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Analysis of the Human Development Index in Jambi City

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Abstract*— HDI summarizes three welfare variables in a single composite index. These variables include: longevity and living a healthy life (measured by life expectancy), education (measured by the level of adult literacy and the level of enrollment in primary, secondary and high school) and having a decent standard of living (measured from purchasing power / PPP parity, income). Basically the condition of HDI, in the city of Jambi every year has always experienced an increase, especially in the years 2012-2017. Where in 2012 73.78% and this always increased until 2017 76.74 percent this figure shows that the Human Development Index in Jambi City has always increased. But the increase in AHH increases every year is not so significant where in 2012 it amounted to 72.29 years while in 2017 72.33 years, and AMH increase every year is also not so significant where in 2012 99.07 percent and in 2017 99, 31 percent where the annual increase is an average of 0.04 percent per year, while HLS in Jambi city increases by an average of 0.17 years, RLS in Jambi City in the period of 2012 to 2017, an average increase of 0.06 years per year. The economic growth of the city of Jambi in the period of 2012-2017 is an annual average of 7.09 percent.

***Keywords*— Human Development Index, Gross Domestic Product, Education, Employment, Health**

I. INTRODUCTION

Karl Heinrich Marx (1818-1883) who was one of the thinkers of the socialist school, where he put forward some of his thoughts regarding his views which prioritized the welfare of the people and his view of efforts to eliminate differences in classes in society (Natsir, 2010: 59). Shumpeter (1942) also stated in his book Capitalism, Socialism and Democracy, where he argued that development is a process that involves many complex elements in society and is in a certain historical context (Natsir, 2010: 105).

Robert Malthus (1766-1834) which was the forerunner to the birth of the modern population theory. Where in his theory suggests that it is important to have control in the rate of population growth, this is based on the assumption that there is a mismatch between the rate of population growth and the growth rate of foodstuffs. So that it can cause several problems in economic development for a country. One other reason on the basis of Malthus's theory is that it relates to the existence of productive and unproductive populations, if in a country has a fairly rapid population growth rate and is not balanced by the existence of a productive population rate, this will cause greater poverty rates. that will occur in a country and will cause inequality in income distribution.

In connection with this, it brings us to the understanding that policies to improve the quality of human resources, including policies issued in the government budget, especially those intended to finance welfare activities. As stated by Sanusi and Aspa (2012: 43)

Harmoyo et al (2012: 20) in the UK the expenditure structure has the following balances: 51.2% social services, 15% economic services, 7.7% environmental services, 10.2% defense, 8.2% government debt payments, and services other services 7.8%. Whereas 50% more of the state budget allocated to finance the detailed activities are as follows: 18% social security, 13% education, 10% health, 8% housing, milk and school meals 1%, personal social activities 2.5%.

Sharif (2012: 303-304) in his book "Islamic Economic System" concerning fulfilling the minimum standard of living for every citizen, is seen based on the following characteristics: (1) provision of social security for all people to accidents, illness, unemployment, old age, and defects, (2) fair and equitable social justice or income distribution, (3) the provision of free or subsidized education and health services by the state, (4) maintaining the full employment level for the workforce by making the state fully responsible for the availability of employment for those who are able to work, (5) public ownership of public facilities so that they can be given to low-income groups at subsidized prices.

HDI is a measure to see the impact of regional development performance that has a very broad dimension, because it shows the quality of the population of a region in terms of life expectancy, education and decent living standards (Melliana and Zain, 2013). HDI is a policy tool (Spangenberg 2015) which is a comprehensive result of various factors (Niu et al., 2013). HDI is present as a measuring tool capable of describing the overall level of welfare because it can describe economic and non-economic factors (Aji et al., 2014).

Index (Xi) = (Xi - Xmin) / (Xmaks - Xmin)

Where :

Xi: The first indicator of the component of human development i = 1,2,3

Xmin: Xi minimum value

Xmax: Maximum value of Xi

The second stage of the HDI calculation is calculating the average of each Xi index.

HDI = (Xi index + X2 index + X3 index) / 3

Where :

X1: Life expectancy index

X2: Education level index

X3: decent standard of living index

The third stage is calculating the Shortfall reduction, which is used to measure the speed of development of the HDI value in a given time period.

r = {(IPMt + n - IPMt) / (ideal HDI - IPMt)} 1 / n

Where :

IPMt: HDI in year t

IPMt + n: HDI in year t + n

Ideal HDI: 100.

II. Methods

The study was conducted in Jambi city, namely in 2018 by using data found from the official institution of the BPS city of Jambi by analyzing secondary data over the past six years namely 2012 to 2017 with a population in 2017 591,134 people. This research is divided into two typologies in determining the variables used as the variables analyzed. The first typology is the Human Development Index (HDI), maternal mortality rate, per capita GRDP, Primary School Participation Rate (APS). While the second typology is the Human Development Index (HDI), Population, Middle School School Participation Rate (APS), household access to drinking water. The types and sources of data used in this study used secondary data, namely: Human Development Index (HDI) data obtained and processed from Jambi City BPS, maternal mortality, per capita GRDP, primary school, junior high school, population. The analysis used in this study is multiple linear regression analysis using SPSS statistical software. 20. Data taken is from 2012 to 2017.

Winarno (2015) states that one of the assumptions in statistical analysis is normally distributed data, Winarno (2015) describes multicollinearity, namely the existence of linear relationships between independent variables. In this analysis also uses the classic assumption test, namely the normality test, multicollinearity. Expressed in the model as follows: Yit = α + β'Xit + eit

A. *Test of Goodness of Fit*

Evaluation of estimation models based on statistical criteria is carried out by conducting several tests which include the following:

1) *Determination Coefficient (R-square)*

Winarno (2015) states that the model that has been analyzed must be tested for its quality by calculating the coefficient of determination represented by R2 (R-square). R2 value is always between 0 and 1. The greater the value of R2, the better the quality of the model, because the more it can explain the relationship between dependent and independent variables.

2) *F-Statistics Test*

F test statistics follow the F distribution with free degrees as much (k-1) for numerator and (n-k) for denumerator, where k is the number of parameters including intercept / constant, while n is the number of observations (Widarjono, 2007 in Pratowo, 2012). A large F-statistic value is better than a low F-Statistic value. The Prob value (F-Statistics) is the level of marginal significance of F-Statistics. By using the testing hypothesis as follows: H0: β1 = β2 = ... = βk = 0 H1: at least one βj is not equal to zero. Reject H0 if F-Statistics> F α (k-1, nt-n-k) or Prob (F-Statistics) <α. If H0 is rejected, then it means that with a confidence level of 1- α we can conclude that the independent variables used in the model together significantly influence the dependent variable.

3) *Statistic t test*

The Statistical t-test is used to determine whether the independent variables partially have a significant effect on the dependent variable. By using the testing hypothesis as follows: H0: β j = 0 H1: β j ≠ 0

III. Results and Discussions

Regression models for each typology

Typology I:

Yit = α it + β1X1it + β2X2it + β3X3it + eit

Where:

Yit = human development index (HDI) in the tenth year of the city

X1 = maternal death (soul) X2 = pdrb / capita (rupiah)

X3 = elementary school aps (%)

α it = constant

Typology II

Yit = α it + β1X1it + β2X2it + β3X3it + eit

Where:

Yit = human development index (HDI) in the tenth year of the city

X1 = household access to drinking water (soul) X2 = population (soul)

X3 = aps Junior (%)

α it = constant

A. *First typology estimate*

Maternal mortality gives birth to a VIF value of 2,797, pdrb per capita 4,482 and SD APS 7,752 all VIF values smaller than 10 indicate the first typology estimation of each variable does not show multicollinearity disorders or is free of symptoms of multicollinearity. Significant value of maternal mortality 0.932, GDP per capita 1,000, APS SD 0.650 the value of all variables greater than 0.05 indicates all variables are normally distributed.

This adjusted RSquare is 0.998 or equal to 99.8 percent, indicating that the ability of the independent variable explains the dependent variable is 99.8 percent while 0.2 percent is explained by other variables. Simultaneously the independent variables (maternal mortality, per capita per capita, aps sd) have a significant effect on the dependent variable ipm 864,770> 6.94. partially the maternal mortality gave birth to 0.002 <2.13585, per capita per capita 0.070 <2.13585 had a non-significant effect, while the aps to 2.431> 2.13585 this showed primary school enrollment rates had a significant (positive) effect on the human development index.

B. Second typology estimate

The use of clean water is VIF value of 2.052, population of 1.594 and APS Junior High School 1.664 are all VIF values smaller than 10, indicating the second typology estimate of each variable (clean water, population, aps junior high school) does not show multicollinearity or is free from multicollinearity symptoms. Significant value of clean water use 0.998, population 0.964, APS Junior 0.910 value of all variables greater than 0.05 indicates all variables are normally distributed.

Adjusted RSquare 0.999 or equal to 99.9 percent shows that the ability of independent variables (clean water, population, aps smp) is able to explain the dependent variable (ipm) of 99.9 percent while 0.1 percent is explained by other variables. Simultaneously the independent variables (use of clean water, population, aps junior high school) have a significant influence on the dependent variable ipm 1450,644> 6.94. partial use of clean water 0.071 <2.13585, population 0.448 <2.13585 has a non-significant effect, aps junior high 0.219 2.431 <2.13585 this shows all the independent variables (use of clean water, population and aps junior high school) do not have a significant effect.

IV. CONCLUSIONS

Based on the results of the above research by using several independent variables in determining the factors that affect the human development index in Jambi City, it is known simultaneously and farsial influences the human development index in Jambi City using both the first typology and the second typology. It is recommended to increase the index of human development in Jambi city school participation rates more dominantly affect the human development index.

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Appendix 1 First typology estimate

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-3.514	1.770		-1.986	.297					
	Maternal death	.002	.001	.080	2.424	.249	-.494	.924	.048	.357	2.797
	Gdp percapita	.070	.003	.912	21.936	.029	.998	.999	.431	.223	4.482
	elementary school enrollment rates	2.431	.895	.148	2.717	.225	.868	.938	.053	.129	7.752

a. Dependent Variable: HDI

One-Sample Kolmogorov-Smirnov Test

		ipm	kematianibu	pdrbperkapita	apssd
N		5	5	5	5
Normal Parameters[a,b]	Mean	1.8780	.7666	7.5692	1.9994
	Std. Deviation	.00577	.21648	.07524	.00035
Most Extreme Differences	Absolute	.139	.242	.159	.329
	Positive	.139	.193	.127	.329
	Negative	-.137	-.242	-.159	-.174
Kolmogorov-Smirnov Z		.311	.540	.357	.736
Asymp. Sig. (2-tailed)		1.000	.932	1.000	.650

a. Test distribution is Normal.

b. Calculated from data.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	1.000[a]	1.000	.998	.00023	1.000	864.770	3	1	.025

a. Predictors: (Constant), apssd, kematianibu, pdrbperkapita

Appendix 2 Second typology estimate

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.443	.047		-9.467	.067		
	Clean watir	.071	.004	.437	20.137	.032	.487	2.052

population	.448	.009	.924	48.282	.013	.627	1.594
junior high school enrollment rate	.219	.008	.528	27.008	.024	.601	1.664

a. Dependent Variable: HDI

One-Sample Kolmogorov-Smirnov Test

		ipm	airbersih	penduduk	apssmp
N		5	5	5	5
Normal Parameters[a,b]	Mean	1.8780	4.8168	3.4517	1.9764
	Std. Deviation	.00577	.03537	.01192	.01395
Most Extreme Differences	Absolute	.139	.175	.224	.252
	Positive	.139	.175	.224	.252
	Negative	-.137	-.155	-.205	-.155
Kolmogorov-Smirnov Z		.311	.392	.500	.562
Asymp. Sig. (2-tailed)		1.000	.998	.964	.910

a. Test distribution is Normal.

b. Calculated from data.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	1.000	.999	.00018

a. Predictors: (Constant), junior high school enrollment rate

, population, clean water

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	3	.000	1450.644	.019[b]
	Residual	.000	1	.000		
	Total	.000	4			

a. Dependent Variable: ipm

b. Predictors: (Constant), junior high school enrollment rate

, population, clean water