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主 論 文 の 要 旨

論文題目	Human Capital and Economic Growth in Indonesia (インドネシアの人的資本と経済成長)
氏　　名	Yubilianto

論 文 内 容 の 要 旨

At least around 11.4 percent of the government budget has been dedicated to education in 2001 in Indonesia. The number gradually increased to 14.3 percent in the following year and 16.0 percent in the next following year. Currently, at least twenty percent of the government expenditure was allocated to the education sector since 2009 to provide better education for all citizens as a form of human capital investment. However, there is no clear picture of the extent of this human capital investment improves the economy.

Despite the puzzle of the education investment impact on the economy in terms of a macro perspective, the impact of education investment from individuals or micro perspective is also significant and needs more attention. Therefore, knowing to return to investment in education becomes essential to help people determine whether or not to continue their education.

This dissertation is designed to give some insight into understanding all those inquiries. In detail, this research will be classified into seven chapters, as follows:
- Chapter 1: Introduction
- Chapter 2: Literature Review
- Chapter 3: Education in Indonesia
- Chapter 4: Return to Education and Financial Value of Higher Education in Indonesia
- Chapter 5: Panel Data Analysis on Human Capital Investment and Economic Growth on Selected ASEAN Countries
- Chapter 6: Macro-econometric Model of Human Capital in Indonesia
- Chapter 7: Conclusion and Policy Recommendation

Among those seven chapters, Chapters 4, 5, and 7 are the core chapters in this dissertation that will explain and analyze the impact of human capital investment on the economy. Below is the purpose, methodology, and results of each chapter:

Chapter 4

Chapter 4 tried to find the impact of human capital investment through education on individual earning. Practically, this part will analyze and discuss the return to education in Indonesia, as well as the financial value of education in Indonesia. In order to analyze the return to education in Indonesia, this research implements two methods, namely, the short-cut method and the earnings function method (also known as the Mincer earning equation). Meanwhile, for analyzing the financial value in Indonesia, this study applied the Internal Rate of Return (IRR) analysis and Net Present Value (NPV) analysis. This part mainly uses data from the Indonesia Family Life Survey wave 5 (IFLS-5).

In short, this study is designed to answer these questions:

a. *To what extent the investment in education affects individual earning?*
b. *How much is the return to education in Indonesia?*
c. *How much is the financial value of higher education in Indonesia?*

Below are the findings that are addressed to answer those questions:

a. In general, college graduate workers earn the highest work-life income compared to workers from other education levels. For middle-class workers, college graduates earn a 60% higher income than that of senior high school graduates. Meanwhile, junior high school graduates and elementary school graduates earn 26% and 40% lower than that of secondary leavers, respectively. Those numbers are calculated by assuming full employment.

b. By using the short-cut method and full employment assumption, the return to education of higher education indicates the highest rate, with around 15% on average. Meanwhile, the return to education for junior high school and senior high school is around 8% and 11%, respectively. When applying the Mincer earning equation, the return to education for higher education is around 12%. In comparison, the return to education for junior high school and senior high school is around 6% and 10%, respectively. Furthermore, by using years of schooling as a proxy, the return to education in Indonesia is around 9%.

c. This study only discussed the financial value of higher education. Practically, the cost of education varied across different types of universities and different types of facilities. In general, public universities offer a lower tuition fee, which is the most significant share of the cost. Other than tuition fees, the cost of lodging and food consumption also contributed to determining the

total cost for higher education. Therefore, depending on the job position on the labor market as well as college choices, investing in higher education can be a loss. Thus, the investment never returns as the cost exceeds the potential incomes.

In general, the results indicate that the rate of return of investment in education is 5.5% with NPV of Rp134.3 million (about US$11,319 assuming 2014 exchange rate) to 45.3% with NPV of Rp473.5 million (about US$39,907 assuming 2014 exchange rate), assuming full employment for middle-class workers. Furthermore, it takes about 10 years to 33 years to compensate for higher education investment from the additional earning of having continued to college, depending on working-class and college choices.

Chapter 5

Chapter 5 discussed the impact of human capital investment from a broader perspective. This part employed a reduced-form equation with panel data analysis to examine the impact of the human capital investment on the economy in the Southeast Asia region's countries. Due to the data constraint, only 5 countries are included in the analysis, namely: Indonesia, Malaysia, Singapore, the Philippines, and Thailand.

By using that method, this part tried to answer this question:

To what extent is the impact of human capital investment on the economic growth in South East Asia countries (ASEAN)?

The finding is that government expenditure on education, as a proxy for human capital investment, improves economic growth positively and statistically significant to explain the variation in the economy's output. By using the fixed-effect panel data method, it was found that a 1% increase in the current year's education expenditure will contribute to a 0.11% increase in the next five year's output in the economy.

Chapter 6

This chapter implemented a macro-econometric model analysis to examine specifically the impact of government education spending on economic growth in Indonesia. Unlike Chapter 5 that used reduced-form, this chapter applied structural-form. It helps enhance the analysis from the previous chapter as the macroeconometric modeling allows us to investigate more detailed information about the transmission mechanism from education spending to the economy. This chapter tried to answer the following question:

What is the impact of government education expenditure on the economy?

The result suggested that allocating more budget in the education expenditure for consumption by reducing government expenditure for consumption other than education purposes provide the highest impact on economic growth. On the other hand, the worst budget allocation is when we increase the budget for education expenditure for investment by reducing government expenditure for investment other than educational purposes. In this case, it adversely affects the output in the economy in the long run.

All in all, this dissertation concludes that human capital investment is essential for both micro and macro perspectives. From an individual point of view, education determines the income level. In this regard, a higher level of education will eventually lead to a better career and higher earnings. As a result, higher education graduates gain the maximum benefit. However, the value of the investment in higher education varies depending on the job position on the labor market, which determines the earning and college choices that determine the cost of investment.

Similarly, from a wider perspective, government education expenditure as a form of human capital investment is indeed unavoidable and potentially lucrative to the economy. However, since the government budget is limited, failure to properly allocating the budget might adversely affect the economy. Therefore, prudent budget allocation management also becomes an essential element to determine the extent of economic activities

Despite the findings mentioned above, there are some limitations of this study that should be addressed for future research. In Chapter 4, before finding the return to education, this study constructed age-earning profiles by the level of education. To some extent, the results are normal and acceptable that having more education tend to have a higher income. Furthermore, there is a trend that the income increases as the age increases (i.e., earning increases following the experience). However, this study uses data from IFLS-5 with limited respondents. To construct a more realistic age-earning profile requires a more extensive data sample. Moreover, applying only one-time data observation, such as IFLS-5, cannot capture the dynamic of "quality of education."

In other cases, the short-cut method that has been applied in Chapter 4 to examine the return to education is supposedly designed to measure the benefit of having an additional one or more level of education concerning some sacrifices that should be made. These sacrifices can be in the form of time that should be spent, opportunity cost, and the real money that should be expensed. To some extent, this framework can be misleading, particularly if we want to make a comparison study. In a particular group of observations (e.g., 25% of the distribution), where the marginal earning of having more education is high, they will have a high rate of return to education. However, it is not necessarily implied that to be at different sampling distribution (e.g., 75% of the distribution) with

lower marginal earning is worse. By considering those flaws, future research is expected can accommodate more extensive data set with different time-variant and combining more methods to improve the quality of the research.

Furthermore, both Chapter 5 and Chapter 6, which are dedicated to capturing the impact of human capital on a larger scale, are constructed with a simple design. To the best of the author's knowledge, no macro-econometric model is yet available to capture the flow of human capital investment in Indonesia. This model provides a small model as a stepping stone for further research by applying more sectors, such as the financial market and trading, to enhance results.