

The Influence of HDI on the Unemployment Level in DKI Jakarta

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Abstract

This study analyzes the Effect of the Human Development Index on the Unemployment Rate in DKI Jakarta. The problems in this research are (i) How is the development of the unemployment rate in DKI Jakarta; (ii) How is the development of the Human Development Index (HDI) in DKI Jakarta; (iii) How does the Human Development Index (HDI) affect the unemployment rate in DKI Jakarta. This research was conducted in three stages. The first stage is the preparatory stage of the research, including identifying problems and inventory data. The second stage is the stage of how to analyze the data obtained, and the third stage is the stage of testing the hypothesis and drawing conclusions. From this research, the correlation between improving the quality of human resources and reducing the unemployment rate in Jakarta.

Keywords: HDI, Investment, UMK, Unemployment.

1. Introduction

Economic growth is a social transition initiative designed to increase productivity and provide employment opportunities and increase population income. Economic progress is a multidimensional mechanism that involves several structural changes in demographic, social and institutional behavior of the nation, thereby sustaining rapid economic growth, overcoming geographical inequalities, reducing poverty, and reducing unemployment rates (Todaro, 2003). Based on the labor input, Indonesia has large demand opportunity. Due to high aggregate demand, a broad population can change the market from a demand perspective through the multiplier effect. The market will move to a very large population from the production side as a source of labor. However, if there is incompatibility between demographic growth and employment growth, it can raise employment concerns, such as higher unemployment that may increase the likelihood of social poverty, violence and socio-economic phenomena.

Unemployment is a serious problem facing by developing countries like Indonesia. Unemployment is caused by the high rate of workforce turnover that is not in accordance with the large availability of employment opportunities and the small percentage of employment. It is due to the low rate of employment growth (Alghofari, 2010). The Open Unemployment Rate (TPT) is an indicator to measure unemployment. TPT scores show the unemployment. According to the Central Statistics Agency (BPS), Open unemployment consists of people who do not have a job but are looking for job, those who are not looking for job, and those who do not want a job because they find it difficult to find job even those who did not have a job but did not start working. The magnitude of the unemployment rate in Indonesia from 2011-2015 can be seen in Figure 1.1 below.

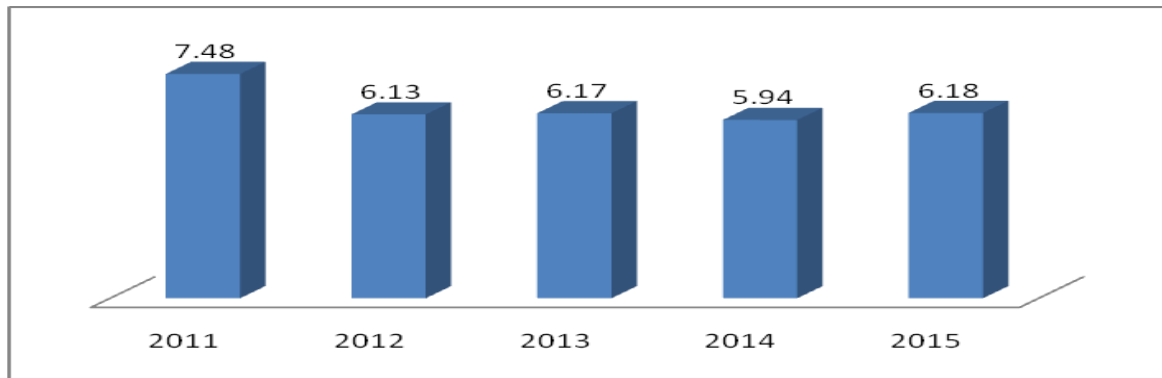


Figure 1. Unemployment Level in Indonesia in 2011-2015 in Percentage

Figure 1 shows that the unemployment rate in Indonesia fluctuates every year. The highest unemployment rate in Indonesia during 2011-2015 occurred in 2011 at 7.48%, then decreased to 6.13% in 2012, but in 2015 it increased to 6.18%. The unemployment issue does not only occur at the national level. In the Java Island as the center of economic growth and as the center of an industrial area should be more able to absorb labor that may reduce the high rate of unemployment. It can be seen from the large contribution of the Javanese industry that is able to contribute 57.99% of the national GDP. Moreover, with the contribution of 29.87% to regional GRDP, the industry in Java Island will become the world leader. Other regions such as Sumatra and Kalimantan Island only contribute 23.81% and 8.67% have not been able to contribute much. In contrast to other islands in Central and Eastern Indonesia, although their territory and natural potential are very large, their contribution to the national economy is still very limited. (Figure 2).

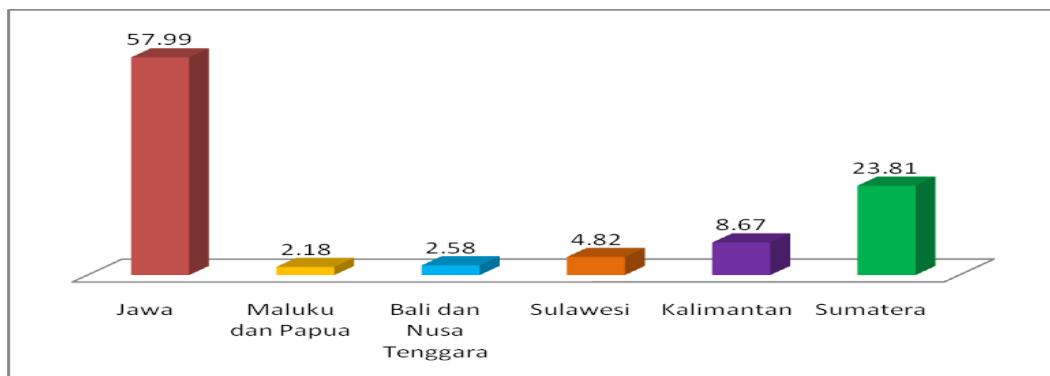


Figure 2. Contribution of the Industrial Sector to National GDP in 2015 in percent

DKI Jakarta has an important role in encouraging growth and employment in Indonesia. It is because DKI Jakarta is the center of Indonesia economic growth. However, as shown in Table 1 and Figure 3, DKI Jakarta has high unemployment rate during the 2011-2015 period.

Table 1. Unemployment Level in Java Island (Year 2011-2015)

Province	Year					Average
	2011	2012	2013	2014	2015	
DKI Jakarta	11.69	9.67	8.63	8.47	7.23	9.14
West Java	9.96	9.08	9.16	8.45	8.72	9.07
Central Java	7.07	5.61	6.01	5.68	4.99	5.87
DI Yogyakarta	4.39	3.90	3.24	3.33	4.07	3.79
East Java	5.38	4.11	4.30	4.19	4.47	4.49
Banten	13.74	9.94	9.54	9.07	9.55	10.37

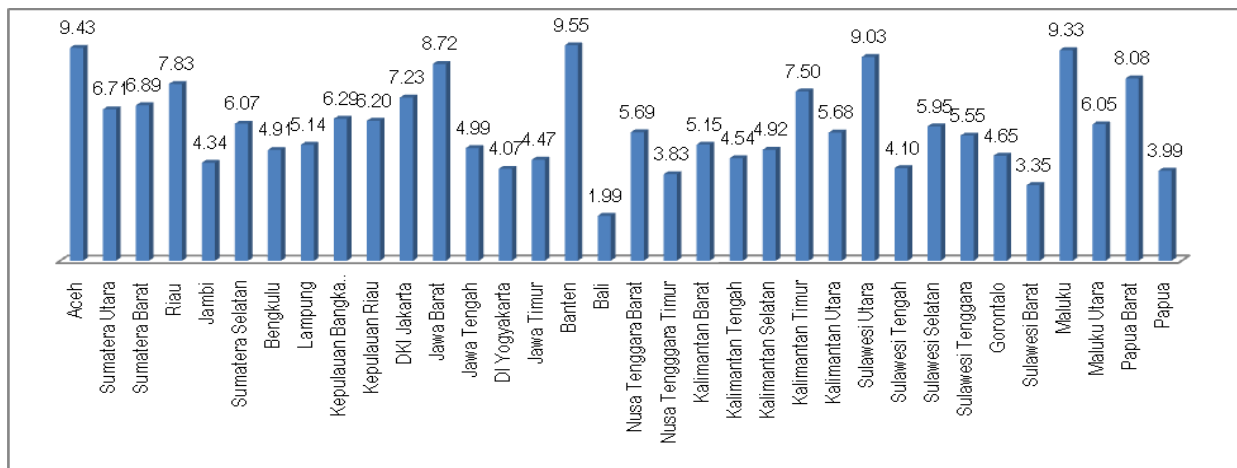


Figure 2. Unemployment Level based on Province in Indonesia year 2015 in percentage

The high unemployment rate is due to high population growth. In principle, there are two aspects of population increase. The large population becomes the capital to achieve the domestic growth target. However, through inadequate legislation, large populations, especially in the labor force, can create significant population problems. (Wahyuni, 2005). Higher population growth will not fill the available jobs in the area if it is not supported by qualified human resources (HR). Human performance can be calculated by the HDI level. HDI is a number that calculates human growth based on some fundamental components of life quality that can affect a person productivity. The three-dimensional approach refers to HDI. Longevity, intelligence, and a good standard of living are the aspects (BPS, 2015). In measuring the health dimension, life expectancy is used, then to measure the knowledge dimension, the indicator for the school expectancy rate (BPS, 2015). As for measuring the dimensions of decent living, an indicator of people purchasing power for several basic needs is used as seen from the average amount of per capita expenditure as an income approach that represents development achievements to be able to live properly.

According to (Napitulu, 2007), The HDI includes three important aspects of growth namely those related to meet the need for a long and stable life, obtaining information, and having access to livelihood services. The higher the welfare of the workforce, the higher the education and the better life, the bigger and better the results of the work. Conversely, the worse the situation of the workers, the results are worse or less consistent. This describes that the three important factors of human growth are metrics to determine the output of workers who are willing to work so that the country's high unemployment rate can be minimized. The development of the HDI value in Java in 2011-2015 is shown in Table 2 below:

Table 2.HDI in Java Islan (Year 2011-2015)

Province	Year					Average
	2011	2012	2013	2014	2015	
DKI Jakarta	76.98	77.53	78.08	78.39	78.99	77.99
West Java	66.67	67.32	68.25	68.80	69.50	68.11
Central Java	66.64	67.21	68.02	68.78	69.49	68.03
DI Yogyakarta	75.93	76.15	76.44	76.81	77.59	76.58
East Java	66.06	66.74	67.55	68.14	68.95	67.49
Banten	68.22	68.92	69.47	69.89	70.27	69.35

Based on Table 2, the HDI of six provinces in Java Island continued to increase during 2011-2015. DKI Jakarta had the highest HDI namely 77.99. This shows that the quality of human

development in DKI Jakarta was the best compared to others. However, as stated above, the unemployment rate during 2011-2015 was quite high. A study by (Burhanudin, 2015) on the relationship between HDI and unemployment rate. It was concluded that HDI had a significant and negative effect on the unemployment rate. This explains that the higher the HDI number in a region, the lower the unemployment rate will be and vice versa, if the HDI is low, it will have an impact on the high unemployment rate in that region.

According to current growth theory, the government cultivates production and development of human resources to increase competitiveness. Investment in education hopes that the efficiency of human resources will increase, as shown by growing awareness and skills. High qualitative efficiency, knowledge and skills will also increase job competitiveness. By recruiting staff with high efficiency, businesses will produce better results, which will lower the unemployment rate by absorbing more workers. (Todaro, 2000).

The relationship between HDI and unemployment rate was explained by (Todaro, 2000), that human development is the goal of development itself. Human growth plays a key role in influencing the ability of the state to absorb new technology to build capacity to generate jobs in order to reduce unemployment and, ultimately, create economic growth and prosperity. This shows that human growth, which is calculated using the HDI value, has an impact on the low unemployment rate of a region. In addition to HDI, other economic metrics related to the unemployment rate are expenditures and district/city minimum wages (UMK). If a country has expenditure as one of the components of economic development, it will require a reduction in the unemployment rate followed by the wage rate. If the income level increases, the unemployment rate will also decrease. Meanwhile, the unemployment rate will be associated with a high inflation rate (Sukirno, 2008).

A study by (Sisnita, 2017) entitled "analysis of factors affecting the open unemployment rate in Lampung Province" concluded that the total population and HDI had a significant effect while the minimum wage had no significant effect on open unemployment in Lampung Province in 2009-2015. A study by (Kristiyana, 2011) concluded that the inflation rate had a significant effect in a negative direction, while district/city minimum wages and economic growth had a positive and significant effect on open unemployment in Central Java Province. However, a study by (Trimurti & Komalasari, 2014) entitled "Determinants of Unemployment: Empirical Evidences from 7 Province in Indonesia" showed different results a study by Kristiyana that economic growth and minimum wages did not have a significant effect on unemployment in Indonesia in 2004- 2012.

Based on the high unemployment rate in DKI Jakarta Province when compared to the surrounding regions in Java Island during 2011-2015 even in 2015, DKI Jakarta was in the first position at the national level at 9.55% while the quality of human resources in DKI Jakarta Province as measured using HDI, during 2011-2015 it occupied the third highest position when compared to the surrounding regions in Java Island and there were many factors affecting the unemployment rate, so this study used HDI as the main variable affecting the unemployment rate while investment and district/city minimum wages (UMK) as control variable affecting the unemployment rate.

2. Literature Review

Many studies on HDI, investment, minimum wages, and unemployment rates have been carried out, namely:

Table 3. Previous Studies

No	Author	Title	Analysis Method	Results
1.	Muhammad Burhanudin (2015)	The Influence of PDRB, District/City Minimum Wages and HDI on Unemployment Rate	Panel Data Analysis	The results showed that the regional GRDP indicator has a positive and small effect, the district / city minimum wages is negative, while the HDI has a large and negative effect on the level of employment.
2.	Yeyen Komalasari and Christimulia Purnama Trimurti (2014)	Determinants of Unemployment: Empirical Evidences From 7 Province in Indonesia	OLS (Ordinary Least Square)	The study concluded that economic growth did not have a substantial impact on wages, the inflation variable had a substantial impact on unemployment, and the increase in minimum wages in 2004-2012 on unemployment in Indonesia had no major impact.
3.	Muhammad Aqil et al (2014)	Determinants of Unemployment in Pakistan	Multiple Regression Analysis	The results showed that regional GDP growth and inflation do not have a major effect on unemployment in Pakistan. On the other hand, foreign direct investment (FDI) and population growth have resulted in unemployment in Pakistan in an adverse direction.
4.	Muhammad Nurcholis (2014)	The Influence of Economic Growth, Minimum Wages and HDI on Unemployment Rate in East Java Province 2008-2014	Panel Data Regression Analysis	The results showed that there was a significant negative effect on the unemployment rate, while HDI had an optimistic and important effect on the unemployment rate in East Java during 2008-2014.
5.	Rahmadin et al (2013)	The Influence of Investment and Economic Growth on Unemployment Rate in Aceh Province	Multiple Regression Analysis	The results showed that variable investment had a big enough effect on the unemployment rate and economic growth had a serious negative impact on the unemployment rate in Aceh Province.
6.	Kristiyana (2011)	The Influence of District / City Minimum Wages (UMK), Economic Growth, and Inflation on Open Unemployment in Central Java 2004-2009	OLS (Ordinary Least Square)	The results showed that the District / City Minimum Wages variable and economic growth had an important and beneficial effect. On the other hand, inflation had a negative and large impact on open unemployment in Central Java Province between 2004 and 2009.

Conceptual framework

The conceptual framework describes the relationship of one variable to another in terms of their combined effect on the problem. Based on the unemployment theories previously explained, this research will take several variables that can affect the unemployment rate, including HDI, investment, and District / City Minimum Wages (UMK) against the unemployment rate in DKI Jakarta Province. The conceptual framework in this study can be seen in Figure 2.6 below:

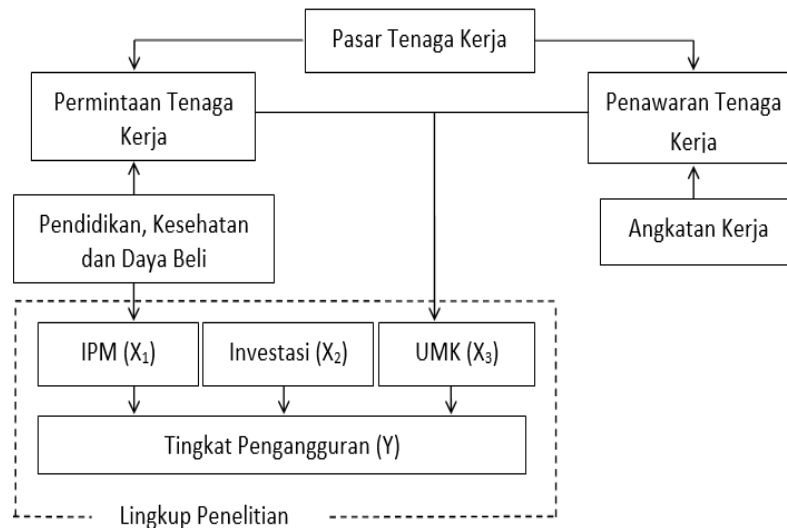


Figure 3. Conceptual Framework

In the labor market, there are curves for the supply of labor and demand for labor. The labor supply curve is influenced by the large number of labor force, while the labor demand curve is influenced by education, health and purchasing power which are indicators to measure the HDI value of a region which can affect the high and low unemployment rates. In addition to the HDI value, there are other variables that can affect the unemployment rate, including investment and the applicable district / city minimum wage.

HDI is related to high unemployment, considering that queuing efficiency will be affected by an increase in the quality of human resources which is determined by a high HDI value. An increase in output causes a decrease in the manufacturing price per unit of product and a decrease in the price per unit commodity. If the price of goods falls, the demand for goods will increase, and employers will be encouraged to increase the demand for jobs and thus reduce the unemployment rate. (Todaro, 2000).

Based on the Harrod-Domar theory, investment not only creates demand but also increases production capacity. The increase in production will create job opportunities which in turn will increase the demand for labor. According to (Sukirno, 2008) Investment activities allow people to continuously increase economic activity and employment opportunities, increasing aggregate demand.

According to (Mankiw, 2003), The minimum wage policy is based on the theory of wage rigidity, where wages are not flexible so that it can increase production costs, therefore companies will choose to reduce labor demand and ultimately increase unemployment. Based on the wage rigidity theory, it can be concluded that the minimum wage policy has a positive relationship with the unemployment rate.

Hypothesis

Based on the description of the research conceptual framework, the hypotheses are as follows:

1. Based on the theory and results of previous study conducted by (Burhanudin, 2015), it is explained that a qualified workforce can work more productively so that employers will choose workers who have quality resources. On this basis, it is believed that HDI will reduce the unemployment rate in this analysis.
2. Investments have an important role in creating jobs by increasing the investment in capital goods, thus growing potential output, and creating jobs that can reduce unemployment. (Aqil, 2014). This analysis assumes that expenditure is disadvantageous at the unemployment rate.

3. The government's minimum wage policy will raise production costs for businesses. If the increase in salary and costs is sufficient, the quality of spending can be reduced so that the employer follows a job reduction strategy. (Kristiyana, 2011). Focusing on that, the positive impact on the unemployment rate is assumed to be the District / City Minimum Wages indicator.

It is believed that the HDI investment factor and the District / City Minimum Wages jointly affect the unemployment rate

3. Methods

Operationalization of Variables

In this study, there were four variables to be analyzed, namely the unemployment rate, HDI, investment and district / city minimum wages. Operational analysis of variables in this study is presented in Table 4 below:

Table 4. Operationalization of Variables

No	Variable	Concept	Dimension	Indicator	Measure	Scale
1.	Unemployment	Workers who do not or who want a job and have not been able to find it	Non-Financial	Open unemployment rate	Percentage	Ratio
2.	HDI	Human metrics are used to assess performance in human quality initiatives	Non-Financial	Good health, education and life	Index	Ratio
3.	Investment	Investments in manufacturing infrastructure costs or costs to expand production capacity in the economy for goods and services	Non-Financial	Company Investment Expenses	Rupiah	Ratio
4.	District/City Minimum Wages (UMK)	Minimum requirements for suppliers to pay salaries to company employees	Financial	District/City Minimum Wages (UMK)	Rupiah	Ratio

Data Collection Method

Literature analysis was carried out to collect the evidence in this report. The samples included in the analysis were districts / cities in Banten Province. The tool used was purposive sample, namely the procedure for determining the test sample that aimed to make the data collected more representative. (Sugiyono, 2010). The technique of determining the sample with the consideration of following the calculation of the new method in obtaining the HDI value, starting from 2011-2015.

Data Collection Procedure

This study used secondary data obtained from the internet through the official website published, namely Indonesia and DKI Jakarta, as well as supporting data obtained from reference journals. Data obtained from the BPS Indonesia and DKI Jakarta websites include:

1. Open unemployment rate (TPT) by regencies / cities in DKI Jakarta, 2015-2019.
2. TPT data by province in Indonesia, 2015-2019.
3. IPM data by regencies / cities in DKI Jakarta, 2015-2019.
4. Data on investment realization by regency / city in DKI Jakarta, 2015-2019.
5. Applicable UMK wage data by regency / city in DKI Jakarta in 2015-2019.
6. GDP data based on constant 2010 prices according to districts / cities in DKI Jakarta, 2015-2019.

7. GDP data based on prevailing prices by regencies / cities in DKI Jakarta, 2015-2019.

The data analysis method in this research used panel data method. Data processing and analysis were carried out using Microsoft Excel and Eviews 7 programs.

Panel Data Analysis

Panel data analysis or pooled data is a combination of time series data and cross section data. There are many reasons why panel data is better used in regression models than time series or cross section data. According to (Juanda, 2009) the advantages of panel data include:

1. By having individual variables, panel data will specifically explain the heterogeneity of the individuals.
2. Panel data is used to assess and model with nuanced behavior because of the capacity to monitor variability in turn.
3. Observations of replicated cross-sections are based on panel results thus dynamic change monitoring panels are suitable for use.
4. Many measurements have consequences for more informative, more diverse data, and lower collinearity and higher degrees of freedom to provide a more effective estimate of the effect.
5. Complex behavior models can be analyzed with panel results.
6. To eliminate bias arising from individual data collection, panel data should be used

4. Results and Discussion

Description of Unemployment Level in Jakarta

Unemployment is the result of the economy inability to absorb labor, it is because the mismatch between the ability of workers and the needs in the labor market. Unemployment can also reflect the economic performance of a country or region. High unemployment indicates poor economic performance, especially in the labor market. The development of the market for goods and services will result the balance in the labor market.

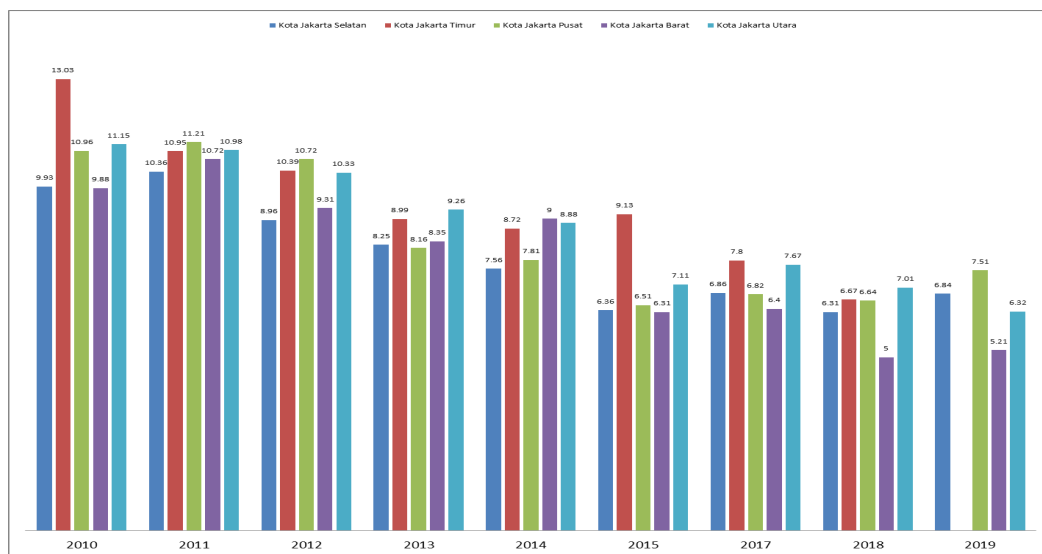


Figure 4. DKI Jakarta Open Unemployment Rate by City / Regency in 2010 – 2019

Figure 4. shows the trend of decreasing unemployment rate in DKI Jakarta. In the past 10 years has shown a good performance in the economy of DKI Jakarta. In 2019, West Jakarta City had the lowest unemployment rate, while Central Jakarta had a relatively high unemployment rate.

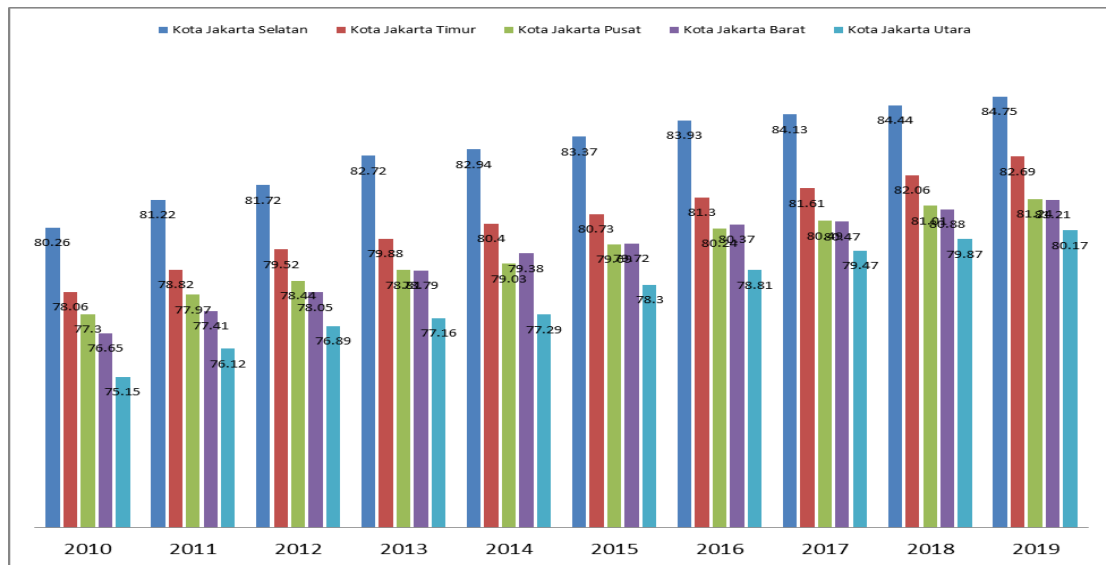


Figure 5. HDI Level by City / Regency in Jakarta in 2010 - 2019

The decrease of the unemployment rate above is also in line with the increase in HDI in DKI Jakarta. As shown in Figure 5., City HDI had continued to increase over the past 10 years. The city of South Jakarta had the highest HDI level compared to other cities, followed by the City of East Jakarta. As stated above, development performance will coincide with the decrease of unemployment rate. However, of course it is necessary to test quantitatively how big the role or relationship between development performance and unemployment.

Estimation of the Effect of HDI on Unemployment Rate in DKI Jakarta

The following shows the estimation results of the effect of HDI and other variables (control variables) on the unemployment rate. The control variables in this research model are investment and the ratio of PROVINCIAL MINIMUM WAGE (UMP) to GRDP (RUP). Do not use the UMP value directly because the city / regency minimum wage in DKI Jakarta is based on the UMP decided by the Governor, so as to see the relative value of each city, the UMP value compared to the GRDP of each city. The method used in the estimation is the econometric method for panel data. The software used is STATA data processing software. The advantage of this software is that it can provide a precise method in estimating the panel data econometric method, because in this method there are several estimation models that must be selected.

Table 5. the Effect of HDI on Unemployment in DKI Jakarta Result

Random-effects GLS regression		Number of obs	=	44	
Group variable: id_prov		Number of groups	=	5	
R-sq: within	= 0.8539	Obs per group: min	=	8	
between	= 0.6995	avg	=	8.8	
overall	= 0.7413	max	=	9	
corr(u_i, X) = 0 (assumed)		Wald chi2(3)	=	186.08	
		Prob > chi2	=	0.0000	

tpt	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
IPM	-.2749712	.1352072	-2.03	0.042	-.5399724 - .0099699
loginvestasi	-8.044674	1.818686	-4.42	0.000	-11.60923 -4.480114
RUP	-18.39335	49.64385	-0.37	0.711	-115.6935 78.9068
_cons	180.6875	28.70979	6.29	0.000	124.4173 236.9576

sigma_u	.52383079				
sigma_e	.74683498				
rho	.32974224 (fraction of variance due to u_i)				

Table 5 shows that the HDI coefficient was -0.275, the investment coefficient was -8.045, and the RUP coefficient was -18.393. Of the three variables that significantly affected the unemployment rate were HDI and investment, while RUP did not have a significant effect on the unemployment rate. The HDI and investment coefficients had a negative sign, meaning that an increase in HDI and investment will reduce the unemployment rate. The HDI coefficient of -0.275 means that if the HDI index increases by 1 point, unemployment will decrease by 0.275 percent. Meanwhile, if investment increases by 1 percent, the unemployment rate will decrease by around 8.045 percent from the existing unemployment rate.

Multicollinearity Test

Multicollinearity is a condition in with linear correlation between the independent variables. In this study, to see the linear correlation, to find VIF value of each variable. If the VIF value of a variable is greater than 10, then with this variable in is a multicollinearity problem.

Table 6. VIF Value for Multicollinearity Test

Variable	VIF	1/VIF
loginvestasi	2.22	0.450410
RUP	1.94	0.514678
IPM	1.41	0.707512
Mean VIF	1.86	

Table 6. This indicates that none of the variables has a VIF value > 10. This indicates that the multicollinearity problem in this research model is considered non-existent.

Heteroscedasticity Test

Heteroscedasticity is a condition where the variation of the error term produced by the heterogenous research model. This condition will result in inaccuracy in the significance of each variable. To test the heteroscedasticity problem, this study will use the Breusch-Pagan / Cook-Weisberg test. The test will show the value of Chi Square, if it is significant, it means that there is heteroscedasticity and vice versa, if it is not significant then it is considered that there is no heteroscedasticity problem. By using STATA software, the results of the Breusch-Pagan / Cook-Weisberg test are as follows.

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Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of tpt

chi2(1)      =      0.77
Prob > chi2  =      0.3797
    
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Figure 6. The results of Breusch-Pagan / Cook-Weisberg Test

The results of data processing on the Breusch-Pagan / Cook-Weisberg test showed that the Chi2 value was not significant at the 5 percent error level. This shows that Ho was accepted, it means that the error term in this study had constant variance. Therefore, the significance of the above research regression estimation results was reliable.

Autocorrelation Test

Autocorrelation is a condition where the resulting error term is correlated between time (time series). This condition will result in inaccuracy of each variable insignificance. To test the heteroscedasticity problem, this study will use the Wooldridge test. The test will show the value of F value where if it is significant, it means that there is autocorrelation and vice versa if it is not significant then it is considered that there is no heteroscedasticity problem. By using STATA software, the results of the Wooldridge test are as follows.

```
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
      F(1, 4)          = 0.038
      Prob > F         = 0.8542
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Figure 6. Results of Wooldridge Test

The results of data processing on the Wooldridge test showed that the Fcount was not significant at the 5 % error level. This showed that Ho was accepted, there was no first-order autocorrelation in the error term in this study. Therefore, the significance of the above research regression estimation results was reliable.

Discussion

The estimation results above showed that HDI had a negative effect on the unemployment rate. This may imply that if there was an increase in HDI, it will reduce the unemployment rate in DKI Jakarta. In theory, the increase in HDI will reduce unemployment, because the increased compatibility between job vacancies and the skills of workers who are looking for work and will also increase productivity. As the theory explained by Todaro (2000) that human productivity will increase with increasing human resource growth. Education can increase the efficiency of human resources by increasing skills and skills to increase productivity. Increased productivity can have an impact on job prospects, one of which is to minimize production costs per unit of commodity. A decrease in the manufacturing price per unit of product will lower the price per unit of the commodity. If commodity prices fall, demand for commodities will increase, thus encouraging business actors to increase demand for labor to mitigate unemployment by absorbing more employment opportunities.

The results of this study were in line with research conducted by (Burhanudin, 2015) that HDI may reduce the unemployment rate. However, in contrast to the results of research conducted by (Sisnita, 2017), HDI had a positive effect on the unemployment rate in Lampung Province for the 2009-2015 period. The difference in the results (Sisnita, 2017) is supposed because the Lampung Province job vacancies are not in line with improving the quality of human resources or improving the quality of human resources does not necessarily encourage new job vacancies. The people of Lampung Province who have graduated from university may prefer to take advantage and get better jobs outside of Lampung Province

5. Conclusion

Based on the results and discussion above, the conclusions of this study are Generally, the unemployment trend in DKI Jakarta had decreased over the last ten years. The quality of human resources in DKI Jakarta also increased. The quality of human resources is able to reduce the unemployment rate in DKI Jakarta that shows the increase of the quality of human resources in this province that is in line with developments in labor market quality.

Based on the description above, there are several things that will be recommended in this study Quantitatively, the influence of HDI is still relatively small, it is necessary to improve the suitability of the quality of human resources with job vacancies or job vacancies in DKI Jakarta following the quality of existing human resources. A more comprehensive research is needed, namely the extent to that the IMP can encourage job opportunities in production sectors in DKI Jakarta.

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