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Post Covid-19 Pandemic Economic Growth With Human Capital As A Long Term Drive

ABSTRACT

The latest direction in development economics research both at home and abroad is starting to reduce the use of convoluted analytical models. Using too many variables but with unclear causality will actually complicate the analysis and produce results that are not necessarily good and correct. There are quite a lot of scientific work findings that use dozens of variables, with statistically significant results, but if you examine the relationship many questions arise such as "How can x have a relationship with y?" or "Doesn't y affect x, and not vice versa?" or what is known as reverse causality. Causality between variables must be supported by a strong and in-depth theoretical basis—not to show that the increase in the number of giraffes in Australia affects Indonesia's GDP—and the existence of this relationship must be free from sources of bias..

Keywords: Economic Growth, Covid-19, PPKM

Klasifikasi JEL: C68, F43, L52

INTRODUCTION

Closing 2022, the government will provide a very meaningful gift for social life by lifting the policy of implementing restrictions on community activities (PPKM). With the repeal of the PPKM policy, Indonesia is starting a new chapter in people's lives. The pandemic period, which has an impact on limiting community activities and relying on activities with limited interaction, has now been relaxed. This has the impact of increasing economic activity which was previously limited. Even though PPKM has been lifted and normal life has returned, normal life today is not the same as the Covid-19 pandemic. The current normal is the new normal because over a long period

of time people have become accustomed to living at a distance.

The revocation of PPKM cannot be separated from the development of the corona virus 19 (covid-19) pandemic, which since the first month of 2022 has shown an improving trend. The addition of new cases is decreasing, the number of recovered Covid-19 patients is increasing, followed by the number of patients dying which is decreasing, this is an indication that the Covid-19 pandemic is starting to improve. This positive development is the result of various policies taken by the government to combat Covid-19 which began on March 2 2020, including through vaccination and implementation of health protocols.

Covid-19 which has hit the world has had a global impact on all aspects of life, especially the education sector and

the economic sector. In the education sector, the Covid-19 pandemic has shifted learning from face-to-face learning to non-face-to-face learning or online learning. Anderson (2021) said that the impact of Covid-19 on learning is the occurrence of Covid slides and learning loss. There is a tendency for students to forget the lessons they have learned, and lose some of the knowledge they have achieved in the previous year. This causes the knowledge that students currently have to be less than before the pandemic. However, the Covid-19 pandemic has had a positive impact on education in the form of strengthening students' integrity because their honesty is tested when completing assignments or school exams.

The knock-on impact of the education sector is that in many countries the acquisition of human capital - human capital which has been accumulated for years and collected with great difficulty, has been eroded by the Covid-19 pandemic. Human capital is different from human resources. Human capital is the knowledge, skills and health that people accumulate throughout their lives (HCI, 2020).

Meanwhile, human resources are the quantity and quality of labor possessed by a country. Human capital will accumulate and increase the value of labor related to the accumulation of skills and competencies obtained, thus having an impact on the income that will be obtained. Meanwhile, human resources will at any time decrease (run out) as people age and enter retirement.

Meanwhile, the impact of Covid-19 on the economic sector is mainly related to the reduction in production, distribution and consumption activities which ends in a decrease in the level of prosperity or welfare of society. The subsequent impact is an increase in unemployment, an increasing poor population, increasingly unequal distribution of income and social insecurity.

The Covid-19 pandemic has had an impact on declining economic growth almost throughout the world. Table 1 shows the economic growth of the ASEAN-5 countries, namely the 5 countries which on August 8 1967 declared ASEAN (Association of South East Asian Nations or Association of Southeast Asian Nations). These countries are Indonesia, Malaysia, Philippines, Singapore and Thailand.

Table 1. ASEAN-5 Economic Growth 2020-2021 (in percent)

Country	2020	2021	2022f
Indonesia	-2,1	3,9	5,4
Malaysia	-5,6	3,6	6,0
Philipina	-9,6	4,2	6,5
Singapura	-5,4	6,5	3,7
Thailand	-6,1	1,3	2,9

Source: HSBC Asia Economic Q4 2021 and fAEIB 2022

From the table above, it can be seen that in the ASEAN-5 region, the country most badly affected by Covid-19 is the Philippines with economic growth in 2019 of minus 9.6%. Indonesia was the lowest affected with economic growth in 2019 of minus 2.1. The improvement in handling of the Covid-19 pandemic in the ASEAN 5 countries means that the economic growth projections for the ASEAN 5 countries in 2022 are predicted to improve. In 2022, Indonesia is expected to grow by 5.4 percent. The highest growth in the ASEAN-5 region in 2022 will be the Philippines with an estimated economic growth of 6.5 percent, while the lowest growth will be experienced by Thailand at 2.9 percent.

The economic growth of minus 2.1 experienced by Indonesia in 2020 had an impact on reducing people's welfare in the form of a decrease in per capita income (per population) as seen in table 2. However, with positive growth in 2021, per capita income then increased again.

Indonesia's per capita income, which in 2018 was US\$ 3,902.7, increased to US\$ 4,151.2 in 2019. However, due to the Covid-19 pandemic, in 2020 per capita income decreased to US\$ 3,894.3, and in 2021 it will increase again to US\$ 4,332.7. In 2023, when PPKM has been revoked, it will be time for Indonesia to catch up in economic growth during the 2020 period.

One of the economic policies taken by the government in the short term to catch up with economic growth is through fiscal expansion. However, fiscal stimulus is very dependent on the availability of funds in the state revenue and expenditure budget. For this reason, it is necessary to look for factors that can trigger long-term economic growth after people's welfare lags behind due to the pandemic. Long-term economic growth is needed not only to catch up with the economy during the pandemic, but moreover to be able to grow sustainably in the long term.

This scientific oration will look at the variables that determine long-term

economic growth by taking references from two Nobel Prize winners for economic growth, namely Robert Solow and Paul Romer. Robert Solow in 1987 received the Nobel Prize for his contribution to the theory of economic growth and Paul Romer in 2018 received the Nobel Prize for his work on endogenous economic growth together with William Nordhaus.

RESEARCH METHODS

The definition of descriptive according to Sugiyono (2017:147) is as follows:

Descriptive analysis is statistics used to analyze data by describing or illustrating the data that has been collected as is without intending to draw conclusions which applies to the general public or generalizations. This analysis is a descriptive technique that

provides information about the data held and does not use hypotheses

RESULTS AND DISCUSSION

Human Capital and Economic Growth

Human capital consists of the knowledge, skills, and health that people accumulate over their lives. Public health and education have undeniable intrinsic value, and human capital also enables people to realize their potential as productive members of society. More human capital is associated with higher incomes for people, higher incomes for countries, and stronger cohesion in society. This is a key driver of sustainable growth and poverty reduction (HCI, 2020).

The relationship between human capital and economic growth is depicted as follows:

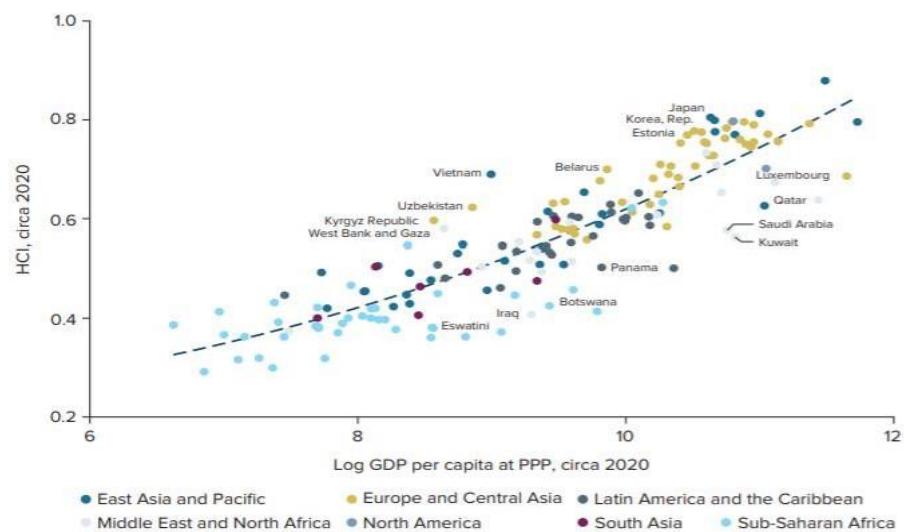


Figure 1. Correlation of human capital and per capita income
Source: HCI, 2021

From Figure 3 above, it can be seen that there is a high correlation between the human capital index, in this case the level of education, and the per capita income of the population, both in countries with high per capita income and in poor countries. The relationship between education level and income is also explained by the American Bureau of Labor as seen in table 3 below.

Table 3. Education, Income, and Unemployment USA 2020

Educational attainment	Median usual weekly earnings	Unemployment rate
Doctoral degree	\$1,885	2.5%
Professional degree	1,893	3.1
Master's degree	1,545	4.1
Bachelor's degree	1,305	5.5
Associate degree	938	7.1
Some college, no degree	877	8.3
High school diploma, no college	781	9.0

Source: US bureau of labor statistics 2021

From table 3 it can be seen that the higher a person's education, the higher the income they will earn and the lower the unemployment rate. The gap between the salaries of someone with the highest education is more than 2 times than someone with a high school education. From table 3 it can also be seen that the unemployment rate is negatively correlated with the level of

education, the higher the education, the lower the unemployment rate.

Meanwhile, a study conducted by Saparso et.al (2019) found the role of education, R&D and health in a country's competitiveness as presented in table 4 below.

Table 4. The effect of education, health, and research and development on

Model		Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig.
		B	Std. Error			
1	(Constant)	2,968	,134		22,091	,000
	Health	,035	,022	,122	2,058	,042
	RandD	,215	,051	,316	4,237	,000
	Education	,113	,016	,494	6,882	,000

a. Dependent Variable: Competitiveness

Source: Saparso et al (2019)

The relationship between human capital and economic growth has been investigated by Saparso et.al (2019) in their cross-country study. Saparso et al (2019) found the following regression equation between education, R&D and Health and output levels.

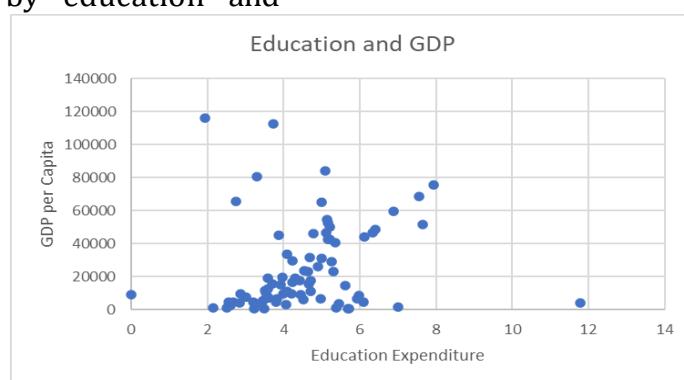
$$Y = 2.968 + 0.113 \text{ Education} + 0.035 \text{ Health} + 0.215 \text{ RandD}$$

$$(22,091) (6,882) \quad (2,058) \quad (4,237)$$

In brackets are the t-values. From the equation above, it can be seen that human capital has a significant positive effect on economic growth with the R&D variable being the dominant variable, followed by education and

health. This finding further strengthens the thesis that education in the form of human capital investment is necessary for a country to grow its economy. Furthermore, the findings of Saparso et al (2019) confirm that R&D is also an important variable in economic growth as proposed by the new economic growth theory.

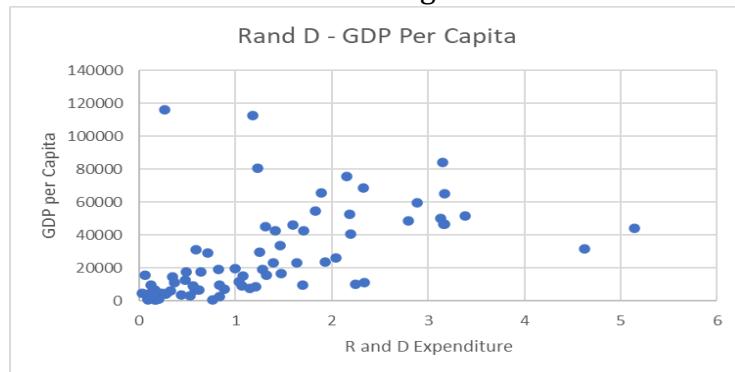
Using cross-country data from the World Bank, a linear and positive relationship was obtained between expenditure on education as a percentage of GDP and income per capita of the population as seen in the diagram below.



Source; World Bank Data

The higher a country's expenditure on the education sector, the higher the per capita income of that country.

Meanwhile, the relationship between expenditure on research and development and per capita income of the population can be seen in the diagram below.



Source: World Bank Data

From the diagram above, it can be seen that the higher government spending on R&D will have an impact on increasing the country's per capita income.

Next, we will look at Indonesia's comparison within ASEAN-5 regarding economic growth and its determining variables. From the Education variable, the length of schooling of workers in ASEAN-5 can be seen in table 5.

Education and ASEAN-5 Economic Growth

Table 5. Years of Schooling in ASEAN-5 in 2020 (in years)

Country	Years of School
Indonesia	12,4
Malaysia	12,5
Philipina	12,9
Singapura	13,9
Thailand	12,7

Source: HCI, 2021

From table 6 above, it can be seen that Indonesia is ranked at the bottom in terms of students' reading, mathematics and science abilities. It is far behind Thailand, Malaysia and Singapore. Singapore is ranked 2nd in the world and also the highest in the ASEAN-5 region in terms of students' reading, mathematics and science abilities. Then followed by Malaysia (ranked 48th), and Thailand (ranked 60th). Meanwhile, Indonesia is ranked 71st out of 76 countries with the Philippines ranked 76th.

These reading, mathematics and science abilities will in turn shape the productivity of the workforce. Figure 4 below shows a comparison of productivity of ASEAN-5 countries as measured by GDP per worker in US dollars (APO, 2021).

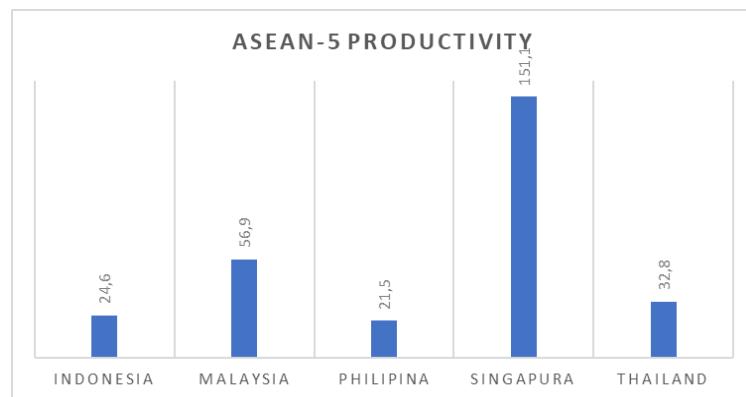


Figure 4. ASEAN-5 Labor Productivity

Source: APO 2021

From figure 4 above, it can be seen that the country with the highest labor productivity is Singapore, which in the APO study (2021) is also the country with the highest productivity in the world. Followed by Malaysia and Thailand. Indonesia is ranked fourth above the Philippines, which is the

country with the lowest productivity in the ASEAN-5 region.

Low labor productivity is positively correlated with the per capita income received by workers. Table 7 shows that there is a positive correlation between productivity and per capita income. The low productivity of the Indonesian workforce has an impact on Indonesia's low per capita income. From

Table 7, it can be seen that Indonesia's per capita income in 2020 is far behind that of Thailand, Malaysia and Singapore because the productivity of the Indonesian workforce is still low.

Table 7. Productivity and Income per Capita ASEAN-5 in 2020

Country	Years of School	Produktifitas pekerja	GDP/Pop (US\$)
Indonesia	12,4	24,6	4.196,3
Malaysia	12,5	56,9	11.231,4
Philipina	12,9	21,5	3.511,8
Singapura	13,9	151,1	65.641,3
Thailand	12,7	32,8	7.816,2

Source: HCI 2020 and APO 2021

From table 7 above, it can be seen that there is a linear relationship between education, productivity and per capita income. The higher the level of education, the more productive the workforce, and this in turn will increase per capita income. The value of human capital is realized in the labor market through productive work, and developed through education (GCR, 2020). As companies adopt new technologies globally, the workforce skills shortage in digital skills for the jobs of the future will become more apparent. Technological changes will replace various skills in the labor market and drive labor demand for workers with new skills such as analytical thinking, creativity and critical thinking as well as skills in the use and design of technology (digital skills) to increase.

R&D and economic growth of ASEAN-5

Unesco research (2021) found the importance of investment in the research and development sector in supporting economic growth. Unesco (2021) states that every dollar invested in the research and development (R&D) sector will generate almost two dollars in income (return). Endogenous growth theory emphasizes investment in education, research and development (R&D) as a form of technological progress in the economy. This fact means that investment spending on R&D is crucial to accelerate economic growth as part of increasing international competitiveness. Therefore, various developed countries such as the US, China, Japan and Europe are trying to increase their spending on R&D (OECD, 2021).

Economic growth and research and development activities are two things that cannot be separated. If a country wants to have healthy economic growth rates, it must have incentives in the form of investment in research and development. Growth in R&D intensity was widespread across most OECD countries in 2019, with the United States, Germany and Korea accounting for most of the increase. Korea exhibits the highest level of R&D intensity among OECD countries, at 4.6% of GDP. Meanwhile America's R&D investment surpassed 3% for the first time, while China's R&D intensity grew from 2.1% to 2.2%.

For countries in the ASEAN-5 region, investment in R&D is measured

In contrast to Indonesia, other countries in the ASEAN-5 region source their R&D funding from the business world. In Thailand, 80% of its research funds come from the business world, while in Singapore and Malaysia more than 50% of its research funds come from the business world. Research carried out by the business world is of course related to the return that will be obtained from these expenditures, which is not the case if R&D funds come from the government.

by comparing expenditure on R&D with GDP, it is noted that Indonesia is ranked fourth with R&D expenditure of 0.23% of GDP, which is superior compared to the Philippines at 0.16% of GDP. Singapore is the country in the ASEAN-5 region with the highest R&D expenditure, namely 1.92% of GDP, while Malaysia is 1.04% of GDP and Thailand is 1.0% of GDP.

Furthermore, funding sources for R&D in ASEAN-5 countries can be seen in Figure 5 below. From Figure 5, it can be seen that the largest source of funds for Indonesian R&D comes from the government (more than 80%) while funds from the business world (business enterprises) are very small, namely less than 10%.

If we analyze further, the impact of R&D expenditure on universities (higher education) is on lecturers' research works published in journals indexed by reputable world indexing institutions. Document data published in reputable journals from ASEAN-5 countries can be seen in table 8 below.

Table 8. Documents, citations, and H-Index and Indexed Journals in 2020

Country	Document (96-20)	Citation/document	H-Index	Journal Index
Indonesia	212.806	4,96	259	69
Malaysia	368.061	9,6	373	105
Philipina	45.309	15,27	274	27
Singapura	352.240	23,41	646	175
Thailand	223.696	13,1	369	62

Source: Scimago, 2021

From table 8 above, it can be seen that the number of documents published in internationally reputable journals from Indonesia is lagging behind compared to Thailand, Singapore and Malaysia. Furthermore, if we look at the number of citations from published documents, Indonesia is lagging behind all countries in the ASEAN-5 region. Citations are a measure of the quality of research published in journals. The higher the citations, the higher the quality of the

publication. Meanwhile, in terms of the number of indexed journals owned, Indonesia is also behind Singapore and Malaysia. This is very ironic considering that Indonesia's population is the largest in the ASEAN-5 region.

Indonesia's lagging behind in the field of scientific publications compared to ASEAN-5 countries is exacerbated by the number of researchers per one million population as seen in figure 6 below.

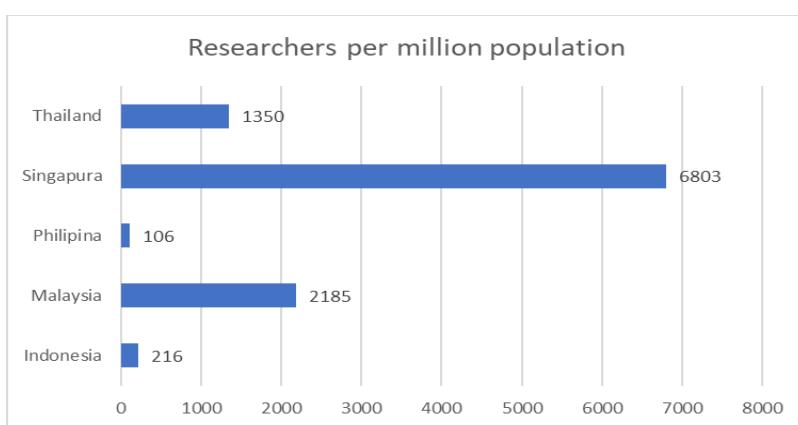


Figure 6. Number of researchers per million population.

Source: World Bank Data, 2021

From Figure 6, it can be seen that the number of researchers in Indonesia per one million population is 216. This is far behind Malaysia (2185), Thailand (1350) and Singapore (6803). Indonesia is only ahead of the Philippines, which has 106 researchers per million population.

CONCLUSION

By using the new economic growth theory as a reference, it can be seen that Indonesia's low levels of human capital and R&D are the explanation for Indonesia's lagging behind in the economic sector in the ASEAN-5 region. As a summary, table 9 summarizes Indonesia's expenditure on human capital (education) and R&D expenditure compared to countries in the ASEAN-5 region.

Human capital and R&D are needed to map and define the skills needed to drive the economy of the future, to develop new and cutting-edge knowledge, and to engage in technological production. For this reason, the education and training system needs to be updated not only to prepare children and adults to enter the jobs of the future but also needs to prepare them to be able to create innovations and master the technology needed to increase productivity. Through human capital and R&D, long-term economic growth can be achieved sustainably and per capita income can increase significantly as a measure of a country's prosperity.

REFERENCE

Acemoglu, D., (1998)., Why Do New Technologies Complement Skills? Directed Technical Change and Wage Inequality, The Quarterly Journal of Economics, November 1998.

Aghion, P and Howit, P., A (1992)., Model of Growth Through Creative Destruction., Econometrica, Vol.60, no.2, pp 323-351.

Anderson, L., W., (2021)., Schooling Interrupted: Educating Children and Youth in the Covid-19 Era., c e p s Journal, Vol.11 , doi: 10.26529/cepsj.1128

Asian Development Bank (2021)., Asian Development Outlook 2021 Update, September 2021

Asian Productivity Organization (2021)., APO Productivity Data Book 2021

Badan Pusat Statistik, (2021)., Berita Resmi Statistik

Blanchard, O., (2017)., Macroeconomics, 5th ed. Pearson

Ferreira, PV., Reis, NR., Pinto, CF., (2017)., Schumpeter's (1934) Influence on Entrepreneurship (and Management) Research, Global Economic Management Review, Doi: 10.14211/regepe.v6i1.483

HSBC Global Research (2021)., Asian Economics: Looking for Steadier Ground

IMF (2021)., World economic outlook: Recovery During a Pandemic

Nishimura, Y., (2020)., New normal and new economy: a new growth engine for Tiongkok,

International Journal of Economic Policy Studies, Springer, Japan Economic Policy Association (JEPA)

OECD (2019): PISA 2018 Insights and Interpretations

Roomer., D (2012)., Advanced Macroeconomics, 4th ed., McGraw Hill

Roomer, P.M., (1994)., The Origin of Endogeneous Growth, *Journal of Economics Perspectives*, Vol. 8 no. 3 pages 3-22

Saparso, Winoto, H., Wahyoedi, S., (2019), Human Capital Investment and Economic Competitiveness (Indonesian Competitiveness among ASEAN Countries), *Business and Economic Research* Vol. 9, No. 3

Seliger, B., (2010)., Theories of Economic Miracles.,Econstor working paper

Sidhu, R., (2015)., Knowledge Economies: The Singapore Example, *International Higher Education*, March 2015, DOI: 10.6017/ihe.2008.52.8024

Solow, R.M., (1956)., A Contribution to the Theory of Economic Growth, *The Quarterly Journal of Economics*, Vol. 70, No. 1 pp. 65-94
<http://www.jstor.org/stable/1884513>

Tapscott, D., "Strategy in The New Economy", *Strategy and Leadership*, November/December 1997.

Unesco (2021)., Unesco Science Report: The race against time for

US Bureau of Labor Statistics (2021)., *Education Pays, 2020*

World Bank (2021)., *The Human Capital Index 2020: Human Capital in Time of Covid-19 World Development Report (1999)., Knowledge for Development*