DOES HEALTH AND EDUCATION AFFECT REGIONAL INEQUALITY IN WEST JAVA

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Abstrak

Pembangunan berkelanjutan tidak saja memiliki tujuan untuk meningkatkan pendapatan masyarakat, tetapi juga meningkatkan kesejahteraan masyarakat dan mengurangi ketimpangan wilayah. Untuk mewujudkan hal ini, pemerintah daerah Jawa Barat memiliki beberapa kebijakan diantaranya peningkatan pendidikan dan kemudahan akses kesehatan bagi masyarakat. Peneltian ini memiliki tujuan untuk mengetahui pengaruh kedua variabel tersebut terhadap ketimpangan wilayah dengan GDP per capita sebagai variabel moderasi. Menggunakan alat analisis SEM-PLS dan data tahun 2015 – 2023, hasil penelitian ini menunjukkan bahwa pendidikan dan kesehatan secara langsung maupun tidak langsung memiliki pengaruh positif terhadap GDP per capita. Untuk ketimpangan wilayah, kedua variabel tersebut memiliki pengaruh negatif.

Kata kunci: pendidikan, kesehatan, pengaruh langsung, pengaruh tidak langsung

Abstract

Sustainable development not only aims to increase people's incomes but also to improve people's welfare and reduce regional inequality. To realize this, the West Java regional government has several policies, including improving education and providing easy access to health care for the community. This study aims to determine the influence of these two variables on regional inequality, with GDP per capita as a moderation variable. Using the SEM-PLS analysis tool and data for 2015–2023, the results of this study show that education and health directly or indirectly have a positive influence on GDP per capita. For regional inequality, both variables have a negative influence.

Key words: education, health, direct influence, indirect influence

INTRODUCTION

The definition of development is very dynamic over time. In the past, development was defined simply as efforts to meet human needs by utilizing the limitations of existing resources (Supartoyo et al., 2014), (Kurniawan & Managi, 2018). Then, the notion of development develops efforts to improve the community's quality of life, which is characterized by high growth rates (Barro, 1991). Nevertheless, development is not solely aimed at increasing people's income but also improving welfare and reducing inequality in society (Sjaf et al., 2021). At present, the development model that concerns the government is sustainable development, meaning development that is systematic, measurable, and can be interpreted as future developments and involves the community as a driver of development/community development (Cili & Alkhaliq, 2022). There are two essential indicators in sustainable development: education and health (Asrol & Ahmad, 2018). These two indicators, over time, will be essential variables in the development of human resources, which are drivers of development.

West Java is one of the provinces on Java Island with the largest population and high density (Nalle et al., 2023). The average population growth during 2020-2023 is 0.014%, and Bogor Regency has the highest population. At the same time, poverty also

increased by 0.14 percent in that span of years. The highest poverty is in Indramayu and Tasikmalaya. (Figure 1).
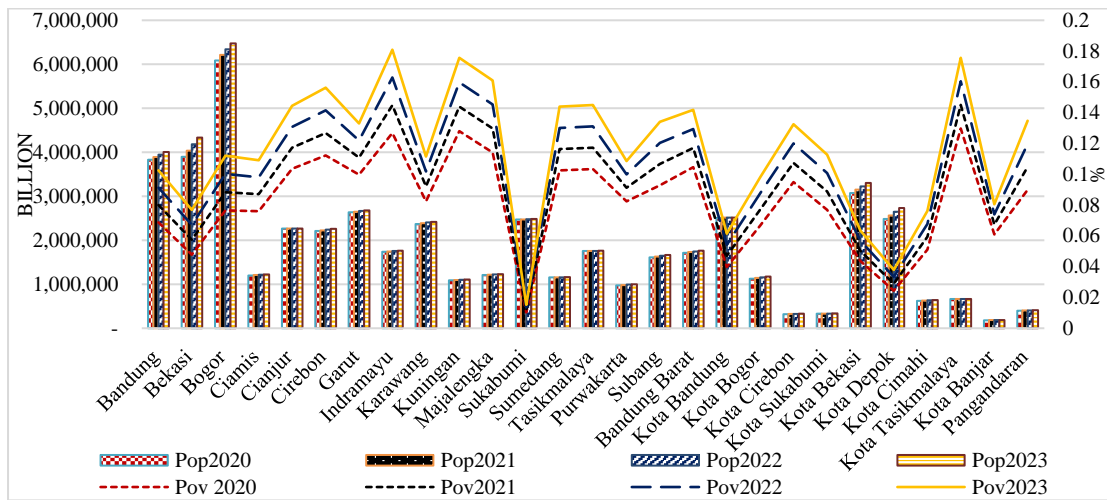

Figure 1 Population and Poverty in West Java 2020 -2023

If it is related to two main variables in sustainable development, namely education and health, it can be seen that education funding in West Java increases by an average of 2.9% for each city/district each year. It means there is an increase in funding for education in the province. Bogor Regency gets the most considerable portion of education funds annually, followed by Bandung Regency and Bekasi Regency. Ironically, this increase in education funding is not in line with the reduction in inequality, which fluctuates but is relatively high yearly (Figure 2).
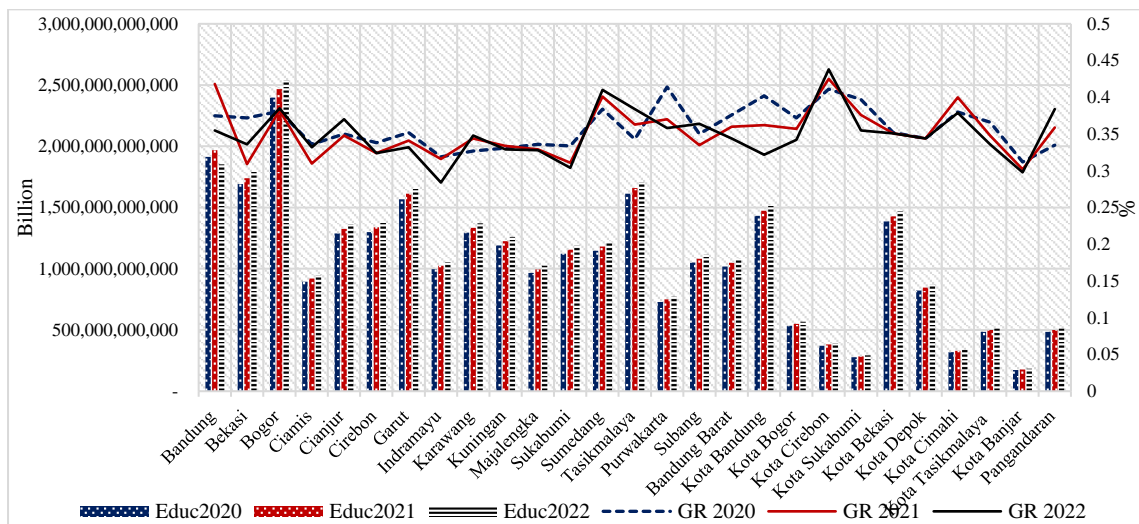

Figure 2 Education Fund in West Java 2020 - 2023

Another variable of sustainable development, namely health, also increased by 29.8% throughout the year. As one of the regencies with the largest population, Bogor Regency gets the most considerable portion, followed by Bandung City and Bekasi City, Bandung regency and Bekasi regency (Figure 3). In general, health funds have also been unable to reduce inequality in West Java province. However, in 2022, high health funding will be able to reduce regional inequality in Bogor Regency.
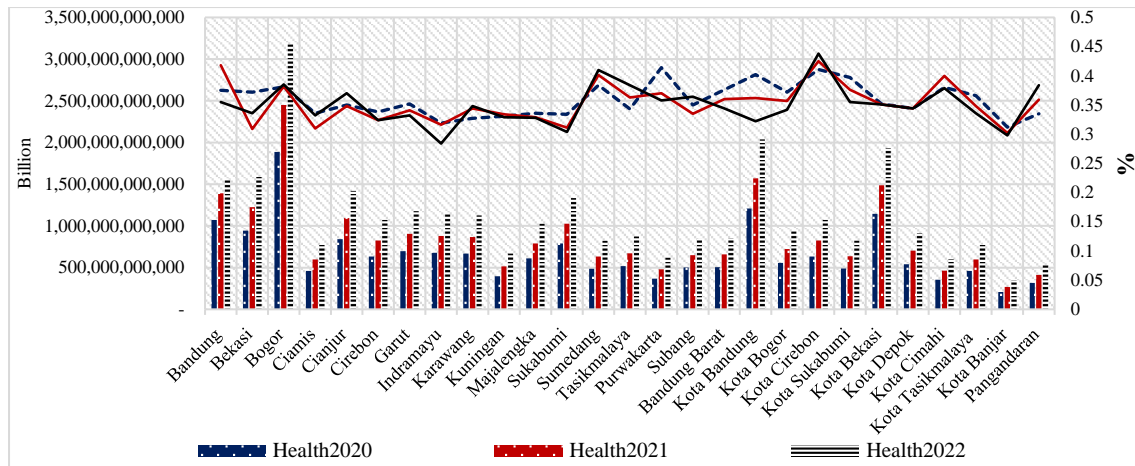
Figure 3 Health Fund in West Java 2020 - 2023

Seeing the importance of education and health in sustainable development in West Java, the question arises to what extent the two funds can increase per capita income directly and indirectly to reduce inequality.

LITERATURE REVIEW

1. Sustainable Development

There are various interpretations of sustainable development, defined as activities that can meet current needs without endangering the health and safety of future generations (Kartono & Nurcholis, 2016). It shows that economic development always utilizes natural resources and allows future generations to continue the development carried out today (Luther Gulick, 2019). However, from these various interpretations, sustainable development is expected to provide welfare for the community by maintaining or improving the community's quality of life through responsible natural resource management. There are five principles in sustainable development: economic success, renewable energy, ecological preservation, community participation in development, and equitable distribution of development results for all communities (Hu et al., 2022).

West Java, as one of the provinces in Indonesia, also should ratify the principles of sustainable development (Laksana & Muchlish Al Rahmat, 2022). Some policies and programs carried out by the West Java government include, first, improving human welfare and quality through improving the quality of education and school periods and improving health infrastructure for the community. Second, accelerate growth and equitable development by applying sustainable development principles to all communities in West Java. Third, increasing productivity and economic competitiveness as well as increasing MSMEs. Fourth, carry out bureaucratic reform, improve public services, improve the performance of regional apparatus and law enforcement (Fiskal & Wardani, 2020). So far, various West Java regional government efforts have begun to show results. However, it has not met the target desired by the local government.

2. Education and Health

Education is one of the critical components in the process of sustainable development, especially human-related (social) development. Education is an investment path prepared for the next generation who will continue economic improvement individually and for the benefit of the country's development so that education becomes the foundation for successful development and economic

improvement (Leal Filho, 2020). Education is also considered an investment to improve people's lives (El Alaoui, 2016).

While health is one of the crucial pillars in improving the community's quality of life, it is also one part of sustainable development in West Java. The health points here are first to reduce maternal mortality ratios, second to end deaths in newborns and children, and third to try to end epidemics of AIDS, tuberculosis, malaria, and other infectious diseases. The fourth point is to reduce mortality from non-communicable diseases; Fifth, to strengthen prevention and abuse of hazardous substances; and sixth, to halve the number of deaths and injuries from traffic accidents. Seventh, to ensure universal access to sexual and reproductive health services, achieve universal health coverage, and ninth, reduce the number of deaths and diseases from hazardous chemicals and pollution (Vitriana, 2022)

3. Regional Inequality

Regional inequality throughout time will remain an essential conversation as part of development evaluation. Regional inequality is defined as a measure of uneven development in a region (Rajab et al., 2021), (Muktiali, 2015). The inequality of this region is usually shown with the Gini Ratio. The closer to 0 indicates no regional inequality, but closer to 1 indicates an enormous inequality (Azizah, 2022). At first, it was thought that inequality would disappear if there were growth, but it was not as expected. The growth of one region cannot necessarily cause the same growth in other regions. The absence of equity in the development process will result in regional gaps or inequalities. This regional inequality can eventually lead to social jealousy, vulnerability to regional disintegration, and sharper economic disparities (Muktiali, 2015).

Some of the causes of regional inequality in West Java are differences in the quality of human resources. This difference stems from uneven education. In some areas such as Sukabumi, Tasikmalaya, Tasikmalaya City, Ciamis, Banjar City, Purwakarta, Subang, Majalengka, Kuningan, and several other areas, residents whose last level of education is high school or significantly fewer, most of the population is only armed with junior high or elementary education. The health in West Java is also able to increase regional inequality. The number of health facilities will make it easier for people to access or reach better health services to increase public health.

METHOD

This study aimed to determine the extent to which education and health funding can reduce regional inequality characterized by the Gini Ratio, with per capita income as a moderation variable. The analysis method used is the *Structural Equation Model – Partial Least Square* (SEMPLS), arguing that this method can analyze the influence of latent variables measured through observed indicators (Hair et al., 2011), (Analia et al., 2019). Another reason for using SEM PLS is because the sample size is small, has little theory, and predictive accuracy in the model is paramount, as well as model specifications that cannot be considered (Tabara & Azriya, 2022) . The use of moderation variables in this study also aims to know whether the independent variable has a strong influence or weakens. This research was conducted in West Java using secondary data for 2020 -2023 sourced from the Central Statistics Agency (BPS), and for 2023, the second quarter uses forecasting data. The variables in this study are as follows:

Table 1 Research Variables

No	Variables	Unit	Descriptions
Dependent Variables			

1	GDP per capita (Ycap)	IDR	Per capita income of people in Jawa Barat on economic activity
2	Gini Ratio (GR)	Point	Overview of inequality or equity in West Java
Independent Variables			
1	Education (X_1)	IDR	Funds issued by the West Java regional government for the construction of educational facilities
2	Health (X_2)	IDR	Funds issued by the West Java regional government for the construction of educational facilities
	β		constant
	i		Research locations
	t		Years of research; 2015 -2022

The skeleton in this study is depicted as shown below (Figure 4).

Figure 4 Research Framework

The equations used in this study are as follows:

$$LnY_{cap} = \beta_0 + \beta_1 LnX_{1it} + \varepsilon_{it} \qquad (1)$$
$$LnY_{cap} = \beta_0 + \beta_2 LnX_{2it} + \varepsilon_{it} \qquad (2)$$
$$LnGR = \beta_0 + \beta_3 LnY_{cap} + \varepsilon_{it} \qquad (3)$$

RESULTS AND DISCUSSION
Indicator Reliability

Indicator reliability is an indicator that shows how many variances of an indicator can be described by latent variables. In indicator reliability, a reflective indicator should be eliminated from the measurement model when the loading value (λ) is less than 0.7 (Sholiha & Salamah, 2015). Here is the loading factor (λ) result obtained in the first path diagram.
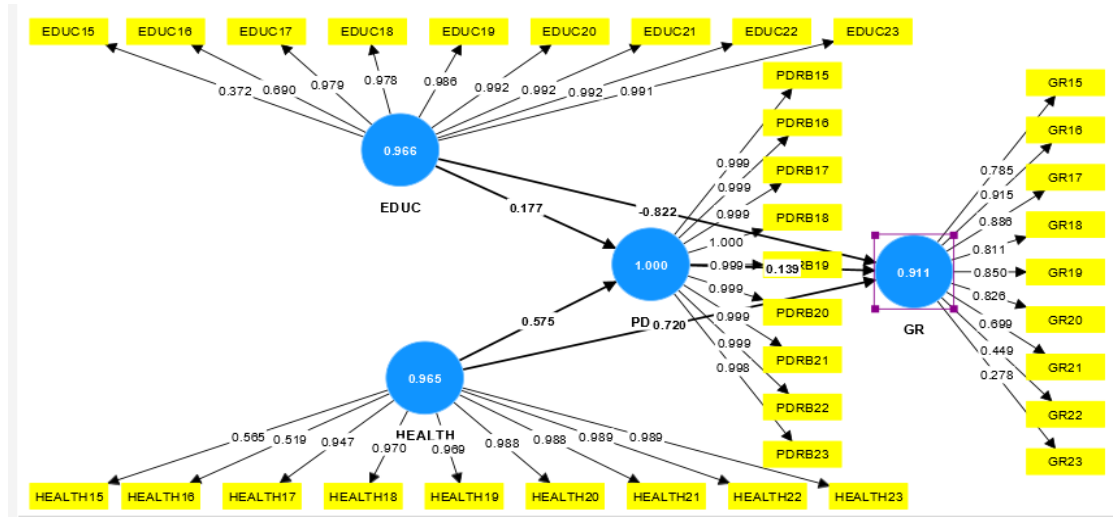
Figure 5 First Path Diagram and Loading Factor Value

The first path diagram has three values below 0.7 in the education variable, namely the Educ15 indicator. In health variables, some indicators have values below 0.7, namely Health 15 and Health 16. In the variable per capita income, there is no value below 0.7. Finally, two indicators are below 0.7 in the variable Gini ratio, namely GR 22 and GR 23. After elimination, the second path diagram is as shown below.
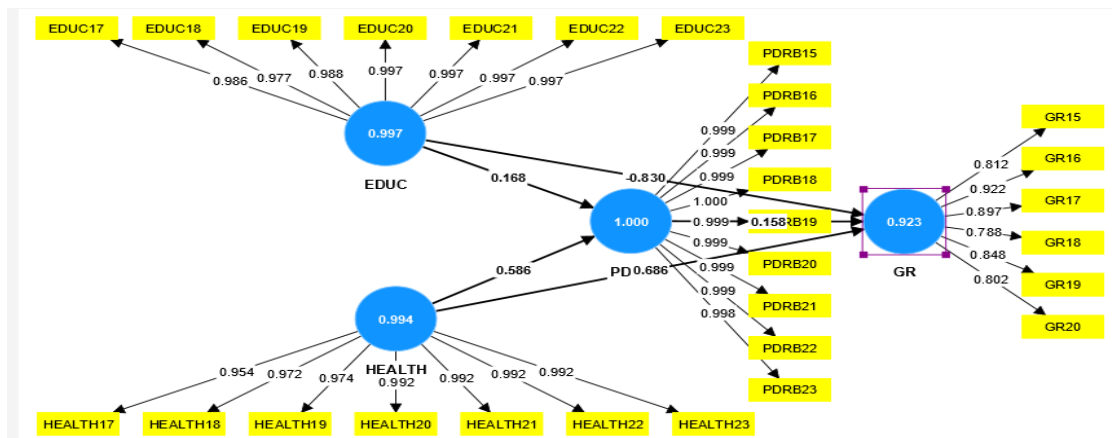

Figure 6 Second Path Diagram and Loading Factor Value

The second line of the model no longer has a loading factor below 0.7, so it is considered feasible and valid for future tests

Cronbach Alpha, Composite Reliability and Average Variance Extracted (AVE)

Cronbach alpha is a group of indicators that measure a variable with good composite reliability based on the value of a coefficient that has also been determined to be greater than 0.50. Composite reliability is a group of indicators that measure a variable with good composite reliability based on a predetermined score greater than 0.50. Average Variance Extracted (AVE) is used in convergent validity testing because the value is derived from the convergent validity output. In this study, the expected AVE value was > 0.5. The three results in this study are valid, as shown in the table below.

Tabel 2 Composite Reliability

Variable	Cronbach Alpha	Composite Reliability	AVE

Education	0.545	0.820	0.632
Health	0.622	0.592	0.662
GDP per capita	0.723	0.712	0.680
Gini ratio	0.650	0.722	0.601

Discriminant Validity

The next test looks at discriminant validity, which measures reflexive indicators with latent variable scores. The discriminant value is considered valid when the factor charge value exceeds the cross-loading value. All discriminating values in this study are valid because the value of the factor load is greater than the value of cross-loading. The following table describes the results of discriminant validity.

Tabel 3 Discriminant Validity

Variable	Work Load	Stress	Motivation	Work Performance
Education	0.822[a]			
Health	0.058[b]	0.702[b]		
GDP per capita	0.645[b]	0.046[b]	0.509[b]	
Gini Ratio	0.530[b]	0.444[b]	0.628[b]	0.327[b]

a = nilai muatan faktor
b = nilai cross loading

Koefisien Determinasi (R²)

The goodness of fit in PLS can be known from the coefficient of determination (R-Square) value. The R2 value in this study is:

Tabel 4 R² dan Adjusted R²

Variable	R²	Adjusted R²
GDP per capita	0.498	0.481
Gini Ratio	0.544	0.526

So the value of goodness of fit is:
$= 1 - (1 - R_1^2)(1 - R_2^2)$
$= 1 - (1 - 0.498)(1 - 0.481)$
$= 1 - 0.2605$
$= 0.74$

These results show that the above data can explain 74% of the model, of which 49.8% is related to GDP per capita and 54.4% is related to the Gini ratio, while other factors influence the rest.

Direct Influence and Indirect Influence

This study provides the results of direct and indirect influences as follows:

Table 5 Direct and indirect influences

Influence	Variabel	Education	Health	GDP per capita	Gini Ratio
Direct	Education				-0.380
	Health				-0.022
	GDP per capita				
	Gini Ratio				
Indirect	Education			0.344	-0.547
	Health			0.006	-0.123

GDP per capita	-0.504
Gini Ratio	

The results above show that education has a negative influence on regional inequality by 38%, and health also has a negative influence on inequality by 2.2%. When compared to indirect influences, education has a positive influence on GDP per capita (34.4%) but has a negative influence on inequality (54.7%). Health alone has a positive influence on GDP per capita (0.6%) but has a negative influence on inequality (12.3%). GDP per capita alone has a negative influence on inequality by 50.4%.

CONCLUSION

This research shows that education harms regional inequality directly, meaning that the greater the cost of education, the smaller the inequality. Indirectly, through increasing GDP per capita as a moderation variable, education also continues to harm regional inequality. It proves the importance of education for developing the West Java region and achieving sustainable development.

Health, in fact, directly has a positive impact on increasing GDP per capita. Indirectly, through GDP per capita, health negatively influences regional inequality. Although it indirectly has a slight negative influence, it still needs to be anticipated as part of human development.

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