

## **Analysis Of Determinants Of Human Development Index Of City Districts In Central Java**

### **Analisis Determinan Indeks Pembangunan Manusia Kabupaten Kota Di Jawa Tengah**

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#### **ABSTRACT**

Human development is part of the development process to create a dynamic generation in the mastery of science and technology that continues to be dynamic in order to create superior resources and determine the direction of life, which is shown through its human development index. The purpose of the following research is as an indicator to see what factors can be expected to affect the Human Development Index (HDI), and to find out how much the cause of GRDP, Minimum Wage, District, Population Growth, Poverty, and there is also the Average Years of Schooling in Central Java Province for the 2015-2020 period. The effort obtained on the GRDP, UMK, PJP, RRLS variables has t-statistics > t-table with a positive sign, meaning that these two variables have a positive and significant effect on the Human Development Index variable. The results of the research show that the poverty variable has a t-statistic > t-table with a negative sign, meaning that the poverty variable has a negative and significant influence on the Human Development Index variable.

**Keywords :** Central Java, Human development Index, panel data,

#### **ABSTRAK**

Pembangunan manusia merupakan bagian dari proses pembangunan untuk menciptakan generasi yang dinamis dalam penguasaan ilmu pengetahuan dan teknologi yang terus dinamis guna terciptanya sumber daya yang unggul dan menentukan arah kehidupan, yang diperlihatkan melalui indeks pembangunan manusianya. Tujuan akan adanya penelitian berikut sebagai indikator guna melihat faktor apa saja yang bisa diperkirakan dapat memengaruhi Indeks Pembangunan Manusia (IPM), serta mengetahui seberapa besar penyebab PDRB, Upah Minimum, Kabupaten, Pertumbuhan Jumlah Penduduk, Kemiskinan, dan adapula Rata-rata Lama sekolah di Provinsi Jawa Tengah periode tahun 2015-2020. Upaya yang diperoleh pada variabel PDRB, UMK, PJP, RRLS mempunyai t-statistik > t-tabel dengan tanda positif, artinya kedua variabel tersebut berpengaruh positif dan signifikan terhadap variabel Indeks Pembangunan Manusia. Hasil penelitian menunjukkan bahwa variabel kemiskinan mempunyai t-statistik > t-tabel dengan tanda negatif, artinya variabel kemiskinan mempunyai pengaruh negatif dan signifikan terhadap variabel Indeks Pembangunan Manusia.

**Kata Kunci:** Jawa Tengah, Indeks Pembangunan Manusia, Data Panel

#### **1. Introduction**

The Human Development Index is a reference indicator that is used as a measure of some important aspects in introducing the success of economic development, namely the increase in the quality of human resources. According to (Suradinata, 1996) human resources are a major factor for every stage of development, human resources in the development section have a dual role, namely being the subject and object of a development activity at the stage of implementation. Human resource development aims to create a dynamic generation in an effort to master dynamic science and technology.

In the concept of development, Human Resources are not only seen as objects, but are seen in determining the direction and policies of development. Human resource development can be carried out through empowering, increasing the ability of humans to be able to actualize all their potential and requires self-awareness. To be able to measure the human

quality model, the United Nations Development Program (UNDP) introduced the concept of the Human Development Index.

Poverty in Central Java Province from 2016 has decreased and increased significantly, the percentage of poor people in Central Java is more in rural areas at 14.88% than urban areas 11.38%. This needs to be considered because if the rural poverty rate is high, the community has obstacles to support other needs such as health, education and others. Development cannot be separated from human resources, on the one hand the population is a resource actor for production factors and at the same time becomes a consumer for the products produced.

Central Java Province according to the administrative location there are several parts including 29 districts and 6 cities, with a total area of 32,544.12 km<sup>2</sup>, of which the largest district is Cilacap district covering an area of (2,138.51 km<sup>2</sup>). whereas, the smallest area is Magelang city with an area of (18.12 km<sup>2</sup>). The number of regencies / cities in Central Java also provides information related to heterogeneous human development. this information can be used as an effort to realize regions with high quality human resources. therefore, the government should allocate a budget in the field of education to support the acceleration of human resource improvement (KEMENPERIN, 2003).

In addition to the efforts that need to be made by the government from the budget side, there are also things that affect human development, namely the number of poor people. If a region has a high number of poor people, it will affect the quality of human resources. This is because people who are classified as poor have limitations to fulfill their needs, one of which is education. A low level of education is not enough to improve the quality of human resources in general.

Research conducted by (Sapaat, Lopian, Tumangkeng, Pembangunan, & Ekonomi, 2020) explains that population has a significant effect on the Human Development Index in North Sulawesi Province, this is because if the population increases by 1 person, the Development Index will increase by 137.299 (Chalid & Yusuf, 2014). Research conducted by (Desrindra, Murialti, & Anriva, 1-10), states that government spending has a positive and significant effect on the dependent variable, namely HDI with a p-value of 0.0100 < 0.10. This means that simultaneously government spending can improve the quality of human resources. Furthermore, the per capita income variable has a positive and insignificant effect on the Human Development Index with a p-value = 0.3304 > 0.10. In addition, the economic growth variable has a negative and insignificant effect on the Human Development Index with a p-value = 0.1205 > 0.10.

Research conducted by (Bhakti, Istiqomah, & Suprpto, 2017) explains that GRDP has a positive effect on HDI in 33 provinces in Indonesia. Research conducted by (Emilia Khristina Kiha, Sirilius Seran, 2021) explains that death has no effect on HDI. Meanwhile, research (Mahya, 2021) explains that the average length of schooling has a significant effect on the Human Development Index. Basically, from the description above, it is necessary to study the factors that influence the human development index in Central Java based on Regency / City.

## **2. Literature Review**

### **Human Development Index**

According to the Human Development Report, human development is a process of expanding people's choices. In principle, human choices are very diverse and can change at any time. Among the many choices, there are actually three basic choices, namely a long and healthy life, receiving education and obtaining the resources necessary to live a decent life. In addition to these three choices, there are many other choices such as political, economic and social freedoms that can provide opportunities for people to be more creative and productive, enjoy self-respect and protect human rights.

There are two aspects to human development. first, the formation of human capabilities, such as improving health, education and skills. Second, the use of each person's capabilities, such as enjoying leisure time, having productive goals, or actively participating in various social, cultural and political activities. Human development must be on a balanced scale to achieve stability. Based on the concept of human development, income is one of the main options. However, human development is more than just increasing income and welfare. However, human development must also be people-oriented.

The human development index is based on three indicators, namely life expectancy, literacy rate and real per capita income based on purchasing power. In 2010, the method of calculating the human development index changed. The old method indicators, namely literacy rate, were replaced by expected years of schooling, and gross domestic product (GDP) per capita was replaced by gross national product per capita. The calculation method also changed, namely the aggregation method was changed from arithmetic average to geometric average.

### **Gross Regional Domestic Product**

Development can be explained as an effort to increase the growth of Gross Regional Domestic Product (GRDP) at the national or regional level. The main objective of development efforts is to create the highest possible growth. In addition, other development goals are to eliminate and reduce poverty, income inequality, unemployment, and provide sufficient employment opportunities for each resident so that the welfare of the population increases. GRDP is an indicator of the level of welfare of the population in a region. GRDP is the value added generated for all companies and services in a region by applying the total amount of final goods and services produced by all economic units. GRDP can be interpreted as the amount of added value generated from all economic units in a region in one year.

GRDP is one of the factors that determine the economic development of a region within a certain period of time, both at the national and regional levels, and is calculated both at current prices and at constant prices. Current price GRDP refers to the value added of goods and services calculated at current prices, while constant price GRDP refers to the value added of goods and services in a particular year as the base year. Current price GRDP can be used to determine changes and the economic structure of a region, while GRDP at constant prices can be used to determine the ability of resources to support actual economic growth in the following year, and is not driven by price factors. The rate of economic growth is one of the macroeconomic indicators that illustrates the level of development success that can be achieved in the calculation of GRDP.

According to Todaro GRDP is the total value of all final outputs obtained by an economy at the local level (both those carried out by local residents and residents from other regions who live in the area). According to the Central Bureau of Statistics, GRDP is defined as a count of the value of goods and services produced within one year. GRDP itself is the total value of all final output produced by a regional economy, both by local residents and foreigners residing in the country concerned. so that the general measure that is often used to see the rate of economic growth is GRDP for provincial or district / city scale.

### **Minimum Wage**

Minimum Wage is a minimum (lowest) monthly receipt as a reward from employers to employees for a job or service that has been or will be done and is expressed or valued in money which is determined on the basis of an agreement or laws and regulations and is paid on the basis of a work agreement between employers and employees including benefits, both for the employee himself and for his family. As regulated in PP No. 8/1981, minimum wages

can be set on a regional, regional sectoral and sub-sectoral minimum basis, although currently only regional minimum wages are owned by each region.

In this case, the minimum wage consists of the basic wage and fixed benefits. However, in government regulations, only the basic wage is clearly stipulated and does not include benefits, which often causes controversy for employers and workers. A fixed allowance is an allowance that is given on a fixed basis regardless of the level of worker attendance or output, such as a fixed family allowance and an allowance based on seniority.

According to Law No. 13 of 2003, the minimum wage is only intended for workers with a working period of 0 (zero) to 1 (one) year. From this definition, there are two important elements of the minimum wage namely the starting wage as the lowest wage that must be received by workers at the first time they are accepted to work. Meanwhile, the amount of the minimum wage must be able to meet the minimum living needs of workers, namely the needs for clothing, food and household needs.

Based on the Minister of Manpower Regulation No.15 of 2018 concerning Minimum Wages, article 1 paragraph 1 explains that the minimum wage is the highest monthly wage in the form of a wage without benefits or a basic wage including fixed benefits determined by the governor as a safety net. Based on the provisions of article 1 paragraph 3, the Regency or City Minimum Wage, hereinafter referred to as UMK, is the minimum wage that applies in one district area only.

### **Population growth**

Population growth is an activity urbanization or residential movement by city dwellers to neighborhoods or small communities. or small communities. so that it becomes the problem of a high enough population that can result in obstacles in the pace of the economy especially the impact on the increase in expenditure household consumption. With this situation it is possible for population growth to become an obstacle to economic growth in a region if in handling it cannot be done effectively effective.

The theory according to Adam Smith considers that population is a potential input that can be used as a factor of production to increase the production of a household company. The more the population, the more population, the more labor that can be used. The theory according to Robert Malthus considers that in the initial conditions the population can indeed increase economic growth, but at an optimum situation, population growth will not increase economic growth instead it can reduce it. David Ricardo's theory argues that population growth that is too large to double can lead to an abundance of labor. Abundant labor causes the wages received to decrease, where the wages can only finance the minimum level of living (subsistence level). At this level, the economy stagnates, which is called the Stationary State.

### **Poverty**

Poverty is a condition of economic inability to meet the average standard of living of people in an area. This condition of inability is characterized by the low ability of income to meet basic needs in the form of food, clothing, and shelter. This low income ability will also have an impact on the reduced ability to meet average living standards such as public health standards and education standards.

In general, poverty is defined as a condition of income inability to meet basic needs so that it is less able to ensure survival. The ability of income The ability of income to meet basic needs based on certain price standards is low so that it does not guarantee the fulfillment of quality of life standards in general. Based on this understanding, poverty is generally defined as a condition of income inability to fulfill basic needs and other needs that can ensure the fulfillment of quality of life standards.

Based on Law No. 24 of 2004, poverty is a the socioeconomic condition of a person or group of people whose basic rights are not fulfilled to maintain and develop a dignified life. The basic needs of a person or group of people include food, health, education, employment, housing, clean water, land, natural resources, the environment, security from treatment or threats of violence, and the right to participate in the organization of social and political life. The People's Welfare Report issued by the Ministry of Welfare (Kesra) in 2004 also explains that the condition of the so-called poor also applies to those who work but whose income is insufficient to meet basic needs.

### Average Years Of Schooling

Average years of schooling is defined as the number of years of formal education spent by the population. The population coverage calculated is age 25 years and above. Expected years of schooling is defined as the length of schooling (years) that a child of a certain age is expected to experience in the future. Expected years of schooling is calculated for the population aged 7 years and above.

The average years of schooling (RLS) is the number of years that the population has spent in formal education. It is assumed that under normal conditions the RLS in a region will not fall. The population coverage that will be calculated in the RLS calculation is the population aged 25 years and above. The average years of schooling (RLS) is the average number of years completed by the population at all levels of formal education. This figure can also illustrate the quality of education of the population in a region. This figure is calculated using three simultaneous variables, namely the school enrollment variable, the level or class that is currently being undertaken, and the last diploma owned. The population calculated in this average length of schooling is the population aged 15 years and above.

### 3. Research Methods

This research uses quantitative analysis methods to determine the factors that influence the Human Development Index. In this study, the use of data with reference is panel. The analysis of these methods of panel data models has a variety of approaches, namely (pooled least square), fixed effect models and random effect models. To determine which method is best to use in estimating data, it is seen through the chow test and the hausman test. In the data model analysis has a reference where there are three types of approaches, namely pooledleast square (PLS).

In accordance with the rules of panel data, it is necessary to conduct a test to select the best model that can be used which consists of three tests, namely the chow test, Hausman test, and Lagrang Multiplier (LM) test. In the first stage test, the chow test, compares the Command Effect Model (CEM) with the Fixed Effect Model (FEM). If the results show acceptance of the CEM, then there is no need to conduct further tests but directly test classical assumptions. However, if the results show acceptance of the FEM, it is necessary to conduct a further test, namely the hausman test. The Hausman test compares the Random Effect Model (REM) with the FEM. If the results show acceptance of the FEM, there is no need to do further tests, namely the LM test. However, classical assumption tests must be performed, namely multicollinearity and heteroscedasticity. If the Hausman test shows acceptance of REM, then further testing is required, namely the LM test. The research model is presented below:

$$IPM_{it} = \beta_0 + \beta_1 PDRB_{it} + \beta_2 UMK_{it} + \beta_3 PJP_{it} + \beta_4 KMK_{it} + \beta_5 RRLM_{5it} + \epsilon_{it}$$

Notes:

HDI = Human Development Index

GRDP = Gross Regional Domestic Product

UMK = District/City Minimum Wage

PJP = Total Population Growth

KMK = Poverty

RRLS = Average Years of Schooling

$i$  = Time Series

$t$  = Research Cross Section

$\epsilon_{it}$  = Panel Model Standard Error.

#### 4. Results and Discussions

##### Descriptive Statistics

The descriptive statistics below are to provide simple information about the research variables consisting of the independent variables X1 (GRDP), X2 (Regency / City Minimum Wage), X3 (Population Growth), X4 (Poverty), X5 (Average School Duration) and the dependent variable / Y (HDI). Descriptive statistics table in the table below:

**Table 1. Descriptive Statistics**

Variable	Obs	Std. Dev	Mean	Min	Max
IPM	210	4.5433871	7.618190	63.18000	83.19000
PDRB	210	17143670	27386381	11390000	84070000
UMK	210	313480.0	1622961.0	110000.0	2810025.0
PJP	210	0.386290	0.703905	0.120000	1.810000
KEMISKINAN	210	69591.09	120040.0	9100.000	352000.0
RRLS	210	1.220601	7.618190	5.880000	10.69000

Source: Data Processed (2023)

The descriptive description of the five variables, with a total sample size of 210, is as follows:

1. After testing, the HDI variable for districts / cities in Central Java Province 2015-2020. has an average value of 7,618190 rupiah, for a result of 4,5433871 people. Because the average value is higher when compared to the standard deviation, it gives an indication that the results are quite good. Data distribution shows normal results with a maximum value of 83,19000 and a minimum of 63,18000.
2. In the variable GDP of districts/cities in Java Province, after testing it shows an average value of 27386381 with a standard deviation result of 17143670. Because the average assessor is superior when compared to the standard deviation, it indicates that the results are quite good. Data distribution shows normal results with a maximum value of 84070000 and a minimum value of 11390000.
3. After testing, the minimum wage variable in districts/cities in Central Java during 2015-2020 shows an average value of 1622961.0 rupiah. Because the average value is higher when compared to the standard deviation, it shows that the results are quite good. The distribution of data shows normal results with a minimum value of 110000.0 rupiah and a maximum value of 2810025.0 rupiah.
4. After testing, the Regency/City Population Growth variable in Central Java Province in 2015-2020 has an average value of 0.703905 people, with a standard deviation of 0.386290 people. Because when compared with the standard deviation, it gives an indication if the results are good enough. The data distribution shows normal results with a maximum value of 1.810000 and a minimum value of 0.120000.
5. After testing, the district/city poverty variable in Central Java Province in 2015-2020 shows an average value of 120040.0 with a standard deviation of 69591.09. because there is a comparison compared to the standard deviation indicating that the results are quite good. The data distribution shows normal results with a minimum value of 9100,000 and a maximum value of 352,000.0.

6. After testing, the variable average length of schooling by districts/cities in the province of Central Java 2015-2020 has an average value of 7.618190. because the average value is higher than the standard deviation value, which is 1.220601, it gives an indication if the result is good enough. The data distribution shows normal results with a minimum value of 5.880000 and a maximum value of 10.69000.

#### Best Model Selection Test

**Table 2. Best Model Selection Test**

Test	P-Value	Result
Chow	0.0000	Fixed Effect
Hausman	0.0000	Fixed Effect
Lagrange Multiple	0.0000	Random Effect

Source: Data Processed (2023)

Based on the regression results above, it can be concluded that the Fixed Effect is the best model which can be concluded in this study. The results show that the independent variables GRDP, UMK, PJP, and RRLS in all districts/cities in Central Java Province have a positive and significant effect on the dependent variable. Meanwhile, the Poverty variable has a negative indication and its significance for the dependent variable is the Regency/City Human Development Index in Central Java Province.

**Table 4. Fixed Effect Model**

Variable	coefficient	P-Value
Konstanta	54.58027	0.0000
PDRB	6.46E-08	0.0080
UMK	2.06E-06	0.0000
PJP	1.970763	0.0001
KEMISKINAN	-0.010790	0.0003
RRLS	1.531829	0.0000
Jumlah Sampel Obs		210
Grup Panel		35
R-Square	0.994137	
F-Stat	0.000000	

Source: Data Processed (2023)

Based on the regression analysis, this research shows that there is an independent variable GRDP in all districts/cities in Central Java Province that has an effect on Central Java Province. The significant influence of the GRDP variable is seen at the P-value of 0.0080. This value actually concludes that the result is a significance level of 5%. Meanwhile, the positive influence of the GRDP variable on the Regency/City Human Development Index in Central Java Province can be seen from the coefficient value, where the coefficient value is 6.46E-08. This means that if there is an increase in GRDP of IDR 1 million, it will increase the Regency/City Human Development Index. The word in Central Java Province is 46%, caters paribus. Research with curved research results (Nuriyah, Muafiqie, & Junaedi, 2017) has an impact on the Human Development Index.

Economic growth always goes hand in hand with improving the quality of people's lives. Increased economic growth in general will encourage an increase in the Human Development Index, this is because when there is an increase in economic growth in a region it will open up jobs, people's access to economic resources, increase income so that it will indirectly encourage people's ability to access economic resources, education, and access to health where these three components are indicators in compiling the human development index.

Based on this regression analysis, it shows that the independent variable MSE in all districts/cities in Central Java Province has a positive and significant effect on the dependent variable of the Regency/City Human Development Index in Central Java Province. The significant influence of the UMK variable is seen from the P-value of 0.0000, this value is smaller than the 5% significance level. While the positive influence of the UMK variable on the District/City Human Development Index in Central Java Province can be seen from the coefficient value, where the coefficient value is 2.06E-06, it can be interpreted that if there is an increase in the UMK of IDR 1 million in Regencies/Cities in Central Java Province, then it will increase the Regency/City Human Development Index of Central Java Province by 0.6%, this is assuming *ceteris paribus*.

The minimum wage for urban regencies where one of the income standards is to be set by the governor, the minimum wage consists of including allowances in this case along with an increase in the city district minimum wage it will also increase people's income and will improve people's living standards, in this case if people's living standards increase then will also increase the level of public consumption, and will also directly increase economic access and will shape them to also increase access to education and health which encourages the components of the human development index.

The Effect of Population Growth on the Human Development Index.

Basically, the regression analysis on the following points shows that the independent variable Population Growth in all districts/cities in Central Java Province has a positive and significant effect on the dependent variable the Regency/Koto Human Development Index in Central Java Province. The significant effect of the Population Growth variable can be seen from the P-value of 0.0000, this value is smaller than the 5% significance level. While the positive influence of the Population Growth variable on the Human Development Index can be seen from the coefficient value, where the coefficient value is 1.970763, it can also be interpreted that if there is an increase in Population Growth of 1% in Regencies/Cities in Central Java Province, it will also increase the Regency/Municipal Human Development Index. Cities in the Province of Java Tengah by 97%, this is assuming *ceteris paribus*.

The increase and decrease in the number of population affected by birth, death and migration factors is an analogy of population growth, an increase in the number of residents per year in an area will increase people's consumption of clothing, shelter and food, increase in human resources in this case related to the existence of other needs such as consumption, health, education, and other consumption supporting human needs. So the increasing needs that are pursued will also increase the quality of human resources that are formed, in this case it will increase the human development index.

Based on the regression analysis in this study, it shows that the independent variable Poverty in all districts/municipalities is the dependent variable for the District/City Human Development Index in Central Java Province. The significant influence of the poverty variable is seen from the P-value of 0.0003, this value is smaller than the 5% significance level. While the negative effect of the poverty variable on the Regency/City Human Development Index in Central Java Province can be seen from the coefficient value, where the coefficient value is -0.010790 if Poverty is 1000 people in Regencies/Cities in Central Java Province, it will reduce the Regency/City Human Development Index in Java Province The middle is 0.1%, this is assuming *ceteris paribus*.

There is poverty because people do not meet their daily needs, the income they get may only be enough to meet their basic needs in terms of consumption, while they have not been able to fulfill other needs such as health and education, if this continues to happen to people who do not want to change their situation their economy will also affect their quality of life in terms of the economy, human resources, and health. research was conducted (Susilo et al., 2020) that the level of poverty affects the Human Development Index. The Human



Development Index has composite indicators in its calculations including life expectancy, literacy rates, and consumption per capita. Improvements in public health and education as well as per capita income contribute to human development, the higher the quality of human beings in an area, the lower the number of poor people in that area.

Based on the regression analysis in this study, it shows that the independent variable average length of schooling in all districts and cities in Central Java Province has a positive and significant effect on the dependent variable. The significant effect of the Average Length of School variable can be seen from the P-value of 0.0000, this value is smaller than the 5% significance level. While the positive influence of the Poverty variable on the Human Development Index can be seen from the coefficient value, where the coefficient value is 1.531829, it can be interpreted that if there is an increase in the average length of schooling by 1 year, it will increase by 53%, this is assuming *ceteris paribus*.

The average length of schooling can be defined as the number of years that are used by residents to carry out formal learning activities. The average length of schooling has a positive and significant effect on the human development index, this is proven by someone, it will improve the quality of human development, in this case it is also related to the quality of thinking and acting in a person, besides that the high per capita expenditure of a society shows that it also increases.

## 5. Conclusion

From the results of the study above on the influence of the variables Gross Regional Domestic Product, District/City Minimum Wage, Population Growth, Poverty, and Average Length of Schooling on the Human Development Index in 35 Districts/Cities in Central Java Province in 2015-2020, with the conclusion namely the results of the panel data estimation regression test show that the best model in selecting and interpreting data in this study is the fixed effect model. The results of the panel data estimation test using the fixed effect approach show that the independent variables (GRDP, UMK, PJP, POVERTY, and RRLS) simultaneously have an effect on the Human Development Index in 35 districts/cities in Central Java Province 2015-2020. The effort obtained on the GRDP, UMK, PJP, RRLS variables has t-statistics > t-table with a positive sign, meaning that these two variables have a positive and significant effect on the Human Development Index variable. The results of the research show that the poverty variable has a t-statistic > t-table with a negative sign, meaning that the poverty variable has a negative and significant influence on the Human Development Index variable.

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