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The Contribution of Human Capital Investment in the Growth of East Asian Economy – A Literature Review

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Abstract
Human capital as the wealth of nation supports the economy in a variety of ways. This study intended to elucidate the significance of education, technology utilization and health investment in economic affluence of East Asia. The finding shows a significant relationship between human capital investment and economic growth in East Asia. Human capital investment has become an essential tool to determine nations productivity in both, micro and macro level. The findings come across to assume that, in order to be successful, HC investment through the improvement of technology, education and health system must be cautiously considered in any endeavor towards economic development and sustainability. The study concluded that a person with poor health, lack of knowledge or vocational training will offer less, theoretically, than a person who has been specifically trained or who has attained a higher level of education.
Keywords: human capital, individual capital, economic development, technology, investment

Introduction

Human capital (HC) is the major determinant of the economic development and sustainability. It concentrates on the productivity and innovation that molded in individuals which can not be separated from other development paradigms. Psacharopoulos and Woodhall (1997) described human capital as a positive reason of productivity to enlarge social, political and economic development.

In East Asia, human capital has become an engine of development as some of them spend a considerable amount of money to supplement their citizens with the highest level of knowledge technology and know-how. It also contributes in the performance of companies and increases individual per capita. More clearly, Son (2010) defined HC in Macro and micro economic perspective as the accumulation of individual capital that promotes labor productivity, facilitates technological advancement; maximizes returns on investment which can support poverty reduction (Son, 2010, p. 9).

In contrast, in micro aspects, HC is more combined with education and training skills that again maximizes profit. Accordingly, in this study we examine how some East Asian countries achieved certain level of development and ranked among the world most advanced countries in terms of technological advancement and innovation. We also elaborate the differences between South East and North East Asia, as most South East Asian countries are suffering from minor technological innovation. This study tries to investigate the factors behind the gaps in relation to human capital development. We lastly intend to comprehend whether they have the inclination to the proper economic strategy that interrelated to primary education, technological advancement, improving health system or not.

Human Capital Investment

Investment in human capital is considered as the major condition for the success of the economic policies. Individuals could not be well qualified to the workplace without the accumulation of HC. This study presumes that human capital investment can significantly influences economic growth.

Scholars like Marshall (1930) and Lucas (1988) investigated the significance of HC long times ago. Marshall alleged that the most important capital to be endowed is vested in human beings; Lucas (1988) conceptualized the term and correlated to economic growth. He

stated that returns on investment could be traced to the evaluation programs in which provides the solution and knowledge of worth specific organization and promotes the accountability of the agents. It was also argued, maintaining the improvement of human capital investment surges productivity, which basically relies on the level of HC per workers (Edgard and Cornachione, 2010, p. 32). In this case, the value-added productivity (VAP) for each employee could be traced through the utilization of the most advanced technologies. Furthermore, Barro and Sala-i-Martin (1997) contends that investment in the employees' skills creates a large scale of economic opportunities; therefore, it should not only vested in education, but other externalities should be deliberated with the purpose of maximizing the level of productivity. Otherwise, the effects on growth would be biased (Lange and Tope, 2005, p. 9-10).

Babbalola (2003) provides three core arguments that investment should be vested. The first argument is the transformation of knowledge from old generation to the new generation. That could be attained through communication channels and day to day interaction with youths to transfer their past experiences. The second argument is also allied with the first point; he suggests that new generation ought to be taught on utilizing their knowledge to innovate new products. The last argument is encouraging people to be creative and maintain their creativity through specific programs and knowledge that they possess (Olaniyan and Okemakinde, 2008).

In this regards, Thai government planned to maximize the quality of its citizens through the investment in both, virtue and knowledge for the period of 2007-2011 and it was one of the four most essential strategic plans of the Thai government to foster its socioeconomic performance. Furthermore, the National Development Planning Agency in 2006 formulated the Indonesian medium term development plan for the period of 2004 to 2009 entailed the development of human capital and nurturing the quality of the population for the labor market, in order to accomplish economic objectives.

The Vietnamese government introduced a socioeconomic strategy to promote human capital and improve the quality of the population for 2001-2010, though education and training. However, the slow economic growth has been noted due to the poor development strategy that prevented government to take full advantage of the

possessed human capital. According to the Vietnam's Ministry of Education, nearly 30% of the university graduates trained on the job they are intended to do (Phan & Coxhead, 2013). Also, the education infrastructure and the current strategy is not adequate to improve productivity. The authors also added that the human capital condition in the country is not supportive to progress national economy. For Malaysia, Goujon and Samir (2006) asserted that human capital is the major challenges to the Malaysian economic development and believes that Malaysia has the "first class infrastructure", but it is still a lack of human capital development.

For Malaysia, to achieve 2020, the development of human capital should be a priority to the government policies. Singapore as an economic role model in South East Asia expected to invest more in education since it regards the empowerment of its citizens through the improvement of the education system.

Countries in both, North and South East Asia, are striving to accumulate human capital and empower their citizens in both, private and public sectors. So, some countries, including Singapore, Taiwan, South Korea and to some extend Malaysia started to invest in the capital that human beings possess and allocate large budget for this purpose. In fact, most of the East Asian countries achieved certain level of development in terms of infrastructure, but they still have problems with human capital accumulation. The education, technology, health care and its facilities are the most elements of human capital development and the concentration of the governments to follow in order to obtain economic performance in terms of individual per capita, firm performance and sustainable economy.

Education and Growth

Educational reform or development in the economic sector is one of the key measurements of economic growth in East Asia. For that reason, some of the governments have regarded education as the chief national strategy to their economic prosperity, particularly in the South East Asian countries, since they are not yet reached to the point of development as North East Asia. This study correlates the growth of the North East Asian economy compared to the South East Asian economy and education.

Education and training experience accelerate productivity and contributes in maximizing individual earnings. At the micro level, Lutz

et al (2004) portrayed that better education supplements better health, greater autonomy and better economic opportunities, without exclusion of certain social groups (Lutz et al, 2004, p. 121-122). Dahal (2010) observed the importance of education associated with the improvement of individual productivity.

Other scholars like Boldrin, Chen and Vang (2001) figured out that education contributes in 5-28 percent of the Taiwan's economic growth, while Tallman and Wang (1994) shows that education investment will accounts of 45 percent of the output growth. So, there is a positive correlation between the GDP growth and the level of education. Tilaki (2002) in the Indian National Institute of educational Planning and Administration showed that education increased the Gross Domestic Product (GDP) by 42 percent in Taiwan from 1965-1989 and this figure is gradually increasing. In South Korea, those who finished primary and middle school earns 1.18 times more than those who accomplished high school diploma; also, the net income of the first year college students is 1.17 times higher than high school graduates, and a college graduate earns almost 1.52 times more than the first year college students. In relies to this finding, it could be argued that education plays a major role in the economic prosperity.

A study by Haldar and Mallik (2007) indicate that educational development also impacts on the measures of productivity improvement and economic growth. The countries that started to reform in their education system are now more developed than the countries that were left behind. South Korea and Japan focused on schools and educational institution to measure their economic well-being, while countries like Thailand and Indonesia were slowly improved their system, literacy and the level of education is not well developed.

In South Korea, Primary study is compulsory and schools are preparing experts and skillful personals to the workforce. For instance, there is a vocational training course in high school on junior colleges. In this program, students spend 2 years of their high school in their class and the remaining years in companies or government institution (Tzannatos, 1997, p. 433). This is a practical and innovative way of education that could be applyed to other countries.

The classical education barely concentrates on practical education. Though, in South Korea, students who finish their school can take responsibility and formulate national economic strategies. Accordingly, we can see that South Korea is now a developed county

and Indonesia has long way to pass through in order to reach that level. Likewise, education in Japan has prepared people to be effective and efficient in their careers and in Indonesia inverse. Although, the pace of development in South East Asia is not as rapid as in North East Asia, human capital becomes a strategic model of their development and they are longing to be developed very soon.

Islam (2010) clarifies the distribution of workforce/employed population by education level in different Asian countries. According to his findings, the South Korean government strategic programs toward human capital shifted over time. For instance, in 1980 the primary school graduates comprised 43 percent of the total workforce, but they are only 26.4 percent in 2000. Simultaneously, his figures demonstrate a swift increase in the upper level or secondary school graduate from 34.0 percent to 53.8 percent. This indication proves how successful is South Korea in engaging qualified people in government bureaucracy.

Basically, the study indicates a positive relationship between education expenditure and growth. For instance, in South Korea and Malaysia, the total education expenditure is 5.1% of the total government spending, while in Indonesia its just 0.8% in Myanmar, 1.2% in Indonesia and 3.8 in Thailand. Consequently, the governments that spend more on education have experienced better advancement and sustainable growth.

The Malaysian government also tried to obtain a certain level of development by introducing programs like Human Resource Development Fund in order to expand and endow manufacturing firms. The contribution to this fund comes from one percent of the employers' salary to improve the technical, financial and human capacity development as the mainstream of economic prosperity. The government also endeavor to develop the quality of education and establish more research universities. Until 2012, there was more than 20 public universities, 400 colleges, industrial institutes, polytechnics and many private universities in Malaysia. The Malaysian government is committed to create a "first class mentality" by nurturing Malaysians with innovation and knowledge economy. The government has realized that education and human capital development is the key to establish a knowledge based economy as an important asset to economic growth (Shaari, 2014). This is clearly highlighted in the country's New Economic Policy (NEP).

Several studies has been conducted on the influence of education on economic growth in Malaysia. Surprisingly, Abdullah (2013) has found a negative relationship between education and economic growth in Malaysia, which is consistent with the findings by Baro & Lee (2010). The author believes that the negative relationship is because education does not support productivity, and its not considered as a factor of production in the short time. However, Latif & Yosuf (2007), Shaari (2014) and Hussein et al (2012) found positive relationship between education and economic growth. Latif & Yosuf (2007) and Hussein et al. concerned about the quality of education. They believe that improving the quality of education helps to increase the primary education of the labor force to fulfill the needs of market economy. In the long run, the authors believed that a high standard of education generates economic growth. For that they suggested for the Malaysian government to spend more money in education investment. Shaari (2014) also pointed out that education investment by the government leads to the national economic growth. It can also generates a better employment opportunities and a greater lifetime earning.

Human Capital and the use of Technology

The use of technology or technological development and human capital are interrelated. This study postulates that economic growth and development are associated with the use of technology. Also, it is believed that the highly technological utilization contributes to sustainable development.

Rosen (1993) and Morand (2005) contended that sustainable economic development is fueled by the advancement of technology. In this regard, to maximize productivity, technology and raw materials are important. This can be better achieve if the government enhances education and the skills of its citizens, encouraging people to be creative and productive.

The use of technology can determine individual productivity. According to Robert (1991), the more we develop in utilizing technology, the more our economy develops. Therefore, technological advancement requires highly skilled individuals to use them. However, without human capital, technology can not be invented; also used. So, technological advancement both requires knowledge to make them, and skills, to use them. Technology nurtures growth and a clear example is Japan, South Korea and Singapore.

Singapore is a small country and does not have any natural resources or enough lands for plantation and agriculture, but its developing rapidly. Not surprisingly, this is mainly associated to human capital development and the use of technology. Besides, though training professional IT personals, it can gather information and use them in developing programs efficiently. So, technology is noteworthy in East Asian Development. South Korea also produces a large share of the world electronic devices and technologies. Taiwan and Hong Kong both are depending on technological development and the skills that they possess in this sector.

Today, human energy is not as important as human knowledge. If before energy and physical ability were important, for now, knowledge is the power and the source of development. Due to the high level of human capital, countries like Japan, South Korea and Singapore are among the top 10 world most developed countries in terms of technological development. More specifically, South Korea now has the highest living standards, Asian 4th and the world 15th largest economy. Dobrzanski (2009) maintains that due to the competitive environment that motivates individual to enrich themselves with knowledge and education to facilitate and invent advanced technology, South Korea experienced the highest economic development in the region (Dobrzanski, 2009, p. 4).

In the Asian Tiger, technology generated innovation which consequently shaped a sustainable economic growth. However, some countries like Thailand has not experienced larger development and innovation due to the lack of technological usages, particularly in the small and medium enterprises (SMEs). Sindakis & Walter (2015), Saigosoom (2013) identified technology as one of the key attribute to innovation and new product development, along with some other HC elements. This has posed a serious intimidation to the survivor of many Thai SMEs in the long term. However, technology and R&D can help to protect these firms in the competitive market economy.

The Vietnamese firms are also facing the hardness of technology usages as in Thailand. The OECD (2013) recognized that the majority of the SMEs in Vietnam are lack of capacity and financial limitation to achieve right technologies and to increase their outcomes. This issue in Vietnam is associated with the unavailability of information, knowledge to use technologies, lack of support from government. Accordingly, less than 15 percent of the private business organizations receive incentives

from government and its different from one sector to another. Textile and chemical industries only spend 3 percent of their turnover on technology innovation and they fill up the gaps through importing from overseas. Despite the lack of innovation and technological advancement in Vietnam, the government has provided some level of support as the initial step to develop this sector. There are almost 600 software development firms in Hanoi and Hi Chi Minh City that employ nearly 15,000 IT professionals. Previously, there was only 170 firms and 5,000 employees (OECD, 2013). The jump towards the use of technology is prosperous and can encourage further growth.

Individual Health Investment

Individual health is a major determinant of the country's productivity and growth. This study assumes that individual health investment can significantly influence on economic growth

Haldar and Mallik (2007) indicate that nutrition and better quality of health increase the productivity of employees because that decrease the incapacity and leaving work due to the sickness and debility. Besides, they assure that better health facilities would lead to longer life expectancy and greater human capital investment, which primarily surges individual income. Arora (2001) also contributes to the same study and highlights the linkage between health and economic development, income and health investment. Cole and Neumayaer (2006) signposts that individuals become weak at the workplace when they are suffering from health issues and illness which is likely to influence their development prospects.

Cole and Neumayer (2006) conducted a study on individual health and its impacts on the total factors of productivity and investment in other sectors like infrastructure, agriculture, education and industry. In their study, they found that individual health is significantly influenced on overall factors of investment. For instance, when someone is sick, this person may have less attendance in school and can not study well; in this case, human capital accumulation would be affected.

Backer provides some literatures about the essence of investment, especially investment in the health of employees. He quoted that education and individual health can together determine the productivity of individuals (Becker, 1998). This could be interpreted in the way that investment individuals make in themselves is much more

essential than the classical form of production, where machines and lands sought to be the most effective way to boost productivity.

On the other hands, Schultz (1961) believes that investment in human health impacts on mortality of the individual and increase both, quantity and quality of the population. It's also true for the companies and private organizations. Hall (2008, p. 20) quoted that "Great companies continually improve the health of the goose, rather than exclusively focusing on the golden eggs" (Hall, 2008, p. 20).

The relationship between human health and growth could be explained well in South East Asia. Due to the better quality of health system and the use of technology, Singapore has the highest rate of life expectancy and the lowest rate of fertility and infant mortality, while Myanmar has the lowest due to poor health system.

According to Chongsuvivatwong et al. (2011), whom collected data from different sources, demonstrates the life expectancy in Singapore is 81 years, Brunei 76, Malaysia and Vietnam 72, Philippines 71, Indonesia 68, Laos 66, Cambodia 61 and Myanmar 56. For the mortality rate in Singapore, out of 1000 live birth in 2010, 2 of them dead, while this number in Malaysia is 5, Brunei 6, Thailand 9, Vietnam 11, Philippines 21, Indonesia 30, Myanmar 42, Laos 49 and Cambodia 50. So, it can be argued that human capital, economic development and health system are all interrelated and affects one another (Chongsuvivatwong et al, 2011, p. 431).

Findings and Conclusion

Human capital is the use of technology, individual health, experience, values, motivation and personal goals that might considered by a business, organization, or within states or national arena, to assess the stands of sustainable economic system. This study provided a clear vision on human capital investment and its elements. The study defined the term of human capital, which is the keen of property and innovation. Recently, human capital becomes the core of the sustainable economic policies in East Asia. Human capital could be utilized as an effective instrument to achieve social, political and economic development.

In fact, knowing the level of development, the first thing to do is to evaluate the stands of the countries in terms of human capital. Human capital is not like physical means of production, but it is the mentality of the individuals who knows how to enhance their skills and how to fulfill their duties in the most effective and efficient way. The findings of this

study indicated that HC is integrated into performance, innovation and productivity. It vested in the return on investment and promoting educational system, providing health care, creating the proper environment for individuals to improve themselves and disclose their capacity. These assumptions have been discussed and the study comes up with a finding that indicates a positive relationship between HC investment for growth, education and growth, promoting individual health and growth.

To achieve objectives of human capital, countries in East Asia provided bulky budget for the purpose of better health care, schooling, learning programs, general and specific training, on job training, risk management skills, and many other areas to sustain innovation. Countries in the North East Asia are more developed due to the advanced technology and better education system, while countries in South East Asia are less developed in terms of human capital accumulation.

The data and theoretical analysis of human capital and economic development in East Asia have shown a positive relationship between human capital investment and growth rate at micro and macro level. Accordingly, governments should bear in mind that waves of development could not be maintained without HC. They need to provide training, health care, education, and encourage their citizens and employees to be innovative, rather than just imitating the previous innovation. Creativity, productivity and innovation are objectives of human capital and drives economic development. Lastly, in the absence of a proper education system and health care, economy and sustainability may suffer as individuals unable to compete with their rivals without accumulating human capital.

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