Position Of Human Capital In Middle-Income Trap Countries (Case Study: Indonesia)

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Abstract: The middle income trap explains that an economy that reaches the middle income level has been at this level for many years and has not grown to a higher income level. Human capital has a special role in the model of economic improvement. This study aims to examining more deeply the role of human capital in determining Indonesia's position in the country with Middle Income Trap. This research used simple and multiple linear regression analytical tools. The results show the 13-15 year old group had a positive effect on GDP per capita growth. Meanwhile, the 16-18 year age group has a positive effect on GDP per capita growth. Only the Illiteracy number 45 years old has a positive effect on GDP per capita growth because it is a productive group. The level of the Human Development Index has a positive effect on GDP per capita because it reflects the level of community empowerment that can increase productivity.

Keywords: Human Capital, GDP, Middle Income Trap, GDP

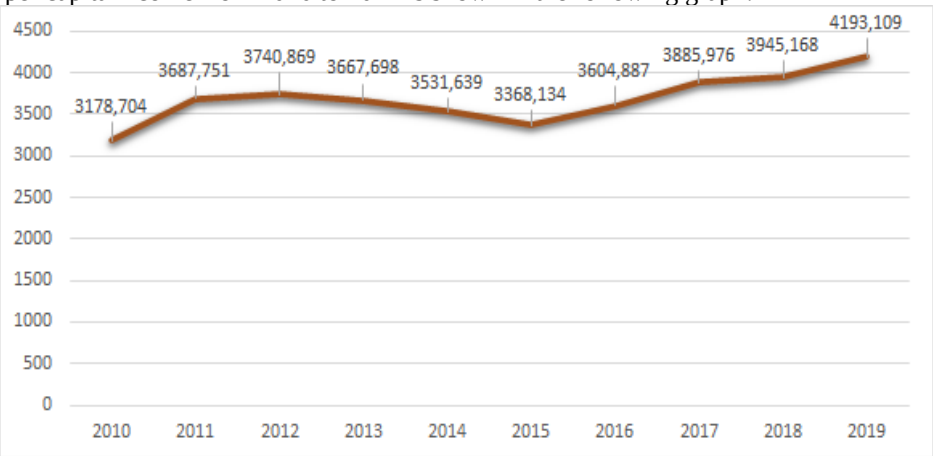
1. Introduction

The middle income trap explains that an economy that reaches the middle income level has been at this level for many years and has not grown to a higher income level. This concept measures a country's per capita income in dollars according to field data and primarily Purchasing Power Parity (PPP) which shows that a country enters a vicious circle at a certain level of income (Homi Kharas, 2010).

In other words, an economy that is depressed between 20% - 58% of national income per capita (US $) is considered as a country with middle income trap. The per capita income level by price in 2011 in the US was $ 48.147. According to this data, countries with an average income of $ 10.000 per capita are considered to be middle income countries (MUSIAD, 2012).

According to the view of Gill and Kharas, a country must have a per capita income of 27.000 US $ in 10 years, if it does not achieve per capita income within 10 years, then the country will be categorized as country with "Middle Income Trap". After achieving significant economic growth, many countries in Asia have moved into the status of Middle Income Countries (MIC), such as Philippines, India, Malaysia, Thailand, Vietnam, Laos and Indonesia (Egawa, 2013). Meanwhile, several countries in the East Asia region are currently included in the High Income Countries (HIC) group, such as Hong Kong, South Korea, Taiwan and Singapore. The shift from the status of a low-income country to a middle-income country will immediately have a rapid impact on the total aggregate supply and demand in the country (Carnovale, 2012).

Indonesia's per capita income from 2010 to 2011 is shown in the following graph:



Graph 1. Indonesia's GDP per Capita (US$) from 2010 to 2019

Source: www.ceicdata.com

Based on Figure 1, it can be seen that Indonesia's per capita income for 10 years has fluctuated with an average GDP of 3.680,394 US$. This condition shows that Indonesia is trapped in a "Middle Income Trap".

The main economic problems of countries with middle income trap can occur due to: lack of investment due to the savings gap, slow development in the manufacturing industry, loss of industrial diversification and weakness in the labor market, low research and development (R&D), and low quality of human resources. However, often the increase in income in less developed countries is also helped by the income from export activities. But, export activities will only help increase income in the short term (Gocer, 2013; Hove & Troskie, 2019).

These countries initially exported based on labor-intensive and natural resources and in the end they succeeded in creating their own brands and exporting more capital and technology-intensive goods and services without going through the production process and one of them is by increasing human capital.

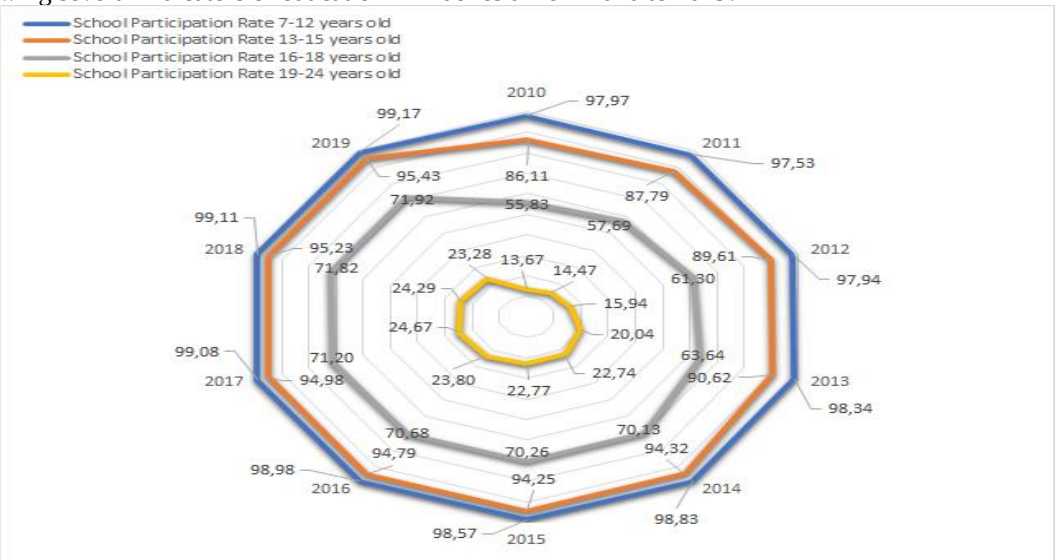
For example, countries such Thailand, Philippines, and Malaysia have not managed to escape from "Middle Income Trap" because the country is in the process of production, one of which is missing the increase in human capital and research and development. Meanwhile, Japan and South Korea have successfully passed the middle income trap because in addition to exporting based on labor-intensive and natural resources, these countries have also increased spending to improve the quality of their human capital and R&D.

The economic development of a country is measured by an increase in national income. According to Romer (1990), the rate of development of a country is not much influenced by an increase in physical capital (infrastructure). This shows that the main influence in increasing the rate of development arises from the opening of the world market and from the increase in the number of qualified engineers and scientists.

Human capital has a special role in the model of economic improvement. This is related to research and development (R&D), where the key to the research and development sector is human resources who encourage the production of new products and shape technological developments. The number of highly skilled workforce in a country such as managers, scientists, engineers, doctors, teachers, and assistants who are qualified is the most important criterion indicating the level of development of the country (Taban & Kar, 2008).

Many people under developed countries neglect primary school education and attach great importance to physical structures, such as factories and equipment in their development. Education is one of the means to improve human resources and it provides endurance as well as energy for the community (Dogan & Sanh, 2003).

Based on the results of several scientific studies both from abroad such as PISA, World's Most Literate Nations, TIMMS, PIRLS, Universitas21, and so on, as well as domestic results such as the National Examination, INAP, etc. show that for almost 20 years the condition of Indonesian education has been stagnant to be the lowest in the world, where the most fundamental issue in education is reading. The following is a graph showing several indicators of education in Indonesia from 2010 to 2019.

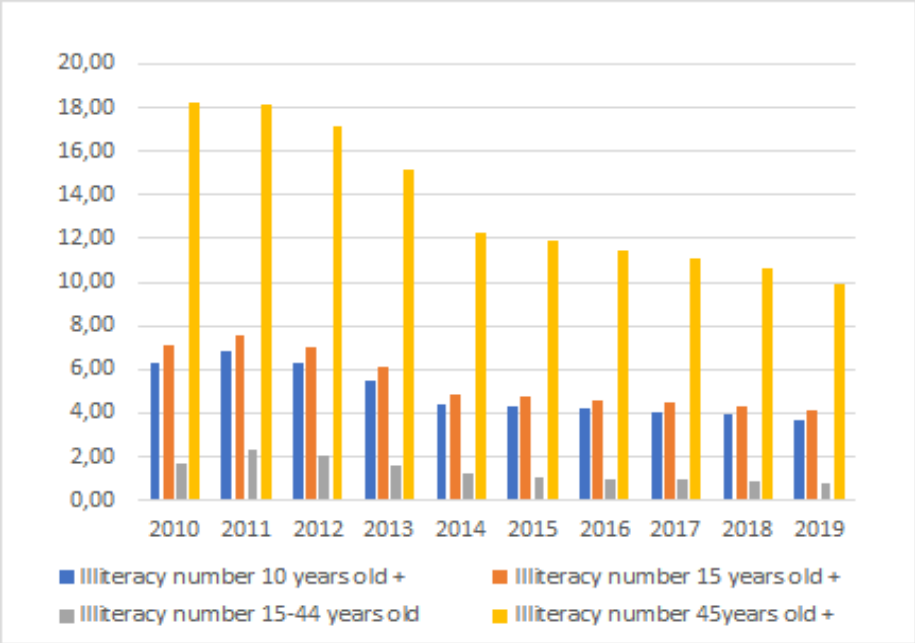


Graph 2. School Participation Rate (%) from 2010 to 2019

Source: Indonesia's Central Bureau of Statistics, 2020

Based on Figure 2, it can be seen that there is a significant difference between the school participation rate for 7-12 years, the school participation rate for 13-15 years, the school participation rate for 16-18 years, and the school participation rate for 19-24 years with average of each: 98.55%' 92.31%; 66.45%; and 20.57%. Based on this condition, it is known that the education in Indonesia is more dominated by the group who attend school at the age of 7-15 years, while the group of high education student only reaches 20.57%.

Meanwhile, the illiteracy rate occurring in Indonesia by age group is shown in the graph below.



Graph 3. Illiteracy Number (%) from 2010 to 2019

Source: Indonesia's Central Bureau of Statistics, 2020

Based on Figure 3, it can be seen that there is a significant difference between the illiteracy rate for the age group of 10 years old and over, the illiteracy rate for the age group of 15 years old and over, the illiteracy rate for the age group of 15-44 years old, and the illiteracy rate for the group of 45 years old and over with average of each: 4.95%; 5.50%; 1.35%; and 13.59%. Based on this condition, it is known that the number of illiteracy in Indonesia is dominated by those aged 45 years and over. In addition to school enrollment and illiteracy rates, the human development index (which includes components of income, health and education) greatly determines the quality of human resources in Indonesia. Based on these conditions, researchers are interested in examining more deeply the role of human capital in determining Indonesia's position in the country with Middle Income Trap.

2. Literature Review

2.1 Human Capital

Human capital shows the capabilities and skills of human resources in a country related to the use of human factors in the production process which consists of knowledge, abilities, expertise and talents of the workforce, as well as health. The formation of human capital will create economic benefits such as creating equality in income distribution, increasing productivity, and reducing the unemployment rate (World Bank, 2012).

2.2 Middle Income Trap

The Asian Development Bank (2012) and the World Bank (2012) explain that the middle income trap occurs when middle income countries or MICs experience stagnation and do not grow to the level of more developed countries. On the other hand, Eichergreen (2001) provides an understanding of the middle income trap as a condition for a country that cannot compete with other countries 'manufacturing exports with low wages, as well as with developed countries' exports based on high-skilled innovation.

3. Methodology

3.1 Data Penelitian

The data used in this study is secondary data sourced from the Central Statistics Agency for the period of 2010 to 2019. The data used are data on school enrollment rates, illiteracy rates, and human development index as proxies for human capital variables in percentage. The middle income trap variable is proxied by GDP per capita in US$.

3.2 Research Hypotheses

The hypotheses in this study are as follows:

H_1: School participation rate 7-12 years old have positive effect on GDP per capita;
H_2: School participation rate 13-15 years old have positive effect on GDP per capita;
H_3: School participation rate 16-18 years old have positive effect on GDP per capita;
H_4: School participation rate 19-24 years old have positive effect on GDP per capita;
H_5: Illiteracy number 10 years old and over have positive effect on GDP per capita;
H_6: Illiteracy number 15 years old and over have positive effect on GDP per capita;
H_7: Illiteracy number 15-44 years old have positive effect on GDP per capita;
H_8: Illiteracy number 45 years old and over have positive effect on GDP per capita.
H_9: Human development index have positive effect on GDP per capita.

3.3 Model dan Metode Analisis

This study uses simple and multiple linear regression methods to answer the research hypotheses. The stages in performing multiple linear regression are the basic assumption tests (normality test) and classical assumption tests (heteroscedasticity test, autocorrelation test, and multicollinearity test) (Widarjono, A. 2007). The simple linear regression and multiple linear regression model is as follows:

$$GDP_t = \alpha + \beta_1 \text{ School Participation Rate 7-12 years old}_t + \beta_2 \text{ School Participation Rate 13-15 years old}_t + \beta_3 \text{ School Participation Rate 16-18 years old}_t + \beta_4 \text{ School Participation Rate 19-24 years old}_t + \varepsilon_1$$

$$GDP_t = \alpha + \beta_1 \text{ Illiteracy number 10 years old and over}_t + \beta_2 \text{ Illiteracy number 15 years old and over}_t + \beta_3 \text{ Illiteracy number 15-44 years old}_t + \beta_4 \text{ Illiteracy number 45 years old and over}_t + \varepsilon_2$$

$$GDP_t = \alpha + \beta \text{ Human Development Index}_t + \varepsilon_3$$

Where α is a constant and β is the regression coefficient. The level of significance used was 5% and 10% (α = 5%, 10%). In doing calculations, the help of Eviews 10 software is used.

4. Result

Based on the results of testing the basic assumptions (normality test), it is known that both the residual data for model 1, model 2 and model 3 show a normal distribution, with each probability value of 0.759 for model 1; 0.693 for model 2; and 0.711 for model 3. The results of testing the classic assumptions of heteroscedasticity, autocorrelation and multicollinearity show that there is no violation of the classical assumption test. The estimation results for each model are as follows:

Table 1. Hasil Estimasi Model 1
School Participation Rate on GDP per Capita

Variables	Coefficients	Std. Error	Prob.
C	-21.93338	15.52347	0.2168
School Participation Rate 7-12 years old	0.145328	0.121741	0.2861
School Participation Rate 13-15 years old	0.289786	0.129116	0.0748
School Participation Rate 16-18 years old	-0.162357	0.081973	0.1045
School Participation Rate 19-24 years old	-0.006997	0.029637	0.8227
R-squared	**0,646**		
F-statistic	**2,986**		
Prob (F-statistic)	**0,094**		

Source: Calculation result

Table 2. Hasil Estimasi Model 2
Illiteracy Number on GDP per Capita

Variables	Coefficients	Std. Error	Prob.
C	8.119418	0.191933	0.0000

Illiteracy number 10 years old and over	0.261495	0.892839	0.7814
Illiteracy number 15 years old and over	0.400344	0.921966	0.6822
Illiteracy number 15-44 years old	-0.257974	0.213707	0.2814
Illiteracy number 45 years old and over	-0.224789	0.081125	0.0393
R-squared	**0,764**		
F-statistic	**4,047**		
Prob (F-statistic)	**0,079**		

Source: Calculation result

Table 3. Hasil Estimasi Model 3
Human Development Index on GDP per Capita

Variables	Coefficients	Std. Error	Prob.
C	6.119158	0.749539	0.0000
Human Development Index	0.030169	0.010822	0.0236
R-squared	**0,493**		
F-statistic	**7,771**		
Prob (F-statistic)	**0,024**		

Source: Calculation result

Based on the results of the calculation of multiple and simple linear regression estimates, the respective equations are obtained as follows:

GDP_t = -21.93338 + 0.145328 School Participation Rate 7-12 years old + 0.289786 School Participation Rate 13-15 years old - 0.162357 School Participation Rate 16-18 years old - 0.006997 School Participation Rate 19-24 years old

GDP_t = 8.119418 + 0.261495 Illiteracy number 10 years old and over + 0.400344 Illiteracy number 15 years old and over - 0.257974 Illiteracy number 15-44 years old - 0.224789 Illiteracy number 45 years old and over

GDP_t = 6.119158 + 0.030169 Human Development Index

Based on Table 1 and the above equation, it is known that in model 1:

- School participation rate 7-12 years old have no positive effect on GDP per capita, this means that the higher the school participation rate for 7-12 years old, the GDP per capita will also increase but not significantly (*p-value* (0,2861) > 0,1);
- School participation rate 13-15 years old have positive effect on GDP per capita, this means that the higher the school participation rate for 13-15 years old, the GDP per capita will also increase significantly (*p-value* (0,0748) < 0,1);
- School participation rate 16-18 years old have no positive effect on GDP per capita, it means That the higher the school participation rate for 16-18 years old, the GDP per capita will decrease and is not significant (*p-value* (0,1045) > 0,1);
- School participation rate 19-24 years old have no positive effect on GDP per capita, it means that the higher the school participation rate for 19-24 years old, the GDP per capita will decrease and is not significant (*p-value* (0,8227) > 0,1).

Based on Table 2 and the above equation, it is known that in model 2:

- Illiteracy number 10 years old and over have no positive effect on GDP per capita, this means that the higher the illiteracy rate for 10 years or more, the GDP per capita will also increase but not significantly (*p-value* (0,7814) > 0,1);
- Illiteracy number 15 years old and over have no positive effect on GDP per capita, this means that the higher the illiteracy rate for 15 years or more, the GDP per capita will also increase but not significantly (*p-value* (0,6822) > 0,1);
- Illiteracy number 15-44 years old have no positive effect on GDP per capita, it means that the higher the illiteracy rate for 15-44 years, the GDP per capita will decrease and is not significant (*p-value* (0,2814) > 0,1);
- Illiteracy number 45 years old and over have positive effect on GDP per capita, meaning that the higher the illiteracy rate 45 years or more, the GDP per capita will decrease significantly (*p-value* (0,0393) < 0,1).

Based on Table 3 and the above equation, it is known that in model 3:

- Human development index have positive effect on GDP per capita, meaning that the higher the HDI, the GDP per capita will also increase significantly (*p-value* (0,0236) < 0,1).

5. Discussion

Education is a basic need for society in building welfare. However, the level of school participation does not have a positive and significant impact on the level of economic growth, especially for the 7-12 year enrollment rate. If we look further, the participation rate is based on age, this is the basic school group, which means it represents the workforce with the basic education group. The current employment requirements do not require a workforce with a basic education level. Likewise, the 16-18 year age group representing high school education, and the 19-24 year age group representing the higher education group (diploma and bachelor).

The results of this study are in accordance with Dalevska's research (2019), where the education participation rate for basic education will have an insignificant effect on economic growth. Sam's research (2018) also states that with the high cost of education for all levels of education, it actually decreases the level of economic growth. This occurs because the expansion of the higher education sector in developing countries must be realized with a deep attention to the education-job-matching process among graduates. In addition, the high school workforce and higher education do not contribute productivity to the national economy, because this group is not in the productive sector during their education.

However, the enrollment rate for ages 13-15, which in this case represents the workforce with a secondary education background, gives a positive and significant increase in economic growth. Previous research also states that high levels of participation in education will have an impact on positive GDP growth (Trabelsi, S. (2018); Simionescu, M. L. (2017); Zhang, J. (2019)).

Furthermore, literacy rates for ages 10 years, 15 years, 15-44 years do not have a positive effect on the growth of GPD per capita. This reflects that the higher the level of literacy, the lower the GDP per capita figure, because it does not have an impact on individual productivity levels (Trabelsi, S. 2018). Meanwhile, the literacy figure for the age group 45 years and over, actually has a positive impact on GDP per capita growth. This is because this age group is a productive age group in the structure of the work force (Simionescu, M. L. 2017).

Next, the level of the Human Development Index has a positive effect on GDP per capita. These results are in accordance with research (Zhang, J. 2019). Other research also states that the high per capita GDP growth is determined by the high Human Development Index (Elistia, E. 2018 & Ihite, L. (2021)) because it reflects the level of community empowerment that can increase productivity so that GDP per capita can increase.

6. Conclusion

The higher the School participation rate of 7-12 years, 16-18 years, and 19-24 years, the lower the GDP per capita figure, because during the study period, this group is not in the productive sector. Meanwhile, the 13-15 year old group had a positive effect on GDP per capita growth. Meanwhile, the 16-18 year age group has a positive effect on GDP per capita growth. Only the Illiteracy number 45 years old has a positive effect on GDP per capita growth because it is a productive group. The level of the Human Development Index has a positive effect on GDP per capita because it reflects the level of community empowerment that can increase productivity.

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