

# Analysis The Effect of Gross Regional Domestic Product (GRDP) Per Capita, Government Expenditures in Education and Health on Human Development Index on Central Java Period 2019-2021

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**Abstract:** This research was conducted to determine the effect of Gross Regional Domestic Product (GRDP) per capita, government spending in education and health on the human development index at Central Java in 2019-2021. This study uses secondary data obtained through Central Statistic Agency (BPS) and Director General of Fiscal Balance (DJPK). The population in this study is the Regencies/Cities of Central Java Province for the 2019-2021 period. This research uses saturation sample method so that there are 35 total samples consisting of 29 regencies and 6 cities. Data analysis techniques in this study used multiple linear regression analysis, classical assumption test, and hypotheses testing. The results of this study provide information that the variable effect Gross Regional Domestic Product (GRDP) per capita has an effect on the human development index, the variable government spending on education has no effect on the human development index, and the variable government spending on health has no effect on the human development index

**Keywords:** Gross Regional Domestic Product (GRDP) per capita, government spending on education & health, human development index

## I. INTRODUCTION

The human development Index is a composite index which is also an indicator that can describe the development of human development in a measurable and representative way. Human Development Index (IPM) was first introduced in 1990 by UNDP. According to Central Statistic Agency (BPS), the Human Development Index (IPM) measures human development achievements based on a number of basic quality of life components. Index in human development is an important indicator to measure success in efforts to build the quality of human life (community/population). The Human Development Index is used to measure the average achievement of a country in three basic matters of human development that are of concern to the government in improving the human development index, (1) length of life as measured by life expectancy at birth; (2) education level, as measured by a combination of the adult literacy rate and the average length of schooling; and (3) decent standard of living, measured by adjusted expenditure per capita.

One indicator of the human development index is the GDP per capita figure. GRDP is the net value of final goods and services produced by various economic activities in an area in a period (Hadi Sasana, 2006). Meanwhile, what is meant by GRDP per capita is GRDP divided by the total population. GRDP per capita is often used as an indicator of development. The higher the GRDP per capita of an area, the greater the potential source of revenue for the area because the greater the income of the people of the area (Thamrin, 2001). Then it can be concluded that the higher the GRDP per capita the more prosperous the population of a region, this is because high income of the population is one of the benchmarks for the high level of human development index in a region.

The government's commitment to building quality or community welfare can be seen through the allocation of government spending from three types of spending, namely education spending, health spending, and infrastructure spending. Based on the indicators that form the basis for measuring human development index, the education and health sectors have an important role to play in creating human resources and development.

Education is an investment that will always have an impact in the future. Education is the basic capital in economic growth and human development. The government must provide spending allocations in the education sector which will

be used to build educational facilities and infrastructure as well as invest in forming human capital. Human capital is a productive investment in people; includes knowledge, skills, abilities, and ideas (Todaro & Smith, 2011). This is an important component in order to support development programs. The amount of government expenditure in the education sector will determine how much development results are achieved.

In the context of development, health and education are closely related. This can be described as greater health capital can increase the return on investment in the education sector (Todaro & Smith, 2011). Public investment in the health sector can be in the form of budget allocations to finance the procurement and maintenance of physical and non-physical facilities in the health sector. The government is building public works and infrastructure so that people can easily access health services. With easy public access to health services, the basic needs of public health can be met, so that the quality of life for the community increases. Optimizing public spending, in this case health spending in particular, can create better quality health, which in turn will make it easier to achieve higher productivity.

In 2019, Central Java's government spending was at 26.63 Billion. There was a significant increase in the budget related to basic community facilities from the previous year, such as education, health, housing and infrastructure. In the education sector, for example, spending was increased to 6.08 Billion in 2019. A significant increase in spending was also made in the health sector of 2.52 Billion where this expenditure was focused on improving public health services. With the increase in Central Java government spending from year to year for the education and health sectors, the increase in the pace of human development should also increase significantly by increasing the allocation of spending in these two sectors.

This research is a replication of previous research conducted by Jehuda (2019) entitled "The Effect of Government Expenditures on Education and Health on the Human Development Index in Indonesia". The difference between this research and previous research is that the researcher added GRDP per capita as an independent variable. The researcher also changed the empirical study from the Indonesian region to the Central Java region in 2019-2021. Based on the background described above, the authors conducted a study entitled "Analysis The Effect of Gross Regional Domestic Product (GRDP) Per Capita, Government Spending in Education and Health on the Human Development Index in Central Java Period 2019-2021".

## **II. HEADINGS**

### **Human Development Index**

According to UNDP in the Central Statistic Agency (BPS), the human development index measures human development achievements based on a number of basic components of quality of life. The human development index (IPM) is a composite index that is used to measure the average achievement of a country in three basic human development matters, (1) Life Expectancy Index as measured by birth expectancy, (2) Education Index as measured based on the average length of schooling and literacy, (3) Income Index as measured by the purchasing power of consumption per capita.

### **Gross Regional Domestic Product (GRDP) Per Capita**

Gross Regional Domestic Product (GRDP) per capita is an indicator to determine the economic conditions in a region in a certain period. GRDP per capita can be calculated from constant price GRDP divided by the number of residents in an area. According to the Central Statistic Agency (BPS), GRDP figures can be obtained through three approaches, the production approach, the income approach, and the expenditure approach.

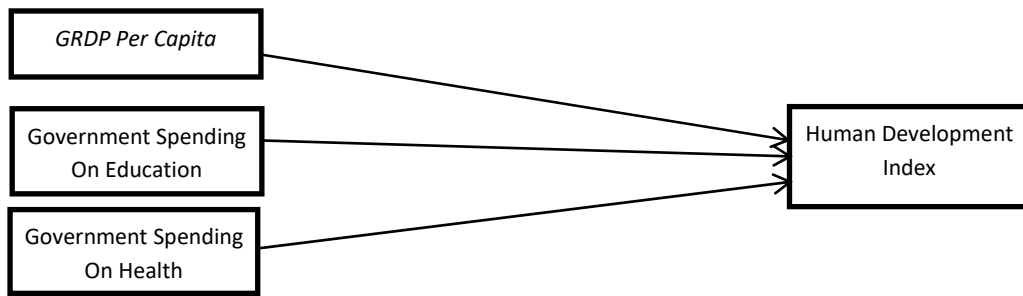
### **Government Spending On Education**

Government spending in the field of education is a type of regional expenditure that is used in the context of funding the implementation of governmental affairs which are the authority of the province or district/city in the field of education. In Law Number 20 of 2003 concerning the allocation of education funds, it is stated that education funds other than teacher salaries and official education costs are allocated a minimum of 20% of the State Revenue and Expenditure Budget (APBN) for the education sector and a minimum of 20% of the Regional Revenue and Expenditure Budget (APBD).

### **Government Spending On Health**

Government spending in the field of health is a type of regional spending that is used in the context of funding the implementation of government affairs which are the authority of the province or district/city in the health sector. Based on Law Number 36 of 2009 states that the amount of the government's health budget is allocated at least 10% of the Regional Revenue and Expenditure Budget (APBD) excluding salaries.

### Research Framework



The framework for thinking and developing hypotheses in this study are as follows:

H<sub>1</sub>: GRDP Per Capita affects Human Development Index

H<sub>2</sub>: Government Spending On Education affects Human Development Index

H<sub>3</sub>: Government Spending On Health affects Human Development Index

### III. INDENTATIONS AND EQUATIONS

#### Types of research

The type of research used in this research is quantitative research. Quantitative research methods are used to examine certain populations or samples, data collection using research instruments, data analysis is quantitative/statistical, with the aim of testing research related to the variables studied.

#### Data source

The source of data in this study is secondary data obtained from Central Statistic Agency (BPS) website [www.bps.go.id](http://www.bps.go.id) and Director General of Fiscal Balance (DJPK) website <https://djpk.kemenkeu.go.id>.

#### Population and Sample

The population in this study is GRDP per capita, government spending on education & health, and the human development index for all regencies and cities in Central Java Province, totaling 35 consisting of 29 regencies and 6 cities for the 2019-2021 period. The sample in this study was taken using the saturation sample method, so the total research sample in this study has the same number as the population is 97 samples.

#### Data analysis method

The data analysis method in this research is using multiple linear regression analysis method. To test the effect of Gross Regional Domestic Product (GRDP) Per Capita, Government Spending in Education and Health on the Human Development Index partially and simultaneously the F-test is used. Before testing the hypothesis on multiple linear regression, the classical assumption test was first tested. This classical assumption test is intended to ensure that the model obtained really meets the basic assumptions in the regression analysis which was carried out by data normality test, multicollinearity test, autocorrelation test and heteroscedasticity test with the help of SPSS version 25 program. The following equations are used in linear regression analysis research multiple :

$$IPM = \alpha + \beta_1GRDP + \beta_2PP + \beta_3PK + \varepsilon$$

Information :

$\alpha$	= Constant
$\beta$	= Coefficient of each variable
GRDP	= Gross Regional Domestic Product (GRDP) Per Capita
PP	= Government Spending on Education
PK	= Government Spending on Health
e	= Error

**IV. FIGURES AND TABLES**

**IV.1 Research Results and Discussion**

**IV.1.1 Descriptive statistical analysis**

**Table 1.** Descriptive Statistics

Variabel	N	Minimum	Maximum	Mean	Std. Deviation
GRDP Per Capita X1	97	1237,00	6927,00	2542,8763	1293,45057
PP X2	97	217102197000,00	1264274399951,00	751198372665,3914	236249947447,93924
PK X3	97	204238993000,00	835647614899,00	416514155821,1546	110925473074,26572
IPM Y	97	6611,00	8360,00	7209,9278	395,03600
Valid N (listwise)	97				

Source: Processed secondary data, 2022

Based on table 1, it shows that the variable value of the GRDP per capita has a minimum of 12.37, namely Malang Regency in 2020 and a maximum of 69.27, namely at Surakarta City in 2021. The average value of the GRDP per capita is 25.42. and the standard deviation value is 12.93.

Government Spending on Education a minimum of Rp217.102.197.000,00, namely at Magelang City in 2021 and a maximum of Rp1.264.274.399.951,00, namely at Banyumas Regency in 2021. The average leverage value is Rp751.198.372.665 and the standard deviation value is Rp236.249.947.447.

Government Spending on Health has a minimum of Rp204.238.993.000,00, namely at Pekalongan City in 2021 and a maximum of Rp835.647.614.899,00, namely at Banyumas Regency in 2021. The average leverage value is Rp416.514.155.821 and the standard deviation value is Rp110.925.473.074.

Human Development Index has a minimum of 66.11, namely Brebes Regency in 2020 and a maximum of 83.60, namely at Salatiga City in 2020. The average value of the company size is 72.09 and the standard deviation value is 395.03.

**IV.1.2 Classic Assumption Test Result**

**IV.1.2.1 Normality Test**

The normality test in this study used the One-Sample Kolmogorov-Smirnov with a significance value of 0.200 and greater than 0.05. This shows that the regression equation for this research model shows that the data distribution is normal.

**IV.1.2.2 Multicollinearity Test**

**Table 2.** Multicollinearity Test

Model	Collinearity Statistics		Information
	Tolerance	VIF	
GRDP Per Capita X1	0.857	1.167	There is no multicollinearity
Education Spending X2	0.411	2,433	There is no multicollinearity
Health Spending X3	0.456	2,191	There is no multicollinearity

Source: Processed secondary data, 2022

Based on table 2 above, it can be said that there is no multicollinearity, because VIF <10, GRDP per capita(X1) is 1.167, Government Spending on Education (X2) is 2.433 and Government Spending on Health (X3) of 2.191. So it can be concluded that the data in this study does not occur multicollinearity because the VIF is less than 10 so it can be stated that the model does not experience multicollinearity.

**IV.1.2.3 Heteroskedasticity Test**

The results of the heteroscedasticity test using the test spearman's rho can be seen in table 3.

**Table 3.** Heteroscedasticity Test *Spearman's rho*

Variables	Sig	Information
GRDP Per Capit	0.056	Heteroscedasticity does not occur
Education Spending	0.497	Heteroscedasticity does not occur
Health Spending	0.581	Heteroscedasticity does not occur

Source: Processed secondary data, 2022

Based on the table 3 above, it can be seen that the significance value of all variables is greater than 0.05, so it can be concluded that all variables do not occur heteroscedasticity.

**IV.1.2.4 Autocorrelation Test**

The results of autocorrelation testing using the Run Test can be seen in table 4.

**Table 4.** Test Run Test

Durbin-Watson	criteria	information
2,028	$d_l < d < 4-d_u$	There is no autocorrelation

Source: Processed secondary data, 2022

Based on table 4, the test value shows that the Durbin Watson (DW) value in this research model is 2.028 with a total sample of 97 and the number of independent variables is 3 (k = 3). The DW value of 2.028 is greater than the upper limit (du) 1.7335 and less than (4-du) 2.2665 or  $1.7335 < 2.028 < 2.2665$ . So it can be concluded that there is no autocorrelation in the regression model.

**IV.2 Hypothesis Test**

**IV.2.1 Multiple Linier Regression**

**Table 5.** Multiple Linear Regression

Variabel	Unstandardized Coefficients			
	Beta	Std. Error	T	Sig.
(Constant)	7033,719	121,059	58,102	,000
GRDP Per capita	,212	,021	10,248	,000
Education Spending	-2,547E-10	,000	-1,559	,122
Health Spending	-4,107E-10	,000	-1,244	,217

Source: Processed secondary data, 2022

Based on the table IV.5 above, the regression equation can be arranged as follows:

$$IPM = 7033,719 + 0,212GRDB + (-2,547E-10)PP + (-4,107E-10)PK + e$$

Based on the results of the multiple regression test in the above equation, it can be interpreted as follows:

1. The positive constant value of 7033,719 indicates that Gross Regional Domestic Product (GRDP) Per Capita, Government Spending on Education and Health are assumed to be constant or equal to zero, so the human development index is 7033,719.
2. The regression coefficient value of the Gross Regional Domestic Product (GRDP) Per Capita variable has a positive regression coefficient value of 0.212, meaning that the higher the GRDP per capita, the higher the Human Development Index. Vice versa, if the GRDP per capita decreases, the Human Development Index will also decrease.
3. The regression coefficient value of the Government Spending on Education variable has a negative relationship with the the Human Development Index of -2,547E-10, which means that if the Government Expenditures in the Education Sector are higher, then the Human Development Index will decrease. Vice versa, if Government Spending in the Education Sector decreases, the Human Development Index will increase.
4. The regression coefficient value of the Government Spending on Health variable has a negative relationship with the Human Development Index of -4,107E-10, which means that if the Government Spending in the Health Sector is higher, then the Human Development Index will decrease. Vice versa, if Government Spending in the Health Sector decreases, the Human Development Index will increase.

**IV.2.2 Test Coefficient Determinant R<sup>2</sup>**

**Table 6.** Test R<sup>2</sup>

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.797a	.635	.623		242,42133

Source: Processed secondary data, 2022

Based on table 6 above, it shows the value of the coefficient of determination with adjusted R<sup>2</sup> of 0.623. This means that 62.3% is influenced by the variables Gross Regional Domestic Product (GRDP) per capita, government spending on education and health. While the remaining 36.5% is influenced by other variables.

**IV.2.3 F Test**

**Table 7.** F Uji test

Variabel	Fcount	F table	Sig	information
GRDP per capita, PP,PK	53,973	2,70	0,000	significant

Based on table 7 above, the results of the F test have a significance level of 0.000, which is less than 0.05, this indicates that Gross Regional Domestic Product (GRDP)per capita, government spending on education and health simultaneously have a significant effect on human development index.

**IV.2.4 t test**

**Table 8**  
.t test

Variabel	Tcount	Sig.	information
GRDP Per capita	10,248	0,000	H <sub>1</sub> is accepted
Education Spending	-1,559	0,122	H <sub>2</sub> is rejected
Health Spending	-1,244	0,217	H <sub>3</sub> is rejected

Source: Processed secondary data, 2022

**Gross Regional Domestic Product (GRDP) per capita**

Based on the results of the t-test in table IV.9, it is obtained that the tcount value is 10,248 with a significance value less than 0.05 (0.000 < 0.05) then H<sub>1</sub> is accepted. So it can be concluded that the Gross Regional Domestic Product (GRDP) per capita variable has an effect on human development index. This research is in line with research conducted by Jehuda Jean Sanny Mongan (2019), Farida Rahmawati & Meirna Nur Intan (2020), and Anisa & Khairul (2018) which show that Gross Regional Domestic Product (GRDP) per

capita variable has an effect on human development index.

#### **Government Spending on Education**

Based on the results of the T test in table IV.9, it is obtained that the tcount value is -1,559 with a significance value greater than 0.05 ( $0,122 > 0.05$ ), then  $H_2$  is rejected. So it can be concluded that the government spending on education variable has no effect on human development index. This research is in line with research conducted by Muliza et al (2017), which shows that government spending on education variable has no effect on human development index.

#### **Government Spending on Health**

Based on the results of the T test in table IV.9, it is obtained that the tcount value is -1,244 with a significance value greater than 0.05 ( $0,217 > 0.05$ ), then  $H_3$  is rejected. So it can be concluded that the government spending on health variable has no effect on human development index. This research is in line with research conducted by Sanggelorang et al (2015), which shows that government spending on health variable has no effect on human development index value.

### **IV.3 Discussion of Analysis Result**

#### **1. The Effect of Gross Regional Domestic Product (GRDP) Per Capita On Human Development Index**

The calculation of the results of the research on the Gross Regional Domestic Product (GRDP) per capita variable shows the magnitude oftcount -10,248 with a significance value of  $\text{sig} < 0.05$  ( $0.000 < 0.05$ ) it can be concluded that the Gross Regional Domestic Product (GRDP) per capita variable has an effect on human development index. These results indicate that the first hypothesis ( $H_1$ ) which states that Gross Regional Domestic Product (GRDP) per capita has an effect on human development index is accepted.

#### **2. The Effect of Government Spending in Education on Human Development Index**

The calculation of the results of the research on the government spending on education variable shows the magnitude oftcount -1,559 with a significance value of  $\text{sig} > 0.05$  ( $0,122 > 0.05$ ) it can be concluded that the government spending on education variable has no effect on human development index. These results indicate that the second hypothesis ( $H_2$ ) which states that government spending on education has an effect on human development index is rejected.

#### **3. The Effect of Government Spending in Health on Human Development Index**

The calculation of the results of the research on the government spending on education variable shows the magnitude oftcount -1,244 with a significance value of  $\text{sig} > 0.05$  ( $0,217 > 0.05$ ) it can be concluded that the government spending on health variable has no effect on human development index. These results indicate that the second hypothesis ( $H_3$ ) which states that government spending on health has an effect on human development index is rejected.

## **V. CONCLUSION**

Based on the results of the analysis and discussion described in the previous chapter, the following conclusions can be drawn:

1.  $H_1$  accepted so that the Gross Regional Domestic Product (GRDP) per capita has an effect on the Human Development Index of the Regional Government of Central Java Province for the 2019-2021 period.
2.  $H_2$  is rejected so that Government Spending on Education Sector has no effect on the Human Development Index of the Regional Government of Central Java Province for the 2019-2021 period.
3.  $H_3$  is rejected so Government Spending on Health Sector has no effect on the Human Development Index of the Regional Government of Central Java Province for the 2019-2021 period.

#### **Limitations**

This research still has limitations, so it needs to be considered for future researchers. The limitations of the study are as follows:

1. This research examines each of the independent variables and the dependent variable for only three periods, from 2019-2020 so this has not been able to clearly describe all the factors that influence the Human Development Index.
2. This study only uses a few variables, so overall it has not been able to explain what factors affect human development index.

### **Suggestion**

Based on the conclusions and limitations contained in this study, it can be put forward some suggestions that can be used for consideration in further research, namely:

1. Based on the limitations of the independent variables in this study, suggestions for further research are that it is better to add independent variables that have a broad scope so as to obtain better conclusions and can clearly describe the factors that influence the human development index in Central Java Province.
2. For further research, it is recommended to increase the observation period in the study so that it can clearly describe the range of influence of each independent variable on the human development index in Central Java Province

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