

The Impact of the Number of Tourists, Average Length of School Attendance, and the Minimum Wage on the Poverty Rate in Samosir Regency, North Sumatra

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ABSTRACT

Poverty remains an important development issue in Samosir Regency despite its tourism potential and economic improvement. This study aims to analyze the effect of tourist visits, average years of schooling, and minimum wage on poverty levels in Samosir Regency. This quantitative study uses an associative approach with secondary data from 2015–2024 obtained from the Central Bureau of Statistics of Samosir Regency. The analysis was conducted using multiple linear regression with classical assumption tests, t-test, and F-test. The results show that tourist visits and average years of schooling have a negative but insignificant effect on poverty, while minimum wage has a negative and significant effect. Simultaneously, the variables influence poverty levels. The findings imply that income improvement through wage policies plays an important role in poverty reduction.

INTRODUCTION

Poverty is one of the biggest problems facing many countries, including Indonesia, as they develop. This problem is extremely serious because it has numerous negative effects and entails significant consequences for the country, particularly by hindering economic growth (Hutabarat et al., 2023). Poverty in Indonesia is currently relatively high. As a result, the government generally places great emphasis on and prioritizes the fight against poverty. This problem encompasses not only low income but also limited access to basic services such as education, health care, and economic opportunities. To combat poverty, measures are needed that address various aspects, ranging from human development and employment policy to the promotion of productive economic sectors.

In a macroeconomic context, poverty trends in Indonesia from 2015 to 2024 show a fluctuating pattern that reflects the instability of the economic situation, particularly as a result of the COVID-19 pandemic. At the regional level, North Sumatra Province continues to grapple with quite complex poverty issues. The varying levels of development among individual districts and cities, the differing economic structures, and the lack of skilled labor are the main causes of the high poverty rate in some regions. A study has shown that regions that remain dependent on the agricultural sector with low yields generally have a higher poverty rate than regions with a more diversified economic structure (Rahmawati et al., 2022).

The high poverty rate in Samosir Regency indicates that the well-being of the population continues to pose an obstacle to the region's development process. This situation is particularly noteworthy because Samosir Regency is one of the leading tourist destinations in North Sumatra and possesses significant economic potential, especially in the tourism sector; however, this potential has not yet led to a significant reduction in the poverty rate. Therefore, further research is needed on minimum wages, the average length of schooling, and the number of tourists, as these factors influence the poverty rate in Samosir Regency.

Samosir Regency is one of the regencies in North Sumatra Province, distinguished by its unique geographic and economic characteristics. As an island region within the Lake Toba area, Samosir Regency has great potential in the tourism sector, which is being continuously developed by both the central government and local authorities. The number of tourists visiting Samosir Regency has risen steadily in recent years, in parallel with the development of Lake Toba as a national priority tourist destination. In theory, the increase in tourist numbers is expected to stimulate local economic growth, create jobs, and also boost the income of the local population (Simorangkir et al., 2024).

Unfortunately, however, the socioeconomic conditions there pose significant challenges, even though Samosir Regency is known for its charm as an attractive tourist destination that draws both domestic and foreign tourists to the Lake Toba region. According to data published by the North Sumatra Statistics Agency (BPS), Samosir Regency has a poverty rate of approximately 11.66%, ranking sixth among the province's 33 regencies and cities in terms of the highest poverty rates. This shows that while Samosir's tourism potential is

considerable, it has not yet directly led to equitable prosperity for the entire local population (BPS, 2024b).

The high poverty rate in Samosir is likely linked to the continued prevalence of informal employment, the low quality of education, the lack of formal jobs, and economic dependence on the tourism sector, which is highly vulnerable to external changes. Its geographical location as an archipelago in the middle of Lake Toba also poses an obstacle to the movement of goods, access to education, and labor mobility.

Against this backdrop, poverty is viewed not merely as a problem stemming from low income, but as a developmental phenomenon influenced by various economic and social factors. This demonstrates that the extent of poverty in a region including Samosir Regency depends heavily on the development of the economic sector, the quality of the workforce, and employment policies. Therefore, a study analyzing the impact of the number of tourists, the average length of schooling, and the minimum wage on the poverty rate is of great importance for understanding the factors that play a role in poverty reduction in a broader sense. Poverty in Samosir Regency is thus influenced not only by macroeconomic factors but also by the quality of human resources and labor market policies at the local level. A low level of education, as indicated by the average length of schooling, as well as the limited effectiveness of minimum wage policies in the informal sector, most likely also influence the poverty rate. It is therefore important to conduct an analysis that establishes a link between poverty and the number of tourists, the average length of schooling, and the minimum wage in order to better understand the causes of poverty in Samosir Regency.

Poverty is therefore not only viewed as a problem resulting from low income, but also as a developmental phenomenon influenced by various economic and social factors. This demonstrates that the poverty rate in a region, such as Samosir Governorate, is strongly dependent on the development of the economic sector, the skills of the workforce, and employment policies. Studies analyzing the impact of tourist numbers, average years of schooling, and minimum wages on poverty levels are therefore crucial for a more comprehensive understanding of the factors contributing to poverty reduction. Poverty in Samosir Governorate is thus influenced not only by macroeconomic factors but also by the quality of human resources and regional employment policies. Low levels of education, as evidenced by average years of schooling, and inadequate minimum wage policies for the informal sector likely contribute to high poverty levels. Therefore, it is essential to conduct an analysis linking poverty to tourist numbers, average years of schooling, and minimum wages to better understand the causes of poverty in Samosir Governorate.

THEORETICAL REVIEW

Tourism-Led Growth Theory

According to the “Tourism-Led Growth Theory” (TLG), the tourism sector can be one of the most important drivers of economic growth for a region or country. This theory posits that an increase in tourism activity – reflected in rising

visitor numbers – can contribute to higher revenues, more jobs, and an economic boost in tourist destinations.

According to a study by (Balaguer & Manuel Cantavella-Jordá, 2000) titled “*TOURISM AS A LONG-RUN ECONOMIC GROWTH FACTOR : THE SPANISH CASE,*” the tourism sector plays an important role in promoting economic growth, as tourists visiting a region incur various expenses to meet their needs during their trip, such as accommodation, transportation, meals, and various leisure activities. These expenditures increase revenue for both businesses in the tourism sector and those in other sectors that are directly or indirectly linked to it.

Furthermore, growth in the tourism sector can also promote job creation, both in the formal sector such as hotels, restaurants, and tour operators and in the informal sector such as small retailers and local service providers. With increasing employment opportunities and rising incomes among the population, there is a prospect that the well-being of the people in this region will continue to improve.

This study draws on the theory of tourism-based growth to illustrate that the rising number of tourists visiting Samosir Regency has the potential to positively impact the regional economy. It is expected that the increase in economic activity driven by the tourism sector will raise the population’s income and thus indirectly contribute to a decline in the poverty rate in Samosir Regency.

According to the Central Bureau of Statistics and its “Tourism Satellite Account (TSA) Indonesia,” tourism contributes to the national and regional economies by increasing production, value added, and employment. This contribution stems from tourist spending, which is driven by the rising number of tourist visits to a regional (BPS, 2024a). Thus, the number of tourist visits is closely linked to the region’s economic development.

In addition to contributing to revenue and employment opportunities, the rising number of tourist visits also promotes the development of micro- and small businesses in tourist destinations. The local population can take advantage of economic opportunities by offering services and products that support tourism, making tourism an indirect means of strengthening the local economy.

In the context of regional development, the number of tourist visits is often used as a performance indicator for the tourism sector, as it is directly linked to an increase in economic activity and household income. Regions with a high number of tourist visits generally have greater economic strength than regions with low levels of tourism activity.

In this study, the number of tourist visits is used as one of the independent variables, as it is theoretically linked to the socioeconomic conditions of the population. It is expected that an increase in the number of tourist visits in Samosir Regency will stimulate the regional economic cycle, ultimately leading to a reduction in the poverty rate.

H1: It is suspected that the number of tourist visits affects the poverty rate in Samosir Regency.

As an additional theory, according to Todaro and Smith, economic development is not only measured by increased income, but also by the ability of an economic activity to create jobs and improve community welfare. In the

tourism sector, increasing the number of tourists can stimulate the economy by increasing demand for goods and services such as accommodation, transportation, culinary experiences, and regional products. A growing tourism sector is likely to create jobs and increase community income, thus contributing to poverty reduction (Todaro & Smith, 2020).

Human Capital Theory

The human capital theory developed by (Amartya Sen, 1999) views education as a form of investment in people that can enhance their capabilities and productivity and expand their opportunities for a better life. In Sen's approach, education is viewed not only as a means of increasing income, but also as a process of expanding "capabilities" – that is, an individual's ability to choose and lead a meaningful life. The higher a person's level of education, the greater their knowledge, skills, and opportunities to find more suitable employment and improve their standard of living.

The study by (Rukmana & Imaningsih, 2023) shows that the average length of schooling has a negative and significant impact on the poverty rate in East Java. These findings suggest that improving the population's level of education can enhance the quality of human capital and thereby increase productivity and the chances of earning a higher income. This finding is consistent with Amartya Sen's view that education helps expand individuals' capabilities, enabling them to achieve a life of greater prosperity.

The connection to average years of schooling (AYS) lies in the fact that AYS can serve as an indicator of human capital accumulation in a region. The higher the average years of schooling, the longer people receive an education, which is expected to lead to an improvement in the quality of human resources. This improvement in the quality of education can strengthen the population's ability to take advantage of economic opportunities, increase labor productivity, and reduce the constraints that lead to poverty. From the perspective of human capital as defined by Amartya Sen, an increase in the average length of schooling can thus potentially contribute to raising the population's well-being, as education expands individuals' capabilities to lead a better life.

H2: It is suspected that the average length of schooling affects poverty levels in Samosir Regency.

Subsistence Wage Theory

According to David Ricardo's theory of the subsistence wage, wages are the income that workers receive in exchange for their contribution to production. The level of wages depends on the extent to which workers are able to meet their basic needs. As wage levels rise, the purchasing power and prosperity of the population increase, thereby reducing the risk of falling into poverty. Therefore, raising the minimum wage can be a tool for improving workers' prosperity and reducing the poverty rate.

The study by (Sulistiaawan, 2023) shows that the minimum wage has a negative and significant impact on the poverty rate in the province of Java. The results suggest that raising the minimum wage improves the population's ability to make a living through higher income, thereby contributing to poverty

reduction. This finding is consistent with David Ricardo's theory of the subsistence wage, according to which the level of wages is linked to workers' ability to meet their basic needs.

In the context of regional economic development, the minimum wage is a factor that can influence the level of the common good, particularly for low-income earners. The aim of setting a minimum wage is to protect workers so they can earn a decent income and meet their basic needs. Rising wages also improve access to essential goods such as food, education, healthcare, and housing. This demonstrates that increasing the minimum wage improves not only income but also quality of life. However, the impact of the minimum wage on poverty reduction still depends on labor market conditions, productivity, and the ability of companies to recruit workers.

Based on David Ricardo's theory of the subsistence minimum and supported by previous research, it can be concluded that the minimum wage is linked to the poverty level through the mechanism of income and welfare increases. An increase in the minimum wage is intended to improve people's ability to meet their basic needs and thereby reduce the economic pressure that causes poverty. Therefore, the higher the minimum wage in a society, the greater its potential for poverty reduction.

H3: It is suspected that the minimum wage has an impact on the poverty rate in Samosir Regency.

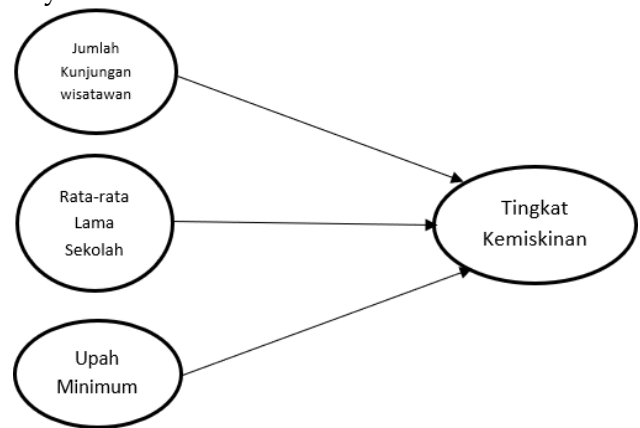


Figure 1. Conceptual Framework

The conceptual framework of this study describes the relationship between the number of tourist visits, average level of education, and the minimum wage as independent variables, and the poverty rate as the dependent variable in the Samosir Governorate. It is assumed that the number of tourist visits, through increased activity in the tourism sector, job creation, and higher incomes, can stimulate economic growth and thus potentially reduce the poverty rate. Average level of education reflects the quality of human resources, as higher education is expected to increase productivity, employment opportunities, and income, thereby reducing poverty. The minimum wage serves to secure earned income. An increase in the minimum wage is intended to increase the purchasing power and well-being of workers, thus contributing to a reduction in the poverty

rate. Based on this relationship, the study examines the impact of each independent variable on the poverty rate in the Samosir Governorate.

METHODOLOGY

The research method used in this study is quantitative research. Quantitative research is a type of research that uses data in numerical form, which is then analyzed using statistical methods to test hypotheses and objectively explain the relationships between variables (Sugiyono, 2019).

This study analyzes the influence of tourist visits, average educational attainment, and minimum wages on poverty levels in the Samosir Governorate of North Sumatra, using secondary data. The research data is derived from official publications of the Bureau of Statistics (BPS) and other relevant sources, and includes annual data for the observation period.

The study population comprised all socioeconomic data for the Samosir Governorate relating to poverty, tourism, education, and employment. The sample was selected based on data availability for each research variable during the study period. The dependent variable was the poverty rate, while the independent variables included the number of tourist visits, average level of education, and the minimum wage.

Data analysis was performed using multiple linear regression to determine the influence of the independent variables on the poverty rate. The analysis was validated using classical assumptions and statistical tests, including t-tests, F-tests, and coefficients of determination (R^2), to determine the influence of the variables—number of tourist visits, average level of education, and minimum wage—on the poverty rate in the Samosir Governorate.

RESULTS

This study examined the influence of tourist visits, average level of education, and minimum wage on the poverty rate in the Samosir Governorate of North Sumatra through several analytical steps. The analysis included descriptive analyses, testing of classical assumptions, and multiple linear regression analysis. The data covered the period from 2015 to 2024 and were analyzed using EViews.

Classical Assumption Test

Before conducting multiple linear regression analysis, classical assumption tests were performed to ensure that the regression model met the required statistical criteria. The tests consisted of normality, multicollinearity, heteroscedasticity, and autocorrelation tests. The results of the classical assumption tests are presented in Table 1.

Table 1. Classical Assumption Test Results

Test	Result	Conclusion
Normality Test	Probability = 0.719210	Normally distributed
Multicollinearity Test	X1 VIF = 3.162168 X2 VIF = 6.721572	No multicollinearity

	X3 VIF = 3.602316	
Heteroscedasticity Test	Prob. Chi-Square = 0.8079	No heteroscedasticity
Autocorrelation Test	Durbin-Watson = 2.728270	No autocorrelation

The normality test results show a probability value of 0.719210, indicating that the residuals are normally distributed. The multicollinearity test shows that all independent variables have VIF values below 10, indicating that there is no multicollinearity problem. Furthermore, the heteroscedasticity test produces a probability value of 0.8079, indicating that the model does not experience heteroscedasticity. The Durbin-Watson value of 2.728270 indicates that the regression model does not experience autocorrelation problems.

Multiple Linear Regression Analysis

After fulfilling the classical assumption requirements, multiple linear regression analysis was conducted to determine the effect of tourist visits, average years of schooling, and minimum wage on poverty levels in Samosir Regency.

After conducting the classical assumption tests, multiple linear regression analysis was performed. The regression equation obtained is presented as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Description:

Y = Poverty rate

α = Constant

X_1 = Number of tourist visits

X_2 = Average years of schooling

X_3 = Minimum wage

$\beta_1, \beta_2, \beta_3$ = Regression coefficients for each variable

ε = Error term

The regression results are presented in Table 2.

Table 2. Multiple Linear Regression Results

Variable	Coefficient	t-Statistic	Prob.
Constant	27.94271	2.742919	0.0336
Tourist Visits (X1)	-4.51E-07	-0.991158	0.3599
Average Years of Schooling (X2)	-1.304980	-1.083974	0.3200
Minimum Wage (X3)	-1.18E-06	-2.611430	0.0400

Based on Table 2, tourist visits have a negative coefficient but do not have a significant effect on poverty levels ($p=0.3599$). Average years of schooling also has a negative coefficient but does not significantly affect poverty levels ($p=0.3200$). Meanwhile, minimum wage has a negative coefficient and significantly affects poverty levels ($p=0.0400$).

The hypothesis testing was conducted through partial significance testing (t-test), simultaneous significance testing (F-test), and coefficient of determination (R-squared). The results are presented in Table 3.

Table 3. F-Test and Coefficient of Determination Results

Indicator	Value
F-statistic	25.93250
Prob(F-statistic)	0.000781
R-squared	0.928399
Adjusted R-squared	0.892598

The F-test results show that the probability value of 0.000781 indicates that tourist visits, average years of schooling, and minimum wage simultaneously affect poverty levels in Samosir Regency.

The coefficient of determination (R-squared) value of 0.928399 indicates that 92.83% of the variation in poverty levels can be explained by tourist visits, average years of schooling, and minimum wage, while the remaining variation is explained by other factors outside the research model.

Overall, the results of the analysis indicate that the regression model used in this study is statistically feasible to explain the relationship between tourist visits, average years of schooling, and minimum wage on poverty levels in Samosir Regency. The findings show that minimum wage has a significant effect on poverty reduction, while tourist visits and average years of schooling show a negative but statistically insignificant effect. These results indicate that poverty reduction in Samosir Regency is influenced by various economic and social factors, where improvements in income conditions through wage policies have a more direct impact during the observed period. The implications of these findings are further discussed in the following section.

DISCUSSION

The Effect of Tourist Visits on Poverty Levels

The regression analysis results show that tourist visits have a negative relationship with poverty levels, indicating that an increase in tourist visits tends to reduce poverty in Samosir Regency. However, the tourism variable does not show a significant impact on poverty reduction. This finding indicates that the increase in tourism activities has not yet provided a strong enough economic effect to directly reduce poverty levels during the observation period.

Theoretically, tourism development can contribute to poverty reduction through the creation of employment opportunities, increased income for local communities, and the growth of supporting economic activities such as accommodation, transportation, and local businesses. However, the insignificant effect found in this study indicates that the economic benefits generated from tourism activities may not have been distributed evenly among the community.

This condition may occur because tourism activities in Samosir Regency are still concentrated in certain tourism areas and are mainly enjoyed by communities

directly involved in tourism-related businesses. Therefore, although tourist visits continue to increase, the impact on poverty reduction requires broader community participation and stronger linkages between tourism activities and local economic development.

The Effect of Average Years of Schooling on Poverty Levels

The results of the regression analysis show that average years of schooling has a negative coefficient of -1.304980, indicating that an increase in educational attainment tends to reduce poverty levels. However, the probability value of 0.3200 shows that the effect is not statistically significant.

Based on human capital theory, education is an important factor in improving productivity, skills, and income opportunities. Higher education levels are expected to increase access to employment and improve household welfare. However, the results of this study indicate that improvements in average years of schooling have not yet produced a direct impact on poverty reduction in Samosir Regency.

This condition may occur because education improvements require support from other factors, particularly employment opportunities and economic activities that can absorb the available human resources. An increase in years of schooling does not automatically reduce poverty if the labor market does not provide sufficient opportunities for individuals to utilize their educational improvements.

The Effect of Minimum Wage on Poverty Levels

The regression results indicate that minimum wage has a negative and significant effect on poverty levels, with a coefficient value of -1.18E-06 and a probability value of 0.0400. This finding indicates that an increase in minimum wage contributes to reducing poverty levels in Samosir Regency.

According to labor economic theory, wages represent an important component of household income. Higher wages can increase purchasing power and improve the ability of households to fulfill basic needs, thereby reducing economic vulnerability and poverty risk.

The significant impact of minimum wage in this study suggests that income factors play an important role in poverty reduction during the observation period. The increase in minimum wage may provide direct benefits for workers and households that depend on wage income. However, wage improvements still need to be accompanied by employment expansion and economic growth to ensure that the benefits are experienced by a wider segment of society.

CONCLUSIONS AND RECOMMENDATIONS

This study examines the effect of tourist visits, average years of schooling, and minimum wage on poverty levels in Samosir Regency during the period of 2015–2024. The results show that tourist visits have a negative relationship with poverty levels, indicating that tourism development has the potential to contribute to poverty reduction. However, the impact of tourism has not shown a significant effect during the observation period, indicating that the economic benefits from tourism activities have not yet been distributed evenly across the community.

The study also finds that average years of schooling has a negative relationship with poverty levels. This indicates that improvements in education have the potential to reduce poverty by increasing human capital quality. However, the impact has not been significant, suggesting that educational improvement needs to be supported by adequate employment opportunities and economic absorption.

Furthermore, minimum wage has a negative and significant effect on poverty levels. This finding indicates that income improvement through wage policies plays an important role in reducing poverty in Samosir Regency. Overall, the results show that poverty reduction requires an integrated approach involving economic development, human capital improvement, and strengthening household income capacity.

The implementation of the research results suggests that local government policies should focus on strengthening the connection between tourism development, education improvement, and community economic opportunities. Tourism development should encourage wider community participation so that economic benefits can be experienced more broadly. In addition, improvements in education need to be accompanied by opportunities for productive employment, while wage policies should continue to support household welfare within the regional economic conditions.

FURTHER STUDY

This study has several limitations that should be considered for further research. First, this study is limited to the observation period of 2015–2024 and focuses only on three independent variables, namely tourist visits, average years of schooling, and minimum wage. Poverty levels are influenced by various economic and social factors; therefore, future studies may consider additional variables such as employment opportunities, economic growth, investment, or government expenditure to obtain a broader understanding of poverty determinants.

Second, this study focuses on Samosir Regency, so the results may reflect specific regional conditions and may not fully represent other regions with different economic characteristics. Future research may conduct comparative studies between regions or use a wider research scope to provide more comprehensive findings regarding poverty reduction.

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