# The Importance of Human Capital to The Indonesian Economy

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## Abstract

This study investigates the development of human capital in Indonesia and its impact on economic growth by examining the causal relationship between education investment, health investment, and economic growth in Indonesia.In this study, dynamic ARDL was applied.The World Bank has provided this data as a secondary source. For the years 2000 to 2020, the following variables will be analyzed using two different time series models. The country's GDP is used as a measure of economic growth in this study. Health investment (HI) and education investment (E) are independent variables of the study because they serve as indicators of how these two variables are related in the long and short term to economic growth. We found that education and health have a causal relationship to economic growth. This is indicated by the influence between education, health and economic growth in Indonesia. Investments in education and health have an impact on economic growth. This is important because education is a driver of human productivity. Education and health are the two main factors in the development of human capital

**Keyword :** Human Capital, Indonesia, Education, Health, Economy

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## Introduction

The Human Resources Project is a global effort aimed at accelerating quantitative and qualitative increases in investment in people to promote equity and economic growth. To identify a strategic approach to achieve the required transformation of human resource outcomes requires ongoing research to ensure the human development program is successful (Widarni, E. L., & Bawono, S. (2021).

Human capital development may also be accomplished via the use of technology, increased innovation, and other strategies. The Human Resources Project brings together governments that value human resources and direct knowledge to regions where it is most needed. Liaison, liaison, and coordination officials, who are normally based in ministries of finance, economics, or planning (and sometimes in sectoral ministries), meet on a regular basis to share information, thoughts, and perspectives (Sulisnaningrum, Widarni, & Bawono, 2022).

Our worldwide development strategy revolves around human capital. One of the three major methods to achieve the objective of eradicating poverty and fostering shared prosperity in all nations is to protect and invest in people. This is directly linked to initiatives to promote inclusive and sustainable development and strengthen developing countries' resilience (Rusmingsih, Widarni, & Bawono, 2021).

Human capital refers to the solid knowledge, skills, and talents that individuals invest and build over their lives in order to reach their full potential as contributing members of society. Investing in human capital, such as nutrition, health care, quality education, employment, and skills, contributes to the development of human capital, which is essential for reducing extreme poverty and creating more inclusive communities (Drean, 2021).

In the Changing Nature of Jobs, the boundaries of essential abilities shift rapidly, generating both possibilities and threats. Without growing human capital, countries would be unable to maintain inclusive economic development will lack a competent workforce to fill future high-skilled occupations, and will be unable to compete successfully in the global market (Mora & Afriani,2021).

Human capital should be addressed seriously with the goal of employment creation and economic transformation for nations at all levels of development. By studying the causal link between education investment, health investment, and economic growth in Indonesia, this research explores the development of human capital in Indonesia and its influence on economic growth.

## Research Method

The World Bank has provided this data as a secondary source. For the years 2000 to 2020, the following variables will be analyzed using two different time series models. The country's GDP is used as a measure of economic growth in this study. Health investment (HI) and education investment (E) are independent variables of the study because they serve as indicators of how these two variables are related in the long and short term to economic growth. We use the following econometric model:

$$Eg_t = \beta_0 + \beta_1 EG_{t-1} + \beta_2 HI_{t-1} + \beta_3 HI_{t-2} + \beta_5 HI_{t-3} + \beta_6 E_{t-1} + \beta_7 E_{t-2} + e_t$$

Where,

EG : Economic growth

HI : Health investment

E : Education investment

e : Error term

t : Time series

In this study, dynamic ARDL was applied. According to Khan et al.(2020) when the independent variables experience a shock, the ARDL model may be used to study, simulate, and predict it. If there is a cointegration relationship between research variables, ARDL simulation models may be used.

## Result and Discussion

Table 1 displays descriptive data based on the study's variables.

Table 1. Descriptive statistics

| | EG | HI | E |
|---|---|---|---|
| Mean | 4.906346 | 2.683311 | 44.39875 |
| Median | 5.051428 | 2.807367 | 43.20366 |
| Maximum | 6.345022 | 3.953081 | 54.57823 |
| Minimum | -2.069543 | 1.852977 | 40.37876 |
| Std. Dev. | 1.776214 | 0.471109 | 3.701548 |
| Skewness | -3.184847 | 0.425337 | 1.314170 |
| Kurtosis | 13.27099 | 4.045997 | 4.090804 |
| | | | |
| Jarque-Bera | 121.7219 | 1.514796 | 6.748355 |
| Probability | 0.000000 | 0.468885 | 0.034246 |
| | | | |
| Sum | 98.12692 | 53.66622 | 887.9750 |
| Sum Sq. Dev. | 59.94378 | 4.216930 | 260.3278 |
| | | | |
| Observations | 20 | 20 | 20 |

The results of descriptive statistics are expressed in terms of mean, min, max, and Std Dev. EG Mean 4,906, EG Min -2,095, EG Max 6,345, EG Std Dev 1,776. HI Mean 2,683, HI Min 1,852, HI Max 3,953, HI Std Dev 0.471. E Mean 44,398, E min 40,378, E max 54,578, HI Std Dev 3,701. EG is Indonesia's economic growth, HI is health investment, and E is an investment in the education sector in Indonesia.

A stationary test should be done before utilizing the ARDL model to predict the value. By analyzing the error component, which includes any chance of autocorrelation if the series is not stationary, Augmented Dickey-Fuller (ADF) may determine whether the series is not stationary. The following are the outcomes:

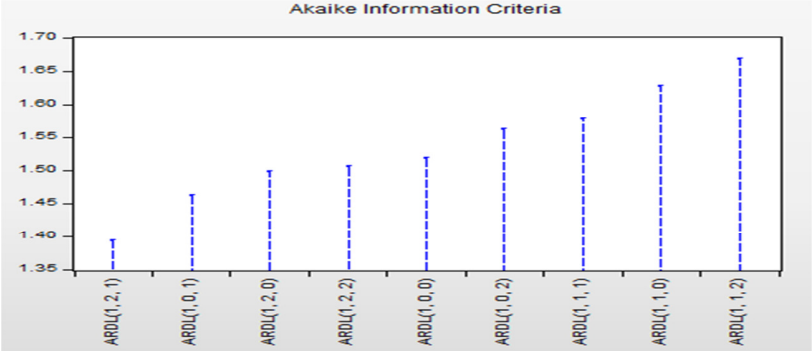
Table 2. Unit Root Test on EG, HI, and E data

| Variable | Unit Root | Include in the examination Equation | Statistics for the ADF Test | 5% Critical Value | Description |
|---|---|---|---|---|---|
| Economic Growth (EG) | Level | Intercept | -0.527808 | 0.8660 | |
| | First Diff | Intercept | -1.929268 | 0.3129 | |

| | | | | | |
|---|---|---|---|---|---|
| | Second Diff | Intercept | -3.319458 | 0.0293 | Stationer |
| Health investment (HI) | Level | Intercept | -0.598411 | 0.8501 | |
| | First Diff | Intercept | -3.732511 | 0.0123 | Stationer |
| Education (E) | Level | Intercept | 0.330179 | 0.9721 | |
| | First Diff | Intercept | -5.019844 | 0.0012 | Stationer |

The EG data is stationary at the second difference, while the HI and E data are stationary at the first difference. This is indicated by the Augmented Dickey-Fuller Test, with a probability of 0.0293, a probability of less than 5%, in this case, the EG data shows stationary in the second difference. The same thing happened to the HI and E data which were stationary at the first difference from the original data.

Picture 1. Optimum Lag Test




Optimal lag testing is performed to determine which lag is appropriate for use in the next test; as shown in the picture above, 1,2,1 lag is the most recommended.

Tabel 4. ARDL bounds test

| Test Statistic | Value | Signif. | I(0) | I(1) |
|---|---|---|---|---|
| F-statistic | 5.108746 | 10% | 2.63 | 3.35 |
| k | 2 | 5% | 3.1 | 3.87 |
| | | 2.5% | 3.55 | 4.38 |
| | | 1% | 4.13 | 5 |

The model's F-statistical value of 5.108746 is larger than the upper limit value at the 5% level, and even greater than the upper limit value at the 2.5 percent and 1 percent levels, according to the results of the

ARDL model's Limit Test in Table 4. This indicates that the three factors investigated in this research, namely economic growth, health investment, and education investment, are cointegrated across time, or that the three variables move in the same direction.

Tabel 5. ARDL analysis results

| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
|---|---|---|---|---|
| EG(-1) | -0.014318 | 0.243084 | -0.058900 | 0.9542 |
| HI | 2.313504 | 0.783302 | 2.953529 | 0.0144 |
| HI(-1) | 0.707871 | 0.767664 | 0.922111 | 0.3782 |
| HI(-2) | -1.307105 | 0.696442 | -1.876832 | 0.0900 |
| E | -0.066562 | 0.055230 | -1.205186 | 0.2559 |
| E(-1) | -0.117529 | 0.074437 | -1.578917 | 0.1454 |
| C | 8.812385 | 3.126220 | 2.818863 | 0.0182 |
| | | | | |
| R-squared | 0.691732 | Adjusted R-squared | | 0.506770 |

The ARDL model's adjusted R-squared and R-squared values varied between 0.69 and 0.50. The Adjusted R-squared value of 0.69 implies that each of the independent variables in the ARDL model, namely health and education investment, can account for 69 percent of the variation in the dependent variable of economic growth. This indicates that the research model is sufficiently excellent to be examined.

Judging from the ARDL estimation results, the variable EG(-1) has a coefficient value of -0.014 which indicates that the previous year's economic growth factor is also a factor that affects economic growth. For example, an economic growth rate of 1% in the previous year would result in a decline in Indonesia's GDP by 1.4 percent. The value of the coefficient E(-1) is -0.11 which means an increase of 1 percent will increase by 11%.

## Conclusion

Education and health have a causal relationship to economic growth. This is indicated by the influence between education, health and economic growth in Indonesia. Investments in education and health have an impact on economic growth. This is important because education is a driver of human productivity. Education and health are the two main factors in the development of human capital.

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