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Determinants of the Human Development Index (HDI) in Indonesia, 2014 - 2021

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A B S T R A C T

Human development is a process of community change in improving the welfare and prosperity of their lives which includes aspects of health, education, economic and social aspects. This study aims to analyze the effect of protein intake, early marriage, health and educational facilities, unemployment, and MSMEs on HDI in Indonesia. The OLS and FEM model are used to estimate Indonesia's 34 provinces panel data set from 2014 in 2021. The study results show the life expectancy was affected by protein consumption, number of hospitals, and health centers. The average length of schooling is affected by the number of elementary, high school, and vocational schools and is influenced by the number of elementary and vocational school teachers. Gross Domestic Regional Product (GRDP) per capita is affected by unemployment rate and MSMEs. The increasing of protein consumption, early marriages evidences, number of health care provision, number of school are correlated on HDI. Furthermore, HDI is also affectef by the reduction of unemployment and number of MSMEs.

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INTRODUCTION

The Human Development Index (HDI) is one indicator of quality of life based on three main indicators. These indicators include quality of health, education and a decent life (UNDP, 2020). HDI is an indicator of the quality of a country's welfare, including the quality of human resources which is considered a better indicator of welfare compared to Gross Domestic Regional Product (GRDP), etc (Sofilda, et al 2015; George, 2016). The human development index is measured in the range of 1 to 100 points. A score of 1 means a very low HDI level, and a score of 100 indicates a very good HDI level. In 2020, Indonesia's HDI is 71.94 (BPS, 2021). This number explains that Indonesia's HDI is in the upper middle range, while Norway's HDI is 95.7 (UNDP, 2020).

Several previous studies have identified factors that influence local HDI levels. The first factor is the health aspect (Desai et al 2010). The nutritional status of the community as measured by low protein intake can increase the risk of malnutrition and child mortality (Gauttam, 2015). Adequate protein intake plays an important role in optimal human growth, development and health (Paul, 2018; Wu, 2016). In addition, women who marry very young have an increased risk of maternal death (Paul, 2018; Salsavira et al., 2021). Human development aims to develop community knowledge through access to lifelong learning (Bowo, 2014; Dumciuviene, 2015). The second factor that influences the human development index is health and education facilities (Kusharjanto dan Kim, 2011). Hospitals, health centers, and schools have been shown to increase HDI by 42% (Jyoti dan Borah, 2021; Mohanty et al 2016). Empirically, life expectancy affects the quality of human resources (Abbasian dan Mohammadi, 2012). Oluwatobi dan Ogunrinola (2011) report a positive relationship between public spending on education and HDI. On the other hand, Rubiyatno (2012) claims that educational institutions do not affect the human development index.

Economic problems such as unemployment and poverty are also factors that affect HDI in developing countries (Taner et al 2011). Unemployment will affect the distribution of income in the country (Priambodo, 2010; Sherwani et al , 2017; Taner et al 2011). A study by Nursiah dan Yusbar (2014) shows that the higher the unemployment rate in Indonesia, the lower the ability to meet basic needs. Research by Destilluna dan Zain (2015) dan Widowati dan Purwanto (2019) shows that the development of MSMEs is indirectly related to the growth of regional HDI, research by Amadin et al (2021) found that the absorption of MSMEs explained that it could increase the development index. It has been established that the development of SMEs in Turkey improves the socioeconomic status of the people (Erdin dan Ozkaya, 2020).

The Human Development Index is an indicator that measures the achievement of a country's social and economic development, as well as outcomes in the health, education and economic sectors (Todaro dan Smith, 2012). Indicators of a country's development are important and not only measured by the country's income (N. George, 2016). According to Indonesia guidelines BPS (2021), HDI results are grouped into several categories, namely: (1) HDI <60: Low HDI (2) 60 HDI <70: Medium HDI (3) 70 HDI <80: High HDI and (4)) HDI 80: HDI is very high. UNDP's human development model focuses on development that can broaden people's economic and political choices.

Nutritional status may be related to achieving protein intake as needed. According to Wu (2016), protein is a very important nutrient for the human body, because the availability of protein is closely related to life processes. Nutritional status,

especially malnutrition affects the quality of health and motor skills of children and further reduces life expectancy (Luque et al 2015). Proteins consist of carbon, hydrogen, oxygen, and nitrogen (Committee on Diet and Health, 1989). The amount of protein consumed during pregnancy also determines the quality of the health of the baby born. Maternal protein intake affects infant cognitive development.

Years of age who married at the age of 14 years or younger was associated with a higher risk of postpartum complications (Paul, 2018). It has also resulted in increased maternal and child mortality, which reduces average life expectancy. The percentage of married women under the age of 18 is a global problem that hinders human development to achieve a more educated, healthy and stable population (HDRC, 2011; Singh dan Samara, 1996). This is due to repeated interruptions in education, early termination of family relationships, isolation of child brides from their peers, and household violence (Otoo-Oyortey dan Pobi, 2003).

Directly and indirectly increase HDI through access to health facilities (ESCAP dan AITD, 2003). According to Rosyid dan Lukito (2019), areas with wider sanitation are associated with better quality of public health. Health services in the form of Puskesmas, health clinics and hospitals provide convenience for the community to access and monitor the quality of individual health. Pregnant women, children and the elderly find it easier to access health facilities that require more doctor visits. Putra, et al (2020) in similar results to Rosyid dan Lukito (2019) found that the more equitable the development of health facilities, the greater the relationship with the quality of health facilities, general health and thus the higher the life expectancy. In addition to health services which are important for improving human quality, educational opportunities are also needed in the form of school buildings and equal distribution of teaching staff.

The study of Destilluna dan Zain (2015) shows that the distribution of teachers will increase the HDI. As the school-age population increases, the number and quality of teachers should be more evenly distributed throughout the region. Behrman dan Wolfe (1987) show that sanitation plays an important role in economic well-being, as it makes a significant contribution to reducing child mortality. According to Fan dan Zhang (2004), educational structure plays an important role in explaining rural non-agricultural productive knowledge to increase the income of rural residents. According to Case dan Deaton (1999) dan Lavy (1999), areas with equal distribution of educational instruction at different levels have higher student attendance rates than areas with diverse educational opportunities.

Comfortable schools and long distances can increase children's desire to go to school (Lokshin dan Yemtsov, 2005). In addition, it is necessary to map teachers as teachers so that teaching and learning activities are carried out as needed, to increase the average duration in school and HDI (Destilluna dan Zain, 2015). Access to education and health services can improve the quality of human resources in terms of life expectancy, average length of schooling and expected school time. Human resources are the main factor in productive activities, good quality human resources can reduce the problem of unemployment (Sofilda et al., 2015).

The unemployment rate is the proportion of the workforce who are not working (George, 2016). The Daily Allowance is open as a reference for the government to create new job opportunities for companies. Moreover, the development of unemployment rate shows the success rate of the recruitment program every year. A low unemployment rate indicates

a working age population who is working. If jobs are paid properly, income and HDI will increase (Sofilda et al., 2015). Unemployment leads to lower subjective well-being, such as lower mental health assessments, more frequent suicides, a tendency to participate in illegal activities, and lower quality of life which will lower HDI (Bollen et al., 2001; Shahbaz et al., 2017).

Micro Small and Medium Enterprises (MSMEs) are companies that employ no more than ten employees (Omar et al., 2009). A small business is a company with more than ten, but not more than forty-nine, employees. Medium-sized companies are companies that employ fifty to one hundred and ninety employees. Ndubisi et al (2021) found that the existence of micro, small and medium enterprises contributed to the improvement of people's living standards while at the same time influencing the growth of the human development index. Small and medium enterprises can improve the welfare of citizens, create jobs, increase the availability of goods and services, and increase the income of entrepreneurs. In Indonesia itself, the Gross Domestic Regional Product (GDRP) of the MSME sector can significantly increase the HDI (Destilluna & Zain, 2015; Erdin & Ozkaya, 2020).

This study will focus on discussing the changes in HDI at the provincial level in Indonesia during 2014-2021. Changes in HDI are thought to be related to protein intake, the proportion of married women under the age of 18, health facilities and educational institutions, Unemployment Rate and MSMEs. The structure of the article is as follows: 1. Introduction, 2. Methodology, 4. Results and Discussion, 5. Conclusion.

METHODOLOGY

This study uses a quantitative descriptive method. The model used considers the effect of protein intake, the proportion of married women under the age of 18, exclusive breastfeeding, health institutions, educational institutions, TPT and MSMEs as independent variables and HDI as the dependent variable. The data used in this study is secondary data obtained from the publication of the Central Statistics Agency (BPS) based on time series from 2014 to 2021. This study uses panel data which is a combination of cross sectional data from 34 provinces in Indonesia and time series data from 2014 to 2021.

To determine the appropriate panel data analysis model, this study conducted several tests, namely the Chow test, Lagrange test and Hausman test. This test is used to determine the best lookup model among OLS, FEM or REM. This panel estimation analysis uses several tests, including: classic guess test, multiple linear estimation test, coefficient of determination test, small test, and simultaneity test (Michigan, 2013).

The analysis equation model used in this article is as follows:

$$HDI_{it} = \beta_{0it} + \beta_1 Life\ expectancy_{it} + \beta_2 Mean\ Years\ School_{it} + \beta_3 GDP_{it} + \varepsilon_{it} \quad (1)$$

$$Life\ expectancy_{it} = \beta_{0it} + \beta_1 Protein\ Intake_{it} + \beta_2 Percentage\ of\ married\ woman_{it} + \beta_3 Health\ Facilities_{it} + \varepsilon_{it} \quad (2)$$

$$Mean\ Years\ School_{it} = \beta_{0it} + \beta_1 \ln\ Education\ Facilities_{it} + \varepsilon_{it} \quad (3)$$

$$GDRP_{it} = \beta_{0it} + \beta_1 Unemployment\ Rate + \beta_2 \ln\ MSMEs_{it} + \varepsilon_{it} \quad (4)$$

$$HDI_{it} = \beta_{0it} + \beta_1 Protein\ Intake_{it} + \beta_2 Percentage\ of\ married\ woman_{it} + \beta_3 Health\ Facilities_{it} +$$

$$\beta_4 \ln\ Education\ Facilities_{it} +$$
$$\beta_5 Unemployment\ Rate_{it} +$$
$$\beta_6 \ln\ MSMEs_{it} + \varepsilon_{it} \quad \text{.....(5)}$$

In HDI Indicators (1) to (6) is the Human Development Index by province from 2014 to 2021, β0 is constant, β1, β2 is an approximate number. Life expectancy at birth by province in 2014-2021. Mean Years School is the average length of schooling by province for 2014-2021. GDRP is the gross domestic product of the region at constant prices by province from 2014-2021. Protein intake as measured by calories and protein (grams) per person per day between 2014 and 2021. Percentage of married women is the percentage of women aged 20 to 24 who were married or living together before the age of 18. by province (percent) from 2014 to 2021. Health facilities data on the number of hospitals and health centers in the province from 2014-2021. Education facilities data on the number of schools (schools) and the number of teachers (people) from elementary school until senior high school throughout the province in 2014-2021. Unemployment rate is described by data on the open unemployment rate (in percent) by province for 2014-2021. MSMES is defined by data on the number of micro and small enterprises by province. ε is error term, i is province of Indonesia and t is the time series from 2014 to 2021.

RESULT AND DISCUSSION

Descriptive variables are used to determine the general picture of HDI in Indonesia with various influencing factors from 2014 to 2021. The variables used include HDI, protein consumption, sub-ratio, married women under 18 years, health facilities, educational institutions, TPT and MSMEs according to 34 provinces in Indonesia. Table 1 shows the descriptive statistics. This study provides panel data with a sample of 272 data.

Table 1
Variable Statistics Description

Variable	Sample	Mean	SD	Min	Max
Independent Variable					
Human Development Index (HDI) /(point)	272	69,93	4,157	56,80	81,10
Dependent Variable (Health)					
Protein Intake (PI)/(grams)	272	58,36	6,437	38,40	76,79
Proportion of married women under 18 years old (PM)/(%)	272	12,10	4,653	1,450	23,19
Hospital /(hospital)	272	81,18	93,15	7	407
Puskesmas (PKM)/(*Puskesmas*)	272	255,7	220,2	28	1.069
Variabel Dependen (Fasilitas Pendidikan)					
Elementary School (Log SD)	272	7,957	0,871	6,087	9,903
Junior High School (Log SMP)	272	6,685	0,799	5,024	8,604
Senior High School (Log SMA)	272	5,618	0,834	3,970	7,416
Vocational High School (Log SMK)	272	5,360	1,017	3,178	7,987
Elementary School Teacher (Log Teacher SD)	272	10,31	0,905	8,581	12,34
Junior High School Teacher (Log Teacher SMP)	272	9,453	0,910	7,683	12,08
Senior High School Teacher (Log Teacher SMA)	272	8,747	0,878	6,917	10,61
Vocational High School Teacher (Log Teacher SMK)	272	8,470	1,003	6,353	11,04
Variabel Dependen (Ekonomi)					
Unemployment Rate /(%)	272	5,325	1,897	1,370	10,95
Micro Small (Log Micro Enterprises)	272	10,80	1,324	6,275	13,91
Medium Enterprises (Log Small Enterprises)	272	7,548	1,693	3,258	11,77
Indicator HDI					
Life Expectancy (tahun)	272	69,59	2,568	64,04	75,04
Mean Years School (MYS)/(tahun)	272	8,294	0,948	5,760	11,06
Gross Domestic Product (GDRP)/(ribu rupiah)	272	40.775	30.717	10.742	181.294

Before discussing the estimation results, the correlation coefficients of the dependent and independent variables are presented in Table 2. The correlation coefficient of HDI with protein consumption, the proportion of women under 18 years old with livestock, health facilities, educational institutions, TPT and the establishment of SMEs is expected as follows. Protein consumption has a positive and moderate correlation of 0.712 to HDI. The correlation of protein consumption is significant in HDI by 1 percent. The more people consume protein, the better the quality of their health, which in turn will increase HDI. While other variables have a correlation below 0.25 which means it has a weak correlation with HDI.

The results of the panel estimation calculation are used to predict the extent of the relationship between the dependent variable, namely HDI. The estimation model that is suitable for this study is the comparison between the ordinary least squares model (OLS) and the fixed effects model (FEM). Tables 3 and 4 below are the results of the assessment test.

Table 2
Estimated Results of Regression Determinants of Life Expectancy, Mean Year Schooling, and GDRP at Provincial Level 2014 – 2018

Dependent Variable : Life Expectancy		
Dependent Variable	OLS	FEM
Constanta	61.07***	65.99***
	(1.482)	(1.545)
Independent Variable		
Protein Intake (gr/days)	0.140***	0.0593*
	(0.0241)	(0.0343)
Proportion of women aged 20-24 years who are married or living together before the age of 18	-0.0349	0.0588
	(0.0302)	(0.120)
Hospital	0.00983***	0.000157
	(0.00350)	(0.0131)
Puskesmas	-4.95e-05	-0.00227*
	(0.00141)	(0.00121)
Observation Data	272	272
R-squared	0.325	0.064
Number of id	34	34
Dependent Variable: Mean Year Schooling		
Dependent Variable	OLS	FEM
Constanta	10.58***	-19.74***
	(1.083)	(12.15)
Independent Variable		
ln_Elementary School(SD)	-2.625***	2.282
	(0.303)	(2.177)
ln_ Junior High School (SMP)	-0.279	1.714
	(0.379)	(1.396)
ln_ Senior High School (SMA)	1.591***	-1.250*
	(0.399)	(0.648)
ln_ Vocational High School	0.0114	2.700***
	(0.274)	(0.775)
ln_Elementary School Teacher	0.654*	-0.745**
	(0.341)	(0.349)
ln_ Junior High School Teacher	-0.0774	0.0854
	(0.306)	(0.0886)
ln_ Senior High School Teacher	-0.180	-0.369
	(0.399)	(0.265)
ln_ Vocational High School Teacher	0.830***	0.125
	(0.291)	(0.184)
Observation Data	272	272
R-squared	0.420	0.324
Number of id	34	34
Dependent Variable: Gross Domestic Regional Product (GDRP)		
Dependent Variable	OLS	FEM
Constanta	11.76***	9.879***
	(0.276)	(0.149)
Independent Variable		
Unemployment Rate	0.0916***	-0.00833
	(0.0154)	(0.00612)
ln_Micro Enterprise	-0.275***	0.0701***
	(0.0388)	(0.0144)
ln_Small Enterprise	0.154***	-0.0204
	(0.0303)	(0.0144)
Observation Data	272	272
R-squared	0.244	0.196
Number of id	34	34

Standard errors in parentheses : *** p<0.01, ** p<0.05, * p<0.1
Source: Primary data processed, 2022

Tabel 3
The Result of HDI Determinants at Provincial Level in 2014 – 2018

	Variabel Dependen : IPM	
Dependent Variable	OLS	FEM
Constanta	53.12***	35.41**
	(3.612)	(14.04)
Independent Variable : Health		
Protein Intake (gr/days)	0.227***	0.0802***
	(0.0306)	(0.0173)
Proportion of women aged 20-24 years who are married or living together before the age of 18	-0.0862**	-0.0652**
	(0.0422)	(0.0268)
Hospital	0.0150***	0.00838
	(0.00458)	(0.00809)
Puskesmas	-0.00588***	-0.00273***
	(0.00156)	(0.000770)
Independent Variable : Education		
ln_Elementary School(SD)	-6.261***	-3.167
	(1.133)	(2.099)
ln_ Junior High School (SMP)	-2.817**	5.339***
	(1.146)	(1.745)
ln_ Senior High School (SMA)	1.737	0.169
	(1.337)	(1.448)
ln_ Vocational High School	0.665	3.281**
	(0.835)	(1.358)
ln_Elementary School Teacher	3.370***	-0.843
	(1.052)	(0.607)
ln_ Junior High School Teacher	-0.432	0.0952
	(0.891)	(0.107)
ln_ Senior High School Teacher	0.636	0.170
	(1.280)	(0.485)
ln_ Vocational High School Teacher	2.464**	0.778*
	(0.986)	(0.402)
Independent Variable : Economic		
Unemployment Rate	0.0733	-0.0814
	(0.0875)	(0.0519)
ln_Micro Enterprise	0.347	0.268***
	(0.237)	(0.0864)
ln_Small Enterprise	-0.131	-0.150**
	(0.168)	(0.0696)
Observation Data	272	272
R-squared	0.758	0.892
Number of id	34	34

Standard errors in parentheses : *** p<0.01, ** p<0.05, * p<0.1
Source: Primary data processed, 2022

Tables 2. and 3 show the results of calculations that explain the relationship between protein intake, the percentage of married women under the age of 18, health facilities, educational institutions, TPP and MSMEs with life expectancy, the mean year of schooling and gross domestic product by region (GRDP) and the Human Development Index (HDI) in 34 provinces from 2014 to 2021. The estimation results of the AHH index show that the R2 OLS and FEM are 0.325 and 0.064, respectively. This means that the independent variable is protein intake, the percentage of women under 18 years who are married, health care facilities can interpret the dependent variable in the form of life expectancy of 32.5% and 0.64%, respectively. The evaluation results show that the independent variables simultaneously and partially have a significant effect on the dependent variable.

Education indicators in the HDI are described by mean year of schooling. The estimation results of mean year of schooling index show that the R2 OLS and FEM are 0.420 and 0.324, respectively. This means that the

independent variables of educational institutions in terms of the number of SD, SD, SMP and SMA and teachers together can explain the dependent variable in terms of RLS by 42%, 28, 9%. and 32.4 percent. The evaluation results show that the independent variables simultaneously and partially have a significant effect on the dependent variable.

A decent standard of living can be measured in HDI by using GRDP to see the size of the income per capita in each province. The results of the GRDP estimation show that R2. is 0.244 and 0.196, respectively. This means that the independent variable in the form of a combination of unemployment rate, MSMEs can explain the dependent variable of 19.6% of GDP per capita in FEM.

The results of the HDI analysis showed that R2 were 0.758 and 0.892, respectively. That is, the independent variables are protein intake, percentage of married women under the age of 18, health facilities (hospitals and health centers), educational institutions (number of schools and teachers), unemployment rate and MSMEs (Micro and Small Enterprises). The same thing can explain the dependent variable in the form of HDI 75.8% and 89.2%. Shows protein intake, percentage of married women under the age of 18 years, health facilities (hospitals and health centers), educational institutions (number of schools and teachers), unemployment rate and small, SMEs (Micro and Small Enterprises) have a significant positive effect on HDI.

The variable amount of protein intake and the number of hospitalizations had a significant positive effect on life expectancy. An increase of 1 gram of protein intake in the OLS and FEM estimates would increase the life expectancy by 0.140 and 0.0593 years, respectively. Increased protein intake will improve the quality of public health which will increase life expectancy. If the HDI is broken down by adding 1 gram of protein per day, OLS estimates the HDI will increase by 0.227 points. FEM estimates explain that supplementation with 1 gram of protein per day also increases HDI by 0.0802 points per province. Consumption of protein will improve the quality of human health with a strong body, strong mind, good health, intelligence and long life. Therefore, protein consumption will increase human immunity to prevent disease and reduce nutritional problems that lead to death. This will increase life expectancy and the Human Development Index. Adequate protein intake in the population reflects good health, increased intelligence and productivity (Ismanti, 2017; Shuhaimi, F. and Muniandy, 2012).

It's not just protein intake that supports health. Psychologically, young mothers tend to be immature and this affects breastfeeding behavior, child care and parental nutrition (Sukmawati dan Rachmawati, 2017). The regression results of the proportion of women under 18 years who are married with OLS and FEM estimates show that every 1% increase in the proportion of women under 18 years who are married decreases HDI by 0.0862 and 0.0652 points, respectively. Women who marry at age 14 or younger have a higher risk of postpartum complications. This also has an impact on increasing maternal and infant mortality rates. This further shortens the lifespan and reduces HDI. Furthermore, according to Otoo-Oyortey dan Pobi (2003) the percentage of women who are married before the age of 18 years can increase the number of children born, but with a lower quality of human resources and a lower correlation with HDI.

Hospital on health indicator variable in the OLS results showed that the addition of 1 hospital increased the life expectancy by 0.0098 years. An increasingly number of hospitals throughout Indonesia will improve health services and possibly

increase life expectancy. The reason is that with the dependent variable HDI, for every 1 increase in hospital construction, HDI increases by 0.015 points. Improvements and additions to health service facilities in the form of hospitals will make it easier for the community to get more effective health services so as to reduce mortality. The construction of more and more hospitals spread across 34 provinces in Indonesia will facilitate the handling of dangerous health problems. Therefore, the construction of hospital buildings will increase life expectancy and HDI in Indonesia. Based on empirical studies, Sapkota (2014) dan Rosyid dan Lukito (2019) explain that health facilities in the form of hospitals have a positive effect on HDI.

The number of sections had a significant negative effect on life expectancy in the FEM estimate. The addition of 1 health center will reduce the life expectancy by 0.0022 years. The unequal distribution of Puskesmas and the lack of quality care and skilled medical personnel will lead to public reluctance to undergo testing in newly established businesses, which will reduce life expectancy. On the other hand, the preparation of a large number of injections is not effective in treating the patient. The reason is because of the large number of patients, medical visits and inadequate care due to limited space and medical personnel. Now, many hospitals have been downsized and converted into Grade C hospitals to improve services for the community. Adding a half-frame design reduces HDI by 0.00588 and 0.00273 points in all three OLS and FEM estimates. The development of more and more health centers without modern technical advances and good service quality will cause many problems in the form of abuse that can lead to death. In addition, the construction of flower beds must be supported by health personnel with appropriate experience and capacity so that there are no vacancies for doctors and other health workers. This finding is supported by an empirical study by Mohanty Mohanty et al (2016) explain that high-rise medical facilities such as health centers and hospitals do not have a significant impact on HDI without having good medical staff.

Changes in the number of elementary school in the OLS estimate have a significant negative effect on mean years of schooling. According to OLS estimates, the addition of 1 elementary school will reduce mean years of schooling by 262.5 %. The results of the HDI disaggregation show that educational institutions characterized by the number of primary schools have a significant negative effect on HDI. OLS estimates show that each additional school reduces the HDI by 626.1%. The number of secondary schools has changed with OLS estimates explaining that each additional school reduces the HDI by 281.7%. This is because elementary school and junior high school are the basic levels. Regardless of year and province, adding schools that allocate more and more but disproportionately to teaching staff will not work well for the teaching and learning process. If the number of teachers is not sufficient for the required subjects and the application of inappropriate educational content will reduce people's desire to learn, reduce the quality of human resources and HDI.

Different results in the disaggregation of HDI, the number of junior high school in the FEM estimate, i.e. adding 1 school will increase HDI by 533.9 percent. This explains that if the availability of SD is evenly distributed in each province, it will be easier for the community to implement the government's 9 year compulsory education policy, which will increase RLS and HDI. According to Case dan Deaton (1999) dan Lavy (1999), districts with distribution of educational institutions at different levels will have a higher number of students attending

school and better quality of population than districts with lower population density. educational institutions.

The increase in the OLS estimate of 1 senior high school per province significantly increased the mean years of schooling rate to 159.1%. The calculation of OLS does not depend on time and province, it's just that school inclusion is only a structure that must be supported by the quality and quantity of teachers and an adequate curriculum. FEM estimates explain that for every 1 additional vocational school in the province there will be a significant 270 percent increase in mean years of schooling. This explains that increasing the availability of vocational school will increase the participation of students who want to focus on vocational training and improve mean years of schooling.

Variable vocational school fields changed in the FEM estimate, explaining that if there was 1 more field then the HDI would increase by 328.1%. If Vocational High Schools are evenly distributed in every province, it will be easier for the community to obtain education that is centered on educational experience. Vocational school is used to train and prepare students for learning skills. This will attract students to continue their studies to the vocational school level and increase the HDI of each province. Educational institutions are not only formal schools, but also support formal teachers.

On the other point, the number of elementary school teachers has a significant effect on the mean years of schooling. The OLS estimate explains that the addition of 1 elementary school teacher will increase the RLS by 65.4%. The difference in the calculation results can be seen in the FEM, that the addition of 1 elementary school teacher will reduce the mean years of schooling significantly by 74.5 percent for each province. The large number of teachers does not guarantee the fulfillment of the needs of every school. Although the number of elementary school teachers is quite high, if there are still vacancies, the participation rate of students and mean years of schooling will be low. In another finding, the elementary school teacher variable has a significant positive effect on HDI. The addition of 1 primary school teacher will increase the HDI in each province by 337%.

The number of vocational school teachers in the OLS assessment showed a significant positive effect on the increase in RLS by 83%. Having an adequate number of professional teachers and improving intellectual quality can increase student participation in more specialized education programs and immediate availability for work. In the HDI regression, the variable for vocational school teachers in the OLS and FEM estimates explains that each additional 1 vocational school teacher increases the HDI by 246.4 and 778 percent, respectively. This is because the presence of a teacher will facilitate the learning and teaching process.

Good number and quality of teachers will increase student engagement and increase HDI. Teachers are the key to improving the quality of education and public knowledge. Even distribution of the number of teachers should be adjusted to the number of students and regional conditions so that there is a balance between educational services (Destilluna dan Zain, 2015 dan Manurung, 2018). Recruiting teachers with good conditions to produce quality teachers to improve community school readiness (Adelokun dan Akinola, 2016). Higher education will improve the quality of human resources and skills will increase employability. Higher education will increase awareness about body health.

According to OLS estimates, TPT has a significant positive effect on GDP growth of Rs 9.16 lakh. The microenterprise variable in the OLS estimate explains

that adding 1 company will reduce the province's GDP per capita by 27.5%. In contrast to FEM estimates, it is explained that the addition of 1 micro-enterprise will increase the GRDP per capita of the province by 70.1%. The difference in results stems from the fact that the OLS estimator ignores time and province differences. The positive impact of micro-enterprises on GRP is that more micro-enterprises will increase their turnover.

The HDI on FEM estimate of the micro enterprise variable explains that for every 1 additional company, HDI increases by 26.8%. He explained that increasing the number of micro-enterprises in Indonesia will help increase per capita income and employment. Increasing the number of micro-enterprises will increase national consumption and a decent standard of living. Micro-enterprises have the potential to drive economic growth by contributing to gross domestic product (GDP) and reduce poverty by creating jobs and incomes and increasing HDI. In an empirical study by Destilluna dan Zain (2015), micro-enterprises are able to significantly improve people's welfare, create jobs, provide goods and increase HDI. In addition to micro enterprises, there is also a variable for small enterprises, which explains that 1 more business increases the province's GDP per capita by 15.4% in the OLS estimate. On the other hand, adding 1 small company to the FEM forecast will reduce the HDI by 15%. This is because growing a small-scale micro-enterprise requires a fairly large cost, so it carries a large enough risk. When a small business arises, problems such as bankruptcy will affect the number of employees. This will reduce the level of public benefits and lower the HDI.

CONCLUSION

Based on the results of this study, it is suggested that the increase in HDI health outcomes as measured by medium life expectancy is due to increased protein intake, increased hospitalizations and decreased ideas for improving morning sickness services. Education indicators, measured by the average length of education, depend on the number of primary, secondary and vocational schools, as well as the number of teachers in primary, vocational and institutional schools. The increase in HDI in the health sector is influenced by an increase in protein consumption, the proportion of married women under the age of 18, an increase in the number of health workers and a decrease in the unemployment rate. The increase in HDI in education is influenced by the increase in the number of secondary and vocational schools, as well as the supply of pedagogical teachers in primary and vocational schools. In the economic sector, the increase in HDI was influenced by a decrease in the unemployment rate and the entry of micro-enterprises. To increase the HDI in Indonesia, a joint policy is needed to improve the quality of health facilities and monitor the nutritional quality of the population. Furthermore, the government must increase the quantity and quality of educational institutions in the form of schools and teachers, especially in remote areas in Indonesia. The government should provide education, training and capital assistance for the expansion of small and medium enterprises.

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