young workforce, who tend to be unemployed, are those with low levels of education, which are otherwise positively related to opportunities for better jobs and wages and to reducing poverty (Eryong & Xiuping, 2018). The human capital theory, developed by economists such as Gary Becker, Jacob Mincer, and Theodore Schultz, emphasises that investing in developing individual knowledge, skills, and abilities (human capital) will increase productivity and income. Human resources, or human capital, are vital to determining a country's economic development. Human capital is a cognitive resource derived from the abilities of productive humans in the economic realm to drive economic growth (Becker, 1962; W.Schultz, 1961). In addition, W. Schultz (1961) stated that human capital is one of the most critical factors in increasing a country's economic productivity. However, in some countries, including Indonesia, highly educated individuals are often unemployed longer because they seek jobs that match their qualifications. Therefore, unemployment is more experienced by those with higher education (Ashayeri et al., 2024).

Age affects a person's motivation and outlook on work. Adults tend to see work as a responsibility, not just a source of income. Older individuals aged 25-29 have higher intentions to work than younger individuals (Liu & Xiao, 2024; Wardhana et al., 2019). They are considered to have better experience and skills, so they are more competitive in the job market and in demand by employers. The human capital theory is also related to the work experience of the young workforce, as shown in previous research by Flek et al. (2018), which found that young workers aged 16 to 24 have a greater risk of job loss and subsequent unemployment. This risk can be 2 to 3 times higher than for workers aged 35 to 49, reflecting that young workers are often more vulnerable to fluctuations in the job market, perhaps due to a lack of relevant experience or skills.

In addition to Human Capital Theory, this study also relates to the Theory of Demand and Supply of Work, linking to the Regency/City Minimum Wage (UMK), where the higher the wages, the more interested the workers in offering their labour, shown in previous research of Classical Growth Theory and Keynesian Theory related to economic growth by Dwi and Woyanti (2020). Economic growth has a negative relationship with unemployment because higher economic growth increases employment opportunities that absorb much labour, thereby decreasing unemployment (Ebaidalla, 2016).

Given the problems outlined, it is essential to examine the determinants of youth unemployment in East Java. In addition, this research will fill gaps in prior research on early employment and in the limited use of individual microdata to examine the determinants of youth unemployment. On the other hand, this research considers regional characteristics by using macro data at the Regency/City level in the econometric model, which is a novelty of this research. This research has several questions: (1) What is the general picture of youth

unemployment in East Java Province? (2) What is the influence of gender, marital status, education level, regional classification, age, work experience, district/city minimum wage (UMK), and economic growth on youth unemployment in East Java Province?

METHOD

This study used cross-sectional data for one period in 2023 from the microdata of the National Labor Force Survey (SAKERNAS) conducted by the Central Statistics Agency (BPS) of East Java Province in August 2023. Besides, this study utilized macro data, including the regency or city minimum wage (UMK) from *www.disnakerpmptsp.malangkota.go.id* and economic growth from *www.jatim.bps.go.id*. The observations in this study focused on youth aged 15-24 years in the workforce in East Java Province in 2023, with a total of 5,546 respondents. This study employed a quantitative approach to analyse the effect of independent variables on dependent variables.

The dependent variable in this analysis was youth labour force status, comprising "employed" and "unemployed" categories, with "employed" serving as the reference category. The independent variables were as follows: 1) Gender (JK), with male and female categories (female as the reference); 2) Marital Status (SK), categorized as unmarried versus married (the latter including married, divorced, and widowed, with unmarried as the reference); 3) Education Level (TP), dichotomized into higher education (senior high school, vocational, and tertiary qualifications: SMA/MA/SMLB/Package C, SMK, MAK, Diploma I/II/II, Diploma IV, S1, S2 and S3) and low education (Not/Have not graduated from elementary school, SD/MI/SDLB/Package A, and SMP/MTs/SMPLB/Package B), with the low education category as the reference; 4) Regional Classification (KW), distinguishing urban and rural areas (rural as the reference); 5) Work Experience (PK), measured as a dichotomous (yes/no); and three continuous variables: Age (age), Regency/City Minimum Wage (UMK), and Economic Growth (PE).

For this study, a binary logistic regression econometric model was employed. Logistic regression is a statistical analysis method used to analyse the relationship between one or more independent variables and a binary (dichotomous) dependent variable. This model serves to determine both the joint (simultaneous) and individual (partial) significance of the independent variables in influencing the dependent variable. Furthermore, it enables the estimation of the probability that a given outcome will occur, based on the values of the independent variables (Widarjono, 2010).

The binary logistic regression model is appropriate for a dependent variable comprising two mutually exclusive categories. In this model, the dependent variable is coded as 0 or 1, while the independent variable may be either numeric or categorical. As a form of non-linear regression, the model estimates the log-odds of the dependent variable being in one category versus the other. The predictor variables in this framework can also include numeric and categorical types (Roflin et al., 2023). The logit function is specified in Equation (1) as follows:

$$\ln\left(\frac{Pi}{1-Pi}\right) = \beta_0 + \beta_1 JK + \beta_2 SK + \beta_3 TP + \beta_4 KW + \beta_5 PK + \beta_6 Umur + \beta_7 UMK + \beta_{8\,PE} \quad \ldots (1)$$

Where:
Pi : Probability of youth becoming unemployed
1-Pi : Probability of youth becoming workers

Following the estimations of the logistic regression model, statistical testing was conducted in two stages. First, the overall significance (simultaneously) of the model was assessed using the G-statistic test (likelihood ratio test). This test determines whether the set of independent variables, take together, has a statistically significant relationship with the dependent variable. Subsequently, the individual significance (partial) of each predictor was also evaluated using the Wald test (Hosmer et al., 2013). This step examines whether each independent variable significantly affects the dependent variable individually.

In this study, the hypotheses used are as follows:
H1: Gender affects youth unemployment status
H2: Marital Status affects youth unemployment status
H3: Education Affects Youth Unemployment Status
H4: Regional classification affects youth unemployment status
H5: Age Affects Youth Unemployment Status
H6: Work experience affects youth unemployment status
H7: Regency/City Minimum Wage affects youth unemployment status
H8: Economic Growth Affects Youth Unemployment Status

The parameter estimates obtained from the logistic regression model were then analysed using odds ratios. An odds ratio quantifies how much more likely (or unlikely) an observation with specific characteristics (x = 1) is to experience a successful event (Y = 1) than an observation with other traits (x = 0). In other words, the odds ratio indicates how many times the probability of an observation with specific characteristics experiencing a successful event is greater than the probability of other observations experiencing a successful event as well. This analysis is fundamental for interpreting the logistic regression results, especially in the context of the probability of an event occurring based on the influence of each independent variable—data processing using SPSS 22 software.

FINDING AND DISCUSSION

Overview of Characteristics of Youth Unemployment in East Java Province in 2023

Figure 2 shows that in 2023, the highest youth unemployment rate in East Java Province was in Malang Regency (52.581 people), Jember Regency (44.987 people), and Surabaya City (39.340 people). Meanwhile, the lowest youth unemployment rate was in Mojokerto City (1.992 people).

Based on Table 1, the young workforce aged 15-24 in East Java Province who are unemployed are primarily male (64,4%), have never been married (93,4%), have higher education (77,2%), and have no work experience (69%).

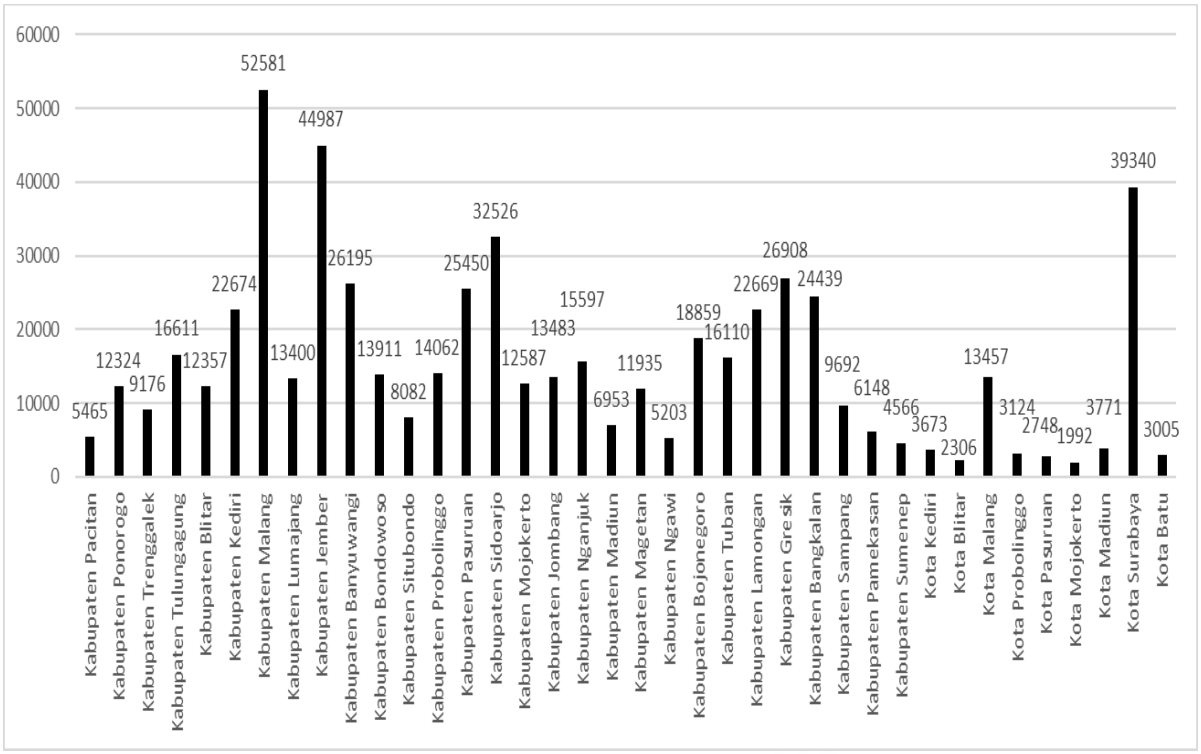

Figure 2. Youth unemployment by Regency/City in East Java Province in 2023 (Source: Sakernas 2023, processed)

Table 1. *Overview of Youth Unemployment*

Characteristics		**Employment Status**	
		Employed	**Unemployed**
Gender	Female	41.0%	35.6%
	Male	59.0%	64.4%
Marital Status	Married	16.7%	6.6%
	Single	83.3%	93.4%
Education	Low	29.3%	22.8%
	High	70.7%	77.2%
Region Classification	Rural	43.1%	39.1%
	Urban	56.9%	60.9%
Work Experience	No	63.1%	69.0%
	Yes	36,9%	31,0%

Source: Sakernas 2023, processed

Table 2 presents the results of the simultaneous and partial tests of the logistic regression analysis. Based on the value of prob>Chi, which shows a result of 0,000, this value is smaller than the test significance of 0,05, which means that simultaneously, the results are obtained to reject H0, reckoning that there is at least one independent variable influences the dependent variable.

Table 2. *Results of Regression Coefficient Estimation and Significance of Independent Variables on Dependent Variables*

Variable	Coefficient	Significance	Odds Ratio
Gender (Male)	0,197***	0,007	1,217
Marital Status (Not)	0,644***	0,000	1,903
Education (High)	0,609***	0,000	1,839
Age	-0,113***	0,000	0,893
Region Classification (Urban)	0,048	0,550	1,049
Work Experience (Yes)	-0,150*	0,052	0,860
UMK	0,000*	0,097	1,000
Economic Growth	-0,069**	0,041	0,934
Constant	-0,140	0,732	0,870

Source: Sakernas 2023, processed

Note: ***Significant at 1% level
**Significant at 5% level
*Significant at 10% level

The male gender has a significant positive effect on youth unemployment, with an odds ratio of 1,217, suggesting that men are 1,2 times more likely to be unemployed at a young age than women. According to Thébaud and Pedulla's (2016), due to a deeply rooted culture of masculinity, where men are considered the family's primary breadwinners, leads to greater pressure to get and maintain a job. Men are more vulnerable to long-term unemployment when experiencing difficulty finding or losing a job. According to data from the Ministry of Women's Empowerment and Child Protection (2016), women tend to get jobs more quickly, though often at lower productivity levels. Then, Wall (2022) also explains that before the mid-1980s, men were more vulnerable to the impact of unemployment during economic recessions than women. This is influenced by differences in employment patterns, with men working more in sectors highly affected by economic cycles, such as manufacturing, mining, and construction. At the same time, women are more concentrated in the service sector, which is more resilient to economic shocks.

Unmarried individuals are significantly more likely to become unemployed at a young age than those who are married (married, divorced, or widowed). The odds ratio value for unmarried status is 1,903. Unmarried young people are around 1,9 times more likely to become unemployed than those who are married. This is due to the greater responsibility and burden for married individuals. Meanwhile, unmarried individuals meet only their personal needs and usually depend on their parents, so their motivation to find job is lower (Alawad et al., 2020). According to Wang et al. (2024), married couples usually work together and contribute to the family's income. This dual income provides them with better financial stability. In contrast, unmarried individuals living alone rely entirely on their income. If they lose their jobs, they have no other source of income, so they face a higher risk of prolonged unemployment due to financial stress. According to Hamjediers and Schmelzer (2022), based on Theory of Social Support, having a marriage partner can provide benefits in the world of work. Emotional and practical support from a partner can

increase job opportunities and provide financial stability, helping individuals achieve their career goals.

The analysis yielded an odds ratio of 1,839 for the education variable. This indicates that, holding other factors constant, young people with higher education are 1.84 times more likely to be unemployed than the individuals with lower education, a statistically significant positive effect. Individuals with higher education tend to be very selective or picky when seeking a job; they adjust their level of education to the appropriate salary and position, so they refuse to work for a low salary or in a low-level position. However, labour market conditions often do not support this expectation. Many companies offer lower starting salaries and entry-level positions that may not meet graduate expectations. This mismatch can lead to prolonged job search durations and underemployment (Ashayeri et al., 2024). Unlike low-educated individuals, they find it easier to accept jobs with mediocre salaries or positions. Many graduates face difficulties when their qualifications do not align with the needs of the world of work. As a result, even though they have higher education, these graduates have difficulty finding suitable jobs (Jamaludin et al., 2021).

Moreover, the analysis produced an odds ratio of 0.893 for the age variable. This indicates that, within the 15–24-year age range, each one-year increase in age is associated with a reduction in the odds of unemployment by 0.9 time. This finding suggests that age influences work-related motivation and perspectives. As individuals within this group grow older, they may increasingly view employment not merely as an income but also as a personal responsibility and obligation, feeling compelled to work to meet personal economic needs and to support their families (Stynen et al., 2014). Furthermore, individuals who are more mature are often considered more capable and ready to compete in the labour market than younger people. It stems from the assumption that older people have accumulated extensive work experience and developed the skills needed for the job. These experiences and abilities make them more competitive and more in demand by employers (Wardhana et al., 2019).

In addition, urban area classification does not have a significant effect on youth unemployment. The division of areas into rural and urban is not the main factor influencing the unemployment rate among young people (Oumarou, 2019). Population movement or migration plays a more significant role in shaping the dynamics of youth employment. When young people decide to move from rural to urban areas, or vice versa, they usually have a clear goal, such as seeking better job opportunities or continuing their education. So, not only does the location of residence affect the unemployment rate, but also their attitudes and efforts in seeking opportunities. Although unemployment rates differ between these areas, both face the same challenge: high youth unemployment. In rural areas, job opportunities are often limited, especially in the agricultural sector, and access to education and skills training is limited. Meanwhile, although many jobs are available in urban areas, fierce competition and a mismatch between young people's skills and the labour market's demands are major obstacles (Yadav, 2020).

The odds ratio for those with work experience was 0.860. Individuals with work experience have a significant adverse effect on youth unemployment. This means that individuals with work experience are 0,8 times less likely to become unemployed than those without work experience. Job seekers with prior work experience are more likely to land a

job that matches their background and qualifications. According to Hervelin and Villedieu (2022), work experience increases the likelihood that young people will drop out of school to get a job. Work experience plays a vital role in attracting recruiters' attention, especially for those with lower levels of education. Usually, employers select experienced workers because a lack of experience is considered unpreparedness for work (Dagume & Gyekye, 2016).

Meanwhile, the district/city minimum wage (UMK) variable obtained an odds ratio of 1. The UMK shows a significant positive association, meaning that higher UMK in the residential area increases the likelihood that young people will become unemployed. Kim and Lim (2018) showed that an increase in the minimum wage is often associated with an increase in the unemployment rate. When the government implements or increases the minimum wage, some companies may take steps to offset these costs, which can result in fewer new hires or, in more extreme cases, layoffs of existing employees to manage expenses. Moreover, some employers may consider investing in automation technology to replace human workers, especially for low-wage jobs (Ten & Wang, 2020).

For the economic growth variable, the odds ratio value is 0,934. Economic growth has a significant adverse effect, implying that if economic growth in the region increases, the population's tendency to become unemployed will decrease by approximately 0,9 times. It can be inferred that economic growth absorbs labour (Sam, 2016; Sari & Sirait, 2024). Economic growth significantly reduces unemployment by increasing employment opportunities, which absorbs much labour (Ebaidalla, 2016). When the economy expands, production of goods and services rises, leading to higher consumer spending and demand. To meet this demand, companies often increase their workforce (Kalinová & Kroutlová, 2023), creating a positive cycle in the labour market (Tjahjanto et al, 2023).

CONCLUSION

Youth unemployment in East Java Province is concentrated in Malang Regency, Jember Regency, and Surabaya City. Gender, marital status, education, and UMK significantly positively affect youth unemployment status, while age, work experience, and economic growth significantly negatively affect it.

Based on the results, the policy recommendation is to align the education system with labour-market needs so that young people are more easily absorbed into the labour market. To improve the integration between the education system and the needs of the labour market, it is necessary to align the competency-based curriculum with the needs of the industry through cooperation between educational institutions, the government, and the business world, as well as strengthening vocational education that focuses on internship programs, competency certification, and providing incentives for industries involved in workforce training. Furthermore, developing a workforce monitoring system and digital platform can help connect young job seekers with suitable job opportunities, ensuring transparency and accountability. In contrast, regular job fairs and career expo programs can increase access to the labour market.

Overall, improving quality and inclusive economic growth are key factors in expanding the absorption of young workers. Inclusive and sustainable economic growth needs to be encouraged by increasing young people's capacity through soft skills training,

financial literacy, and Industry 4.0 readiness, so they are more adaptable and competitive in the world of work.

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