Human Capital Public Investment and Economic Growth in the Philippines

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Abstract

In this study, the impact of government investment in health and education on Philippine economic growth is examined. For the years 2000 through 2020, we utilize statistics data from the World Bank. We use a quantitative analysis method.This study used the Dynamic ARDL model. If there is a cointegration connection between the study variables, the dynamic ARDL simulation model can be applied. We discovered that investments in health and education have a significant influence on economic growth, as shown by the positive causal association between these investments and economic growth. Education and health are two vital factors that must be considered in economic development in the Philippines.

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Introduction

Investments in public health produce health outcomes that are cost-effective and can contribute to broader sustainability, with economic, social and environmental benefits (Sulisnaningrum, Widarni, & Bawono, 2022). Health services are the main responsibility of the Government. High-quality health care helps prevent disease and improve quality of life (Guida & Carpentieri, 2021). The Philippine government is focused on improving the quality of healthcare and ensuring that everyone has access to the health care services they need. The Philippine government also helps healthcare providers communicate more effectively to help improve health and well-being (Ocampo et al., 2019).

A nation's workforce will be more productive and its citizens' children will be in better health if its citizens are healthier, and therefore more productive. Immunization and strategies to prevent childhood diseases are very important for future community productivity (Doherty, Del Giudice, & Maggi, 2019).

Not only have many public health interventions in the Philippines worked, but they also save more money than they spend. However, Filipinos spend relatively little money in that domain and more on medical treatment which returns less value for the cost (Lasco, Yu, & David, 2022). The government is in charge of providing everyone with adequate health facilities, including health centers, hospitals, diagnostic labs, ambulance services, blood banks, and others. This service must reach every patient in the furthest corner (Singh, Sunuwar, Shah, Karki, Sah, Adhikari, & Sah, 2021).

Public services, which include things like hospitals, roads, and schools, affect how well most of us will live. In terms of financial support, the government should allocate more funds for education because of course it will have a bigger impact on society, especially in the future (Grum, & Grum, 2020).

The Philippines Department of Information and Communication Technology will use the innovations of the Fourth Industrial Revolution without specifying that technology is the monopoly of a handful of foreign companies (Kim, Torneo, & Yang, 2019). Foreign companies, big businesses, and politicians in the Philippines will benefit from pending contracts in investment, trade, infrastructure, energy, transportation, communications, health, education, water, lighting, and other people's needs (Camba, 2020). There will be "growth" or economic growth but not for everyone, the majority will have low wages, unemployment, and falling livelihoods (Visco, 2022). Achieve the economic goals of the Philippines cannot be separated from the role of human resources owned by the Philippines, including human capital owned by every individual who is a citizen of the Philippines (Cho, Avalos, Kawasoe, Johnson, & Rodriguez, 2021). This study investigates the role of government investment in education and health on economic growth in the Philippines.

Literature Review

Any capital must be used to make money and accumulate wealth. The same applies to human capital. It is strongly connected to the overall worker productivity in a certain industry, in a company, in a particular society, city, region, or country. A person's inner beliefs, as well as his hobbies and desire to develop, are usually determined by social factors (Widarni & Bawono, 2021).

The difference between the human capital of social strata with other social strata lies in the comparison of the level of competitiveness of intellectual abilities accumulated by each of these social strata. There are various ways to invest in human capital. The fact that it is profitable is due to the fact that the personal and business characteristics of a particular specialist or group of workers contribute to the creation of economic well-being for all parties. Investing in someone usually means increasing their employability (Rusmingsih, Widarni, & Bawono, 2021).

Human capital is assessed using an index. The calculation uses a special method. The dynamics of a person's development from year to year, changes in job, position, further education, performance results, reasons for promotion are taken into account. It determines a person's ability to generate income (Eknath & Janardhan, 2020).

The quality and quantity of information that a person brings to himself directly affects the economic performance of not only a business, company, but also a city, region or country. The information available to people determines the growth of these indicators, which, accordingly, affects competitiveness in world markets. Human resources are the main value of the country (Rigby & Ryan, 2018).

During economic expansion, man capital accumulated is taking the place of the building of physical capital. The rate of human capital accumulation is higher than the pace of physical capital accumulation. Compared to physical capital, human capital accumulates through a totally different mechanism. Attention to human capital is due to the obvious profitability of the funds invested in its development (Pomi, Sarkar, & Dhar, 2021).

Human capital is considered a form of movable capital. In current conditions, labor migration of highly qualified employees is considered a significant source of accumulation of human resources, which ensures material well-being and economic growth (Bilan, Mishchuk, Roshchyk, & Joshi, 2020). The economic world needs highly qualified recruits, with higher education and significant qualifications (Lauder & Mayhew, 2020). Theoretical growth models and microeconomic data show that the accumulation of human capital is considered a significant condition that characterizes income per inhabitant. One of the main conditions of production,

which characterizes the welfare of the state, is the size of the accumulated human capital (Lao, Gu, Yu, & Xiao, 2021).

Investments in people's capital, education, and health are the three major ways that it is human capital accumulated. The accumulation of basic human capital assets occurs in the investment process, and both the private sector of the economy and the state act as investors (Popoola, Alege, Gershon, & Asaleye, 2019).

The growth of the world economy in the shortest few years depends on the building up of human capital. Development of human resources is one of the main requirements to achieve such development. Human capital development is seen as a source of economic expansion (Lehmann, Schenkenhofer, & Wirsching, 2019).

The development of human capital is significantly influenced by subjective variables. The average amount of human capital affects how much human capital is accumulated. Community participation in the process of human capital accumulation is very significant, requiring significant motivation and effort from the students themselves (Ma, Dai, & Wen, 2019).

The direct costs of accumulating human capital can include individual assignments, training materials, and investments in human capital. The entire process of building up human capital takes time. Any area's development of human capital has its own unique qualities: in rural areas, small settlements, capital accumulation is slower than in large settlements. Economic growth encourages remote areas' development of human capital (Liang & Yang, 2019).

The production of material goods will certainly remain important, nonetheless, the employment of highly trained employees, fresh information, technology, and management techniques will largely decide its economic effectiveness. As a result, the process of creating and disseminating information is brought to light, along with the person's intellectual capacity. As a result, more and more experts believe that human capital—rather than natural or accumulated resources—is the most crucial resource for post-industrial civilization. Human (intellectual) capital now determines the rate of economic growth and the advancement of science and technology in all nations (Pfeiffer, 2021). Thus, public interest in the education system as the basis of capitalist production is also increasing, although the theory of human capital is needed. Much attention is paid to investment in human capital and its accumulation factors, as they directly affect the development and improvement of human capital. To do this, it is necessary to study as deeply as possible all the nuances and requirements of effective human resource development and determine the importance of their accumulation (Marek, Patrik, Veronika, & Marina, 2020).

One of the key facets of the contemporary study of the labor supply is the processes of qualitative enhancement of human resources. With its candidacy, a real revolution in the labor economy is associated. Specific training of employees forms the competitive advantage of the company, the significant characteristics, and features of its products and behavior in the market, and finally their knowledge, image, and brand. Companies and corporations themselves are primarily interested in specialized training, and they finance it (Bawono & Widarni, 2022).

General training is not directly paid for by the workers themselves, when, in an effort to improve their skills, they agree to lower wages during training; they also derive income from general investments. In contrast, specialized training is financed by most of the companies themselves, which also receive their main income (Sasongko, Widarni, & Bawono, 2020).

The concept of dedicated human resources helps explain why long-term workers in the same job have lower turnover rates and why companies fill vacancies mainly through internal promotions rather than external recruitment. The human capital theory is very significant in the analysis of the problem of economic inequality. The uneven placement of the demand curve for investment

in human capital reflects inequalities in students' natural abilities, while the uneven placement of the supply curves reflects the unequal access of their families to financial resources (Widarni & Mora, 2021).

Income inequality is not only from labor (actually, from human capital) but also from property (from other property received as gifts or inheritance). In general, investing in people yields greater returns than investing in tangible assets. However, when investment volume rises, human capital declines, but other assets (such as real estate, stocks, etc.) either hardly change or don't change at all (Fuller, Johnston, & Regan, 2020).

The rational family strategy is to invest in children's human capital, because the returns are greater, and then, as it decreases compared to the rate of return on other assets, switch to investing in it. to transfer those assets to the children. Families that leave an inheritance make the best investments in the human capital of their children, while families that do not leave an inheritance often invest less in their education. The development of human capital theory is in line with the neoclassical direction. In recent decades, the principle of optimizing individual behavior, which was originally neoclassical, has begun to spread in various fields of non-market human activity (Afriani, 2021 ; Aslam, 2020).

Learning, skills training, migration, knowledge acquisition, childbearing, and caregiving are among the most significant forms of human investment. The idea of the internal rate of return has a crucial position in the theory of human capital. They were developed by analogy with the capital investment yield and allow us to evaluate the effectiveness of human investment, especially in education and training (Sodirjonov, 2020).

Research Method

We make use of data provided by the World Bank covering the years 2000 to 2020. We use a quantitative analysis method with the following equation:

$$GDP_t = \beta_0 + \beta_1 Hi_t + \beta_2 Ed_t + \beta_3 Gx_t + e_t$$

Where GDP is gross domestic product, Hi is health investment, Ed is education, Gx is government expenditure. The next equation is applied to the vector causal relationship:

$$\Delta GDP_t = \beta_0 + \beta_1 GDP_{t-1} + \beta_2 Hi_{t-1} + \beta_3 Ed_{t-1} + \beta_4 Gx_{t-1} + \sum_{i=1}^{q} \beta_6 \Delta GDP_{t-1} + \sum_{i=1}^{q} \beta_7 \Delta Hi_{t-1} + \sum_{i=1}^{q} \beta_8 \Delta Ed_{t-1} + \sum_{i=1}^{q} \beta_9 \Delta Gx_{t-1} + e_t$$

According to F statistical calculations, the elements in the aforementioned equations from β1 to β9 need to be investigated. If the study variables exhibit cointegration, proceed with the dynamic ARDL simulation models for the short and long term. In this study, the Dynamical ARDL model was used. The dynamical ARDL model can be used if there is a cointegration relationship between the research variables. We employ the following ARDL model:

$$\Delta GDP_t = \psi GDP_{t-1} + \beta_1 Hi_t + \psi_1 \Delta Hi_{t-1} + \beta_2 Ed_{t1} + \psi_2 \Delta Ed_{t-1} + \beta_3 Gx_{t1} + \psi_3 \Delta Gx_{t-1} + \psi Dx_{t-1} + e_t$$

The aforementioned equations are ARDL simulation models that are dynamic, where et serves as error correction and, ψ is the short-term coefficient, respectively, β represent long- and short-term coefficients. Dx is used to measure how quickly the imbalance is being corrected.

Result and Discussion

In the autoregression equation, stationary data is required, we used the unit root test, which is shown in table 1, to check for stationarity.

Table 1. PP Test And ADF Test

PP test				
Constant level	GDP	Hi	GX	Ed
t-Stat.	1.1226	2.7532	3.4213	1.3243
Prob.	0.5267	0.01243	0.0089	0.3425
t-Stat.	5.2311	12.2214	12.5532	5.1232
Prob.	0.0000	0.000	0.0000	0.0000
ADF test				
at level with constant	GDP	Hi	GX	Ed
t-Stat.	3.1424	2.3367	2.4223	2.7256
Prob.	0.4235	0.0332	0.0079	0.4423
t-Stat.	4.6671	8.1125	6.2343	6.5413
Prob.	0.0000	0.000	0.0000	0.0002

In our experiments, the results of which are shown in table 2, we employed the ardl bond test.

Table 2. Bounds Test ARDL

GDP		EF		
Test Stat.	Value	Test Stat.	Value	K
F-Stat.	3,472	F-Stat.	12,3317	4
Crit. Value				
Signif.	10 bound		11 bound	
10%	2.45		2.38	
5%	2.52		4.23	
2.5%	3.25		4.47	
1%	3.57		4.91	

The projected F statistical values both for indicators exceed the upper limit at the 5% level of significance. The findings demonstrate that both models' dependent variables and independent variables exhibit cointegration. After testing the bond, we estimate the dynamic ardl which is presented in table 2. The dynamic ARDL findings are as presented in Table 3.

Table 3. The Dynamic ARDL Result

	GDP
ECT	0.351
	1.67
Hi	2.231
	3.34
Hi t-1	4.471
	1.75
Ed	0.225

	2.71
Ed t-1	0.249
	2.26
GX	1.321
	0.69
GX t-1	4.718
	1.57
N	31
R square	0.6271

The acronym ECT in this study stands for error correction speed. It was evident from the dynamic ARDL data that ECT was important in both situations. According to the dynamic ARDL results, long-term health investment (Hi) has a sizable favorable impact on GDP. The link between GDP and health investment (Hi) is favorable in the near run. Economic growth was found to be considerably benefited by investments in education. It was determined to be considerably beneficial for the Indonesian government's investment in infrastructure both immediately and in the future.

Conclusion

Investment in education and health has an important role in economic growth which is indicated demonstrating a favorable causal link between health and education spending and economic development. Education and health are two vital factors that must be considered in economic development in the Philippines.

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