

# Determinants of Poverty in Central Sulawesi 2020-2024

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## Abstract

This study aims to analyze the determinant factors of poverty in Central Sulawesi Province for the period 2020-2024, focusing on open unemployment, education, and per capita income. The research method uses quantitative panel data analysis with secondary data from the Central Statistics Agency (BPS) of Central Sulawesi, covering 13 regencies/cities. The selection of regression models was conducted through Chow and Hausman tests, which indicated the fixed effect model as the most appropriate model. The analysis results show that open unemployment and education have a positive but not statistically significant effect on poverty. Meanwhile, per capita expenditure has a negative and significant effect on poverty, with a coefficient of determination (Adj. R<sup>2</sup>) of 99.68%, indicating that the three variables can explain most of the variation in poverty. These findings confirm that increasing people's purchasing power through economic policies that promote per capita expenditure is a crucial step in reducing poverty. On the other hand, education and unemployment management require deeper intervention, such as improving education quality and creating employment opportunities, to strengthen the effectiveness of poverty alleviation programs. This study recommends that local governments prioritize policies focused on increasing community income and equalizing access to education and employment opportunities.

**Keywords:** Central Sulawesi, Education, Per Capita Income, Poverty, Unemployment.

## 1. Introduction

The problem of poverty is a complex social issue caused by many factors in various countries. Poverty remains a global challenge, particularly in developing countries like Indonesia. This issue is classified as complex because it involves various social aspects. One of the main causes is the low income of the population due to difficulties in accessing employment, education, health services, and the existence of social and economic inequality (Nafi'ah, 2021). The poverty rate in each region is not the same due to differences in the pace of development. These differences cause variations in poverty rates between regions. Generally, economic growth does not occur evenly across all sectors and regions. Some areas experience rapid growth, while other areas develop slowly (Kevin et al., 2022). Poverty is one of the most urgent economic problems to be solved. The government places this issue as a top priority because its impact is very broad and brings negative consequences to various aspects of life (Septiadi & Nursan, 2020). As an effort to address poverty, it is important to study poverty more deeply, one of the intended efforts is by analyzing the determinant factors of poverty.

Poverty determinants are factors that cause or influence the level of poverty in a region or community group (Sumeitri & Destiningsih, 2022). Understanding poverty determinants



is very important for designing effective policies and programs in poverty alleviation efforts. Poverty alleviation efforts require comprehensive and accurate analysis to design effective strategies. An important initial step is understanding community characteristics and the root causes of poverty. In addition, mutual understanding of concepts, indicators, and priority targets in poverty alleviation becomes the foundation for formulating appropriate policies (Arifin, 2020).

Poverty is one of the main issues that becomes the focus of attention in every country. To support alleviation efforts, the availability of accurate poverty data becomes very crucial. Reliable poverty measurement can function as an important tool for policymakers in highlighting the living conditions of the poor. Quality data not only helps in assessing the effectiveness of policies that have been implemented, but also enables measurement of poverty levels across time and regions, and becomes the basis for setting program targets aimed at improving the welfare of poor groups (Directorate of Social Security Statistics, 2024).

Central Sulawesi Province is one of the provinces with high poverty levels, namely 398.73 people in 2020 or 12.92 percent, so understanding the determinants of poverty in this region is very important for formulating effective policies and programs in poverty alleviation efforts. In-depth studies of poverty-causing factors are needed to identify the root of the problem and design appropriate targeted solutions. By understanding poverty determinants, local governments, communities, and other stakeholders can work together to create positive changes and improve the quality of life of the people in Central Sulawesi Province.

One aspect that affects the poverty level is education. As a basic need for every individual, education has an important role in improving living standards. To obtain decent work with adequate income, a person must have a sufficient level of education. However, the opportunity to obtain higher education is still a challenge for the underprivileged, because the required costs tend to be high and are more easily accessible to those who have more stable economic conditions (Arifin, 2020).

The average length of schooling becomes an indicator in assessing the education level of a region and plays an important role in influencing poverty. The longer a person attends education, the greater their opportunity to acquire skills and knowledge needed in the world of work, thereby increasing opportunities to get jobs with better income. Conversely, low average length of schooling often contributes to high unemployment rates and low income levels, which ultimately worsen poverty conditions. Therefore, improving equitable and quality access to education becomes a strategic step in reducing poverty rates and improving community welfare (Mandey et al., 2023).

Another factor that affects poverty is unemployment. High unemployment rates directly worsen poverty. The more people who are unemployed, the more people have difficulty meeting their living needs, so poverty increases. In line with research by Sembiring et al. (2023), the absence of work or unemployment has a direct impact on increasing poverty levels. Someone who is unemployed will have difficulty meeting their living needs, so that person will reduce their consumption expenditure, this will cause that person to fall into the poor category, and will also increase the number of people experiencing poverty. Other research by Azizah & Asiyah (2022) states that there is a significant relationship between unemployment rates and poverty. This is in line with the research model and statistical test results that show that increased unemployment impacts increased poverty. In other words, when the number of unemployed increases, the poverty rate also tends to increase. Theoretically, poverty will move in line with changes in unemployment rates. Therefore, it can be concluded that unemployment contributes to increased poverty.

Per capita income is the average income of a country's population in a certain period, generally one year. This concept can also be interpreted as the average value of total goods and services available to each citizen within a certain time frame. The way to calculate per capita income is by dividing a country's national income in a certain year by its population in the same year. Rising per capita income will increase people's ability to buy goods and services. Nevertheless, most per capita income is usually allocated first to meet basic needs, while the remainder can be used for saving, investing, or buying additional products and services (Sukirno, 2016).

Per capita income is one of the important factors that affect poverty levels. The higher the per capita income, the greater the possibility of someone escaping from the poverty line. In practice, BPS uses household expenditure data from the national socio-economic survey (*susenas*) to estimate per capita income, because direct income data is often difficult to obtain accurately. Therefore, per capita expenditure is often used as an approach in measuring per capita income.

Based on various findings related to this topic, diverse findings are obtained, and there is still little research that refers to Central Sulawesi Province, so researchers want to investigate further the determinants that affect poverty levels. This study aims to analyze the influence of open unemployment, average length of schooling, and per capita income on poverty levels in Central Sulawesi Province. To understand factors that have relationships and impacts on poverty, this study applies the Panel Data testing method. This method is used to identify the extent to which these variables affect the level of poverty that occurs. The focus of this study covers the period 2020-2024. The results of this study are expected to become a reference for the government in formulating appropriate policies and programs to address poverty in Central Sulawesi Province.

## 2. Literature Review

### 2.1. Concept of Poverty

Poverty can be understood as the inability of individuals or groups to meet economic, social, and decent living standard needs. This condition arises when a person or group of people cannot achieve the level of economic welfare considered necessary to meet certain living standards (Alfasyah et al., 2023). Poverty is a problem that humanity has continuously faced throughout history. This problem has existed since the beginning of civilization and its impact can spread to various aspects of life. However, not everyone realizes its existence as a problem. For those who live in poor conditions, poverty is a reality they experience every day, they feel it directly and live their lives in these limitations (Nafi'ah, 2021). Poverty is divided into two types: absolute poverty and relative poverty.

#### 2.1.1. Absolute Poverty

According to Sukirno, 2006, in Joseph (2020), absolute poverty is when a portion of the population can barely afford necessities like food, clothing, and shelter just enough to live. The poverty line is established by considering the essential requirements for survival, which includes a minimum of 2,100 kilocalories per person per day, as well as other basic necessities like shelter, clothing, education, transportation, and personal expenses. Individuals are deemed to be in absolute poverty if their earnings fall below the poverty line, leaving them unable to meet their basic living requirements.

### 2.1.2. Relative Poverty

Relative poverty is a condition where individuals, families, and groups in a population do not have resources to obtain certain types of food, participate in activities available in society, and have conditions and facilities that are standard in the society where they live. The resources they have are below the average standard existing in the society where they live. Relative poverty relates the condition of lack of resources to the standards of society in that region (Townsend, 1979, in Fadilah & Basuki (2021)).

### 2.2. Factors Affecting Poverty

Poverty levels are influenced by a variety of factors, one being unemployment. The wealth of a community is largely dependent on its level of income. Attaining full employment could lead to reaching an ideal income level (Bandha et al., 2022). Unemployment causes a decrease in people's income, even in some cases, individuals do not earn any income at all. This condition certainly increases their risk of falling into poverty due to the absence of income sources (Pradita & Riyanto, 2021).

The average length of time spent by the population on formal education reflects the level of education achieved, which in turn affects the quality of thinking and individual behavior (Risal, 2021). Education improvement is often associated with increased work productivity, as individuals acquire better knowledge and skills. Formal and non-formal education can contribute directly to poverty alleviation by providing skills that increase productivity and income, and indirectly through improving overall economic efficiency. Studies indicate that higher levels of literacy and longer periods of education are key factors in decreasing the population of impoverished individuals in Indonesia (Surbakti et al., 2023).

According to Kuncoro (2004) (as cited in Muliza (2024), per capita income functions as an indicator to measure the economic capability of a region. Increased per capita income in a region will impact increased people's purchasing power and improve welfare. This can also directly reduce poverty rates in the region. In economics, income and expenditure are two main indicators in assessing household economic conditions. Income shows the amount of economic resources received by individuals or households in a certain period, while expenditure reflects how that income is allocated to meet daily consumption needs (Mankiw, 2021)

## 3. Methods

This study uses quantitative research where the data collected is in the form of numbers and analyzed statistically (Sugiyono, 2016). The information utilized for this research is derived from secondary sources provided by the Central Statistics Agency of Central Sulawesi Province for the period of 2020-2024, encompassing 13 Regencies/Cities within the province.

This research relies on secondary data that was indirectly collected from official publications released by the Central Statistics Agency (BPS) in Central Sulawesi Province. Panel Data analysis is employed in this study to examine the correlation between the factors under investigation. Panel Data combines elements of both time series and cross section, organizing data by time and location. The data analysis process involves using Eviews 12 software to estimate and select the best panel data regression model. This includes testing different models such as common effect, fixed effect, and random effect, and using tests like Chow test, Hausman test, and Lagrange Multiplier to evaluate the results. Hypothesis testing, including partial test, simultaneous test, and coefficient of determination, is then used to assess the relationship between independent and dependent variables.

## 4. Results and Discussion

### 4.1. Research Results

The Chow test results show a Chi-square Prob. value of  $0.0000 < (0.05)$  as required, which means that the use of panel data is considered appropriate for research on poverty in Central Sulawesi Province. Then the Hausman test results show a Chi-square Prob. value of  $0.0000 < (0.05)$  as required, so it is declared to produce a fixed effect model. Thus, research on poverty determinants in Central Sulawesi Province has shown that the fixed effect model is the most optimal panel data regression model to use, eliminating the necessity of conducting the Lagrange Multiplier (LM Test).

**Table 1. Panel Data Regression Analysis Results**

<b>Dependent Variable: Y</b>				
<b>Method: Panel Least Squares</b>				
<b>Date: 06/03/25</b>				
<b>Time: 13:29</b>				
<b>Sample: 2020 - 2024</b>				
<b>Periods included: 5</b>				
<b>Cross-sections included: 13</b>				
<b>Total panel (balanced) observations: 65</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
C	29.06156	11.68768	2.486513	0.0164
X1	0.000166	0.000155	1.071132	0.2894
X2	1.469781	1.541579	0.953425	0.3451
X3	-0.001328	0.000397	-3.347167	0.0016
<b>Effect Specification</b>				
<b>Cross-section fixed (dummy variables)</b>				
R-squared			0.997624	Mean dependent var 30.26092
Adjusted R-squared			0.996897	S.D. dependent var 16.98440
S.E. of regression			0.946126	Akaike info criterion 2.936859
Sum squared resid			43.86256	Schwarz criterion 3.472209
Log likelihood			-79.44790	Hannan-Quinn criter. 3.148043
F-statistic			1371.698	Durbin-Watson stat 2.147079
Prob(F-statistic)			0.000000	

Source: Processed Secondary Data, 2025

The next step is to conduct hypothesis testing which includes partial test (t-test), simultaneous test (f-test), and coefficient of determination test. In Table 1, the test results show that unemployment has no significant positive effect on poverty, with a t-statistic value of  $1.0711 < t\text{-table} (1.998341)$  with a Sig. value of  $0.2894 > 0.05$ , which means that poverty will increase proportionally with the amount of unemployment but not significantly. Similarly, the average length of schooling also has no significant effect on poverty, with a t-statistic value of  $0.9534 < t\text{-table} (1.998341)$  with a Sig. value of  $0.3451 > 0.05$ , where poverty will increase proportionally with the average length of schooling but not significantly. Finally, per capita income obtained a Sig. value of  $0.0016 < 0.05$  and a t-statistic value of  $-3.3431 > t\text{-table} (1.998341)$ , which means poverty is negatively and significantly affected by per capita income. Furthermore, in Table 1, the F-statistic Prob. value is  $1371.698 > f\text{-table} (2.75)$  with a sig. value of  $0.000000$ . Thus, it can be interpreted that open unemployment, average length of schooling, and per capita income are proven to significantly act simultaneously in affecting poverty levels in Central Sulawesi Province for 2020-2024.

The coefficient of determination test is performed using the Adjusted R-Squared value, which is used to evaluate the model's effectiveness in explaining the variations in the dependent variable. This variable is the main focus for prediction or explanation (Gujarati, 2009). Table 1 indicates an Adjusted R-Squared value of 0.996897. This value of coefficient of determination suggests that the poverty in Central Sulawesi Province can be attributed to the three variables by 99.68%, leaving only 0.32% to be influenced by factors not considered in this study.

Table 1 shows that the constant value derived is 29.061. This implies that the average number of people living in poverty is 29.061 when specific values are assigned to the independent variables (such as open unemployment, average length of schooling, and per capita income). The coefficient value of open unemployment is positive (+) at 0.0001, so it can be interpreted that if unemployment increases, poverty also increases. Similarly, the coefficient value of average length of schooling is positive (+) at 1.4697, so it can be interpreted that if the average length of schooling increases, poverty also increases. The regression coefficient value of per capita expenditure is negative (-) at -0.0013, so it can be interpreted that if per capita expenditure increases, poverty will decrease.

## 4.2. Discussion

This study's findings reveal that unemployment is a contributing factor to poverty. When unemployment increases, it will reduce aggregate demand so that poverty also increases. This outcome is substantiated by prior studies conducted by Viarum & Susilowati (2024) which states that poverty will increase proportionally with unemployment rates but not significantly. Other research by Wulandari & Aisyah (2021) shows that unemployment rates have a positive and significant effect on poverty rates in Java-Bali Island, because increasing unemployment rates will increase poverty rates. However, research by Pradita & Riyanto (2021) shows that the variable of open unemployment rate greatly influences poverty in Tuban Regency. This indicates that poverty in Tuban Regency will rise as the rate of open unemployment increases.

The findings from this research indicate that the duration of education does not hold much importance, yet it does contribute positively to reducing poverty. This discovery aligns with Kamsina & Khoirudin (2024) showing that education, seen from the average length of schooling in East Nusa Tenggara Province during the period 2017-2022, has no significant effect on poverty. In line with research by Mandey et al. (2023), the average length of schooling plays an important role in poverty alleviation efforts. Studies indicate that the duration of education has a noteworthy impact on poverty rates, with longer schooling resulting in positive outcomes.

The latest discovery from this investigation indicates that poverty is greatly impacted by per capita income in a negative way. This study coincides with previous research done by Viarum & Susilowati (2024) stating that per capita expenditure has a negative effect on poverty rates, namely that a country's poverty rate decreases when per capita expenditure value increases. Other research by Hasanah et al. (2021) shows that per capita expenditure has a significant and negative effect on poverty rates in Regencies/Cities in Jambi Province. Also in line with research by I. Wulandari & Pratama (2022), per capita expenditure has a significant negative effect on Indonesia's poverty rate for the period 2010-2021. This means that if per capita expenditure increases, then Indonesia's poverty rate decreases, and vice versa.

The research findings in Central Sulawesi highlight significant gaps in understanding the impact of open unemployment and average length of schooling on poverty. Different from studies in Java-Bali and Tuban that show positive and significant effects of unemployment on poverty, as well as several studies indicating the important role of average length of schooling,

the results in Central Sulawesi actually find the insignificance of both variables. This is in line with research in East Nusa Tenggara regarding average length of schooling. These differences emphasize the importance of contextual factors such as geographical region and demographic characteristics, which can affect the relationship between unemployment, education, and poverty. Therefore, general approaches may not always be effective, and deeper interventions are needed to improve education quality and create employment opportunities that suit the local context of Central Sulawesi.

Conversely, this study consistently strengthens the findings of the majority of previous studies regarding the crucial role of per capita expenditure as the main determinant of poverty. This consistency strengthens empirical evidence regarding the importance of per capita expenditure in reducing poverty in the specific context of Central Sulawesi Province, given the diverse factors causing poverty in each region. The identified gaps in unemployment and average length of schooling highlight the need for further research to understand the specific mechanisms that make the impact of these variables insignificant in Central Sulawesi, different from other regions.

## 5. Conclusion

This study analyzes the determinants of poverty in Central Sulawesi Province focusing on three main variables: unemployment, average length of schooling, and per capita income. Based on the results of panel data analysis for the period 2020-2024, it can be concluded that unemployment has a positive but not significant impact on poverty. This means that although increased unemployment tends to increase poverty, its influence is not statistically strong. This indicates that other factors may be more dominant in affecting poverty in the region. Then the average length of schooling also shows a positive but not significant effect on poverty. This finding indicates that increased education has not been fully effective in reducing poverty in Central Sulawesi Province, possibly due to limited access or uneven quality of education. Finally, per capita income, this variable has a negative and significant effect on poverty. This means that increased per capita income can effectively reduce poverty, because people have greater ability to meet basic needs. Overall, this study shows that per capita income is the most significant factor in reducing poverty in Central Sulawesi Province. Meanwhile, unemployment and education, although having a relationship with poverty, their influence is not significant.

The findings lead to a suggestion that policy makers should therefore be very serious in raising per capita income since it provides a very big impact on poverty reduction in Central Sulawesi. Communities need programs that are geared toward local economic development, access to finance, and the ability to create sustainable livelihoods. While unemployment and education were statistically insignificant, focused programs such as vocational training and improvement in quality of education may increase their long-term effectiveness. With the evidence of regional disparities, future studies ought to investigate relevant local context to understand what drives poverty, and how a more locality-sensitive approach to policy may be designed.

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