Indonesia’s Youth Unemployment Rate: Evidence from Sakernas Data

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ARTICLE INFORMATION

Publication information
Research article

HOW TO CITE

DOI: https://doi.org/10.32535/jicp.v6i1.2346

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Received: 21 February 2023
Accepted: 20 March 2023
Published: 27 March 2023

ABSTRACT

Unemployment is a problem that is often faced by every country, including Indonesia. The phenomenon of unemployment in Indonesia shows that a highly educated population does not necessarily have a job, especially in the young age group. This study aims to determine the factors that affect young educated unemployment in Indonesia. This study used variable levels of education, training, experience, major of education, gender, geographical area and urban/rural classification. Using Badan Pusat Statistik (2021) data, this research employs a logistic regression model. The results showed that 50.99% of the young educated people in Indonesia did not have a job. All variables in this study have a significant effect on young educated unemployment in Indonesia. The quality of education needs to be improved so that the competitiveness of the Indonesian workforce increases, and self-development programs can help reduce the youth-educated unemployment rate.

Keywords: Educated Unemployment; Young Population, Revolution Industry 4.0, Sakernas, Logistic Regression Model
INTRODUCTION

Indonesia is known as a developing country with a high population. Indonesia itself occupies 4th place with the most populous in the world. The characteristic of Indonesian population is dominated by young people or productive individuals, where the proportion of productive individuals in Indonesia has 70.72% of the whole population (Badan Pusat Statistik, 2021a). This condition can lead to a phenomenon known as a Demographic Bonus. A demographic bonus is a situation where the productive population exceeds the non-productive population. If the number of people of productive age is proportional to the level of productivity of the population, then the demographic bonus can be the jumping point for economic growth (Hayes, 2015).

The presence of a demographic bonus must balance the quality of Human Resources and robust policy plans to utilize the demographic bonus phenomenon. According to Corbanese and Rosas (2016), young individuals generally have a greater probability of becoming unemployed than the mature population, so demographic bonuses can have a positive impact if accompanied by government readiness to utilize the available labor in Indonesia.

One of the policies related to the Demographic Bonus is included in the targets of the 2015-2019 RPJMN which aims to increase the workforce's competitiveness index to prepare Indonesia's labor to compete in the global labor market. Therefore, particular policies focus on two issues: labor and education. However, the reality on the ground states that 63% of the workforce in Indonesia is a junior high school graduate or lower (Bappenas, 2014). This condition will ultimately affect labor productivity and competitiveness, which is relatively low. Low labor productivity will affect investors investing in Indonesia so labor absorption will decrease.

Compared with other ASEAN countries, Indonesia is the most populous country but has a lower global competitiveness index. Indonesia's low competitiveness index rank is caused by several things, such as a falling score on the pillars of labor market skills (Jayani, 2019). The lower score in labor market skills is also affected by the decreased productivity of Indonesian labor. According to KADIN (2019), Indonesia's productivity is still below the standard of industrial needs. The investment can be given for young educated in facing the competition in the job market by exploring and developing their potency through Education (Bappenas, 2014).

One capital that can be given to young people in facing competition in the job market is to seek and develop potential through education (Bappenas, 2014). Education is considered to play the most important role in determining human quality. The correlation between education and human quality is the higher the level of education, the quality of life of individuals will increase. Knowledge gained through education can be an asset for individuals to develop. Education also strongly correlates with unemployment (McKee-Ryan, Song, Wanberg, & Kinicki, 2005). In developing countries, unemployment cases are often found, dominated by young people who have pursued higher education. Young unemployed are those who are included in the labor force group and are in the age range of 15-24 years (UNDESA, 2013). According to Pasay and Indrayanti, (2012), educated unemployed are a group with sufficient educational qualifications but still do not have a job. Based on BPS itself, the educated unemployed are residents who have completed minimum high school education and do not yet have a job. According to BPS, the rate of unemployment in Indonesia is dominated by those who are graduated from SMK, followed by Vocational and University. This is caused by the curriculum that is still not relevant to the needs of the industry, resulting in a mismatch condition that can lower work productivity. Besides, young educated individuals tend to be more selective in choosing a job that matches their character, resulting in a longer duration of searching
for work. According to Astriani and Nooraeni (2020), the higher the level of education an individual has, the higher the motivation to get a better position or role.

Apart from education, self-development activities like Experience and Training also have impact to young educated unemployment. Experience and training play an important role for job seekers to be able to develop their skills so they can meet the criteria in the job market. However, based on data from BPS, Indonesia has a workforce of 135 million, and 90% of the total workforce has never attended a training program. The same condition happened to the 7 million unemployed in Indonesia, where 94% of them have never attended certified training (Badan Pusat Statistik, 2021). In accordance to that, the International Labour Organization (2003) also revealed that a lack of work experience can reduce the opportunity to get a job in the modern economic sector. Experience and training have a significant influence on job seekers. Work experience could develop individuals’ skills to fulfill the criteria from the job market. The unreadiness of young educated individuals will hinder the quality and productivity of Indonesia’s workforce and affect the work search process.

Gender can also influence the rate of unemployment. This is caused by stereotypes that still growing in society about role of a man as head family and main workers, impacting to women's limitation scope of work. Besides, there is also an assumption that man is stronger and more flexible to be placed on various types of job (Suhaeri, 2021). Geographical Region is also known to influence the level of young educated unemployment. There are several factors explaining of why educated unemployment rate in urban areas is higher. According to Pratomo (2017), this occur because of jobs in the modern sector are attracting villagers to do a migration to urban area, resulting in excess supply of labor.

Development of Revolution Industry 4.0 also causes a structure change to industrial needs. These changes have a major impact on the global social economic condition. Revolution Industry 4.0 marked with the existence of digital transformation in production activity through unification between digital technology, internet and conventional industry. Human work is replaced by technology that existed in this era (Jamil, 2022), so the needs of labor will decrease and create an unemployment phenomenon. Regarding this condition, skill in the IT field is needed to fulfill the industry demand. According to a report from the Ministry of Manpower, the needs of labor in the IT sector will increase until it reaches 1.97 million in 2025. This condition caused by companies is doing a digital transformation in order to develop their productivity. The IT-based education major variable is the differentiator of this study compared to previous studies. Research on variables majoring in Education has indeed been done. However, variables focused on IT-based Education majors have never been done. This is intended to find out how the influence of IT-based Education majors has on young educated unemployment amid the challenges of the industrial revolution 4.0 which is closely related to information technology. It is also intended to find out whether skills in the field of technology and information have an essential role in reducing the unemployment rate in Indonesia.

Analyzing information on the determinants of youth-educated unemployment is critical for governments and policymakers to take action to reduce unemployment and promote youth employment. This issue is also important for employers and other labor market participants to understand the root causes of the problem of youth-educated unemployment, which makes up a large proportion of Indonesia’s labor force. Thus, the effects of working conditions and unemployment rates are critical both for managing current difficulties and for anticipating future changes. Based on the above explanation, some problems that arise are the high number of young educated unemployed in Indonesia in the middle of the demographic bonus plan projection. The desired goal of this research is to know the factors that affect young educated unemployment status in
Indonesia. Therefore, investigating these factors will contribute to an understanding of the problems of young educated unemployment from social and household perspectives, and shows how the problems can be mitigated.

LITERATURE REVIEW

Supply Demand of Labor
The demand for labor is the company's determination to open up optimal employment opportunities in achieving production efficiency. The demand for labor is strongly influenced by wages. The higher the wage, the lower the company or industry's demand for labor. Each company has a different number and function of demand, depending on the size and type of company, production, use of technology, and managerial capabilities of each company (Simanjuntak, 2001). The balance of supply and demand for labor occurs when a person accepts a job offer at a certain wage level, and the employer is willing to hire new workers. The phenomenon of unemployment occurs when the number of people offering jobs at a certain wage level is greater than the number of workers needed.

Unemployment
Unemployment is a number that shows how much of the labor force is actively looking for work. According to Badan Pusat Statistik (2020) Unemployment is a resident who is not working but is looking for work, or is preparing for a new business, or residents who are not looking for work because they are pessimistic, or because they have been accepted to work or already have a job but have not started working. Damaianti and Chaerudin (2021) states that unemployment will cause psychological effects for each individual and affect the level of social welfare.

Youth-Educated Unemployed
Youth according to the definition of the United Nation (UN) are individuals who are in the age range of 15-24 years (UNDESA, 2013). The educated unemployment rate is the ratio between the number of job seekers with a minimum education of high school and above (as an educated group) to the size of the workforce in that group (Badan Pusat Statistik, 2008). So when combined, the young educated unemployed are those from the unemployed group who have at least graduated from high school, are aged 15-24 years and are currently not working.

Human Capital
According to Becker (1994), in the theory of human capital it is explained that humans are not only a resource but also a capital capable of producing output, and any expenditure made to develop the quality and quantity of that capital is a form of investment activity. One can invest in self-development by obtaining a degree in Education, participation in training, and work experience.

Industrial Revolution 4.0
The Industrial Revolution 4.0 is the transformation of all production aspects of the industry through the fusion of digital & internet technology with conventional industries (Schwab, 2017). The Industrial Revolution 4.0 focuses on the speed element of the availability of information, where all components of the industrial environment can be connected so that the dissemination of information to one another can be done easily (Schlechtendahl, Keinert, Kretschmer, Lechler, & Verl, 2015).

RESEARCH METHOD

This study uses a logistic regression analysis and quantitative approach to see the characteristic of youth-educated unemployment in Indonesia. Type of data used in this study is secondary data obtained from various sources. Secondary data used in this
study obtained from Badan Pusat Statistik (2021), totaling 68,944 respondents who have graduated from senior high school and within an age range of 15-24. Data collection was carried out by Central Bureau of Statistics Indonesia. The logistic regression model used is as follows.

\[
\ln \frac{P_1}{1 - P_1} = \beta_0 + \beta_1 x_1 + \cdots + U_i
\]

Information:
- \( P \): Probability \( Y \) for category 1 (one)
- \( 1 - p \): Probability \( Y \) for category 0 (zero)
- \( \frac{P_1}{1 - P_1} \): Odds Ratio, \( \pi(X) \)

The division of the dependent variable category is that a value of 1 means the educated young population is not working, and a value of 0 means working. Therefore, the model in this study is as follows.

\[
\ln \frac{P}{1 - p} = \beta_0 + \beta_1 educ + \beta_2 trning + \beta_3 exprnc + \beta_4 major + \beta_5 gndr + \beta_6 prvnc + \beta_7 urbanrural
\]

Information:
- \( Y \) = Young Educated Employment Status
- \( educ \) = Duration of education
- \( trning \) = Training
- \( exprnc \) = Experience
- \( major \) = Major of education
- \( gndr \) = Gender
- \( prvnc \) = Geographical Area
- \( urbanrural \) = Urban/rural classification

RESULTS

Table 1 shows that from a total of 68,944 respondents in this study, 50.99% of the respondents are unemployed, and the rest of the respondents are employed. From education level, the sample is dominated by those who have earned a 12-years of education and unemployed people. Viewed from training variable, known that 88.52 percent never have a certified training program and doesn't work. Furthermore, if it seen from work experience, there are only 15,129 respondents or 21.94% who have a work experience, while 78.06% of population doesn't have work experience. Based on Education Major, only 7.86% respondents who choose IT Major and the rest (92.14%) coming from Non-IT Major. Composition of gender in Indonesia are dominated by unemployed women. In terms of geographical area, 31.03% of respondent's area live in Non-Java Island and unemployed. Next if reviewed from urban/rural classification, the majority of respondent are living in urban area and unemployed.

Table 1. Summary of Research Data Frequency Distribution

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Employed</th>
<th>Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Number of Respondents</td>
<td>33,791 (49.01%)</td>
<td>35,153 (50.99%)</td>
</tr>
<tr>
<td>2.</td>
<td>Education</td>
<td>33,791 (49.01%)</td>
<td>35,153 (50.99%)</td>
</tr>
<tr>
<td></td>
<td>a. Senior High School (12 Years)</td>
<td>29,151 (42.28%)</td>
<td>32,677 (47.40%)</td>
</tr>
<tr>
<td></td>
<td>b. Diploma I/II (14 years)</td>
<td>235 (0.34%)</td>
<td>123 (0.18%)</td>
</tr>
<tr>
<td></td>
<td>c. Diploma III (15 Years)</td>
<td>1,151 (1.67%)</td>
<td>569 (0.83%)</td>
</tr>
</tbody>
</table>
No | Description | Employed | Unemployed |
---|-------------|----------|------------|
| d | Bachelor / Diploma IV (16 Years) | 3,240 (4.70%) | 1,775 (2.57%) |
| e | Master (18 Years) | 13 (0.02%) | 9 (0.01%) |
| f | Doctoral (22 Years) | 1 (0.00%) | 0 (0.00%) |
| 3 | Training | 33,791 (49.01%) | 35,153 (50.99%) |
| a | Trained and Certified | 4,435 (6.43%) | 3,479 (5.05%) |
| b | Never have training | 29,356 (42.58%) | 31,674 (45.94%) |
| 4 | Experience | 33,791 (49.01%) | 35,153 (50.99%) |
| a | Experienced | 9,041 (13.11%) | 6,088 (8.83%) |
| b | No Experience | 24,750 (35.90%) | 29,065 (42.16%) |
| 5 | Major | 33,791 (49.01%) | 35,153 (50.99%) |
| a | IT Major | 2,986 (4.33%) | 2,432 (3.53%) |
| b | Non-IT Major | 30,805 (44.68%) | 32,721 (47.46%) |
| 6 | Gender | 33,791 (49.01%) | 35,153 (50.99%) |
| a | Men | 18,998 (27.56%) | 14,861 (21.56%) |
| b | Woman | 14,793 (21.46%) | 20,292 (29.43%) |
| 7 | Geographical Area | 33,791 (49.01%) | 35,153 (50.99%) |
| a | Java Island | 10,909 (15.82%) | 10,486 (15.21%) |
| b | Non-Java Island | 22,882 (33.19%) | 24,667 (35.78%) |
| 8 | Urban/Rural Classification | 33,791 (49.01%) | 35,153 (50.99%) |
| a | Urban | 18,161 (26.34%) | 19,841 (28.78%) |
| b | Rural | 15,630 (22.67%) | 15,312 (22.21%) |

Source: Stata 14 and Badan Pusat Statistik (2021), Output Results.

**Statistical Analysis**

Based on the data processing of this study, the results of goodness of fit (the fit of the model with the data) showed that the prob > chi2 value of 0.000 was lower than value of alpha (0.01). So, H0 is rejected. Though the value of prob>chi2 is small, it doesn't imply that the model is not good. According to Gujarati (2003), if results Z-stat testing shows significant results, as well as in accordance with economy theory, the model still could be classified as a worthy model by statistics.

The results of the simultaneous test of the significance of the independent variables (likelihood ratio test) on the dependent variable resulted in a p-value (0.0000) which was
smaller than the value of (0.01). This means that the decision H0 is rejected, so H1 is accepted and means that there is at least one independent variable that has a significant effect on the young educated unemployment in Indonesia.

**Table 2.** Results of Logistic Regression Model Analysis, Wald Test, Odds Ratio, and Marginal Effect

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coef.</th>
<th>SE</th>
<th>p-value</th>
<th>Odds Ratio</th>
<th>dy/dx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.325</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>-0.232</td>
<td>0.007</td>
<td>0.000*</td>
<td>0.792</td>
<td>-0.058</td>
</tr>
<tr>
<td>Training</td>
<td>-0.206</td>
<td>0.025</td>
<td>0.000*</td>
<td>0.813</td>
<td>-0.051</td>
</tr>
<tr>
<td>Experience</td>
<td>-0.563</td>
<td>0.019</td>
<td>0.000*</td>
<td>0.568</td>
<td>-0.139</td>
</tr>
<tr>
<td>Major</td>
<td>-0.140</td>
<td>0.031</td>
<td>0.000*</td>
<td>0.868</td>
<td>-0.035</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.633</td>
<td>0.015</td>
<td>0.000*</td>
<td>0.530</td>
<td>-0.157</td>
</tr>
<tr>
<td>Geographical Area</td>
<td>-0.123</td>
<td>0.017</td>
<td>0.000*</td>
<td>0.883</td>
<td>-0.030</td>
</tr>
<tr>
<td>Urban/Rural Classification</td>
<td>0.185</td>
<td>0.016</td>
<td>0.000*</td>
<td>1.203</td>
<td>0.046</td>
</tr>
</tbody>
</table>

Source: *Stata 14* and Badan Pusat Statistik (2021), output results.

Description: *=significant at 1%

The binary logistic regression equation used in this study is as follows:

\[ L_i = \left( \frac{P_i}{1-P_i} \right) = 3.325 + -0.232X1 + -0.206X2 + -0.563X3 + -0.140X4 + \\
-0.633X5 + -0.123X6 + 0.185X7 + ei \]

Based on results processing logistic regression analysis, education have a negative significant impact to young educated unemployment. This means, the higher education level of a person, will declined the opportunity to becomes young educated unemployment by 0.792 times or 5.8%. This findings in line with a theory from (Simanjuntak, 2001) who explained that the longer the average duration of school will increase the quality of labor so that percentage to becomes unemployment will reduced. This occurs because, the higher they received education, more knowledge will be possessed by this individual, impacting the competitiveness index and productivity so they can fit in the job market. Pratama and Setyowati (2022), argues that the main cause of educated unemployment in Indonesia is due to disproportionate education development planning. This is consistent with descriptive analysis which show that the higher the level of education, the longer period of looking for work.

**DISCUSSION**

Training has a significant negative effect on youth educated unemployment in Indonesia. These results indicate that training has a non-linear relationship with the rate of educated youth unemployment in Indonesia. Respondents who have joined a training and get certificate have a smaller opportunity of 0.768 times or 5.1% to becomes young educated unemployment compared to those never get a training program. This result shows that training have a major role in preparing individual for getting a job. The duration of training program is also in line with the rate of labor productivity (Simanjuntak, 2001). Thus, training becomes important because it could provide individual a better skill that were needed in the job market.

Experience has non-linear significant effect with the rate of young educated unemployment in Indonesia. It means that young educated with work experience have a smaller opportunity to become unemployed by 0.36 times or 13.9 % compared to those without work experience. This is consistent with findings conducted by Dagume and Gyekye (2016), which stated that the opportunity of a young individual with work
experience are lower by 0.103 times from those without work experience. The International Labour Office (2003), notes that a lack of work experience reduces job opportunities in the modern sector of the economy. This shows that when the observations are generalized and not related to the age range, experience has a positive effect on educated unemployment. When observations are excluded in the young age range, it is found that work experience has a negative effect on educated unemployment. Experience is important because it can provide provisions for individuals to understand the real situation in the world of work, so that they are better prepared to face the challenges of the world of work, and are able to compete with older workers.

Major of education has a negative significant effect on young educated unemployment. These results indicate that education majors have a non-linear relationship with young educated unemployment in Indonesia. Young educated who choose IT majors have a smaller probability of being unemployed by 3.5% or 0.86 times. This condition in accordance with research conducted by Dondi, Klier, Panier, and Schubert (2021), where respondent with digital literacy, program literacy, data analysis, and statistics ability tend to be employed with higher income and higher work satisfaction. According to a study conducted by the World Economic Forum (2016), on the Future of Software and Society, in 2026 many people expect artificial intelligence (AI) machines to become part of the corporate governance body. Therefore, the need for workers who understand technology comprehensively will increase in order to face the challenges of the industrial revolution 4.0. This is caused by the development of technology, specifically IT Technology which is closely related to Industrial Revolution 4.0; hence it is impacting the need for labor who have a better understanding of IT.

Gender has a negative significant effect on young educated unemployment. These results indicate that gender has a non-linear relationship with young educated unemployment in Indonesia. This means that the female population has a greater probability of 50.89% of becoming young educated unemployed in Indonesia. These results are consistent with previous studies from Msigwa and Fabian Kipesha (2013), which reported gender as one of the key factors for youth unemployment. This research is also in line with another study by Pratomo, (2017) and Suhaeri (2021) that says the existence of social construction culture in society produces different roles and tasks for men and women, impacting the lag role of women's contribution in the labor force.

Geographical area has a significant negative effect on youth-educated unemployment. These results indicate that the geographical area has a non-linear relationship with young educated unemployment in Indonesia. This means that residents living outside Java Island have a 0.949 times or 3% greater probability of becoming young educated unemployed in Indonesia. This is because the island of Java has better infrastructure and more job opportunities than non-Java Island, so employment is more effective on the island of Java. This result is in accordance with a previous study which stated that the probability of unemployment is greater, especially for individuals who live in a province with a higher unemployment rate (Pratomo, 2017; Tansel & Tasci, 2004). This finding is also consistent with the theory of the spread effect and backwash effect initiated by Murdal (1957). According to Murdall, the spread effect will always be smaller than the backwash effect (the flow of resources from developing regions to developed areas). This condition is correlated with unequal development between Java Island and Outside Java Island.

Logistic regression analysis shows that the Urban/Rural Classification variable significantly positively affects young educated unemployment. These results indicate that the urban/Rural classification has a linear relationship with young educated unemployment in Indonesia. This means that young people in urban areas have 1.2 times or 4.6% greater probability of becoming unemployed than those in rural areas. If
seen from the proportion of the frequency distribution of the village/city classification variable, the number of young people living in urban areas is more than in rural areas. However, when viewed from the working status, the proportion of unemployed residents in urban areas is larger than rural areas. There are 19,841 residents in urban areas who are unemployed, or 6% greater than rural areas. This thing in accordance with a theory proposed by Todaro and Smith (2012), which stated economic activities that are urban centric lead to more job creation in the urban area, causing a surplus of the labor force in urban areas, which can create a higher unemployment rate.

CONCLUSION

This research use logistic regression with odds ratio and marginal effect in analyze the determinant of young educated in Indonesia. From the result of the analysis, it can be concluded that youth who has a higher education get job easier, training has a significant impact on young educated people in getting a job. Individual with a work experience has a greater probability of getting a job than those who doesn't had any work experience. Individuals who take IT Major has a greater probability of working, Individuals who live in Java Island has also greater probability of working, but individuals who live in urban area tend to have a smaller probability of working. All the variables involved are appropriate to be used in the framework of formulating the determinant of young educated unemployment because all variables have significant impact to young educated unemployment in Indonesia.

The young population in Indonesia is still less competitive seen from their education. Companies will be more interested in investing to areas that have better capital of resources. If review at the condition of the Indonesian state, it is necessary to socialize the community to receive higher education so that they have broader knowledge and be more competitive in global labor market. When people's skills are low, productivity also decreases so that it will affect labor competitiveness and labor demand. Therefore, training classes and apprenticeship programs need to be intensified to be able to create human resources that have added value to the job market so that they can adapt to industry needs. Hence, it will affect investors to invest in Indonesia.

Based on these findings, the recommendations are that the government must facilitate the society of getting a higher education level in order to escalate the competitiveness index. In addition to that, young educated job seeker can also explore self-development program like training and internship program that already exist to upgrade and match the skill that are needed in the industry. Thus, Investment development is expected to be more evenly distributed throughout Indonesia, so there is no excess supply of labor in a certain area.

ACKNOWLEDGEMENT

N/A

DECLARATION OF CONFLICTING INTERESTS

All authors declare that they have no conflicts of interest.

REFERENCES


Simanjuntak, P. J. (2001). *Pengantar ekonomi sumber daya Manusia.* Jakarta: LPFEUI.


