The Effect of Regional Minimum Wage and Inflation on HDI in Central Java

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Artikel Info	Abstrak
	Since 2017 Central Java has a high Human Development Index (HDI); its rank in 2019 is still the same as in 2010. The study investigates regional minimum wage and inflation facts in Central Java and how the HDI estimation model's constants differ differregency/city in different regions of Central Java. The study utilizes the fixed effect model (FEM) built using panel data for 2010-2019. It employs the Least Square Dummy Variable Model to get the difference constant for each regency and city in Central Java. The FEM model implies that the effects of regional minimum wage and inflation are the same for all regencies/cities, caused by the same cultural background. The results of this study show that regional minimum wage and inflation have significant positive effects on HDI and that cities tend to have higher constants compared to regencies

INTRODUCTION

Economic development is one way or process carried out by the government to continuously build changes in various aspects of the economy to achieve better living conditions. If economic development goes well, economic growth will increase. The quality of human resources plays an essential role in economic development. With quality human resources, it is hoped that a positive impact on economic development in the region is expected. It is hoped that economic growth will be positive through human development, and the community's welfare increases.

The main focus on human development can be seen from the level of human well-being; the United Nations Development Programmer (UNDP) first introduced human development measurement in 1990 (BPS, 2019). UNDP has the idea of measuring human development called the Human Development Index (HDI). At that time, the HDI was published periodically by the annual Human Development Report (HDR). HDI implements how residents/communities can access their development results through income, health, and education. The first time Indonesia started calculating the HDI was in 1996. Since then, the HDI has been calculated every three years. However, in 2004 the HDI began every year; this was done to help meet the Ministry of Finance's needs when calculating the General Allocation Fund. For two decades, the HDI has always been used in calculating various human development planners.

Along with the development of science and technology and challenges in various products, UNDP officially 2010 introduced the HDI calculation using a new method. In 2014, Indonesia began to apply the HDI method and

abandoned the old way of HDI calculation. Indonesia's indicators are the same as UNDP indicators, except for gross national product. This indicator is proxied and protected by per capita expenditure. To maintain equality of HDI with UNDP, the calculation of HDI in 2010 is calculated using a new method (BPS, 2019)

HDI in the new method is calculated through an approach, namely the dimensions of longevity and healthy life using the indicator of life expectancy at birth (AHH), the measurement of knowledge or the size of education can be calculated using the needle of long-school expectation (HLS) and the average length of schooling (RLS) and the dimension of decent standards that represent the welfare of life and through per capita expenditure that is unbeatable (BPS, 2019). HLS replaces the literacy numeric indicator used in the old method. Thus, HDI can be a parameter to assess the community's quality of life wisely and can be used to determine the ranking or level of development in an area or even a country.

Graph 1. Relationship between HDI and GRDP (Constant 2010) (Trillion IDR) Central Java, 2010-2019
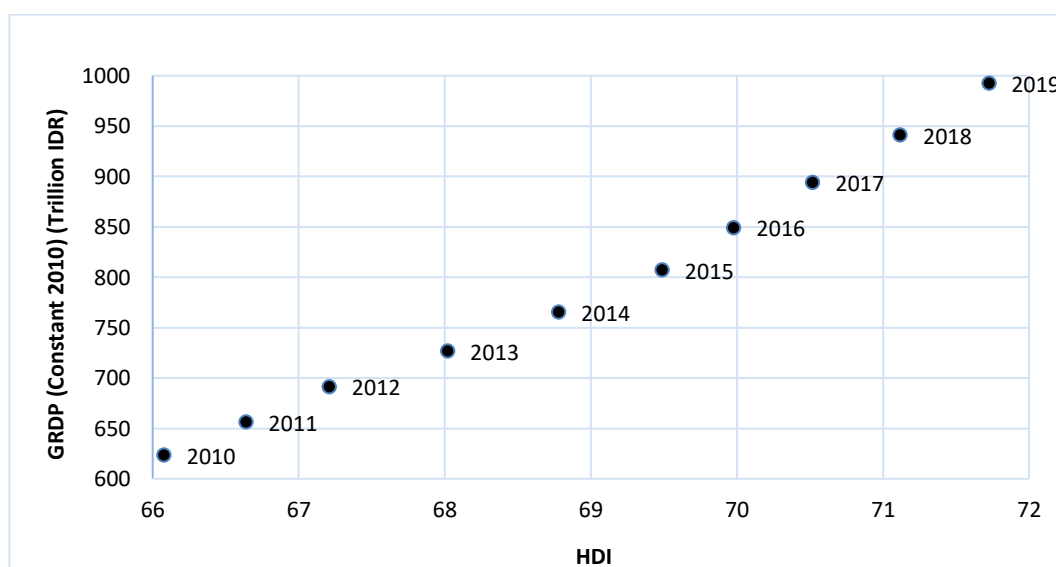
Source Date: BPS Jateng (2020)

Graph 1 shows that Central Java HDI continues to increase from 2010 to 2019. This graph also indicates that HDI has a positive relationship with GRDP. This suggests the importance of human development if an increase in HDI can increase economic growth and demonstrate human development's importance.

Since 2017, Central Java's HDI has been classified as high ($70 \leq HDI < 80$). However, the HDI of Central Java continued to increase from 2010 to 2019. During that period, the HDI of Central Java grew by 8.55% or an average growth of 0.92% per year. Even so, when compared to other provinces, the ranking of Central Java's HDI in 2010 and 2019 did not change; it remains ranked 13 at the national level (BPS, 2020).

Central Java HDI continued to increase from 2010 to 2019. Central Java HDI grew by 8.55% or an average growth of 0.92% per year during that period. Even so, when compared to other provinces, the ranking of Central Java's HDI in 2010 and 2019 did not change; it remains ranked 13 at the national level (BPS, 2020).

Therefore, the researcher intends to examine the factors that influence HDI in Central Java. Studies discussing the factors that affect HDI in Central Java have been carried out a lot. But the majority of these studies still use HDI calculated using the old method (Astuti & Mispiyanti, 2019; Trianggara, Rahmawati, & Yasin, 2016; Pratowo, 2013; Safitri, Darsyah, & Utami, 2014; Yuliani & Saragih, 2014; Baeti, 2013; Mirza, 2012; Sasana, 2012; Usmaliadanti, 2011). What distinguishes this study from the HDI studies in Central Java is that the HDI calculated using the new method for the 2010-2019 period will be used in this study. The existing similar study was carried out using the HDI calculated using fewer methods and conducted with data between 2011 and 2017 (Widiantoro, 2018, Isnawati, 2018; Wiharko, 2018; Nurmalasari, Ispriyanti, & Sudarno, 2017; Novianto, 2015). In addition to these studies, there are HDI studies in Central Java that use HDI with old and new methods (Kusumaningrum, 2018).

Another difference between this study and the HDI studies that have existed in Central Java is that this study does not examine the effect of financial performance, expenditure, or regional expenditures on HDI like the majority of existing studies (Astuti & Mispiyanti, 2019; Kusumaningrum, 2018; Widiantoro, 2018; Wiharko, 2018; Yuliani & Saragih, 2014; Pratowo, 2013; Baeti, 2013; Ariza, 2012; Mirza, 2012; Sasana, 2012; Usmaliadanti, 2011), but will examine the effect of the regional minimum wage and the level of inflation which is the first objective of this study.

The regional minimum wage determination policy can affect household income to affect the dimensions used as HDI indicators. the provincial minimum wage has been used to research HDI in other areas (Alifiya, 2019; Ismanti, 2017; Pramissela, 2015; Zainuddin, 2015; Chailid & Yusuf, 2014), but to the best of the researchers' knowledge, there is only one study that examines this for Central Java. by using a sharia economic perspective (Isnawati, 2018). (Isnawati, 2018) found that regional minimum wage did not affect HDI, Zainuddin (2015) found that the HDI had a positive effect, while other studies found that the provincial minimum wage had a significant positive impact (Ismanti, 2017; Pramissela, 2015; Chailid & Yusuf, 2014)

Inflation can also affect the dimensions used as HDI indicators. If the inflation rate is high, prices will become expensive, and people will find it difficult to access education and health, especially the poor. Researchers understand that the effect of inflation on HDI in Central Java has never been studied, even though it has been done in other regions (Pangesti & Susanto, 2018; Yolanda, 2017; Zainuddin, 2015; Nurcholis, 2014). Zainuddin (2015) found that inflation hurts HDI, Yolanda (2017) finds that inflation has a significant positive effect on HDI, while Pangesti & Susanto (2018) found that inflation does not affect HDI.

In addition to the variables mentioned above, another variable that has been studied for its effect on HDI in Central Java is the number of unemployed (Isnawati, 2018; Mirza, 2012; Baeti, 2013; Nurmalasari et al., 2017; Yuliani & Saragih, 2014), the dependency ratio (Purnamawati & Hudaya, 2020; Pratowo, 2013) economic growth (Yuliani & Saragih, 2014; Baeti, 2013; Mirza, 2012). PDRB according to current or constant prices (Isnawati, 2018; Kusumaningrum, 2018; Widiantoro, 2018; Wiharko, 2018), per capita income (Sasana, 2012), school enrollment rates (Trianggara et al., 2016; Nurmalasari et al., 2017), many health facilities (Nurmalasari et al., 2017; Trianggara et al., 2016), percentage of households with access to clean water (Nurmalasari et al., 2017), Gini ratio (Pratowo, 2013) proportion of non-food expenditure (Pratowo, 2013) and the indicators used to calculate HDI (Safitri et al., 2014). HDI studies in other areas also use various variables to see the effect or relationship with HDI, such as the electrification ratio in West Java (Saepudin, 2018), population density, the ratio of pre-prosperous families to population, number of junior high schools, number of health facilities and number of nurses and midwives. In Malang Regency (Latuconsina, 2017), zakat as local revenue in Aceh (Varlitya, 2017), investment in the mining and labor sector in West Kutai Regency (Masiku, Rochaida, & Wijaya, 2017), transfer funds and investment in Java Timur (Wicesa, 2016), Construction Expensive Index in North Sumatra (Muda, Helmi, & Kholis, 2014) as well as household consumption for food in Indonesia (Bhakti, Istiqomah, & Suprapto, 2012). This study does not examine the effect of these variables. Still, it only focuses on studying the influence of variables influenced by policies or controlled by local governments. It can directly affect people's income or purchasing power, namely the regional minimum wage and inflation.

This study's second objective is to study the effect of differences in model constants on HDI estimation among districts/cities in Central Java. This has never been done in previous studies. Thus, this study can benefit not only because research on the effect of regional minimum wage on HDI in Central Java is still minimal and because research on the impact of inflation in Central Java has never been available, but also because it can provide a comparison of model estimates between districts/cities in Central Java due to differences in model constants.

RESEARCH METHODS

This study's data is secondary in panel data for 2010-2019 (10 years) with cross-section data for 35 districts/cities in Central Java. The data period starts in 2010 because the HDI data used is calculated using a new method that began to be used in 2010. Indicators for the new methodology are (1) Life Expectancy, (2) Old School Expectations, (3) Average Length of Schooling, and (4) Per capita expenditure. Whereas in the old method indicator, Expectations for Old Schools were replaced by Literacy Rates. HDI data is obtained from BPS (2020), and MSE data is obtained from BPS Jateng (2020), while the PDRB deflator (with 2010 as the base year) is used as an indicator for inflation because there are several regions where inflation data is not available. PDRB deflator is calculated by the formula (Mankiw, 2020)

$$PDRB\ deflator = \frac{PDRB\ Nominal}{PDRB\ Real} \times 100 \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

with PDRB according to applicable prices obtained from BPS Jawa Tengah (2020). Furthermore, so that MSEs are not affected by inflation, the real minimum wage is used, which is calculated by the formula (Pindyck & Rubinfield, 2018)

$$The\ minimum\ wage\ in\ year\ i = \frac{Deflator\ PDRB_{2010}}{Deflator\ PDRB_i} \times Minimum\ wage\ nominal\ year\ i \dots (2)$$

In this study, the influence of MSEs and inflation on HDI for districts and cities in Central Java is presented using a fixed-effect model (FEM), which must be compiled based on panel data:

$$HDI_{i,t} = c_i + \beta_{1i} \cdot lnUMKReal_{i,t} + \beta_{2i} \cdot Inflation_{i,t} + e_{i,t} \ \dots\dots\dots\dots\dots\dots\dots (3)$$

Where i is the index for 35 districts/cities in Central Java and t is the index for the study period (2010-2019), $HDI_{i,t}$ is the HDI of the I-th regency/city in Central Java in the t-period, c_i is the dependent constant for the I-th district/city, $lnUMKReal_{i,t}$ is the logarithm value of the real MSE of the i-th district/city in the t period, inflation, t is the inflation (PDRB deflator) of the i-th district/city in period t, β_{1i} is the effect of real MSEs in the i-th district/city, β_{2i} is the effect of inflation in the i-th district/city, and $e_{i,t}$ is the error model for data from the i-th district/city and period t.

In the fixed-effect model, the estimated values of β_{1i} and β_{2i} are the same for all districts/cities. Gujarati & Porter (2013) explain that FEM is used if it is assumed that the intercept value between subjects (districts/cities) is different, but each year does not change over time. Time is not included in the model (3) because the exact time strongly correlates with MSEs. After all, MSEs are always updated every year, so adding time to the model can negate the impact of MSEs.

The FEM model is also used in studies on HDI (Alifiya, 2019; Arisman, 2018; Wiharko, 2018; Bhakti *et al.*, 2012; Wicesa, 2016; Pratowo, 2013; Yuliani & Saragih, 2014; Melliana & Zain, 2013; Ariza, 2012). However, these studies do not report differences in the model constants between the studied districts and cities. This study will show the constant contrasts between towns and communities in Central Java. Because it contains a time element, before it is used to build the FEM, panel data is also sure to be stationary. Table 1 shows that all variables in this study are stationary.

Table 1. Levin-Lin-Chu Unit Root Test Results

	Adjusted t	*p-value*
HDI	−10,0337	0,0000[***]
lnUMKReal	−13,4524	0,0000[***]
Inflation	−9,9209	0,0000[***]

*Note: (1) HDI and lnUMKReal are stationary with time trend..(2) *, **, *** are significant at α = 10%, 5% or 1%, respectively*

The FEM model has also been confirmed to fulfill the assumptions by correcting the standard error values to Driscoll and Kraays standard errors (heteroscedasticity, autocorrelation, and cross-sectionally dependence consistent) (Hoechle, 2010; Torres-Reyna, 2007; Driscoll & Kraays, 1998).

Driscoll and Kraays standard error is also used in studies using the FEM model (Haseeb & Hye, 2020; Iqbal *et al.*, 2015; Bilal & Mustafa, 2014; Antonie, Cristescu & Cataniciu, 2010). Also, the two independent variables certainly do not have a robust correlation (the correlation is 0.8188 <0.9), so that they will not be disturbed by multicollinearity problems.

Furthermore, to display the difference in constant values between districts/cities in Central Java, the Least Square Dummy Variable (LSDV) model is used. The LSDV model produces the same regression coefficient estimates as FEM but can be used to display the constant values of districts/cities in Central Java (Gujarati & Porter, 2013)

RESULTS AND DISCUSSION

The determination of FEM was carried out because the probability value of the chi2 examiner statistic for the Hausman Test was 0.0018, which means that the difference in the regression coefficient values between districts/cities was not systematic (see Table 2).

Table 2. Hausman Test Results

	Coefficients		Difference	Standard Error
	Fixed	Random		
lnUMK Real	2,7831	2,8155	−0,0324	0,0101
Inflation	0,0935	0,0929	0,0006	0,0002
Chi^2	12,65		Prob > Chi^2	0,0018[***]

Table 3 provides summary statistics of the three variables in this study. Meanwhile, the results of the FEM are presented in Table 4.

Table 3 shows that the average HDI of districts/cities in Central Java during the 2010-2019 period was moderate at 69.62. During that period, the average real wage prices increased by about 121.82% from 2010. During that period, the average real UMK was relatively higher than the average actual MSE average, indicating that there are districts/cities that The real minimum wage is somewhat much higher than other districts/cities, or in other words, it suggests that the real UMK level is still uneven, which is probably due to differences in living standards between districts/cities.

Table 3. Summary of Variable Statistics in the Model

Variable	N	Rata-rata	Standard Devices	Min.	Max.
HDI	350	69,62	4,90	58,64	83,19
UMK Real (million Rp)	350	0,98	0,24	0,66	1,93
lnUMKReal (Rp)	350	13,76	0,24	13,40	14,58
Inflation	350	121,82	13,45	97,17	147,14

Note: (1) Inflation = PDRB deflator). (2) Base year Real UMK and PDRB deflator: 2010 = 100. (3) Number of districts / cities = 35, period: 2010-2019 (10 years).

Data sources: (1) HDI from BPS (2010). (2) UMK and PDRB prices apply from Central Java BPS (2020).

Table 4 shows, through FEM, the real UMK and inflation variables can explain about 95.90% of the HDI variable in Central Java Province. Meanwhile, variations in real MSE variables and inflation between

districts/cities in Central Java can explain the variation in HDI between districts/cities by around 8.17%. Overall, the FEM model can explain 16.60% of the HDI variation.

Table 4. Estimation Results of FEM

Dependent Variable HDI						
Variable Bebas	**Koefisien**		**R^2**			
lnUMKReal	2,7831[***] (0.0005)	*Within*	0,9590	**N** 315	σ_u 4,5219	
Inflation	0,0935[***] (0.0000)	*Between*	0,0817	$n_{kab/kota}$ 35	σ_e 0,3958	
Constant	19,9339[**] (0.0130)	*Overall*	0,1660	**F** 1.140,6[***] (0,000)	ρ 0,9923	

Note: (1) The value in parentheses is the p-value calculated with the Driscoll and Kraays standard error.

(2) The F value is calculated using the Driscoll and Kraays standard error. (3) The p-value presented is for two-sided hypothesis testing. For one-sided hypothesis testing (real MSE), the p-value is divided by two. (4) *, **, *** respectively; -accordingly means significant at α = 10%, 5% or 1%. (5) σ = standard deviation, u = error in the group, e = overall model error and ρ = correlation between classes.

Both real MSEs and inflation have a significant positive effect on HDI in Central Java Province. Therefore the hypothesis in this study is proven. This means that an increase in MSEs in real terms will increase the HDI of districts/cities in Central Java. Every time there is an increase in real MSEs of 1%, the district/city HDI will increase by 0.0278 points. This study's results follow the theory of wage funds, namely the senior standard mill that states that wages are expected to meet all the necessities of life for workers and families. When wages increase, people's purchasing power will automatically improve. Workers and their families' needs will be fulfilled, both for daily living needs and for meeting basic needs for education and health. The results of this study are also in line with the results of researchers Isnawati (2018), Pramissela (2015), and Chailid and Yusuf (2014).

The effect of inflation on HDI is positive, amounting to 0.0935. This means that every time there is an increase in inflation of 1%, the HDI will increase by 0.0935. This finding is by the quantity theory, which states that inflation is very influential on the money supply. Inflation that is not too high, namely an average of 21.82% during 2010-2019 (see Table 1), so that it does not interfere too much with people's purchasing power can also have a positive impact on producers if inflation causes producers to earn a higher income than production costs or in other words result in increased profit for producers. Producers will be encouraged to increase their production by increasing the existing workforce's working hours and adding new workers. The increase in production activities will increase the income of workers and their families.

Furthermore, the rise in income will increase the workforce and their families' ability to better quality life. HDI indicators, namely life expectancy,

length of schooling, average length of education, and per capita expenditure, will ultimately increase the HDI Went up. These findings also support Yolanda (2017) research results.

The effect of real UMK and the same (fixed) inflation between districts/cities is thought to be due to cultural similarities between districts/cities in Central Java, namely Javanese culture. According to (Sasmojo, 2004), a society's culture can be defined as collecting information shared by all community members who follow and use it as a reference for all their activities and behavior. Thus, in general, the impact of the increase in real MSEs and inflation on people's actions and behavior in Central Java can increase HDI indicators, namely life expectancy, length of schooling expectation, the average length of schooling, and per capita expenditure, is relatively small Differ significantly between districts/cities.

Although the effect of real MSEs and inflation on HDI is the same between districts/cities in Central Java, at FEM, the differences between communities/cities in Central Java are shown by the model constant values for each district/city. Table 5 displays constant values. The constants reflect the impact of factors other than real MSEs and inflation. These factors can be in the form of district/city government conditions (regional policies, level of good governance, etc.), natural elements (geographic structure) of districts/cities that are different, and so on, which are considered constant model. Table 5 shows that almost all cities have a relatively higher ranking than districts. The HDI constants of all towns are in the top ten rankings, and four of them are even in the top four rankings. This indicates that the quality of human development tends to be better in urban areas than in districts.

Table 5. FEM Constants of Regency / Cities in Central Java

No	Regency /City	Constanta	No	Regency /City	Constanta
1	**Salatiga City**	**30,28**	18	Demak Regency	18,55
2	**Surakarta City**	**29,83**	19	Cilacap Regency	18,41
3	**Semarang City**	**29,49**	20	Pati Regency	18,12
4	**Magelang City**	**26,52**	21	Grobogan Regency	17,87
5	Sukoharjo Regency	24,29	22	Rembang Regency	17,69
6	Karanganyar Regency	23,62	23	Wonogiri Regency	17,42
7	Klaten Regency	23,07	24	Pekalongan Regency	16,82
8	**Tegal City**	**22,61**	25	Magelang Regency	16,57
9	Kudus Regency	21,68	26	Temanggung Regency	16,49
10	**Pekalongan City**	**21,68**	27	Kebumen Regency	16,45
11	Semarang Regency	21,54	28	Purbalingga Regency	16,36
12	Boyolali Regency	20,95	29	Blora Regency	16,05
13	Sragen Regency	20,78	30	Wonosobo Regency	15,69
14	Purworejo Regency	20,46	31	Batang Regency	14,81
15	Banyumas Regency	19,79	32	Tegal Regency	14,70
16	Jepara Regency	19,58	33	Banjarnegara Regency	14,27
17	Kendal Regency	18,88	34	Brebes Regency	13,05
			35	Pemalang Regency	12,99

The HDI constant value in urban areas, which tends to be higher than the HDI constant for districts, is probably due to several reasons. First, supporting infrastructure for education and health tends to develop more rapidly in urban areas than in communities. The majority of the best universities in Central Java are located in 4 cities with the highest HDI ranking (Kompas, 2019). Hospitals with relatively complete facilities are generally found in urban areas, namely in Semarang City and Surakarta City. Municipalities also have a somewhat higher ratio of service centers or personnel in the health sector per population than districts. The majority of areas with the highest per capita GRDP, high poverty line, and a low percentage of poor people are also urban areas (BPS Jateng, 2020). This means that information on human capabilities such as health, education, and skills develops more rapidly in urban areas than in districts and shows an imbalance in development between cities and communities. Second, urban areas are generally relatively less populated and more narrowly populated than regencies (BPS Jateng, 2020). This will facilitate the regional development process.

Graph 2 illustrates the HDI values for the 2010-2019 period compiled from the results of the FEM regression model with districts/cities with the highest and lowest constant values and several other selected districts/cities, namely Salatiga City (highest model constant), Pemalang Regency (lowest model stable). and GRDP per capita lowest in 2019), Kudus Regency (highest per capita GRDP in 2019), Semarang City (highest population in 2019), Brebes Regency (most impoverished people in 2019), Magelang City (smallest area and people and the least low population in 2019), Cilacap Regency (the most extensive area) (BPS Jateng, 2020)

Graph 2 shows that Kudus Regency, which has the highest GDP per capita, is higher in HDI than Pemalang Regency, which has the lowest PDRB per capita. Magelang City, which has the smallest area and the least population, has a higher HDI than Cilacap Regency, which has the largest size. In contrast, Semarang City, which has the largest population, has a higher HDI than Magelang City. In Salatiga City, with the highest HDI constant, it turns out that the HDI is also higher than the constant HDI in Pemalang Regency. This figure shows that apart from the minimum wage and the inflation rate, GDP per capita, the number of poor people, population, and area can affect the HDI of a district/city.

Graph 2. The curve of HDI Estimation of Several Regencies/Cities in Central Java
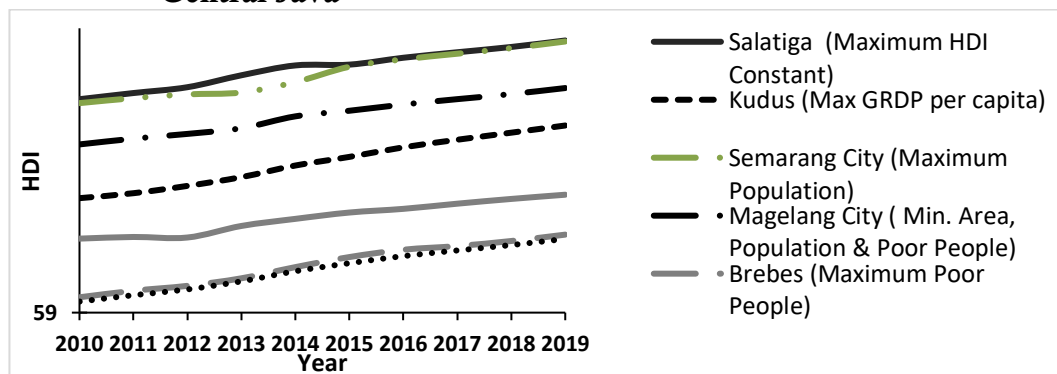
Note: (1) The graph is made based on the regression equation obtained (constant values and regression coefficients for Real MSE and Inflation). (2) The real MSE and inflation values are taken from the panel data used to compile the regression model.

PDRB per capita reflects the level of the economic welfare of the population of a city/district. In districts/cities with high per capita GRDP, most people are better able to meet the needs of a decent life, including the ability to access relatively high education and health services. This will make the HDI indicators in these districts/cities, namely life expectancy, length of schooling expectancy, average length of schooling, and per capita expenditure, higher than districts/cities with lower per capita GRDP.

The small number of poor people in a district/city indicates that most of the population in that district/city can fulfill their proper living needs, including education and health needs. This will also make HDI indicators more valuable than cities/districts with a higher number of poor people.

The description in Graph 2 also shows the total population and area of a district/city, which can impact the HDI of the district/city. Towns/districts that have large populations and large areas tend to have lower HDI. This indicates that the higher the people and the wider the district/city's location, the heavier the burden on the district/city government is to develop its district/city, especially in terms of human development. High populations and large areas are likely to make equitable development more difficult. The unequal access to education and health services will ultimately tend to lower the HDI indicators, especially in terms of life expectancy, long-schooling, and the average length of schooling, to be lower.

CONCLUSION

This study's first objective is to study the effect of the regional minimum wage and the inflation rate on HDI in Central Java. The hypotheses in this study are proven, namely that regional minimum wage has a positive impact and inflation has an effect on HDI in Central Java, where the result is the same for all districts/cities in Central Java, which is probably due to cultural similarities that affect people's behavior in Central Java. Whole. Furthermore, the effect of inflation is positive. This means that when inflation is not too high and does not interfere with people's purchasing power, the increase in inflation can boost productivity, which can increase HDI.

This study's second objective is to show the different models of the influence of regional minimum wage and inflation on HDI among districts/cities in Central Java. Because the effect of the provincial minimum wage and inflation is the same for all districts/cities in Central Java, the differences between districts/cities in Central Java are shown by differences in the intercept model of each district/city, which reflect the effects of variables other than the regional minimum wage and inflation which are considered constant. This study shows that overall, during the study period, cities in Central Java tended to have factors that made their HDI higher than those of Districts/cities with higher per capita GRDP, and fewer poor people tended to have higher HDI higher. Regions with a larger population and larger areas tend to have lower HDI. This is presumably because the high population and large

size make it more difficult for district/city governments to control the development process, incredibly inequitable development.

Based on the findings in this study, in paying attention to the welfare of workers through adjustments to the regional minimum wage every year, district/city governments in Central Java must remember to consider so that they do not encourage an excessive increase in inflation so that inflation continues to have a positive impact on HDI. Also, the Central Java provincial government must cooperate with district/city governments to reduce development disparities between districts/cities in Central Java, especially between cities and districts, for example, by encouraging a balanced ratio between education services (number of schools and number of the teaching staff) and the rate between health services (number of health service centers and number of medical personnel) to the total population of districts/cities.

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