The Effect of Education and Unemployment Rate on Poverty Rate of 4 Cities in North Sulawesi

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ARTICLE INFORMATION

ABSTRACT

Through this research, the factors that impact the poverty rate of 4 cities in North Sulawesi, which are education and unemployment rate, were analyzed out. Secondary data and panel data regression is used in this research. After the testing stage, the common effect model (CEM) was selected as the suitable model. This research also conducted a classical assumption, partial, and coefficient determination test. The results are that education negatively and significantly affects the poverty rate of 4 cities in North Sulawesi, and the unemployment rate positively and significantly affects the poverty rate of 4 cities in North Sulawesi. The provision of stimulant assistance and subsidies, more effective and targeted poverty alleviation programs, education funding assistance, skills development training programs, more jobs, support small and medium enterprises, reduction of outsourcing labor, and accepting the employee fairly without nepotism are expected to help in reducing poverty rate and solve poverty problems in 4 cities in North Sulawesi, and even more broadly.

Keywords: **Common Effect Model, Education, Panel Data Regression, Poverty Rate, Unemployment Rate.**
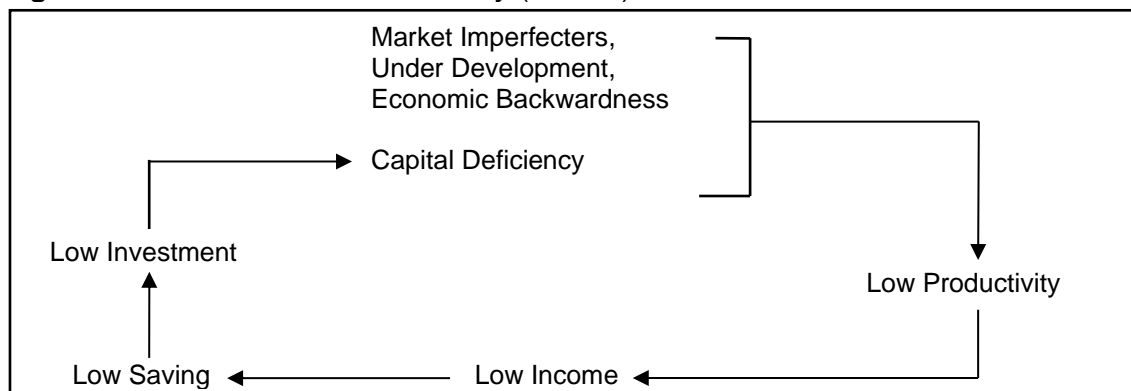
INTRODUCTION

Poverty is an economic problem faced by many countries, not only in developing countries but also in developed countries. Poverty is one of the Millennium Development Goals (MDGs) agendas that was not resolved until 2015. Efforts to reduce poverty in various countries must continue to be carried out to achieve a country with a low poverty rate and even no poverty. With this consideration, in 2015, approximately 193 countries in the world agreed on the design of the Sustainable Development Goals (SDGs) with the first goal, "No Poverty".

Poverty can be defined as a condition in which people experience limited conditions, especially in financial terms, which cause difficulties in meeting their various needs in life. Low purchasing power makes people less able to meet their needs, both access to education and health facilities, causing the community's quality of life to be low. Low quality of life will have an impact on falling productivity, which leads to a weak economy. That causes the vicious cycle of poverty, making this problem difficult to break. Poverty can hinder development, so improving people's welfare is challenging to realize.

One of the essential factors in development for the long term is education, where education will affect the outcome of human character, which will later impact productivity in economic activities. Although not everyone without education lives in poverty, most adults living in poverty today are those who do not receive enough education. This matter may continue to the next generation.

Sharp *et al.* in Kuncoro (2010:69) state that the differences in human resources quality causes poverty. Poor quality of skills means low productivity, which leads to lower wages. Poor quality of skills is caused by poor education, unfortunate luck, discrimination, or heredity. These causes of poverty led to the theory *of The Vicious Circle of Poverty*. Underdevelopment, market failures, and lack of capital lead to reduced productivity—their low productivity causes their low income. Low income impacts low savings and investments, and low investment leads to underdevelopment and so on. Ragnar Nurkse invented this thinking logic.

Figure 1. *The Vicious Circle of Poverty* (Nurkse)

Source: Kuncoro (2010:70)

Stiglitz (1996) and Sylwester (2000) suggest that higher levels and qualities of human capital serve two important macroeconomic objectives. It directly increases labor productivity, which promotes higher income. Indirectly, increasing education improves income distribution, which correlates with economic growth. With higher economic

growth, in turn, contributes to poverty reduction, which in turn maintains better economic performance (Pohan & Vitale, 2016).

Unemployment is another factor that also affects the poverty rate. According to Mankiw (2006), an unemployed person is someone who wants to work but cannot get a job and is not involved in the production process of goods or services. Another definition of unemployment is the number of workers in the economy looking for work but have not found it (Sukirno, 2004).

People's welfare is influenced by several factors, one of which is income. If a full employment level can be realized, people's income can reach maximum. Sukirno (2000) said that the reduction in people's income and the level of prosperity is the impact of unemployment, which will cause another effect: poverty.

Poverty is a development problem for every country. Ending poverty as the Sustainable Development Goals' primary goal is to ensure the sustainability of development achievements. The high unemployment rate and low education are factors that influence the poverty rate. Based on this background, the author is interested in researching the Effect of Education and Unemployment Rate on Poverty Rate of 4 Cities in North Sulawesi.

LITERATURE REVIEW
Poverty Theory
Suharyo *et al.* (2003) said that poverty is a phenomenon of limited access to food and education, health, clean water, houses, and other needs. According to Chambers (in Nasikun), poverty is an integrated concept with five dimensions: Proper, Powerless, State of emergency, Dependency, and Isolation. Poverty can be divided into four forms, namely: Absolute, relative, cultural, and structural poverty (Suryawati, 2005). According to Kuncoro (2010), some poverty levels are extreme, moderate, and relative poverty.

For poverty measurement, the Central Statistics Agency uses the concept of the ability to meet basic needs. This approach views poverty as the inability to meet the basic needs of food and not food. The poor are categorized as those whose average per capita monthly expenditure is below the poverty line. The Head Count Index (HCI – P0) is one indicator that looks at poverty based on basic needs, namely the percentage of the population below the poverty line.

Education Theory
According to Todaro (2006), education is an effort to create an atmosphere and learning process so that students can develop their potential and skills needed for themselves. Education is human capital in economic growth and development that is vital because education can increase the productivity of the country. With the skills gained through education, people can produce more output and improve the economy.

To improve the quality of human resources, one of the ways to provide knowledge is through education. Education plays a vital role in the advancement of economic development because it can reduce the unemployment rate and improve people's welfare. The average length of schooling is one of the indicators describing the level of Education, as it shows the average number of effective years of schooling completed by residents aged 15 years and over (Hartanto & Masjkuri, 2017).

The labor market is influenced by several factors, one of which is public education. The expectation of the length of schooling and the average length of schooling are

indicators in the calculation of the Human Development Index. Formal education is officially implemented, and the system is regulated based on a curriculum designed by the government (Ramiayu, 2016).

Unemployment Theory
The definition of unemployment according to the Central Statistics Agency, is a population who is not working but looking for a job or preparing for a new business or a resident who is not looking for a job because he has been accepted to work but has not started working.
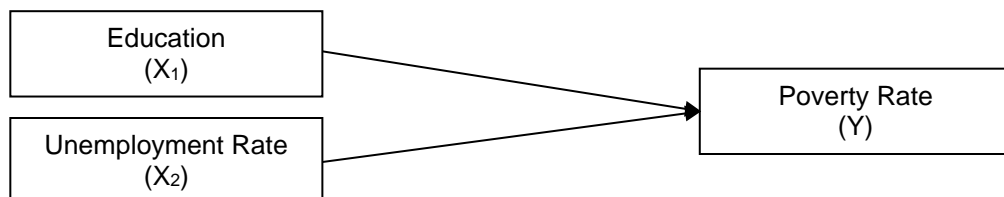
Meanwhile, according to the International Labor Organization (ILO), unemployment is divided into two: open unemployment and half unemployment. Open unemployment is a condition in which a person from the labor force group who has not worked for a certain period is willing to accept a job and is looking for a job. Underemployment is a condition in which a person who works as an employee laborer and an independent worker who works less than 35 hours a week for a certain amount of time and is still looking for another or additional job.

The formula for measuring the open unemployment rate:

$$UR = \frac{Unemployed}{Labor\ Force} \times 100$$

Lowering the unemployment rate and the poverty rate is an equally important undertaking. Based on theory, if people are not unemployed, it means that they have jobs and incomes that can meet the needs of their life, and they will not be poor. It can be concluded that the poverty rate is also low, with high job opportunities and low unemployment rates (Yacoub, 2012).

Figure 2. Theoretical Framework of Thought

The hypotheses in this study are as follows:
1. Education is suspected to affect the poverty rate of 4 Cities in North Sulawesi.
2. Unemployment is suspected to affect the poverty rate of 4 Cities in North Sulawesi.

RESEARCH METHOD

This quantitative research uses panel data regression as an analysis method and Eviews 12 software for regression analysis techniques. This research used secondary data from the Central Statistics Agency, namely the Poverty Rate, Average Length of School, and Open Unemployment Rate of Manado, Bitung, Tomohon, and Kotamobagu for the 2015-2021 period.

The econometric model of this study is as follows:
$POV_{it} = \beta_o + \beta_1 ED_{it} + \beta_2 UR_{it} + e_{it}$

Description:

POV   = Poverty rate
ED   = Education (Average Length of School)
UR   = Unemployment rate
β_0 = Intercept
$\beta_1, \beta_2,$ = Coefficient regression
e   = Error term
i   = City indicator
t   = Time indicator

RESULTS

The Chow, Hausman, and Lagrange Multiplier tests were used to determine the suitable model for this study.

Table 1. Chow test result

Effect Test	Stat	d.f.	*Prob.*
Cross-section F	1.884888	(3,22)	0.1616
Cross-section Chi-square	6.405055	3	0.0935

Source: Data process on EViews 12.

Based on the test results above, the Chi-square Cross-section's probability value is higher than α 5% (0.05), so the best method to use is the Common Effect Model. The next test is the Lagrange Multiplier.

Table 2. Lagrange Multiplier test result

	Cross-section	Time	Both
Breusch-Pagan	0.205814 (0.6501)	1.039928 (0.3078)	1.245741 (0.2644)

Source: Data process on EViews 12.

Based on the results of the Lagrange Multiplier test above, it can be seen that Both have a value greater than α 5% (0.05), so the best model to use in this study is the Common Effect Model. The Hausman test was no longer carried out because the Common Effect Model had been selected through both tests.

Table 3. Common Effect Model Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.34947	1.010957	11.22646	0.0000
ED	-0.611982	0.100305	-6.101211	0.0000
UR	0.108185	0.029469	3.671177	0.0011
R-squared	0.631605			
Adjusted R-squared	0.602134			

Source: Data process on EViews 12.

Based on table 3, the results of the regression equation are as follows:
$POV_{it} = 11.34947 - 0.611982ED_{it} + 0.108185UR_{it} + e_{it}$

From the results of the regression equation obtained, it can be understood that:
1. Partially, there is a significant influence between education, proxied by the average length of school, and the poverty rate. The value of the coefficient obtained at

-0.611982 states that every increase in education by 1% decreases the poverty rate by 0.61%.
2. Partially, there is a significant influence between the unemployment rate and the poverty rate. The value of the coefficient obtained at 0.108185 states that every increase in the unemployment rate by 1% increases the poverty rate by 0.10%.
3. Based on the results, the coefficient of determination R^2 (Adjusted R-squared) value was obtained by 0.602134. The value of the coefficient of determination R^2 shows that the independent variables education and unemployment rate can explain or influence the dependent variable poverty rate by 60.21% and the remaining 39.79% is explained or influenced by variables outside the model.

Partial Test (T-test)
The t-stat value of ED is -6.101211, the t-tab is 2.05954, and the significance value is 0.0000. The results showed that the t-stat > the t-tab and the significant value < 0.05, meaning that partially education significantly affected the poverty rate.

The t-stat value of UR is 3.671177, the t-tab is 2.05954, and the significance value is 0.0011. The results showed that the t-stat > the t-table and the significant value < 0.05, meaning that the unemployment rate partially affected the poverty rate.

Coefficient of Determination Test (R^2)
Based on the estimation results, the R^2 (Adjusted R-squared) was obtained by 0.602134. It means that the independent variables, education and the unemployment rate, can explain the dependent variable Poverty Rate of 60.21%, and the remaining 39.79% is explained or influenced by variables outside the study.

Classical Assumptions Test
The model has passed the classical assumption test.
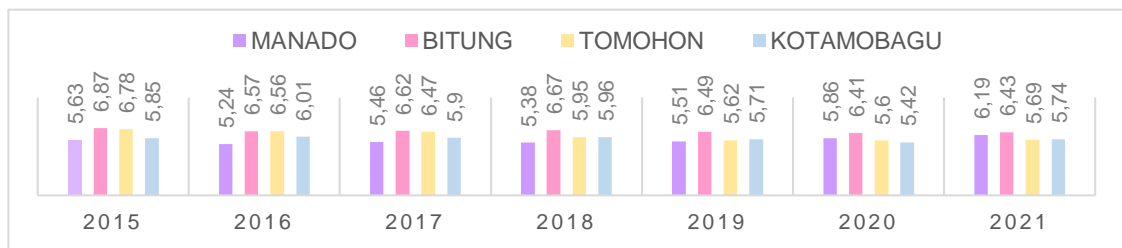
Table 4. Classical Assumptions test result

Details	Value
Jarque-Bera Probability	0.705270
Correlation	0.222301
Durbin-Watson Stat	1.845709
Prob. Chi-Square (Obs*R-squared)	0.7936

Source: Data process on EViews 12.

DISCUSSION

Poverty has become a problem, a topic of conversation, and a policy focus that the Government is still pursuing. Poverty is a complicated problem because it affects and is also affected by many factors, two of which are education and unemployment rate. Education influences the poverty rate, where education which is the capital of human resources, will affect the development of human character, which will later impact productivity in economic activities. If a person has a good education, then his chances of competing in the labor market, working and supporting himself and his family become greater. A person with a higher education tends to have diverse abilities and skills to increase their chances of working and earning income, especially to avoid poverty.

Figure 3. Poverty Rate of 4 Cities in North Sulawesi

Source: Central Statistics Agency (data processed).

Figure 3 above seen that the poverty rate of 4 cities in North Sulawesi, namely the cities of Manado, Bitung, Tomohon, and Kotamobagu, has fluctuated over the past seven years. In the last two years, 2020-2021, coinciding with the Covid-19 pandemic in Indonesia, the poverty rate in these four cities has increased. Manado City increased by 0.33% to 6.19%, Bitung increased by 0.02% to 6.43%, Tomohon increased by 0.09% to 5.69%, and Kotamobagu increased by 0.32% to 5.74%. Through the figure above, it can be seen that in 2021 the city of Bitung holds the highest position of poverty rate compared to the other three cities.

The test results found a significant influence between education and poverty rates with a negative relationship. This study's results align with the previous research by Parwa and Yasa (2019), where the level of education has a negative and significant influence on poverty in Bali Province. Research conducted by Didu and Fauzi (2016) also supports the results of this study, where education has a significant effect and has a negative relationship with the poverty rate. This study's results follow previous theories and research that are the theoretical basis of this study. Ragnar Nurkse's (1953) theory states that education impacts the quality of resources. Low education will result in low quality of resources as well. When the quality of existing resources is low, it will impact decreased productivity. The decline in productivity will affect low wages, causing increased poverty.

Education can open the door to developing knowledge, skills, and jobs that help a person survive. Quality of education is a well-known solution to reducing poverty. Education solves many other problems that can leave people, families, and even entire communities vulnerable to a cycle of poverty.

Another factor that affects the poverty rate is the unemployment rate. In this study, the unemployment rate significantly and positively correlated with the poverty rate. This study's results align with Berliani's (2021) research, where the unemployment rate affects poverty significantly and has a positive relationship. The research conducted by Aziz *et al.* (2016) also supports the results in this study where unemployment significantly influences the poverty rate with a positive relationship.

Unemployment is a macroeconomic problem affecting human beings directly and is also a severe problem because it can decrease the quality of life. Uneven population growth, an unbalanced number of jobs within the labor force, and uneven employment in various locations are some of the causes of the emergence of this problem of unemployment. In addition to these things, Roring *et al.* (2020) stated that the attitude of choosing work and family culture or supporting each other is the cause of the high unemployment rate. People prefer to be unemployed rather than working in a place that is not following their interests, and they do not mind not getting a job in a certain time interval because the family can still support it in terms of meeting the needs of life.

According to Pohan and Vitale (2016), poverty also has dimensions between generations. A person born into a low-income family will also be more likely to end up in poverty. This is one of the reasons why poverty must be ended immediately for the welfare of society and the country's better development and economy.

The problems of poverty, education, and unemployment are included in the 17 Sustainable Development Goals (SDGs). These three things fall into the first, fourth, and eighth purposes: without poverty, quality education, decent work, and economic growth. National and world development planning must lead to SDGs targets so that subsequent researchers can develop this research by adding other variables that are not used in this study or using different analytical methods that can help solve the problem of poverty.

CONCLUSION

Partially, education negatively and significantly affects the poverty rate of 4 cities in North Sulawesi, and the unemployment rate positively and significantly affects the poverty rate of 4 cities in North Sulawesi. The government needs appropriate and effective policies to reduce the poverty rate. By providing the stimulant and subsidies for the poor, organizing poverty alleviation programs with more attention to the target recipients of assistance to be on target, providing educational funding assistance for underprivileged children, and creating training programs for skills development with accessible information and relatively low costs or even at no charge, providing more jobs, support small and medium enterprises, reducing outsourcing labor, and accepting the employee fairly without nepotism, hopefully, it can reduce the poverty rate and solve poverty problems, both in the cities of Manado, Bitung, Tomohon, Kotamobagu, and even more broadly.

LIMITATION

This research only elucidates the poverty rate, education, and unemployment rate in 4 cities in North Sulawesi (Manado, Bitung, Tomohon, and Kotamobagu). The results may differ from other variables not included in this research.

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DECLARATION OF CONFLICTING INTERESTS

The authors state that no conflict of interest comes from any party conducting research, writing, or publishing this research.

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