International Journal of Finance, Economics and Business
Vol. 1, No. 4, December 2022, pp.292-302. e-ISSN: 2948-3883

https://doi.org/10.56225/ijfeb.v1i4.78

Article

The Effect of Education and Health on Poverty Reduction in Aceh Province, Indonesia: Moderating Role of Special Autonomy Fund

Dedhy Sugiharjo [1], Suriani Suriani [1,*], and Chenny Seftarita [1]

[1] Department of Economics, Faculty of Economics and Business, Universitas Syiah Kuala, Darussalam, Banda Aceh, Indonesia; dedhy@mhs.unsyiah.ac.id (D.S), chenny@unsyiah.ac.id (C.S)
* Correspondence: suriani@unsyiah.ac.id (S.S)

Citations: Sugiharjo, D., Suriani, S. & Seftarita, C. (2022). The Effect of Education and Health on Poverty Reduction in Aceh Province, Indonesia: Moderating Role of Special Autonomy Fund. *International Journal of Finance, Economics and Business, 1*(4), 292-302.

Academic Editor: Farah Roslan.

Received: 15 August 2022 Accepted: 2 December 2022 Published: 31 December 2022

Abstract: Aceh is the highest poverty rate among other provinces on Sumatra Island, and this condition has been going on for 20 years (2002-2021). Poverty that lasts a long time can result in the inheritance of poverty to the next generation so that it can give rise to groups of people who are always poor, which bring various problems. To overcome the problem, the central government grants special autonomy funds expected to reduce poverty in Aceh Province by strengthening the education and health sectors. Many previous studies have examined education and health as determinants of poverty. However, there was still limited research using special autonomy funds as a moderating variable. Therefore, the authors are motivated to fill the gap in research related to special autonomy funds as a moderating variable on the effect of education and health on poverty in Aceh Province. This study aims to investigate the role of special autonomy funds in moderating education and health on poverty using panel data for 2010-2021 in 23 districts/cities in Aceh Province, Indonesia. Analysis using MRA concluded that education had no significant effect, while health negatively affected the poverty rate. Furthermore, special autonomy funds are significant in moderating education and health on poverty. So, to reduce poverty, special autonomy funds can focus more on the education and health sectors. It is recommended that the government still utilize special autonomy funds that focus on supporting both programs, increasing public education and health, since special autonomy funds are proven to strengthen the effect of those two sectors in poverty reduction.

Keywords: education; health; special autonomy fund; poverty.

1. Introduction

Poverty is still a big problem in many developing countries, including Indonesia (Wanto & Hardinata, 2020). Poverty arises because of the inability of some people to meet their needs to a certain extent, which causes a decrease in the quality of human resources so that the productivity and income they earn are low. Poverty reduction is one of the Sustainable Development Goals (SDGs). Poverty, which was previously the

main goal of the Millennium Development Goals (MDGs), is again the main goal of the SDGs. It is because eliminating poverty can support other global goals, such as eradicating hunger (Adeyeye et al., 2021), improving the quality of education (Gedro, 2021), and achieving better public health conditions (Siddique et al., 2022). Therefore, the Indonesian government needs to pay attention to the conditions of poverty to encourage the achievement of global goals. One indicator used in Indonesia is the poverty rate in describing poverty. This indicator shows the percentage of the population living below the national poverty line calculated by the Indonesian Central Bureau of Statistics. The higher the poverty rate, the greater the percentage of poor people in an area. Based on the SDGs, Indonesia targets a poverty rate 2030 of 4.33 percent. Figure 1 displays that the poverty rate in Indonesia during 2010-2021 decreased from 13.33 percent in 2010 to 9.71 percent in 2021. Despite the achievement, the target poverty rate in Indonesia's SDGs is still far from being achieved.

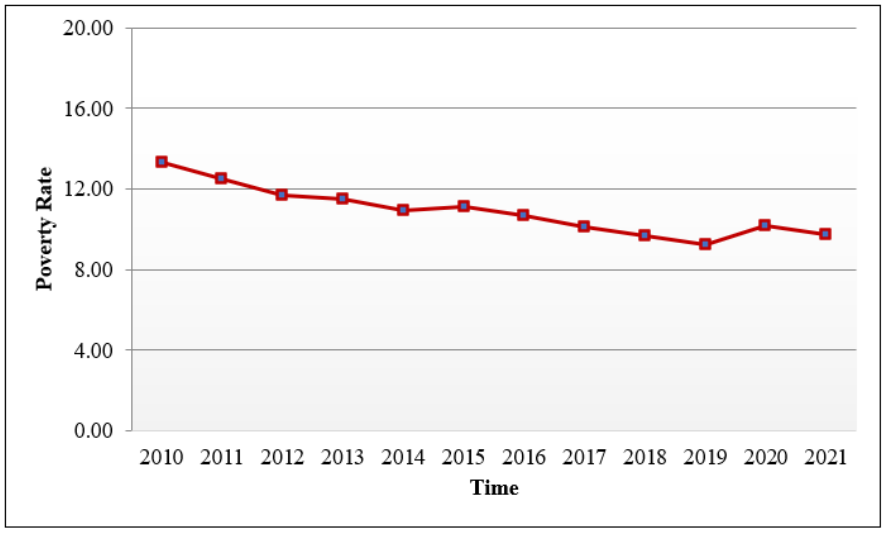

Figure 1. Poverty Rate in Indonesia for the Period 2010-2021.
Source: Statistics Indonesia (2022).

On the basis of the poverty data released by Statistics Indonesia in 2022, Aceh is the fifth poorest province in Indonesia after Papua, West Papua, East Nusa Tenggara, and Maluku. The number of poor people in Aceh Province reaches 850.26 thousand people (15.53 percent), the poorest province on Sumatra Island.

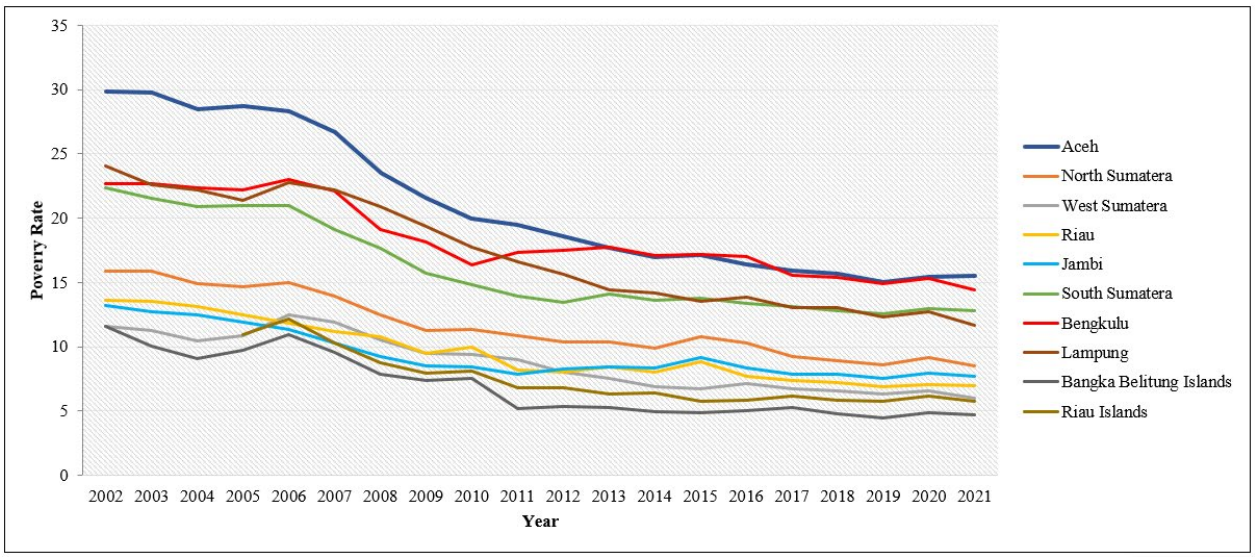

Figure 2. Comparison of Poverty Rates Between Provinces on Sumatra Island in 2002-2021.
Source: Statistics Indonesia (2022).

Aceh's status as the poorest province compared to other provinces on Sumatra Island has lasted for 20 years since 2002. Figure 2 compares the condition of the poverty level of the ten provinces located on Sumatra Island. In 2002, the poverty rate for Aceh Province was 29.83 percent, the highest compared to other provinces on Sumatra Island. Even though the poverty rate has gradually decreased, it has not changed the status of Aceh as the province with the highest poverty rate on Sumatra Island until 2021. The condition of poverty that has been going on for a long time in Aceh Province certainly requires special attention from the government. The condition of protracted poverty is feared to become poverty passed on to the next generation (Wagmiller & Adelman, 2009). The inheritance of poverty between generations can lead to groups of people who are always poor, namely the condition of someone who experiences poverty status from childhood to adulthood (Kabbaro et al., 2016). The more individuals who are always poor indicate the presence of chronic poverty in an area. The condition of chronic poverty can bring various problems in social life, such as conflicts, high crime rates, unemployment, poor health conditions, low levels of education, and unable to meet nutritional needs (Goodhand, 2001; Gore, 2003).

In overcoming the poverty problem in Aceh Province, the government needs an appropriate program or policy through an appropriate and sustainable handling strategy (Prawoto, 2008). The programs or policies formed are based on the five dimensions of poverty: education, health, economy and employment, food security, and basic infrastructure. According to Ritzhaupt & Kumar (2015), education is related to developing knowledge, expertise, and skills from humans in the development process. The higher a person's education level, the higher the income received, thus lowering the poverty rate (Salam et al., 2022). In the educational dimension, the government has programs such as scholarships, educational development, and the construction of school buildings. These programs are intended to make it easier for the community to access education up to a higher level. The higher a person's education, the more likely to be free from poverty (Sudaryati et al., 2021).

Furthermore, the level of health also strongly influences the level of community welfare and has a close relationship with poverty. A good level of health can increase the productivity of the poor, increase employability, reduce non-working days, and increase energy output so that the income earned will also increase (Idris Thahir et al., 2021). The government has health insurance, nutrition improvement, and various health-related counselling programs in the health dimension. These programs are expected to extend the life of the community. The higher life expectancy of the community, which is supported by quality health infrastructure, can reduce poverty (Kristanto et al., 2019). Therefore, education and health dimensions have an important role in supporting poverty alleviation (Gounder & Xing, 2012; Janjua, 2014).

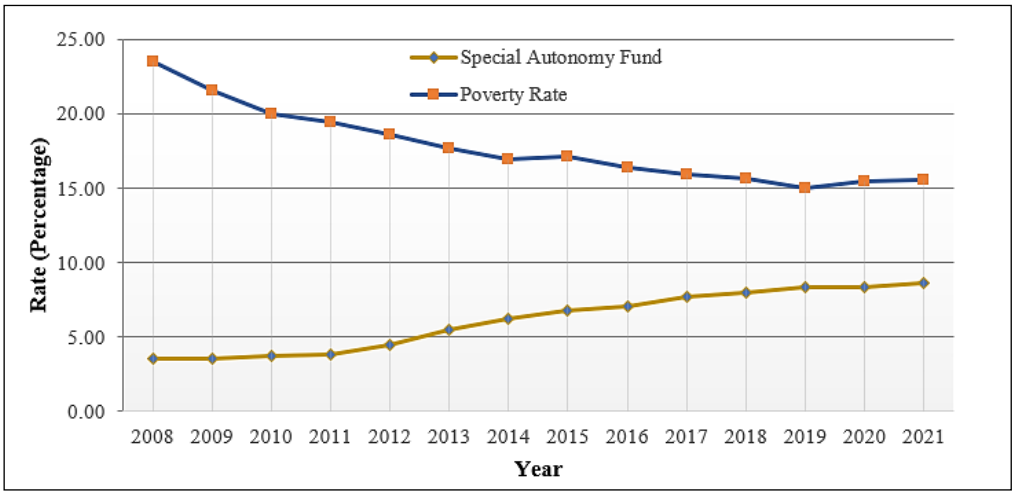

Figure 3. Special Autonomy Fund and Poverty Level in Aceh Province for the Period 2008-2021.
Source: Statistics Indonesia (2022)

Figure 3 shows the development of the amount of special autonomy fund (SAF) received by the Aceh Province as one source of funds used in implementing these education and health programs. SAF is a fund allocated to finance a region's implementation of special autonomy. Aceh Province, as one of the special autonomous regions in Indonesia has the right to receive SAF which is expected to help support the acceleration of development in the region. With increased government spending assisted by SAF through the implementation of consumption and investment spending, it can increase economic growth and income

so that poverty is reduced (Yusri, 2022). The amount of SAF received by the Aceh Province since it was enacted in 2008 with an initial value of IDR 3.53 trillion, continues to increase to reach IDR 8.59 trillion in 2021. Even though the amount of SAF received by the Aceh Province continues to increase, the poverty conditions achieved are still far from the SDGs target. The greater the SAF an area receives, the more it can encourage the surrounding community's economy so that poverty conditions should be improved (Budiratna & Qibthiyyah, 2020). It shows that the management of SAF by the Aceh Province is still not optimal, so the purpose of giving SAF as a driver of poverty reduction has not been implemented properly, resulting in poor conditions in Aceh Province still showing poor numbers.

The importance of overcoming the problem of poverty is the basis for many researchers interested in studying this matter, such as research conducted by Herianingrum et al. (2020), who concluded that education and health have a negative and significant effect on poverty. However, other studies conclude different results, such as the research of Prasojo & Khorunisa (2020) and Yuliani et al. (2019), which concludes that education and health do not significantly affect poverty. It shows the inconsistency of results from previous studies. In addition, research using SAF as an independent variable was conducted by Vidriza & Talmera (2022), who concluded that SAF significantly reduced the poverty rate. However, there was still limited research using SAF as a moderating variable. The increase in special autonomy funds as one of the government expenditures for the education and health sectors can increase productivity and increase per capita consumption, thereby reducing poverty levels (Handayani et al., 2022). Therefore, this study wants to provide a new view regarding the effect of the SAF variable on poverty by looking at its moderating role.

Based on the previous explanation, this study aims to examine the relationship between education, health, and special autonomy fund on poverty reduction and whether special autonomy funds have a moderation effect in their influence. This paper structure is organized as follows. Section 2 discusses the data and research methodology relevant to this paper. The experimental results, interpretation, and conclusions that can be drawn will be presented in Section 3. The results interpreted from the perspective of previous studies and the hypotheses will be discussed in Section 4. Lastly, Section 5 will conclude the study's findings and its implication to government policy as a recommendation.

2. Materials and Methods

2.1. Materials

This study examines the effect of education and health on poverty and the role of special autonomy funds in moderating education and health on poverty. The variables used in this study include poverty rate as the dependent variable, education (the mean years of schooling) and health (life expectancy) as independent variables, and special autonomy funds as a moderating variable. The data structure used is panel data in the form of annual data for 2010-2021 (12 years) in 23 districts/cities in Aceh Province. Secondary data is used in this study. The total observations amounted to 253 observations. The poverty rate is the percentage of the population with an average per capita expenditure below the poverty line as measured in percentage units. The mean year of schooling is the average number of years spent by residents aged 15 years and over to pursue all types of education that have been undertaken and are measured in years. Life expectancy is the number of years a person can expect to live. Finally, the special autonomy fund is funds allocated to finance the implementation of the special autonomy of a region in trillions of IDR. Data on poverty rates, mean years of schooling, and life expectancy were collected through the Central Bureau of Statistics. In contrast, special autonomy fund data were collected through the Regional Development Planning, Research and Development Agency (Bappeda Aceh).

2.2. Methods

The data analysis method used in this study is Moderated Regression Analysis (MRA). MRA aims to determine the role of special autonomy funds as a moderating variable. MRA is a multiple linear regression test, wherein the regression equation there is an element of interaction (multiplication of two or more independent variables). Previous researchers have widely used the MRA to determine the role of moderating variables, such as (Rahmayanti et al., 2020), (Wau, 2021), and (Pratama et al., 2022). The MRA model can be written as the following equation:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \beta_3 X_{it} * Z_{it} + \varepsilon_{it} \quad (1)$$

Y is the dependent variable, X is the independent variable, Z is the moderating variable, and $X * Z$ is an interaction variable. Variables that are thought to influence poverty (POV) are the mean years of

schooling (MYS) and life expectancy (LE), with special autonomy funds (SAF) suspected as moderating variables. Thus, the model in this study can be written as follows:

$$POV_{it} = \beta_0 + \beta_1 MYS_{it} + \beta_2 LE_{it} + \beta_3 SAF_{it} + \beta_4 MYS_{it} * SAF_{it} + \beta_5 LE_{it} * SAF_{it} + \varepsilon_{it} \quad (2)$$

Where β_0 is the intercept, β_1 to β_5 are estimated regression coefficients. The symbol of i is the districts/cities of Aceh Province, t is the year of the study, and ε is an error term.

Since panel data was used in this study, which is a mixture of time-series data (2010-2021) and cross-section (23 districts/cities of Aceh Province), thus the data analysis is conducted using a panel regression model. The best panel regression model to be adopted in this study, namely the common effect model (CEM), fixed effect model (FEM), and random effect model (REM), are three series of statistical tests that need to be carried out. First, the Chow test is conducted to determine whether the CEM or FEM is the best model, with the null hypothesis being the CEM is selected. Then the Hausman test is conducted to determine whether the FEM or REM is the best model, with the null hypothesis being the REM is selected. Lastly, the Lagrange Multiplier test is conducted to determine whether the CEM or REM is the best model, with the null hypothesis being the CEM selected as the model.

After the best panel regression model is chosen, the classical assumption, such as normality, multicollinearity, heteroscedasticity, and autocorrelation, need to be tested to determine the Best Linear Unbiased Estimator (BLUE). Jarque-Bera (JB) test is utilized to check the normality assumption. The data is deemed to be normally distributed if the JB test's p-value is larger than the assigned significance level. Variance Inflation Factor (VIF) is utilized to check the multicollinearity assumption. The data are free of the multicollinearity problem if the VIF is less than 10. The Glejser test is utilized to check the heteroscedasticity assumption. The data is assumed to be free of heteroscedasticity problems. The Harvey test's p-value is larger than the assigned significance level. Finally, the Durbin-Watson (DW) test checks the autocorrelation problem. If the DW value is less than 2, then the data are free of autocorrelation problems.

3. Results

3.1. The Best Panel Regression Model Selection

As discussed earlier, it is necessary to determine the best panel regression model for analyzing data using various statistical tests: The Chow test, Hausman test, and Lagrange Multiplier test. The findings of these tests are reported in Table 1.

Table 1. Testing the Selection of the Best Panel Model.

Panel test(s)		t-Statistic	df	p-value	Decision
Chow Test	Cross-section F	77.4819	22,248	0.0000*	FEM
	Cross-section Chi-square	569.5231	22	0.0000*	
Hausman Test	Cross-section Random	46.6806	5	0.0000*	FEM

Note: * indicates significance at the 1% level.

Table 1 reports testing the selection of the best panel model. The Chow test rejected the null hypothesis, meaning FEM is selected as the best model compared to the CEM. Then the result of the Hausman test showed the rejection of the null hypothesis, which means FEM is selected as the best model compared to REM. Since the Chow and Hausman test result showed that FEM is the best model, there is no need to do the Lagrange Multiplier test. Thus, the next section of this study will use FEM as the base to analyze the effect of education and health on poverty reduction and the moderating role of special autonomy funds in affecting education and health on poverty reduction.

3.2. Classical Assumption Tests

After obtaining the best panel regression model, some classical assumption tests were conducted to ensure the estimation results were BLUE. The findings of these tests are reported in Table 2 below:

Table 2. Testing the Classical Assumption.

Model	JB	VIF	Glejser	DW
Panel Regression	0.0000*	1.0001 (MYS, LE)	0.4613	0.9774
Moderated Regression Analysis (MRA)	0.9275	1.0036 (MYS) 1.0506 (LE) 1.0542 (SAF)	0.0658	0.5537

Note: * indicates significance at the 1% level. JB is the Jarque-Bera test for normality; VIF is the variance inflation factor test for multicollinearity; Glejser test for heteroscedasticity; and DW is the Durbin-Watson test for autocorrelation.

Table 2 indicates that there is a violation of the normality assumption. The Jarque-Bera statistic in model panel regression has a p-value < alpha 5%, indicating that the residuals in this model are not normally distributed. While the Jarque-Bera statistic in model MRA has a p-value > alpha 5%, indicating that the residuals are normally distributed. Even though there is a problem of normality, since this study deals with more than 100 observations, the normality assumption has no critical role anymore (Gujarati & Porter, 2009). Thus, the estimation results of panel regression analysis are still BLUE. Among independent variables in those two models, the VIF < 10 thus indicates no multicollinearity problem. Then the Glejser test has a p-value > alpha 5%, indicating that the residuals in both models are homoscedastic. Lastly, the DW test has a value of less than two, indicating no autocorrelation problem in both models.

3.3. The Effect of Education and Health on Poverty Reduction

The result of panel regression analysis using FEM on the effect of education and health on poverty reduction can be seen in Table 3.

Table 3. The Estimation Results of Panel Regression Model.

Variable	Coefficient	Std. Error	t-Statistic	p-value
MYS	-0.0013	0.0016	-0.7953	0.4272
LE	-3.3567	0.1982	-16.9361	0.0000*
R-squared	0.914554		F-stat	111.9384
Adj. R-squared	0.906384		Prob (F-stat)	0.0000*

Note: * indicates significance at the 1% level.

The R-square value means that education and health affect the poverty rate by about 91.46 percent, while other variables influence the remaining 8.54 percent. Simultaneously, education and health affect the poverty rate, as the p-value from F-stat is 0.0000 < alpha 1% (reject H_0). The results of the F test also show that the model formed is feasible for use in research (goodness of fit). Partially, education (MYS) with a p-value of 0.4272 > alpha 5% indicates that it did not significantly affect the poverty rate. The level of education does not affect a person's preference to open their own business or to improve their economy (Nabawi, 2020).

Meanwhile, health (LE) has a p-value of 0.0000 < alpha 1%, indicating that health had a significant and negative effect on the poverty rate. More specifically, every 1-year increase in life expectancy will reduce the poverty rate by 3.3567 percent. Based on these results, local governments need to focus more on the health sector, such as increasing life expectancy in poverty alleviation efforts. It is similar to the research by (Kristanto et al., 2019), which states that increasing life expectancy can reduce poverty. Health issues are an important aspect of poverty prevention. Improved health will increase the productivity of the poor, where better health will increase working power, reduce days off and increase energy output. Therefore, good health will negatively affect poverty (Sudaryati et al., 2021). This health factor is reflected in the high rate of life expectancy.

3.4. The Role of Special Autonomy Funds in Moderating the Effect of Education and Health on Poverty Reduction

The result of moderated regression analysis using FEM on the role of special autonomy funds in affecting education and health on poverty reduction can be seen in Table 4.

Table 4. Result of the Panel Regression Model with SAF as Moderating Variable.

Variable	Coefficient	Std. Error	t-Statistic	p-value
MYS	-2.7381	0.4423	-6.1904	0.0000*
LE	-1.6362	0.3893	-4.2033	0.0000*
SAF	0.3373	0.1288	2.6178	0.0094*
R-squared	0.932448		F-stat	126.7874
Adj. R-squared	0.925094		Prob. (F-stat)	0.0000*

Note: * indicates significance at the 1% level.

The value of R-square means that education and health, which the special autonomy fund moderates, affect the poverty rate of about 93.24 percent. In comparison, the remaining 6.76 percent is influenced by other variables. Simultaneously, education, health, and special autonomy fund affect the poverty rate, as the p-value from F-stat is 0.0000 < alpha 1% (reject H0). The results of the F test also show that the model formed is feasible for use in research (goodness of fit). When the special autonomy fund (SAF) moderation variable is added to the model, education (MYS), which was previously insignificant, turns into a significant negative effect on poverty. It means that every 1-year increase in mean years of schooling will reduce the poverty rate by 2.7381 percent.

Health (LE) which was previously significant, in the model that added special autonomy funds (SAF) as moderating variable again showed significant and negative results on poverty. Even so, there is a change in the coefficient value from -3.3567 to -1.6362. It means that every increase in life expectancy by 1 year will reduce poverty by 1.6362. The weakening of poverty reduction through the health sector is caused by the moderation nature of special autonomy funds, which is negative, meaning that it weakens the effect of health on poverty. More details can be seen in Table 5.

Special autonomy fund (SAF) as an independent variable with a p-value of 0.0094 < alpha 1% indicates that it had a significant and positive effect on the poverty rate. More specifically, every 1 trillion IDR increase in special autonomy funds will increase the poverty rate by 0.3373 percent. Although the amount of the capital expenditure budget has increased with the addition of the special autonomy fund, it has not been able to reduce the number of poor people significantly. The low composition of capital expenditure allocated for development spending compared to the real need to accommodate all needs in realizing a higher quality society, including in providing more equitable benefits by making the poor a priority, has caused the number of poor people to increase (Isa et al., 2019).

Table 5. The Estimation Results of Moderated Regression Analysis Model.

Variable	Coefficient	Std. Error	t-Statistic	p-value
MYS*SAF	0.0167	0.0027	6.1891	0.0000*
LE*SAF	-0.0074	0.0021	-3.5228	0.0005*

Note: * indicates significance at the 1% level.

Table 5 reports the moderating role of special autonomy funds on the influences of education and health on the poverty rate in Aceh Province during the 2010-2021 period. MYS*SAF shows the moderating role of special autonomy funds in education against poverty, while LE*SAF shows the moderating role of special autonomy funds in health against poverty. This study found that the special autonomy fund had a significant positive moderating role on the influence of education on the poverty rate at the 1% significance level with an estimated coefficient of 0.0167. This finding showed the ability of special autonomy funds to increase the effect of education on the poverty rate. It means that the existence of special autonomy funds as a moderating variable can strengthen poverty reduction through the education sector in Aceh Province.

Then it also found that the special autonomy fund had a significant negative moderating role on the influence of health on the poverty rate at the 1% significance level with an estimated coefficient of -0.0074. This finding showed the ability of special autonomy funds to decrease the effect of health on the poverty rate. It means that the existence of special autonomy funds as a moderating variable can weaken poverty reduction through the health sector in Aceh Province. Based on these results, the efficient use of special autonomy funds can further encourage the impact of education and health in reducing poverty. It is similar to the research by Herianingrum et al. (2020), who concluded that education and health expenditures partially negatively affect poverty. However, paying more attention to special autonomy funds in the health

sector is necessary because government spending on health hinders poverty reduction (Handayani et al., 2022).

4. Discussion

This study found that education does not significantly affect the poverty rate. This finding is supported by Wedgwood (2007), who found education improvement does not make enough for poverty reduction in Tanzania. Poor quality education results in the potential benefits of education not being realized. It is in line with the fact that Aceh Province has poor quality education, ranking 27th out of 34 provinces in Indonesia in 2019 (Amalya et al., 2021). The low quality of education in Aceh Province results from the inadequate educational facilities and infrastructure that are owned and accompanied by the low quality of teachers at all levels of education (Abd Majid, 2014). It causes the benefits that should be felt by the community through education not to be optimally felt. The quality of human resources produced by the school remains of low quality. It is causing the people of Aceh Province to be unable to compete in obtaining a decent income, so poverty still occurs. Education does not significantly affect poverty; expanding investment in education has positive implications for poverty alleviation, economic growth, and equality of opportunity (Battistón et al., 2014). The equal distribution of education helps achieve SDGs, including poverty alleviation (Suriani et al., 2021).

On the other hand, health does significantly affect the poverty rate. It is in line with a study by Suryandari (2018) that found a negative influence on health using life expectancy as an indicator of the poverty rate in Yogyakarta Province, Indonesia. Life expectancy is used to evaluate the government's performance in improving the health status of the community. Improving health status will increase the productivity and employment power of the poor, with better health will reduce days not worked, thereby increasing output. In addition, improving health also shows an increase in human resources quality, thus leading to higher steady-state income (Gyimah-Brempong & Wilson, 2004). Increasing one's income can free one from poverty.

Then as illustrated in Table 4, special autonomy fund is found to have a significant positive moderating role on the influence of education on the poverty rate. It showed the ability of special autonomy funds to increase the effect of education on the poverty rate. It is in line with the results of research by Patel & Annapoorna (2019), which state that government expenditure in the education sector to improve the quality of human resources can achieve poverty alleviation. Government investment in education equity encourages increased labour productivity and will increase people's income. Then it was also found that the special autonomy fund had a significant negative moderating role in the influence of health on the poverty rate. It showed the ability of special autonomy funds to decrease the effect of health on the poverty rate. This finding is supported by Handayani et al. (2022), who found that government spending on health hampers poverty alleviation. The result of the allocated funds that are not on target. One problem in health financing by the Indonesian government is the effectiveness and efficiency of budget allocations. It does not align with priorities since most public hospitals in Indonesia do not have competent finance and accounting managers (Ambarriani, 2014).

5. Conclusion

This study has measured and analyzed the moderating role of special autonomy funds in affecting education and health on poverty reduction in Aceh Province during the 2010-2021 period using a panel moderated regression analysis. This study found that education had no significant effect on the poverty rate, while health had a negative and significant effect on the poverty rate. In addition, this study reported a significant role of special autonomy funds in moderating the effect of education and health on poverty. Therefore, the recommendations for local governments are to implement programs that support improving public health so that life expectancy can increase. Also, only health has a significant effect on poverty. Thus, this study is recommended that the government utilize special autonomy funds that focus on supporting public education and health since special autonomy funds are proven to strengthen the effect of those two in poverty reduction.

Author Contributions: Conceptualization, D.S., S.S. and C.S.; methodology, D.S.; software, S.S.; validation, D.S., S.S. and C.S.; formal analysis, S.S.; investigation, D.S.; resources, D.S.; data curation, S.S. and C.S; writing—original draft preparation, D.S.; writing—review and editing, D.S., S.S. and C.S.; visualization, S.S.; supervision, S.S.; project administration, S.S.; funding acquisition, S.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgement: The author would like to thank Universitas Syiah Kuala, Aceh, Indonesia for supporting this research and publication. We would also like to thank the reviewers for their constructive comments and suggestions.

Conflicts of Interest: The authors declare no conflict of interest.

References

Abd Majid, M. S. (2014). Analisis tingkat pendidikan dan kemiskinan di Aceh. *Jurnal Pencerahan*, *8*(1), 15–37. https://doi.org/10.13170/jp.8.1.2040

Adeyeye, S. A. O., Ashaolu, T. J., Bolaji, O. T., Abegunde, T. A., & Omoyajowo, A. O. (2021). Africa and the Nexus of poverty, malnutrition and diseases. *Critical Reviews in Food Science and Nutrition*, 1–16. https://doi.org/10.1080/10408398.2021.1952160

Amalya, C. P., Artika, W., Safrida, S., Nurmaliah, C., Muhibbuddin, M., & Syukri, M. (2021). Implementation of the Problem Base Learning Model combined with E-STEM Based Student Worksheets on Learning Outcomes and Self Efficacy on Environmental Pollution Materials. *Jurnal Penelitian Pendidikan IPA*, *7*(SpecialIssue), 37–38. https://doi.org/10.29303/jppipa.v7iSpecialIssue.962

Ambarriani, A. S. (2014). Hospital financial performance in the Indonesian national health insurance era. *Review Integrative Business & Economics Research*, *4*(1), 367–379.

Battistón, D., García-Domench, C., & Gasparini, L. (2014). Could an Increase in Education Raise Income Inequality? Evidence for Latin America. *Latin American Journal of Economics*, *51*(1), 1–39. https://doi.org/10.7764/LAJE.51.1.1

Gedro, D. M. (2021). Impact of Poverty on Quality of Education in Haiti. *Journal of Education*, *4*(7), 1–9. https://doi.org/10.53819/810181025019

Goodhand, J. (2001). Violent Conflict, Poverty and Chronic Poverty. *SSRN Electronic Journal*, *6*. https://doi.org/10.2139/ssrn.1754535

Gore, C. (2003). Globalization, the International Poverty Trap and Chronic Poverty in the Least Developed Countries. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1754435

Gounder, R., & Xing, Z. (2012). Impact of education and health on poverty reduction: Monetary and non-monetary evidence from Fiji. *Economic Modelling*, *29*(3), 787–794. https://doi.org/10.1016/j.econmod.2012.01.018

Gujarati, D. N., & Porter, D. C. (2009). Dummy variable regression models. *Basic Econometrics, Gujarati DN & Porter DC 5th Ed., Irwin: McGraw-Hill*, 277–314.

Gyimah-Brempong, K., & Wilson, M. (2004). Health human capital and economic growth in Sub-Saharan African and OECD countries. *The Quarterly Review of Economics and Finance*, *44*(2), 296–320. https://doi.org/10.1016/j.qref.2003.07.002

Handayani, S., Suharno, S., & Badriah, L. S. (2022). The Effectiveness of Local Government Spending on Poverty Rate Reduction in Central Java, Indonesia. *Eko-Regional: Jurnal Pembangunan Ekonomi Wilayah*, *17*(1), 1–8.

Hasta Budiratna, & Riatu M. Qibthiyyah. (2020). Evaluasi Atas Transfer Dana Otonomi Khusus Di Aceh, Papua, Dan Papua Barat. *Jurnal Indonesia Sosial Sains*, *1*(5), 402–414. https://doi.org/10.36418/jiss.v1i5.103

Herianingrum, S., Ernayani, R., Seto, H., Rayandono, M. N. H., & Fauzy, M. Q. (2020). The impact of zakat, education expenditure, and health expenditure towards poverty reduction. *Systematic Reviews in Pharmacy*, *11*(12), 235–239.

Idris Thahir, M., Semmaila, B., & Arfah, A. (2021). Pengaruh Pertumbuhan Ekonomi, Pendidikan Dan Kesehatan Terhadap Kemiskinan di Kabupaten Takalar. *Journal of Management Science (JMS)*, *2*(1), 61–81. https://doi.org/10.52103/jms.v2i1.323

Isa, D. P., Arham, M. A., & Dai, S. I. (2019). Effects of Capital Expenditures, Development Index and Unemployment on Poverty in Gorontalo Province. *Jambura Equilibrium Journal*, *1*(1). https://doi.org/10.37479/jej.v1i1.1998

Janjua, P. (2014). The Role of Education and Health in Poverty Alleviation A Cross Country Analysis. *British Journal of Economics, Management & Trade*, *4*(6), 896–924. https://doi.org/10.9734/BJEMT/2014/6461

Kabbaro, H., Hartoyo, H., & Yuliati, L. N. (2016). Pengaruh Strategi Nafkah terhadap Dinamika Kemiskinan di Wilayah Hulu dan Hilir Sungai Cimanuk, Jawa Barat. *Jurnal Ilmu Keluarga Dan Konsumen*, *9*(2), 89–100. https://doi.org/10.24156/jikk.2016.9.2.89

Kristanto, E., Daerobi, A., & Samudro, B. R. (2019). Indonesian life expectancy: role of health infrastructure and socio-economic status. *Signifikan: Jurnal Ilmu Ekonomi*, *8*(2), 159–178. https://doi.org/10.15408/SJIE.V8I1.9579

Nabawi, H. (2020). Pengaruh Jumlah Penduduk, Tingkat Pendidikan dan PDRB terhadap Kemiskinan di Kota Malang. *OECONOMICUS Journal of Economics*, *4*(2), 104–117. https://doi.org/10.15642/oje.2020.4.2.104-117

Patel, G., & Annapoorna, M. S. (2019). Public Education Expenditure and Its Impact on Human Resource Development in India: An Empirical Analysis. *South Asian Journal of Human Resources Management*, *6*(1), 97–109. https://doi.org/10.1177/2322093718813407

Prasojo, P., & Khorunisa, I. (2020). The effect of education, health, unemployment and distribution of zakat to poverty in Yogyakarta. *I-ECONOMICS: A Research Journal on Islamic Economics*, *6*(2), 121–136.

Pratama, E. N., Suwarni, E., & Handayani, M. A. (2022). Effect Of Job Satisfaction And Organizational Commitment On Turnover Intention With Person Organization Fit As Moderator Variable. *APTISI Transactions on Management (ATM)*, *6*(1), 74–82. https://doi.org/10.33050/atm.v6i1.1722

Prawoto, N. (2008). Memahami kemiskinan dan strategi penanggulangannya. *Jurnal Ekonomi & Studi Pembangunan*, *9*(1), 56–68.

Rahmayanti, N. P., Sutrisno T., S., & Prihatiningtias, Y. W. (2020). Effect of tax penalties, tax audit, and taxpayers awareness on corporate taxpayers' compliance moderated by compliance intentions. *International Journal of Research in Business and Social Science (2147- 4478)*, *9*(2), 118–124. https://doi.org/10.20525/ijrbs.v9i2.633

Ritzhaupt, A. D., & Kumar, S. (2015). Knowledge and Skills Needed by Instructional Designers in Higher Education. *Performance Improvement Quarterly*, *28*(3), 51–69. https://doi.org/10.1002/piq.21196

Salam, T. D. O., Majid, M. S. A., Dawood, T. C., & Suriani, S. (2022). Inequality of Education in Indonesia by Gender, Socioeconomic Background and Government Expenditure. *EKO-REGIONAL: Jurnal Pembangunan Ekonomi Wilayah*, *2*(4), 184–192. https://doi.org/10.32424/1.erjpe.2022.17.1.2895

Siddique, H. M. A., Nazir, S., Mohey-Ud-Din, G., & Kiani, A. K. (2022). The impact of poverty on human health: a panel data analysis. *Bulletin of Business and Economics (BBE)*, *11*(1), 113–120.

Sudaryati, S., Ahmad, A. A., & Suprapto, S. (2021). The Effect of Average Length of Schooling, Life Expectancy and Economic Growth on Poverty in Banjarnegara Regency 2005-2019. *Eko-Regional: Jurnal Pengembangan Ekonomi Wilayah*, *16*(1). https://doi.org/10.20884/1.erjpe.2021.16.1.1677

Suriani, S., Riyaldi, M. H., Nurdin, R., Fadliansah, O., & Wintara, H. (2021). Zakat and Sustainable Development: Effect of Zakat and Macroeconomic Variables on Dependency Ratio and Poverty. *2021 International Conference on Decision Aid Sciences and Application (DASA)*, 392–396. https://doi.org/10.1109/DASA53625.2021.9682377

Suryandari, A. N. (2018). Pengaruh Pertumbuhan Ekonomi, Pendidikan, Dan Kesehatan Terhadap Tingkat Kemiskinan Di Provinsi DIY Tahun 2004-2014. *Jurnal Pendidikan Dan Ekonomi*, *7*(1), 33–41.

Vidriza, U., & Talmera, D. A. (2022). Implikasi Dana Otsus dalam Mengurangi Kemiskinan di Papua: Dengan Error Correction Model (ECM). *Governance, JKMP (Governance, Jurnal Kebijakan & Manajemen Publik)*, *12*(1), 20–33. https://doi.org/10.38156/gjkmp.v12i1.58

Wagmiller, R. L., & Adelman, R. M. (2009). *Childhood and intergenerational poverty: The long-term consequences of growing up poor*.

Wanto, A., & Hardinata, J. T. (2020). Estimations of Indonesian poor people as poverty reduction efforts facing industrial revolution 4.0. *IOP Conference Series: Materials Science and Engineering*, *725*(1), 012114. https://doi.org/10.1088/1757-899X/725/1/012114

Wau, M. (2021). The influence of dividend policy on the performance of mining companies: corporate governance as a moderating variable. *Jurnal Ekonomi LLDIKTI Wilayah 1 (JUKET)*, *1*(1), 14–17. https://doi.org/10.54076/juket.v1i1.42

Wedgwood, R. (2007). Education and poverty reduction in Tanzania. *International Journal of Educational Development*, *27*(4), 383–396. https://doi.org/10.1016/j.ijedudev.2006.10.005

Yuliani, T. W., Suprapto, S., & Setyorini, C. T. (2019). The Effect of Health and Education Facilities on Poverty in 33 Provinces in Indonesia (2012-2016 Periods). *International Conference on Rural Development and Enterpreneurship*, *5*(1), 662–669.

Yusri, A. (2022). Does Government Expenditure Affect Poverty, Health, and Education? Evidence from Aceh, Indonesia. *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning*, *6*(1), 1–20. https://doi.org/10.36574/jpp.v6i1.249