



THE IMPACT OF HUMAN CAPITAL ON ECONOMIC GROWTH
“The Implication for Improving the Accessibility for Higher Education In Indonesia”

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ABSTRACT

This paper empirically investigates the impact of human capital on economic growth in Indonesia and the implication for improving the accessibility of higher education. Analyze has been done for 9 years namely the period 2005-2013. The research analyzes the relationship between dependent variable and independent variable, as dependent variable is economic growth and school enrollment rate for higher education. Economic growth is represented by Gross Domestic Product (GDP) and school enrollment rates for college is represented by net enrollment rate for colleges and gross enrollment rates for college. As independent variables are human capital is represented by education, investing in human capital, as education indicator is mean years schooling, and investing in human capital is measured by government expenditure for education and health. Other explanatory variables are export and population.

The relationship between dependent variable and independent variable is determined using multiple regressions. Based on the empirical results of the paper show that human capital are represented by education and investing in human capital have a determinant role in the economic growth, education has a positive impact on economic growth, moreover investment in human capital has positive impact on economic growth in Indonesia. The improving of Government expenditure for human capital implies to increase of school enrollment at higher education level.

Keywords: human capital, economic growth, higher education, Indonesia

I. INTRODUCTION

Previous researchers in various countries have studied the importance role of human capital on economic development. Investment in human capital development will gain economic returns through increased productivity; which in turn will improve the welfare of the community and increase the rate of economic growth. Some indicators that are used as indicators of human capital, many studies use education as an indicator of human capital is educational attainment as measured by the mean years schooling and the literacy rate. Human capital development in Indonesia are measured by two indicators increased significantly, In the period 2011-2012 in Indonesia literacy rate increased to 93.25 at 92.81 in 2012, as well as views of

mean years schooling in 2011 at 7.9 then in 2012 increased to 8.1.

Higher education is one indicator of a country's competitiveness, in The Global Competitiveness Report shows that Indonesia's competitiveness as measured by indicators of higher education is still relatively low compared to some ASEAN countries. In 2012, Indonesia's competitiveness ranking is based on Growth Competitiveness Index (GCI) were ranked 50th out of 144 countries. While based on Higher Education Indicators Indonesia ranked far below the 73 ranked countries - the ASEAN countries, Malaysia (39), Brunei (57), Philippines (64) and Thailand (60) (*World Economic Forum - The Global Competitiveness Report 2012 - 2013*).

However, education still has not received a major national priority development programs. This is indicated by the amount of the education budget is still far from the mandate of Law No. 20 Year 2003 on National Education System. Whereas in the law, about the size of the budget has mandated education at various levels of government at least 20%. Education budget from the 2006 has reached 9% or Rp 36.7 trillion, and 11% or 118,467.1 MRP in 2013. (Nur syam, <http://nursyam.sunan-ampel.ac.id/?p=3523>). Calculated based on the proportion of human capital budget to GDP, in 2005 the education budget by 8.1%, then in 2013 to 10.1% of GDP. The low compliance education budget could result in the quality of education and expanding access to education to be blocked. As a result, an increase in knowledge, skills, and mastery of technology is also inhibited.

Increased budget allocation for education should be able to increase the accessibility of the population to acquire education at all levels, both basic secondary education and higher education. Percentage of gross enrollment rate of higher education (GER) is an indicator that shows the number of people who receive education up to college is still quite low. It is still in the range of less than 20% compared to the total population in Indonesia. One step that is fundamental enough to set a minimum amount of the budget for the education sector, which is 20 percent of the government budget in the national and regional levels The increase in the education budget, directly have a positive impact on people access in basic education. However, what about the increase in the education budget affect people access to higher education?

Based on the description of the importance of human capital in the economy, this study aimed to analyze the effect of human capital and investment in human capital to economic growth and how the implications of



increased government spending on education against increased public accessibility in higher education in Indonesia by using the data annual 2005 to 2013.

II. THEORETICAL FRAMEWORK

Human capital is the knowledge gained by the workers who often generated through specific investment in education, training, and experience (self-learning). Therefore, human capital can be defined broadly in various aspects covering various issues related to human capital investment ((*Van Den Berg (2001), De la Fuente, (2006) in Hanim Wasifah (2010)*).

Theoretically, various growth by incorporating human capital as a factor of production, in addition to the accumulation of human capital is an element in the growth process (*Barro, 2001*). The role of human capital to economic growth is going through two effects, namely the level effect and rate effect. The first, called level effect due to human capital as a factor of production can directly participate in the production process. Thus, directly increase human capital will increase output growth. The second, referred to as the effect due to the increasing rate of human capital to contribute to the advancement of technology for the education will facilitate the innovation and adoption of new technologies so that it increases productivity (*Freire, Maria Y, Seren, 2001*).

While it is widely accepted that economic growth is the result of capital accumulation, early growth theorists, Solow (1956) and Swan (1956) modeled economic growth using a neoclassical production function, with labor and capital as the determinants of long-run growth. It was not until the late 1980's and early 1990's that economists began to place greater emphasize on the role of human capital as a determinant of productivity and growth. Many empirical studies have since found that human capital accumulation is an important determinant of economic growth (*Lorgelly Paula K., 2000*).

Theoretically, role in the development of human capital has been developed within the Augmented Solow Model, known as endogenous theory; the theory asserts that human capital will ensure the long-term economic growth (*Hanim Wasifah, 2010*). Human capital is able to play a role in inhibiting the occurrence of the condition in the absence of diminishing returns though technological progress as exogenous factors, namely by defining the concept of a broader capital. Capital is defined not only physical capital but also human capital, so that economic growth can be achieved in the long term (*Barro and Salai Marten, 2004:240*).

The broad consensus highlighted in these studies is that a country's growth over a long period is basically determined by three factors, namely: (1) the efficient utilization of the existing stock of resources, (2) the accumulation of productive resources such as human capital, and (3) technological Progress. A country that has a higher human development tend to grow faster, in addition to physical capital evolve rapidly, with its human capital will drive quickly adapt to the efficient use of technology (*Edwin an Implications of human capital is education and health. Some commonly used education*

indicators such as average length of schools, government spending to increase human capital and increased quality of their education. (*Hussein, 2001:6*).

Investment in education increase labor force capacity to produce, because better-educated workers are more literate and numerate, they should be easier to train, and to learn more complex tasks, better work habits in terms of awareness of time and dependability. Human capital is mainly influenced by social capital. Social capital is like a filter through which human and financial capital flow from the parents and community to child producing better educational outcomes. Social capital can be represented by: rising crime rates, declining family and kinship cohesion, distress, and mortality rates, life expectancy, dummy variables of: rule of law, court system, political liberates, corruption, political instability. Human capital can be increased by investing in education, health care, and job training. Education causes an individual to earn more and become productive; therefore, a rise in the average level of education of the nation's workforce would be expected to increase national income and then economic growth further. Moreover Health is one of the most important assets of human being has. Regular health status is measured by life expectancy, the higher the life expectancy shows the increasing level of public health / someone. Healthy individuals are more efficient at assimilating knowledge and in consequences obtain higher productivity levels. Productivity of labor depends on factors like physical and mental capabilities. Improvements in health could affect labor productivity by raising the experience level of the work force and increasing person-hours of work. (*Mohamed Arabi Khalafalla Ahmed & Suliman Zakaria Suliman Abdalla, 2012:5*)

Some of multiplier effects arising from such education, first, with increasing levels of education will lead to greater degrees of public health, which in turn will increase the output. Second, the increasing education will increase the labor participation rate that will reduce the unemployment rate. Third increase in education will increase the productivity of labor will further boost economic growth.

III. METHODOLOGY

The unit of analysis in this study is Indonesia, the data will be processed by time series dimension, namely in 2005-2013 (T = 9 years). The data is collected from the Central Bureau of Statistics Jakarta and Basic Data Book Budget of the Ministry of Finance, namely population data (POP), mean years schooling (MYS), GDP, exports (EX); and the budget allocation for human capital consisted of budget allocations for health and education functions (INVHC) and net enrollment rate (NER) and gross enrollment rate (GER) in higher education.

This research used 2 (two) regression models, consisted of:

1. Regression model that estimate the Effect of human capital on economic growth in Indonesia, in this research, human capital is viewed by educational attainment as measured by mean years schooling

2. Regression model that estimate the Effect of Investment in human capital on economic growth in Indonesia, in this research investment in human capital as measured by government spending on education and health per capita.

Therefore, the regression models are formulated into two models:

$$\text{LnGDP} = \beta_0 + \beta_1 \text{Ln MYS} + \beta_2 \text{Ln EX}_i + \beta_3 \text{Ln POP} + u_p \dots \dots (1)$$

$$\text{LnGDP} = \beta_0 + \beta_1 \text{Ln INVHC} + \beta_2 \text{Ln EX}_i + \beta_3 \text{Ln POP} + u_i \dots \dots (2)$$

Description :

- β_0 : Constanta
- u_p : *Stochastic Disturbance*
- β_1, β_3 : Regression coefficients
- Ln GDP_i : Economic growth in year i
- Ln POP_i : Population growth in year i
- Ln EX_i : Export growth in year i
- Ln MYS_i : Mean Years Schooling in year i
- Ln INVHC_i : Human capital budgets per capita in year i

To test the validity of the regression model used to test the classical assumption of multicollinearity, autocorrelation and heteroskedastis.

To analyze the implications of an increase in the education budget to the public accessibility to higher education using descriptive analysis to analyze trends based on school enrollment rates in higher education in the period 2005-2012.

IV. EMPIRICAL RESULTS AND DISCUSSION

4.1 The impact of Human Capital on Economic Growth

The estimation results of the first regression show some explanatory variables affect economic growth. Regression result showed that human capital variables simultaneously (Ln MYS), exports (Ln EX), Population growth (Ln POP) (INV) have positive effect on economic growth (Ln GDP), as shown by the F-count of 24,778 significant at 0,002, adjusted R^2 is 0,899 showed simultaneously (Ln MYS), exports (Ln EX), and Population growth (Ln POP) contribute 89,90% to change variation economic growth (Ln GDP). Partially the all of explanatory variables have significant impact on economic growth. Human capital variables (Ln MYS) yields a coefficient of 0.057 means that each increase of 1% of mean years schooling will increase economic growth to 0.052 %. Human capital coefficient is statistically significant in influencing the economic growth it is seen by the results of the t test was 2.436 significant at 5%. Another dependent variable is export has positive effect on economic growth by generating a regression coefficient of 0.861, meaning that for every increase of 1% in exports will increase economic growth by 0.861%. The coefficient is statistically significant, it is seen by the results of the t test was 8,501 and significant at 1%. Variable regression coefficient of population growth (Ln POP) of -4.675 means

that any increase in population of 1% will decrease economic growth by 4,675%.

The findings of a positive and significant relationship between human capital on economic growth in line with the results of empirical studies conducted by Dollar and Gatti (2004). He concludes that investment in human capital through education and health improvement is the right choice in improving economic efficiency in developing countries. Similarly, Barro (2001) states that human capital would be an important determinant of growth, and empirical evidence for a broad group of countries confirms this linkage. Countries that start with a higher level of educational attainment grow faster for a given level of initial per capita GDP.

Qadri Faisal Sultan and Abdul Waheed (2011) in their research found that human capital is positively related with economic growth in Pakistan in the long run. The proxy of human capital in this study was health adjusted education indicator that was found significant which necessitates a special focus on the health and education sectors of the economy simultaneously. The sensitivity analysis confirms the robustness of the initial findings about the direction and significance of the effect of human capital on economic growth. The results from this study are broadly in line with the results of other studies and moreover our study confirms that the results are robust despite the inclusion of the other associated variables.

Table 1. Estimation Results the Impact of Human Capital On Economic Growth

Dependent Var.	Ln GDP	
	Coeff. (t-statistic)	Coeff. (t-statistic)
C	50,122 (4,872)*	137,251 (3,279)**
Ln MYS	0,057 (2,602)***	-----
Ln EX	0,861 (8,501)*	0,777 (7,585)*
Ln POP	-4,675 (-4,881)*	-11,614 (-3,390)*
Ln INVHC	-----	2,031 (2,436)**
Obs	9	9
Adj. R squared	0,899	0,891
F-test	24,778	22,898
Sig-F	(0,002)*	(0,002)*
D - W	2,201	2,116

Note: * : Significant 1%, **: Significant 5% and *** : Significant at 10%
Sources: Data Processed

Similarly, the results of the second regression, regression aims to know the effect of human capital investment on economic growth. The estimation results indicate that simultaneously investment in human capital (Ln INVHC), exports (Ln EX) and the Growth of Population (Ln POP) have affects the economic growth (Ln GDP), as shown by the F-count of 22,898 significant at 0,002. Partially, investment in human capital (Ln INVHC) produces a coefficient of 2.031 means that any increase 2,031 % investment in human capital per capita will

increase economic growth by 1 %. Regression coefficient of Human capital investment statistically significant in influencing the economic growth it is seen by the results of the t test of 2.436 significant at 5%. Another dependent variable is export a positive effect on economic growth by generating a regression coefficient of 0.777, meaning that for every increase of 1 % in exports will boost economic growth by 0.777%. The coefficient is statistically significant, it is seen by the results of the t test was 7.585 and significant at 0.01. Variable regression coefficient of population growth (Ln POP) of -11.614 means any increase in population of 1 %, economic growth declined by 11.614%, and coefficients are significant at 0.01.

This study supports the findings in Edwin and Husen (2001), the empirical research Suggests that growth will be supported by an increase of in budgetary allocation to improve human capital, in a study using either FEM or REM produces regression coefficients for government spending for human capital expenditures for education presented with significant positive effect on economic growth.

The finding that the increase in investment in human capital increases economic growth theoretically support the notion that human capital is positively connect to warrant the imposition of economic growth and economic growth in the long term. To that increased government spending in health education is an appropriate strategy in the improvement of human resources, which in turn will increase the national output.

Development of a country is determined by the human capital, human resources and quality of education is determined by the progress of the State concerned. Therefore, the development of quality education is largely determined by the budget allocation (of funds), and the budget allocated for the construction of educational facilities, human resource development, education and other supporting factors. Countries that have a large allocation of funds allocated for the development of education, it is the country looks great, market share, in both economics and politics. Countries of Japan, Singapore, Russia, Vietnam, Malaysia, and Thailand over the builder put education as a priority country, and then in a short time become a developed country with the growth and prosperity of society in a high level.

The strategy for the liberation of the cost of education needs to be done by the government so that all people can access education. Government to use tax functions to ease the burden of the people in the field of education. Education-related facilities, such as printed books, the government can make a wisdom removal nail Tax (VAT) for print media products and books or

magazines-oriented education, science and culture. The principle of no tax for knowledge (tax exemption for knowledge) can be the spirit of this program. In addition to the release of various types of taxes imposed, such as tax exemption papers and other supporting materials, income tax exemption on royalties the author or author of the book and other taxes, it is proper government subsidizes the purchase of paper for publishers. Without the availability of cheap books but the quality, the speed improvements in human resources are impossible to be realized.

4.2. *The Implication Of Investment of Human Capital for Improving The Quantity of Higher Student*

Higher education is one indicator of competitiveness of a country, higher education indicator is considered as one of the key sources of efficiency that would encourage economic efficiency of a country (key for efficiency-driven economies). Therefore, higher education as a fundamental need to improve the economic progress of a country.

Among the fundamental problem is how to increase Net Enrollment Rates (NER), at higher educational, represents the Education enrollment rates community access to higher education. The Education enrollment rates regular is calculated based on the Higher Education Gross Enrolment Rate (GER) and Higher Education Net Enrollment rate (NER).GER in higher education is the proportion of the population who has higher education, while NER in higher education is the proportion of the population aged 19-24 who have higher education.

Until now, the gross enrollment rate (GER) of higher education in Indonesia is still low at less than 25 percent. Much lower than the GER in higher education South Korea where higher education has reached 95 %. GER in higher education is so high causing South Korea has progressed very rapidly, because all young children aged higher education has entered higher education.

Government's commitment to improve public accessibility in higher education through demonstrated education budget as outlined in the state budget. From year to year education funding continues to increase, the government hopes that large education budget that can be used as well as possible to improve the quality of education and expand the range of educational equity Increased range of educational opportunities represented with increasing GER and NER in Higher Education.

Nominally, the period 2005-2012 education budget has increased, however, if calculated based on the proportion of the total Government expenditure in the period 2009-2012 tended to decrease.

Table 2. Government spending in the Field of Education Year 2005-2013

Year	Education Budget (BRp)	Gov.Expenditure (BRp)	Education Budget (%)
2005	29.307,900	361.155,200	8,115

2006	45.303,900	440.031,200	10,296
2007	50.843,400	504.623,400	10,076
2008	55.298,000	693.356,000	7,975
2009	84.919,500	628.812,400	13,505
2010	90.818,300	697.406,400	13,022
2011	97.854,000	883.721,900	11,073
2012	114.962,700	1.069.534,500	10,749
2013	118.467,100	1.154.380,900	10,262

Sources: Data Highlights Budget 2005-2011 and 2007-2013, Minister of Finance of Indonesia

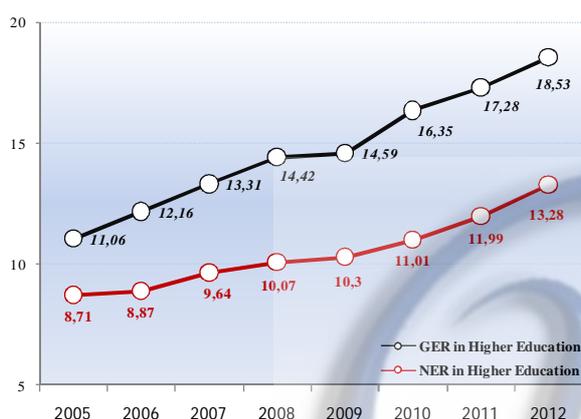


Figure 1. Trend Index of Participation In Higher Education

However, if viewed implications for public accessibility to higher education, showed an increasing trend in the rate of enrollment in higher education, both calculated by GER and NER. Compared with the increase in higher education NER, GER increasing trend of higher education tend to be higher. While the trend of higher education NER trend increase is relatively, lower.

With increased education funding from year to year, the government hopes that large education budget can be used as well as possible to improve the quality of education and expand the range of distribution of education including higher education. Increased range of opportunities in the period 2005-2012 the increase in the budget implications in improving community access to education at higher education level, which is represented by an increase in GER and NER.

The allocation of a huge budget, the substance must be accompanied by a program aimed at improving access to and quality of education. The education budget is allocated to not only the increase quality and quantity of higher education, and basic education, but also for primary and secondary education. At the level of primary and secondary education, education budget is still prioritized by the government to provide the School Operational Assistance for 31.3 million students. At the primary and junior high school students the budget is about 13.4 million, as well as providing scholarships to more than 8 million poor students at all levels of educational the higher education level, the Government provides scholarships

Improving Academic Achievement, Student Learning Assistance and Scholarship Shutter Mission, that in addition to improving access and quality of education, the education budget is also directed to improve the quality of educators, including Madrasah education personnel, teacher certification through as many as 90 thousand people (Kuncoro, 2011).

V. CONCLUSION

Development policy-oriented human resource development should be a priority in national development planning. Because in this study empirically the human capital variables showed a significant positive coefficient in influencing economic growth.

Development policies that aim to improve education and health should be a priority; increasing government expenditure for health education is the appropriate means to increase with increasing the quality of education and health, which in turn will increase. Improvement of human resources will have an impact on improving people's welfare and lower poverty levels. Thus, increased investment in human resources through education, research, and development and the inevitable health, by the government and private sectors.

Actually, every year the government has increased the budget of the education sector. However, this increase in number and relatively small in absolute terms, so it is still a whole lot when compared to other countries that are very serious in human resource development. The percentage of investment for 20 percent of the total education budget must be met in accordance with the mandate of the law.

Descriptively known that increasing the budget for education will increase the school enrollment rate in higher education. Therefore, it needs to be studied further that the budget allocation for the education budget does not include employee salaries. Therefore, the increase in the education budget as a whole is a form of government efforts to improve the quality and quantity of education.

Associated with efforts to increase access to higher education to consider the readiness of the workforce, most of access to educational institutions in Indonesia, more on academic education, so that aspect of preparedness in the workplace is also very limited. This is in contrast to developed countries, such as Australia, Japan, South Korea

and so are most of the vocational education carries a high level, making it easier for higher education graduates entering the workforce.

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