ABSTRACT

The Effects of Education and Household Employment Ratio on Labor Market Outcomes of Indonesia's Youth Population

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Abstract. Indonesia's young population makes up almost a quarter of the total population. This amount becomes human capital for Indonesia, especially in the employment aspect. However, most of the young working-age population gets unsatisfactory labor market outcomes, namely being Youth NEET and informal workers with high economic risk. This study aims to: (i) determine the characteristics of youth labor market outcomes; (ii) analyze the effects of education level and household employment ratio on youth labor market outcomes. The research uses raw data from the August 2020 National Labor Force Survey and the Multinomial Logistics Regression analysis method with five labor market outcomes compiled based on the concept of decent work, namely Youth NEET, workers with high economic risk, precarious workers, and formal workers (without and with work experience). The results showed that a low level of education increases the probability of young people becoming Youth NEET, informal workers with high economic risk, and precarious workers compared to experienced formal workers. Meanwhile, the higher the household employment ratio, the lower the probability of the young population becoming Youth NEET, precarious workers, and formal workers without experience compared to experienced formal workers. These results illustrate that the work culture at home has an impact on the activeness of young people to work. However, this enthusiasm has not been able to save the youth from less decent work. Another finding shows that young women, young people who live in villages, are unmarried, and have never attended training have a higher probability of obtaining less decent work outcomes.

Keywords: *youth population, education, household employment ratio, decent work*

1. INTRODUCTION

The young population is the potential in Indonesia's employment aspect. However, young people are vulnerable to disadvantages in the labor market such as being NEET,

informal workers who have a high economic vulnerability, and precarious workers. Education level can influence the young population to become NEET with heterogeneous NEET characteristics (1). The family legacy which is reviewed in several contexts such as the inherited work culture, the number of working household members, the socioeconomic conditions, and support of the household affect the NEET status of young people in the labor market (2).

In 2020, Indonesia's young population makes up almost a quarter of the total population. The achievement of youth education has increased quite well on a macro basis. Almost all youth can read and write (99.67 percent) and the mean years of schooling reaches 10.78 years (3). This condition is a prospective human capital for Indonesia. However, the labor market outcomes for youth are still not encouraging. The number of young people who are outside the education system, do not attend training, and are not working reached 24.28 percent. While the Unemployment Rate for young people is 20.46 percent (4).

Previous studies have examined the effect of education on NEET or unemployment. However, there is still limited research that examines the influence of education and family work culture on various youth labor market outcomes. I use the household employment ratio to approach family work culture and the concept of decent work which is on the agenda of the International Labor Organization (ILO) to approach labor market outcomes. This study intends to analyze the answers to the following research questions: (i) What are the characteristics of Indonesian youth labor market outcomes?; (ii) How do education levels and household employment ratios affect youth labor market outcomes in Indonesia?

2. LITERATURE REVIEW

Labor economics theory, especially from the supply side, explains that the labor force is the main actor in the labor market. The labor force is people who are willing to offer their services to work at a certain level of wages in the labor market. They compete for jobs. As a result, some people managed to get a job and some people failed to get a job (5).

Differences in labor market outcomes between individuals can occur due to differences in skills and demographic conditions, such as gender, race, intelligence, education, skills, and physical abilities. The level of education is one of the assets that have a very important role in increasing labor market outcomes for all workers. These differences in characteristics result in different opportunities for each worker to succeed in getting a job in the labor market (5,6).

Some groups face job barriers so they have the risk of becoming unemployed (vulnerable labor groups). From the supply side, job barriers include the lack of potential skills possessed by the workforce, such as low educational attainment and skills, lack of work experience, limited health, and the presence of care responsibilities (7). Young workers (15-24) years and workers with low education have the risk of being marginalized in bad economic conditions (8). Other studies have found that the most affected groups are women, especially young workers and/or informal workers (9–13).

Family legacy is one of the factors that influence youth unemployment in four different contexts. First, unemployment in the young population is a legacy between generations. In some community groups, a poor culture develops so that unemployed parents will become bad role models for their children, and their children will also become unemployed. Second, unemployment in young people is influenced by the condition of the "wealth of the number of workers" in the households in which they live. Households with a greater number of workers increase the chances of young people finding work. Third, the socio-economic conditions of the family can affect the differences in the choice of young people to accept the job offered or delay looking for work because they are waiting for a better job offer. More prosperous families can transfer to their children during the transition to economic maturity. Fourth, family legacy affects the potential resources that can be utilized by young people in the family. On the other hand, the poor legacy will be a burden on the young population in the process of transitioning to economic maturity (2).

Several studies have shown that there are differences in socio-economic characteristics between young people who become NEET and non-NEET. In Austria, young people who become NEET are mostly women, have migrated, live in urban areas, and have low levels of education (14). Meanwhile, NEET is heterogeneous for various reasons. For example, education level has a double impact on a person's NEET status. Higher education level does not guarantee a person to be exempt from NEET status. Meanwhile, the chances of young people becoming NEET are greater for people who have basic or vocational education (1).

In general, labor competition in the labor market produces outcomes, namely the working population and unemployment. However, currently, one of the goals of sustainable development in the field of employment is not only working status or not but realizing decent work for all. The ILO defines decent work as a condition in which all people, both men, and

women, can work productively and are guaranteed equality, freedom, security, and dignity as human beings (4).

So far, the measurement of decent work has been done on a macro basis. Previous studies attempted to measure decent work on a micro basis using a psychological approach with the Decent Work Scale instrument (15). In my analysis, I use a micro indicator approach to decent work obtained from the National Labor Force Survey (Sakernas).

Thus, previous studies have examined the effect of education on NEET or unemployment. However, there is still limited research that examines the effect of education and family legacy which is approached by the household employment ratio to various youth labor market outcomes. The labor market outcomes are also sorted based on the concept of decent work.

3. METHOD, DATA, AND ANALYSIS

This study focuses on analyzing the effect of education and household employment ratio on the labor market outcomes of young people empirically. I use secondary data from Statistics Indonesia (BPS) in the form of individual microdata from the August 2020 National Labor Force Survey (Sakernas). The unit of analysis is the population aged 15 to 24 years who are included in the labor force and outside the labor force who are not in school and are not currently attending training. The number of units of analysis is 105,295 and the coverage area of analysis is Indonesia.

Then, I processed and analyzed the data using descriptive statistical analysis and inferential methods. Inferential statistical analysis using Multinomial Logistic Regression through the STATA 15 processing program package was conducted to determine the risks of each level of education and household employment ratio to obtain certain employment outcomes which is a multi-category in the labor market (16).

In forming the model, Y is coded with the numbers 0, 1, 2, 3, and 4 (0 is the category defined as the reference category, namely experienced formal workers). The main independent variables are education level and household employment ratio. As a control variable, I use the variables of gender, area of residence, marital status, and training participation. Then, it will form (the number of categories Y-1) or four logistic models as follows:

$$g_1(x) = ln\left[\frac{P(labor\_market\_out = 1|x)}{P(labor\_market\_out = 0|x)}\right]$$

$$= \beta_{10} + \beta_{11}educ + \beta_{12}prop\_work + \beta_{13}female + \beta_{14}rural + \beta_{15}single + \beta_{16}training + \varepsilon_1$$

$$\vdots$$

$$g_4(x) = ln\left[\frac{P(labor\_market\_out = 4|x)}{P(labor\_market\_out = 0|x)}\right]$$

$$= \beta_{40} + \beta_{41}educ + \beta_{42}prop\_work + \beta_{43}female + \beta_{44}rural + \beta_{45}single + \beta_{46}training + \varepsilon_4$$

The definition of dependent and independent variables uses the concept of the ILO which has been applied by BPS. The concept of work and unemployment refers to the International Conference of Labor Statistics (ICLS) 13. The formation of labor market outcomes variable refers to Decent Work Indicators by focusing on the elements of job opportunities and stability, and job security. In more detail, the operational definitions of dependent and independent variables are:

Table 1. Dependent and Independent Variables in Research

Dependent Variable			
Number	**Variable Name**	**Categorization**	**Definition**
1	Labor Market Outcomes (Notation: labor_market_out)	1= Youth NEET	Unemployed young people and young people who are classified as not in the labor force and are not in school or training (ILO).
		2= Worker who has high economic risk	A worker with self-employed status, employer-assisted by temporary worker/unpaid worker, family/unpaid workers (ILO). This work is classified as an informal activity.
		3= Precarious worker	A worker who works for short periods and changes employers in less than one month.
		4= Formal worker who do not have work experience	A worker with status employer assisted by permanent workers/paid workers or as a worker/employee who has never worked before.
		0= Experienced formal worker	A worker with status employer assisted by permanent workers/paid workers or as a worker/employee who has worked before.
Main Independent Variables			
Number	**Variable Name**	**Categorization**	**Definition**

1	Education (Notation: educ)	1= Junior high school and below 2= General high school 3= Vocational high school 0= College	Junior high school and below include people who have never attended school, have not finished elementary school, graduated from elementary school, and graduated from junior high school. The college includes residents who have completed diploma, bachelor's, master's, and doctoral levels.
2	Household Employment Ratio (Notation: prop_work)	Quantitative variable	The proportion of household members who work to the number of household members.
Control Variables			
Number	**Variable Name**	**Categorization**	**Definition**
1	Sex (Notation: female)	1= female 0= male	-
2	Residential area classification (Notation: rural)	1= rural 0= urban	Referring to the classification of rural and urban areas set by BPS.
3	Marital status (Notation: single)	1= single 2= divorce 0= married	Referring to the marital status determined by BPS.
4	Participation in training (Notation: training)	1= has attended training 0= never attended training	Training includes both certified and uncertified training. The implementation of the training is not limited to the survey period but throughout the life experience of the population.

Based on the literature review, differences in education level and household employment ratio are thought to affect the different risks of the young population to obtain labor market outcomes. I hypothesize that young people with low and high levels of education have a greater risk of becoming Youth NEET, and low levels of education have a greater risk of becoming workers who are vulnerable to economic shock and precarious workers. A high household employment ratio increases the tendency of young people to work.

4. RESULT AND DISCUSSION

4.1.Result

Descriptive Analysis

Young population data comes from 34 provinces and 531 regencies/cities. Most of the young population who became the unit of analysis were male (53.81 percent), unmarried (79.24 percent), and lived in rural areas (61.57 percent). The average age of the young population is 20 years with the majority of educational attainment being no more than junior high school (40.66 percent). The level of participation in training for young people is still low, namely, only 12.37 percent of the population has attended the training.

Based on the unit of analysis used, the majority (39.57 percent)[280] of Indonesia's young population are Youth NEET (Figure 1). The next largest labor market outcome is workers with high economic vulnerability (25.71 percent). And the smallest is the percentage of young people who become precarious workers, which is 4.88 percent of the whole unit of analysis.

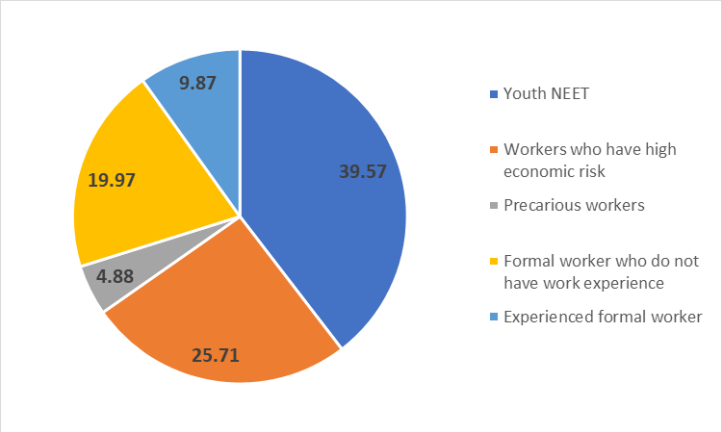

Fig 1. Distribution of Youth Labor Market Outcomes in Indonesia, 2020
Source: Sakernas 2020, processed

The percentage of young people who are Youth NEET is higher in the population with a general high school education than in the population with other education (Figure 2). Meanwhile, the percentage of young people who become informal workers with high economic vulnerability is higher in the population with junior high school and below than in the population with other education. The same goes for precarious workers. Meanwhile, the percentage of young people who work formally with no experience is higher in the population with a college education, followed by vocational high school, general high school, and junior high school and below. And in the labor market outcomes of experienced formal workers, the percentage is higher in the young population with vocational high school.

[280] This number is different from the number released by BPS (24.28 percent) because BPS uses a denominator is the entire population aged 15-24 while in this study it is based on the percentage distribution of the unit of analysis, which does not involve population aged 15-24 who are not the labor force and attending school, attending training, or otherwise.

Figure 3 shows that the pattern of labor market outcomes of the population who become Youth NEET is negatively proportional to the household employment ratio. The higher the proportion of household employment ratio, the smaller the youth population who become Youth NEET. While a positive relationship occurs in the labor market outcomes of youth who become formal workers (without experience). The higher the proportion of household members who work, the higher the young population who become formal workers (without experience).

Based on sex, the percentage of young people who become Youth NEET is higher in the female population. Meanwhile, for informal workers with high economic vulnerability, precarious workers, and experienced formal workers, the percentage is higher for the male population.

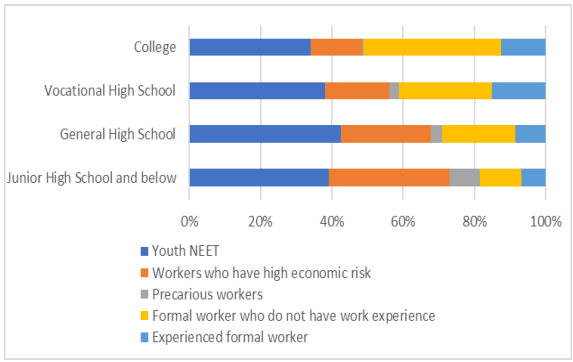

Fig 2. Labor Market Outcomes of Youth Population by Education Level in Indonesia, 2020
Source: Sakernas 2020, processed

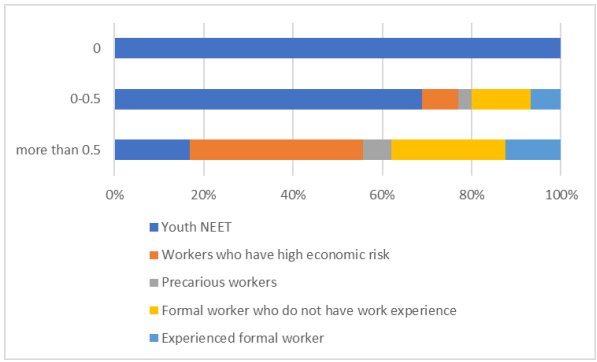

Fig 3. Labor Market Outcomes of Youth Population by Household Employment Ratio in Indonesia, 2020
Source: Sakernas 2020, processed

In terms of area of residence, the percentage of youth who become Youth NEET and formal workers, whether experienced or not, is higher for residents who live in urban areas. Meanwhile, the percentage of young people who become informal workers (both those with high economic vulnerability and precarious workers) is higher for people living in rural areas.

The labor market outcomes of young people as Youth NEET is higher for those who are married than those who are single or divorced. Meanwhile, the single-young population appears to be high in formal work (without experience). From the aspect of training participation, the workers who have never attended the training are more likely to become Youth NEET and precarious workers. In formal jobs, more people who have attended the training have achieved this.

Inference Analysis

The estimation of the Multinomial Logistics Model of Labor Market Outcomes for Young People produces 4 models, namely Youth NEET, Informal (workers with high economic vulnerability), Informal (precarious workers), and Formal (without experience) [Table 2]. The results of the Likelihood Ratio Chi-Square Test showed that the model was statistically significant at α=1 percent (LR chi^2=73207.45 and Prob > chi^2=0.000). That is, a model containing all independent variables is more suitable than a model containing only an intercept. With a confidence level of 99 percent, all independent variables can predict the probability of employment achievement for young people. Based on McFadden's pseudo R^2, the full model containing all independent variables represents a 25.11 percent increase in model fit relative to the null model.

The Model I shows that education level, household employment ratio, and control variables significantly predict young people to be Youth NEET compared to experienced formal workers with a 99 percent confidence level. The value of the coefficient $\hat{\beta}$ is used to write the model, while for interpretation, it is easier to use the Relative Risk Ratio (RRR). Based on the RRR value on the education level variable, young people with junior high school education and below are 2.29 times more likely to become Youth NEET. Meanwhile, young people with a high school education are twice as likely to become Youth NEET and young people with vocational education are 1.28 times more likely to become Youth NEET. That numbers are relative to the risk of becoming experienced formal workers than young people who are college graduates.

Table 2. Estimation Results of the Multinomial Logistics Model for Youth Labor Market Outcomes

Independent Variables	**Labor Market Outcomes**							
	Youth NEET (Model I)		**The Worker who has a high economic risk [Model II]**		**Precarious Worker [Model III]**		**The Formal worker who does not have work experience [Model IV]**	
	Coef	**rrr**	**Coef**	**Rrr**	**Coef**	**Rrr**	**Coef**	**rrr**
Education								
Junior high school and below	0.830***	2.29	1.426***	4.16	2.619***	13.73	-0.518***	0.60
General high school	0.692***	2.00	0.893***	2.44	1.738***	5.69	-0.290***	0.75

Vocational high school	0.250***	1.28	0.159***	1.17	1.183***	3.26	-0.496***	0.61
prop_work	-6.995***	0.00	1.972***	7.18	0.095	1.10	-0.352***	0.70
Female	1.321***	3.75	0.359***	1.43	-1.309***	0.27	0.425***	1.53
Rural	0.784***	2.19	1.100***	3.01	1.112***	3.04	0.222***	1.25
Single								
Single	0.370***	1.45	0.537***	1.71	0.103**	1.11	0.765***	2.15
Divorce	-0.715***	0.49	-0.282**	0.75	0.090	1.09	0.147	1.16
Training	-0.496***	0.61	-0.244***	0.78	-0.505***	0.60	-0.174***	0.84
_cons	3.910***	49.92	-2.151***	0.12	-2.762***	0.06	0.580***	1.79
Log-likelihood			**-109198.34**		**Prob > chi²**		**0.0000**	
N			**105295**		**Pseudo R²**		**0.2511**	
LR chi²(36)			**73207.45**					

*** *p*-value<0.01; ** *p*-value<0.05;* *p*-value<0.1

The RRR of the household employment ratio variable shows an increase of one unit in the household employment ratio, so the risk of the young population becoming a Youth NEET relative to the risk of becoming an experienced formal worker is estimated to decrease by 0.0000623 times. Thus, a higher proportion of household members who work reduces the risk of young people becoming Youth NEET compared to experienced formal workers, but to a very small extent.

Model II shows that education level, household employment ratio, and control variables significantly predict young people to become informal workers with high economic vulnerability compared to experienced formal workers with a 99 percent confidence level. Except for “divorced” marital status, significant at α=5 percent. Based on the RRR value on the education level variable, young people with junior high school education and below are 4.16 times more at risk of becoming informal workers with high economic vulnerability. Meanwhile, young people with a high school education are 2.44 times more at risk of becoming informal workers with high economic vulnerability and young people with vocational education are 1.17 times more at risk of becoming informal workers with high economic vulnerability. That risks are relative to the risk of becoming experienced formal workers than young people who are college graduates.

The RRR of the household employment ratio variable shows an increase of one unit in the household employment ratio, so the risk of young people becoming informal workers with high economic vulnerability relative to the risk of becoming experienced formal workers is estimated to increase by 7.18 times. Thus, a higher proportion of household members who work increases the risk of young people becoming informal workers with high economic vulnerability compared to experienced formal workers.

Model III shows that education level, household employment ratio, and control variables significantly predict young people to become precarious workers compared to experienced formal workers with a 99 percent confidence level. Except for “single” marital status, it is significant at α=5 percent, and “divorced” marital status is not significant. Based on the RRR value on the education level variable, young people with junior high school education and below are 13.73 times more at risk of becoming precarious workers Meanwhile, the young population with general high school education is 5.69 times more at risk of becoming precarious workers and young people with vocational high school are 3.26 times more at risk of becoming precarious workers. That numbers are relatively compared to the risk of becoming experienced formal workers and young people who are college graduates.

The RRR of the household employment ratio variable shows an increase of one unit in the employment ratio, so the risk of young people becoming precarious workers relative to the risk of becoming experienced formal workers is estimated to increase by 1.1 times. Thus, the higher proportion of household members who work increases the risk of the young population becoming precarious workers compared to experienced formal workers.

Model IV shows that education level, household employment ratio, and control variables significantly predict young people to become formal workers without experience compared to experienced formal workers with a 99 percent confidence level. Except for marital status, “divorced” does not seem significant. Based on the RRR value on the education level variable, young people with junior high school education and below are 0.6 times more at risk of becoming formal workers with no experience. Meanwhile, young people with a general high school education are 0.75 times more at risk of becoming formal workers without experience and young people with vocational high school are 0.61 times more likely to become formal workers without experience. Those are relative to the risk of becoming experienced formal workers and young people who are college graduates.

The RRR of the household employment ratio variable shows an increase of one unit in the household employment ratio, so the risk of the young population becoming a formal worker with no experience relative to the risk of becoming an experienced formal worker is estimated to decrease by 0.7 times. Thus, the higher the proportion of working household members, the lower the risk of the young population becoming formal workers with no experience compared to experienced formal workers.

In the control variable, the female RRR values illustrate that young females are 3.75 times more at risk of becoming a Youth NEET, 1.43 times more likely to become informal workers with relatively high economic vulnerability, 0.27 times more at risk of becoming a precarious worker, and 1.53 times more at risk of becoming a formal worker with no experience. Those are relative to experienced formal workers compared to young male residents.

Meanwhile, in terms of area of residence, young people living in rural areas are 2.19 times more at risk of becoming a Youth NEET, 3.01 times more at risk of becoming informal workers with high economic vulnerability, 3.04 times more at risk of becoming precarious workers, 1.25 times more at risk of becoming a formal worker with no experience. Those are relative to the risk of becoming experienced formal workers compared to young people living in urban areas.

Based on marital status, young single people are 1.45 times more at risk of becoming a Youth NEET, 1.71 times more at risk of becoming informal workers with high economic vulnerability, 1.11 times more at risk of becoming precarious workers, 2.15 times more at risk of becoming a formal worker with no experience. Those are relative to the risk of becoming experienced formal workers than young people who are married.

Participation in training shows a smaller risk for young people to become Youth NEET, informal workers with high economic vulnerability, precarious workers, and formal workers without experience relative to the risk of becoming experienced formal workers, which are 0.61, 0.78, 0.6, and 0.84 times compared to young people who have never attended the training.

4.2.Discussion

The labor market outcomes of Indonesia's young population are dominated by people who become Youth NEET and informal workers with high economic vulnerability. The low level of education has a big influence on increasing the chances of the population becoming

Youth NEET and informal workers with high economic vulnerability. However, in terms of the characteristics of college graduates, the percentage of college graduates who become Youth NEET is high enough. These results show that high education reduces the chances of becoming a NEET but there is no definite guarantee that free college graduates to be free from NEET (1). Young people who have higher education are thought to have considerations to postpone looking for work if the available work in the labor market and the wages offered are considered not comparable with their skills and wages reservation (2), while young people with low education who become Youth NEET have barriers to entry into the labor market such as inadequate the qualifications required by the company or the lack of family support in providing insight and opportunity when looking for work. This condition may also be related to the effect of the household employment ratio on the chances of becoming a Youth NEET. The higher the proportion of household members who work, the lower the risk of the population becoming a Youth NEET. This condition describes aspects of family legacy in the form of work culture and the "atmosphere" of work in the home has an impact on the activeness of young people to work (2). The number of working household members can also expand the friendship network which can increase the dissemination of information about job vacancies and ultimately bring young people to work.

5. CONCLUSION

Most of Indonesia's young working-age population achieves unsatisfactory labor market outcomes, namely being Youth NEET and informal workers with high economic vulnerability. Low levels of education increase the chances of young people becoming Youth NEET, informal workers with high economic vulnerability, and precarious workers. While the household employment ratio has the same impact on the risk of becoming a Youth NEET, precarious worker, and formal worker with no experience, the higher the ratio of working in the household lowers the chances of young people falling for these outcomes. Meanwhile, a high proportion of household members increases the opportunities for young people to become informal workers with high economic vulnerability.

6. SUGGESTIONS

Based on the results of the study, suggestions that can be given are that education regarding a positive work culture should be improved in the family sphere. In addition, the achievement of the level of formal education and skills of the young population must continue to be improved to encourage the population to be more productive and creative and not

experience confusion during the transition to economic maturity. Education and knowledge about business and entrepreneurial spirit should be included in the school curriculum.

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This number is different from the number released by BPS (24.28 percent) because BPS uses a denominator is the entire population aged 15-24 while in this study it is based on the percentage distribution of the unit of analysis, which does not involve population aged 15-24 who are not the labor force and attending school, attending training, or otherwise.