Performance, Technology and Human Capital

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Abstract

This study examines technology inclusion, education investment, health investment and economic growth in Indonesia using secondary data from world banks processed quantitatively using the moving average autoregression method. We find that investment in health, investment in education, and technology inclusion are positively related to economic growth. This shows that in Indonesia it is in accordance with the solow growth theory where technology in Indonesia has a positive impact along with Indonesia's human capital.

Keywords : Human Capital, Indonesia, Technology

Background

Computer technology has now penetrated into communication technology, commonly known as cellular technology, from cell phones, tablets, notebooks, laptops, all of which can be multi-functional (Wallace et al,2020). Cloud computing technology is also increasingly sophisticated, which stores real-time data ranging from device location information to face-to-face online communications. These technological advances support work coordination and communication in almost all areas of business (Schwab,2017).

Computing human resource management is also inevitable where everyone can have data entered into cloud computing. So that all employees can coordinate and communicate with each other to complete the project (Buyya & Dastjerdi,2016). Companies with high technology adaptation tend to have more advanced progress than those less adapted to high technology. However, the adaptation of high technology in the business sector demands human resources who have high human capital as well (Alvesson & Sveningsson,2018).

Increasing the competitiveness of companies, apart from requiring high technology adaptation also requires increasing human resources through human capital investment mechanisms (Pigato,2020). Managing human resources with computer technology can be more efficient and effective in developing human resources for measuring the performance of individual human resources (Widarni & Bawono,2020).

Literature Review

In solow theory, technology is one of the drivers of performance through improving the performance of human resources (Stimson et al,2013). Where production is a function of capital and human

resources. Technology can make human work easier so that people can work more and faster with technology. However, in operating and controlling technology, humans must have sufficient human capital. Only human resources with sufficient human capital can operate and control technology (Hoffman et al,2020).

Education is one mechanism in terms of increasing human capital through teaching and information transfer. Training is a mechanism to increase human capital by providing direction in doing something right and providing experience in doing something that is trained. So that training and education can be done while working. In other words, a person's experience in the field of work is a process of training and education that he has experienced in doing his job (Popkova et al,2018).

A monotonous experience without any new experiences makes a person an expert in his field of work in a way he knows. Technology sometimes changes old ways so that employees need to get new training and education beyond what they know and experience. So that tiered and continuous training and teaching is a necessity in modern business (Sweet & Meiksins,2020).

Research Method

This study examines technology inclusion, education investment, health investment and economic growth in Indonesia using secondary data from world banks processed quantitatively using the moving average autoregression method with the following equation:

$GDP_t = C_t + \beta_1 IT_{t1} + \beta_2 EI_{t2} + \beta_2 HI_{t3} + et$

Where,
GDP = Economic Growth
C = Constant
HI = Health Investment
EI = Educational Investment
T = Technology Inclusion
e = Error Term

Result and Discussion

The estimation results are as follows:

GDP = 19159.5632908 + 0.00070556615177*EH + 6.72536001725e-05*EI + 5211.99867699*IT

From the estimation results, health investment (HI), education investment (IE), and technology inclusion (IT) are positively related to economic growth. This shows that in Indonesia it is in accordance with the solow growth theory where technology in Indonesia has a positive impact along with Indonesia's human capital on economic growth. Table 1 illustrates the estimation results as follows:

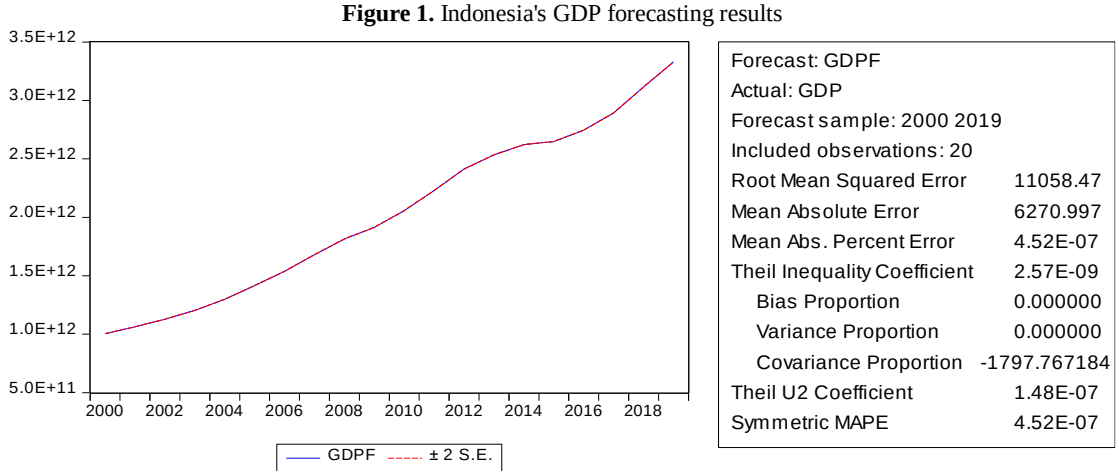
Table 1. Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19159.56	10031.88	1.909868	0.0742
EH	0.000706	0.000591	1.19379	0.25

EI	0.0000673	0.000118	0.572007	0.5753
IT	5211.999	0.00103	5059951	0
R-squared	0.8125123	Mean dependent var		2.03E+12
Adjusted R-squared	0.8025123	S.D. dependent var		7.30E+11
S.E. of regression	12363.75	Akaike info criterion		21.85978
Sum squared resid	2450000000	Schwarz criterion		22.05893
Log likelihood	214.5978	Hannan-Quinn criter.		21.89866
F-statistic	2.21E+16	Durbin-Watson stat		2.29537

Based on the estimation results described in Table 1., it can be seen that the R-square is very high so that changes in health investment, education investment and technology inclusion have a significant positive impact on economic growth in Indonesia. The estimation results show that economic growth can be boosted through the inclusion of sustainable technology and human capital investment. Figure 1 shows the results of forecasting Indonesia's GDP.

Figure 1. Indonesia's GDP forecasting results



Source: Author Computing

Based on Figure 1. Human capital and technology investment in Indonesia has a positive impact on the Indonesian economy. Economic growth can be encouraged through investment in human capital and technology.

Conclusion

The development of technology is very fast and affects almost every line of human life. Technological investment that encourages technological inclusion can increase economic growth along with investment in human capital through investment in education and health.

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