Determinants analysis of GDP Per Capita’s growth and state regulations of 7 ASEAN countries

Indri Arrafi Juliannisa (a)* Adi Artino (b)

(a) Faculty of Economic and Business, Universitas Pembangunan Nasional Veteran Jakarta, Jakarta, Indonesia
(b) Education and Social Sciences Faculty Indraprasta PGRI University, Indonesia

ABSTRACT

Labour, entrepreneurship, and technology are important components in the success of GDP Per capita, the existing workforce is not only fixed by numbers but also must be focused on quality to have a significant impact, in addition to the ability and desire of a nation to grow interested in becoming entrepreneurs. This research based on Solow and Swan’s Theory said that economic growth was influenced by the growth of production factors such as population, labor, and capital accumulation, as well as the level of technological progress described in the development of knowledge. There is an element of technological progress in the Solow-Swan model which is the main differentiator from the Harrod-Domar growth model. This study used 42 observers consisting of 7 ASEAN countries, namely; Singapore, Thailand, Malaysia, Indonesia, Philippines, Vietnam, and Cambodia, using multiple linear regression and using classical assumption test. The research method in this study uses multiple linear regression of panel data, using the classical assumption test. To get the best model, the data will be tested for Pool Effect, Fix Effect and Random Effects Models, while the determination of the best model is based on the results of the Chow and Hausman tests. The results are shown that labor does not have a significant influence on GDP Per Capita revenue, while the entrepreneurship Index (GEI) and Technology Index (GII) variables have a positive and significant impact on GDP Per Capita revenue. The workforce hasn’t affected, which is broadly described in this study because the absorption of labor has not been optimal or the provision of jobs whose proportions are not balanced with the number of the workforce.

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Introduction

Gross Domestic Product (GDP) is one of the macroeconomic indicators that is often used to see the country’s wealth as a whole. Three methods can be used, including calculating Gross Domestic Product based on income, expenses, and added value. Many researchers use this indicator in their research activities because Gross Domestic Product is the most important attribute for seeing the state of a country. Predicting economic growth in a country must look at the dynamics of the situation and the Gross Domestic Product method used. The simplest is to look at and consider the difference between actual and estimated numbers. Globally, in the period 2013-2017, the increase in Gross Domestic Product (GDP) was on average 14% and there was a decline in 2018 only at a global average of 3%. The results of research conducted by Oliinyk & Kozmenko (2019) explain that there are several options for the optimal distribution of Gross Domestic Product (GDP) using boarding prices for China in 2016-2020 considered because in the 2017-2018 period there was an increase in Gross Domestic Product (GDP) and 2017-2018 there was an increase in Gross Domestic Product (GDP). In the 2019-2020 period, there was a decline in Gross Domestic Product (GDP) (S & Oliinyk, 2019).

Economic growth is a description of the welfare of the country, one of the measures is GDP per capita, GDP per capita is important for the economy because GDP per capita is a reference to determine the results of a series of economic activities of a country for one year, in addition to GDP Per capita as a measure of progress and welfare, in the SDGs indicators, and to measure sustainable economic growth and be able to see the independence of the state based on the income of its people (Coscieme dk, 2020). There are 7 leading
ASEAN countries have a high GDP per capita value in an object in this study, namely Singapore, Malaysia, Thailand, Indonesia, Vietnam, Cambodia, and the Philippines, the reason is that these countries have trade advantages, is due to their favourable geographical position considering most of them are at the crossroads of major traditional trade routes, for example, Singapore has its economic value determined primarily through its trade and transportation functions arising from its advantageous geographical position as an island in the sea linking the Pacific and Indian Oceans.

Indonesia is also in a strategic position in world trade and shipping. This can be seen from the position that is between two continents and two oceans which are international trade routes. This can lead to an influx of skilled and professional workers. Singapore (together with Japan developed into the most powerful regional motor, benefiting from Malaysia and Thailand (Litsareva, 2017). The Philippines also has a wealth of natural resources; besides that, it has a labour market with ease of finding skilled workers, besides that the Philippines has also succeeded in increasing manufacturing as a key in providing more jobs. This is because the Philippines is very dependent on exports in the region (Soekapdjo & Maria esther, 2019). Indonesia and the Philippines are two countries that have large population categories compared to other ASEAN countries, it is not surprising that these two countries in the last decade have always relied on the strength of their domestic consumption to drive their economic growth, so what happens in the world economy does not have too much effect on their domestic economy, the Philippines has been able to make the fastest growth in Asia in recent years. The drivers of growth include increased private sector investment, government infrastructure spending, and household consumption (Subagia & Mubarok, 2015). For more than a decade, Vietnam's GDP growth rate is high (6.5% - 7%), and the structural order of priority sectors with mining and manufacturing, services, and agriculture. The government has spent a lot of money to repair the floods in the big cities but it is not effective because the underlying cause has forced the rivers. Inefficient investment can increase GDP in the short term but in the medium and long term it will not spread (Trinh & Quoc, 2016). The Cambodian economy has moved from a centralized calculation economy to an open market economy essentially to strengthen its management at the National Bank of Cambodia (NBC). Its main task is to establish and direct monetary policy to maintain price stability. Cambodia has experienced strong economic growth over the past decade. Sectors that accounted for the bulk of growth included clothing, construction, tourism, real estate, and agriculture. In this study, several variables or indicators are thought to influence the increase in GDP per capita income of the 7 ASEAN countries, namely: entrepreneurship, labor, and technology. The success of a country is also strongly supported by input factors, namely human capital, the introduction of human capital as a production factor according to the Cobb-Douglas function type, explains that human capital affects the level of internal innovation as evidenced by Romer (1990); Human capital affects the rate of technology diffusion in the spirit shown by Nelson and Phelps (1966).

Increased employment due to self-employment and higher incomes contribute to better state revenues in the form of higher tax revenues and higher government spending. Evolutionary economics views entrepreneurs as agents of change, bringing new ideas to the market and accelerating growth through a competitive company selection process. Technological advances enable the production of more and more efficient goods and services, which depend on prosperity, and technology can stimulate economic growth. Based on research by Alani (2012). The growth of technological progress resulted in economic growth in Uganda in the period 1971 – 2009 Schumpeter (1934) in his book entitled Theory of Economic Development argues that not all entrepreneurs are entrepreneurs; they must become innovators and catalysts for the production process by adopting new technologies.

ASEAN countries have higher economic growth rates compared to world standards, so this causes the ASEAN region to have a lot of potentials. In 2020, Worldbank data shows that the per capita income of the people of Singapore of US$ 56,349 is the highest among ASEAN countries. Seeing the development of technology that is moving towards industry 5.0 causes the potential for the economy to increase, but of course, it will also have other impacts on the labor sector, if seen from graph 2 it is not so visible that there is a significant increase in technology and labor which always increases every year, so it will be seen how the technology exists to facilitate human work, and only human capital that has a competitive advantage that can coexist with the technology, therefore in this study will see how much influence technology has on increasing the GDP per capita of Singapore, Malaysia, Thailand, Indonesia, Philippines, Vietnam, and Cambodia (Aisyah Fitri Yusiasih, Krismantri Tri Wahyuni, 2019).

**Literature Review**

**Theoretical Review and Conceptual Background**

**Economic Growth Theory**

According to the neo-classical view, put forward by Solow in 1956 and Swan in 1956, said that economic growth was influenced by the growth of production factors such as population, labor, and capital accumulation, as well as the level of technological progress described in the development of knowledge. There is an element of technological progress in the Solow-Swan model which is the main differentiator from the Harrod-Domar growth model. The rate of technological progress is determined as exogenous so this neoclassical model is sometimes also called the exogenous growth model. The neoclassical growth theory (Solow-Swan) can be explained in terms of the Cobb-Douglas function. In the Cobb-Douglas function, the output is a function of labor and capital. The assumption used in the Solow-Swan model is a constant return to scale (Juhro & Trisnanto, 2018). The neoclassical growth mathematical model is formulated as follows:

\[ Y_t = A_t \cdot K_t \cdot L_t^{1-a} \]
where:

\[ Y_t: \text{Production/output rate in year } t \]
\[ A: \text{Technological level in year } t \]
\[ K_t: \text{Total capital stock in year } t \]
\[ L_t: \text{Number of workers (labor stock) in year } t \]

The rate of economic growth comes from 3 sources, namely capital accumulation, increasing the number of workers, and increasing technology. Technology can be seen from the increase in skills or technical progress so that per capita productivity increases. In the neoclassical model, all factors of production (both K and L) are considered to always be used or fully utilized in the production process (full employment). The condition of full employment (the absence of unemployment) is also the main characteristic that distinguishes this model from other growth models, such as the Harrod-Domar model and the classical model. The neoclassical growth model began to reveal an important aspect of economic growth, namely total factor productivity (TFP), which is a ratio of output that cannot be explained by the number of inputs used in production other than capital and labour. TFP tries to explain other factors, apart from capital and labour, that affect economic growth. The concept of TFP is to determine the effect of technological process (technological development) on economic growth, which in the Solow model technological progress factors are described as exogenous factors (Juhro & Trisnanto, 2018). On the other hand, Romer's (1986), Lucas's (1988) and Grossman and Helpman's (1991) growth models explain technological progress as an endogenous factor. The endogenous growth model argues that technological progress is the result of innovation, trade, competition, and education. This model emphasizes the role of human capital and R&D as the main drivers of economic growth. The main limitation of the early models of endogenous growth (first generation) is that they are not consistent with the results obtained in some countries. The failure of the first generation of endogenous growth models to explain economic growth gave rise to the second generation of endogenous growth models, namely the semi-endogenous model and the Schumpeter growth model. The semi-endogenous growth model relaxes the assumption of constant returns to knowledge, while the Schumpeter growth model maintains the assumption of constant returns to knowledge but assumes an increase in the complexity of innovation. Endogenous growth with R&D Paul M. Romer is one of the pioneers in endogenous growth models. Romer modelled technological progress (technological progress) depending on the total amount of knowledge investment. Total knowledge investment is determined by the individual decisions of each company. Investment in knowledge can be done through the development of the R&D sector. Investments can be made through increasing company capital or increasing individual research (which will increase private knowledge). The increase in the knowledge possessed by the company will be higher if the company already has a high stock of private knowledge.

Economic Integration with ASEAN regional policies

In the third wave since the General Agreement on Tariffs and Trade (GATT) was agreed in 1947. There is an idea by Asian countries to introduce tariff preferences such as the Economic Cooperation Organization (ECO), South Asian Association for Regional Cooperation (SAARC), and Association of South East Asia. -East Asian Nation (ASEAN). Economic integration can trigger regional integration developing towards a global direction both in Europe, America, and Asia as an economy. Integration is divided into 2 lines, namely: a measure of economic integration and reallocation of economic resources. Regarding labor policies in the ASEAN region, the implementation of the ASEAN Economic Community (AEC) at the end of 2015, is a sign of the entry into force of the era of a free market for goods and services among the 10 ASEAN countries (Brunei, Philippines, Indonesia, Cambodia, Malaysia, Myanmar, Laos, Singapore, Thailand, and Vietnam. An agreement with the aim of increasing ASEAN's competitiveness to attract foreign investment at the level of international trade in general and to compete with China and India in particular (Sintaningrum & Felfina, 2017). Despite the more important role of SMEs in Asian countries in comparison to the Westerns, studies on small business lending in general, especially with regards to the role of foreign banks in small business credit market, are still limited. Therefore, this study is intended to fill in the gap by providing analysis of the impact of foreign banks penetration on credit allocation, especially to SMEs by investigate the phenomenon of ‘cream-skimming’ behavior of foreign banks in several ASEAN countries. The result will provide recommendations for regulators and policymakers regarding actions that should be taken to take the best advantage of foreign banks operations in the countries to their economies, through the enhancement of small business lending. There are problems that are being faced by MSMEs, namely the existence of trade liberalization, such as the implementation of the ASEAN-China Free Trade Area (ACFTA) which has been effective since 2010. On the other hand, the Government has agreed to the ACFTA cooperation agreement or other agreements, but without considering it first. readiness of SMEs to be able to compete. If this condition is left unchecked, MSMEs that are said to be able to survive and are resilient will eventually go bankrupt as well. Therefore, in an effort to strengthen MSMEs as national economic fundamentals, it is necessary to create an investment climate conducive environment for strengthening the domestic market so that MSMEs can become a buffer for the national economy (Viverita, Lubis, Bustaman, & Riyanti, 2015).

Based on previous research from Luca Coscieme, Lars F. Mortensen, Sharolyn Anderson, James Ward, Ian Donohue, Paul C. Sutton in 2020, this study suggests that GDP is not related to measures of economic performance such as employment levels, GDP is inversely related. to broader indicators of environmental sustainability and well-being. Research by Elena Pelinescu (2013), told that states that the EU Strategy 2020 is focused on three areas of growth: smart, sustainable, and inclusive which cannot be achieved without the primary contribution of skills, knowledge, or values of people, commonly known as human capital. Elena Litsareva (2017), related to This research was conducted in fast-developing countries and regions in the Asia-Pacific (FDC) such as South...
Korea, Taiwan Province in China, Singapore, Malaysia, and Thailand. This study discusses the issue of government as the main guarantee of the economic and social construction of FDC.

**Empirical Review**

Emilda et al (2018) concluded that labor is not an important to real GDP, because a population may decrease productivity due to traditional diminishing returns from additional intensive usage of land and further natural resources. Meanwhile research conducted by Jozef et al (2021) indicate that labor has a positive and significant effect on GDP with helps of improvement in education that increasing the quality of the labor.

Another research was conducted by Doaa Mohamed Salman (2016), the empirical results provide significant positive evidence for the role of human development to accelerate entrepreneurial activity and growth in innovation-driven countries. The results show the role of policies that support entrepreneurial activity as a vital tool to accelerate development and growth.

As well as another research was conducted by Jimmy Alani (2012) effect of technological progress and productivity on economic growth in Uganda in the period 1971 – 2009. This study finds that the growth of technological progress results in economic growth, while an increase in capital productivity or labor productivity causes a decrease in economic growth during that period.

![Research Model](image)

**Research and Methodology**

This research sample uses a non-probability sampling technique. According to Ghazali (2017), non-probability sampling is a sampling technique that does not provide equal opportunities for every member of the population to be sampled. The research sample was taken as many as 42 samples obtained from the number of research areas taken, namely 7 ASEAN countries namely Singapore, Malaysia, Thailand, Indonesia, Philippines, Vietnam, and Cambodia multiplied by the 2015-2020 period, which was 6 years. As for the measurement of variables and the size of each indicator as shown in table 1:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
<th>Calculation Formula</th>
<th>Measuring Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Percapita</td>
<td>Real GDP divided by the total population.</td>
<td>Log Natural of value from GDP Per Capita = Gross National Product (GNP) / Total Population</td>
<td>Ratio</td>
</tr>
<tr>
<td>Labour</td>
<td>Everyone who is able to do work to produce goods and or products and services both to meet the needs of themselves and the community.</td>
<td>Log Natural of value from Number of Labor = (ST x Output) / Working Time</td>
<td>Ratio</td>
</tr>
<tr>
<td>GEI (Global Enterpreneurship Index)</td>
<td>An annual index that measures the health of entrepreneurship ecosystems</td>
<td>GEI = Calculation of the percentage of ability, aspiration, and attitude of entrepreneurship</td>
<td>Percentage</td>
</tr>
<tr>
<td>Global Innovation Index (GII)</td>
<td>Ranks the innovation ecosystem performance of economies around the globe each year while highlighting innovation strengths and weaknesses and particular gaps in innovation metrics.</td>
<td>Average of the scores in two sub-indices, the Innovation Input Index and Innovation Output Index, which are composed of five and two pillars respectively.</td>
<td>Ratio</td>
</tr>
</tbody>
</table>

![Figure 1: Research Model](image)
Data Analysis Technique

In this study, the type of data and information collection used secondary data obtained indirectly and published by other parties to be used as research objects, namely from the World Bank. The data in this research is quantitative and the researcher collects data using documentation and literature study. This study uses the panel data regression analysis technique and the data is processed using the EViews 10 program. The panel data in this study is a combination of time series data with cross-section data. The panel data regression equation is as follows:

$$\ln GDP_p = \beta_0 + \beta_1 \ln L_{1it} + \beta_2 GEI_{2it} + \beta_3 GII_{3it} + \epsilon_{it}$$

Description:

LnGDPp : GDP Per capita
LnTK : Labor
GEI : Entrepreneur
GII : Technology
I : Region (7 ASEAN Countries)
T : Time (2015-2020)
$\beta_0$ : Constant
$\beta_1 - \beta_8$ : Coefficient
$\epsilon_{it}$ : Confounding Variable

The initial step in data processing is the classical assumption test which aims to ensure that the research results are valid with the data used in theory is unbiased, consistent and the regression coefficient estimation is efficient (Gujarati & Porter, 2013). The classical assumption test used is normality, multicollinearity, autocorrelation, heteroscedasticity. The next step is to estimate the panel data regression model using the common effect model (CEM), fixed effect model (FEM), and random effect model (REM). The selection of the best suitability of the model and will be used to perform the analysis is in 2 ways, first using the Chow test by choosing between the common effect model or the fixed-effect model, the second is the Hausman test to choose between the fixed effect model and the random effect model. The last step is the significance test which is used to determine the significant level of each independent variable regression coefficient on the dependent variable which consists of the T-test, F test, R-squared test, and adjusted R-squared.

To find out the potential of each country that can produce good outcomes, then a Comparative Qualitative Analysis (QCA) is carried out. QCA is a comparative technique (Vink and VanVliet, 2009) that is used to describe large social events concisely using a small number of cases. Although QCA does not provide statistical results for generalization, it is a useful method that categorizes cases in a simple way according to their characteristics (Rihoux, 2006; Poveda, 2013). QCA, developed by Ragin (1987), has not provoked much interest until now. The main purpose of this method is to provide a meaningful and concise interpretation of the causal patterns operating in the cases under study. It aims to find various causal conditions or conditional factors that can fundamentally affect the results. That is, it starts with the assumption that one outcome does not belong to a single set of variables, but may belong to a set of many variables (Rihoux, 2006; Wagner and Schneider, 2010). The QCA method takes three general forms: sharp QCA set (CSQCA), fuzzy set QCA (FSQCA), and multi-value QCA (MVQCA). This study will use CSQCA because it is a method of processing data by changing the independent variable and dependent variable to 0 or 1 according to a certain threshold. It is easier to set thresholds and categorize the independent variables that affect the happiness score of the countries included in this study are 0 and 1. Therefore, this study will use the CSQCA program and the TOSMAMA program.

Analysis and Findings

Classical assumption testing is performed using panel data, a combination of time series and cross-section data, classical assumption analysis is carried out in order to avoid abnormal and biased data, so as to create the best linear unbiased estimator assumption. To choose the best model from the pool, fixed and random effect, the Chow and Hausman tests are carried out, and if the best result is the fixed effect, it must pass the Chow test and the Hausman test on the condition that the test probability value below the alpha standard used in this study is 5%, whereas if it is above 5% then the best model is a random effect.

<table>
<thead>
<tr>
<th>Test cross-section random effects</th>
<th>Chi-Sq. Statistic</th>
<th>Chi-Sq. d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section random</td>
<td>104.469467</td>
<td>3</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Note: because prob < 0.01, the selected model is Fixed Effect.
Result Fix Effect Model

Table 3: Fix Effect Model Result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-19.37218</td>
<td>18.77109</td>
<td>-1.032022</td>
<td>0.3098</td>
</tr>
<tr>
<td>LNTK</td>
<td>1.715080</td>
<td>1.099031</td>
<td>1.560538</td>
<td>0.1285</td>
</tr>
<tr>
<td>GEI</td>
<td>0.011280</td>
<td>0.006074</td>
<td>1.857048</td>
<td>0.0225</td>
</tr>
<tr>
<td>GII</td>
<td>0.022348</td>
<td>0.008589</td>
<td>3.794911</td>
<td>0.0006</td>
</tr>
</tbody>
</table>

Effects Specification

<table>
<thead>
<tr>
<th>R-squared</th>
<th>0.987260</th>
<th>Prob(F-statistic)</th>
<th>0.000000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted R-squared</td>
<td>0.983667</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Classical Regression and Assumption Test Results

Classical assumption test on the linear regression model used is carried out in order to know whether the regression model is good or not and meets the BLUE (Best Linear Unbias Estimated) assumption. The assumptions that must be met in the regression analysis include normality, homoscedasticity, non-autocorrelation, non-multicollinearity, and linearity.

Table 4: Result of Classical Regression and Assumption Test

<table>
<thead>
<tr>
<th>Classic assumption test</th>
<th>Result</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normality test</td>
<td>0.09482</td>
<td>Normal Distribution</td>
</tr>
<tr>
<td>Multicollinearity Test</td>
<td></td>
<td>There is no multicollinearity problem on the variable because it does not have a value above 0.8.</td>
</tr>
<tr>
<td>Heteroscedasticity Test</td>
<td></td>
<td>It is proven that there is no heteroscedasticity problem, because the probability value or p-value is greater than the probability alpha</td>
</tr>
<tr>
<td>Autocorrelation Test</td>
<td></td>
<td>These results indicate that there is no autocorrelation problem.</td>
</tr>
<tr>
<td>t test</td>
<td></td>
<td>It is proven that the influential independent variables are GEI and GII</td>
</tr>
<tr>
<td>F test</td>
<td></td>
<td>The value of $R^2$ is less than alpha (0.01). These results mean variables used in the study affect the dependent variable simultaneously.</td>
</tr>
</tbody>
</table>

Discussion

The Effect of Labour on GDP Per capita

Gross Domestic Product (GDP) growth is used as the main indicator in viewing a country's economic performance. Gross Domestic Product (GDP) is a measurement of consumption and income for all households and companies. The higher the productivity carried out by households and companies, the higher the Gross Domestic Product growth will be (Sumiyana.2020).

The most important capital according to classical theory, namely Adam Smith, David Ricardo and Karl Marx, argues that one source of production factors is the quality of human resources in order to create prosperity for a country and for that the government is urged
to focus on improving both, especially in 2040 it will experience a demographic bonus. Human Resources is defined as the potential or competence possessed by the population in a certain area both in quantity as measured by the growth of the workforce, while quality is measured by human resource development. The success of a government is judged by the attitude of the government to be able to create and add jobs and reduce the number of unemployment problems, with the creation of new and increasing jobs that will have an impact on the absorption of the existing workforce so that there is an increase in income and an increase in purchasing power which in turn will result in an increase in employment. In the end it will also improve the welfare of the community, but it should be realized that job opportunities do not always translate into employment and the absorbed workforce can have more than one job, the Covid-19 pandemic causes employment to decrease, companies do a lot of layoffs (Terminations), Employment Relations), so this can cause the number of workers who contribute to the economy to decrease (Indraweda & Natha, 2015).

Cambodia has a relatively high productive age population in Cambodia, so it has a relatively large supply of labor entering the Cambodian job market. The large supply of labor in Cambodia is not only due to the large number of productive age in Cambodia but also due to economic factors so that people who should have entered the productive age continue to work. The unemployment rate in Cambodia is also accompanied by relatively small values in Cambodia (Pinilh & Yuliang, 2016). In the Philippines, employment has grown rapidly over the last decade. However, employment growth is not sufficient to reduce the number of unemployed due to rapid growth, increasing labor force participation and slow job creation. Entering 2000, overseas Filipino workers almost reached 2.9 million, about nine percent of the workforce (Urruita, Tampis, & Atienza, 2017).

The labor condition in Vietnam is that the pattern of skills development in Vietnam is "medium contraction", where the share of medium skills declined sharply while the share of high skills increased significantly over the same period. This pattern reflects the fact that young people are reluctant to enrol in vocational schools; they try to enter universities or participate in the labor market as unskilled workers. There may be a mismatch between the skills provided in vocational schools and what is needed in the workplace. The decline in demand for intermediate skills is likely to use this lack of skills necessary to upgrade the economy from labor-intensive to skill-intensive production and consequently trap the economy in the middle-income trap (Anh, Thuy, & Hoai, 2016). In Malaysia and Thailand, having competitiveness for their workforce is considered to be quite good because of the large quantity of the workforce, accompanied by the quality of the workforce that has successfully entered the labor market and has played an optimal role in supporting the improvement of economic competitiveness. Singapore experienced a decline in employment due to uncontrolled inflation problems during the covid19 pandemic, inflation can cause changes in output and employment, by motivating companies to produce more or less than they have done depending on the intensity of inflation that occurs. In the future we will use the model as an alternative variable for human capital, a weighted average of the population enrolled in primary, secondary and tertiary education to highlight how outcomes are affected by selecting a proxy for human capital (Pelinescu, 2015).

The Influence of Entrepreneurship on Economic Growth

The results show how to develop the economy and shift it to innovation that requires a skilled workforce-based system, a system that acquires knowledge, develops it, maximizes its utilization and is able to create competitive advantage. The ability of countries to invest and build their economic systems based on this knowledge gives them the advantage to create competitiveness in the global environment and accelerate their output. Investments in education, R & D that lead to the efficiency stage in the country of this stage will be able to create competitive advantage and develop their economy. Based on the research findings and implications, the following policy steps are recommended. Research and development, mentioning the education system, sound economic policies are important determinants in attracting entrepreneurship and promoting economic growth. In this view, decision makers need to improve and increase budget allocations for research and development channelled to promote technological progress. Financial support programs and grants are needed to support companies to develop new products (Salman, 2016).

In Singapore, the development of MSMEs is part of the push for further economic development. So far, multinational companies are a very significant economic force in Singapore. Therefore, the government cooperates with multinational companies to carry out the diffusion of technical knowhow, including improving skills and expertise whether in production or finance. They have also helped Singapore's MSMEs to become better because they are connected to the canters of international trade and finance. Multinational companies not only coach MSMEs but can also provide market outlets for their high-quality products (Mongid & Notodiharjo, 2011). After identifying some of the challenges facing MSMEs in Malaysia, several strategies of the government and institutions responsible for the development of MSMEs in Malaysia. First, the government educates MSME practitioners as well as provides incentives that are available to them and how to access them. This incentive is given as an effort that really cares for the success and sustainability of MSMEs in this country. The government provides incentives through many channels but in practice creates confusion between MSMEs and opens up opportunities for a third party (e.g., a consultant or agent) to obtain undue benefits by acting as a mediator between MSMEs and the government (Mongid & Notodiharjo, 2011).

Thailand is renowned for its international image as a land of service and smiles. His values and work background emerge from Thai culture. In the trade sector, it was also found that Thailand is full of various products ranging from agriculture to industry. For the brand manufacturing sector, entrepreneurs have creativity applying their experience to new and improved business management, problem solving, product innovation and new sales channels for a higher success rate (Ha, et al., 2014). The informal and micro nature of entrepreneurship in Cambodia requires professional development and education in business and management skills for entrepreneurs to develop their businesses. It also requires appropriate policies to ease the transition from small entrepreneurial
ventures to more formal and high growth-oriented enterprises. This, in turn, requires coordinated efforts by various policy-making bodies to strengthen entrepreneurship education (Khieng, Mason, & Lim, 2019).

Indonesia makes efforts to foster entrepreneurship starting from among students, such as: (1) entrepreneurship courses are included in the curriculum of each study program at universities which are curricular mandatory for all students; (2) the development of the Integrated Work Learning Program, which is an educational program that combines studying and working like employees in the world, especially for final year students; (3) cooperation with MSMEs; (4) establishment of Student Cooperatives; and (5) the implementation of student side work either in accordance with their field of knowledge or according to their talents and hobbies even though it is not in accordance with their field of knowledge (Wahyuni, 2008).

The Philippines and Vietnam are ranked 17th and 18th in the Asia-Pacific region, respectively. Both countries may have the same problem in entrepreneurship education. In the Global entrepreneurship monitor (GEM) 2018, among the 12 indicators of the condition of entrepreneurship, the two indicators of Vietnam with the lowest ranking are: entrepreneurship education-post-school (ranked 40/54), government programs (43 /54). Entrepreneurship education should be included in engineering and science non-business disciplines where business/product ideas emerge, but students in those disciplines are often overlooked or neglected because they are not sufficiently educated in the knowledge and skills required. It is very important to innovate opinion and target awareness when setting up training programmes. In particular, in addition to teaching specialized knowledge, it is advisable to build and develop new information about career orientation for students, in addition to the current traditional career orientation (Tung, Hung, Phuong, Loan, & Chong, 2020).

The Effect of Technology on Economic Growth

Technological advances can produce more than double the output if accompanied by increased productivity of capital and labor, technological developments will result in changes in all fields, such as in the world of education, the world of office work, the industrial sector, the telecommunications sector, the agricultural sector and others. Many of the daily human needs are also facilitated by technology. Many developed or developing countries compete with each other in developing technology to further increase their output so that the country's economy can continue to improve and achieve maximum results as desired. It must continue to study existing knowledge and skills in order to develop technology and as we know that technology is a combination of two inputs and can finally produce a high-quality output (Alani, 2012).

The development of knowledge and innovation is so rapid that it makes an economy dependent on technological advances. Companies are faced with efforts to increase competitiveness and streamline production, which has implications for increasing labor productivity. Indirectly, labor productivity will have a significant impact on living standards and the growth rate of gross domestic product (GDP) (Habanik, et.al, 2021).

Singapore took steps in technology, namely to acquire new weapons technology that utilizes information technology. Then Since the early 2000s, Singapore began to focus on purchasing defence equipment that utilizes information technology to build command, control, communication, computer, intelligence, reconnaissance, and recognition capabilities (C4ISR). For example, Singapore has modernized its Airborne Early Warning and Control (AEW&C) fleet. When the Heron UAV performs reconnaissance, the recorded video will be directly processed at the Command Center using augmented reality technology that allows the decision-making process to be fast and accurate (Triantama & Pangestu, 2020).

Technology-driven production-based development pattern and thereby emulate the experience of the New Industrialized Economies (NIEs) in Asia. In fact, Malaysia is included in the group of countries that have the potential to create their own new technology. The rapid development of NIE technology over the last two decades has attracted the attention of both developing and developed countries (Lai & Yap, 2004). Today in Thailand is becoming more sophisticated and more technology-based, as is the growing need for technology transfer from abroad, better R&D, scientific and technical, service and better standards and quality. Currently, Thailand still lacks regulations on technology transfer and an effective system to promote it despite the cooperative efforts made by the Central Technology Transfer (Ministry of Science, Technology and Energy), the Investment Board and other agencies. More R&D measures in the private sector are also needed due to low activity there. It is important to support science and technology in the view of the media or the small size of most industries, may again require a concerted effort (Yuthavong, Sripaipan, Kirtikara, Glankwamdee, & Trakulku, 1985).

In Indonesia, it has been helped a lot because of technology, such as E-government refers to the use of information technology by the government, such as using the intranet and the internet, which have the ability to connect the needs of the population, business, and other activities. Then the development of telematics technology and infrastructure in Indonesia will greatly assist the development of the industry in the financial sector, such as expanding business coverage by opening branches in the regions, as well as exchanging information between insurance companies, brokers, industry, banks, and other financing institutions (Wardiana, 2002). For the Philippines, it discusses more in terms of education or education. Since the Philippines is an archipelago with many islands scattered about, online training can also be an option to reach teachers from the provinces without having to leave their schools (Ching, 2014).

Technology is changing how people work. Like Vietnam, which has improved the quality of their human resources due to the pressure of technology, it has been able to bring young, highly skilled workers into the labor market. As a result, these workers together with new technology are actually able to increase the country's manufacturing production (Adha, Asyhadie, & Kusuma, 2020). The role
of ICT in promoting Cambodia's goods exports. ICT infrastructure in particular is driven by the need to address infrastructure bottlenecks in telecommunications and transport systems to be effectively addressed in order to promote trade flows both nationally and internationally. Access to technology and ICT combined with relevant skills and capacity to use these new technologies. Thus, ICT education and skills training in ICT and new technologies are needed to enable society to be more productive. The challenges of developing IT, literacy and education to ensure the quality and size of the IT workforce, in developing the country's digital economy (Soeng, 2020).

Discussion of QCA Analysis by TOSMANA

Data analysis uses the QCA Qualitative Comparative Analysis (QCA) method, which is used to examine how an outcome can be achieved through the interaction of variables or factors that influence it. QCA is particularly suitable for studying situations in which the researcher has confidence that an outcome is likely to be the result of several causal pathways of different conditions, and a condition may only have a causal effect in combination with other conditions.

Table 5: Result of Truth Table

<table>
<thead>
<tr>
<th>v1</th>
<th>v2</th>
<th>v3</th>
<th>O</th>
<th>id</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>Singapore</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Philippines, Cambodia</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>C</td>
<td>Indonesian (1), Vietnam (0)</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>Malaysia, Thailand</td>
</tr>
</tbody>
</table>

Based on the results of the truth table, there are 7 regional groups with a total of 2 contradiction area groups, 3 regional groups receiving outcome 1 and 2 regional groups receiving outcome 0, while the regional groups receiving the contradiction category are caused by the cut offs arranged when setting the boundary size, which in this uses a predetermined average standard, while for countries that get outcome 1 such as Singapore, Malaysia and Thailand, it means that the cut points are sufficient and each causal has a good impact on the outcome (GDP). The following describes the condition of the area in the Venn diagram as follows:

Figure 2: Venn Diagram QCA Analysis; Source: processed data, 2022

Based on the Venn diagram above, it is known that:

i. The vertical center line divides the TK (Labor) condition into 2 sides. The left side shows TK with a value of “0” (none), while the right side shows TK with a value of “1” (yes).

ii. The horizontal center line divides the GEI condition into 2 sides. The upper side shows the GEI with a value of “0” (none) and the lower side shows the GEI with a value of “1” (there are).

iii. The horizontal box in the middle of the Venn diagram shows the GII conditions. The area inside the horizontal box in the middle shows the GII with a value of “1” (any), while the area outside the horizontal box in the middle shows the GII with the value “0” (none).

iv. The information below the venn diagram shows the outcome, where the value “0” (pink) means there is no outcome and the value “1” (green) means there is an outcome. Meanwhile, the C value (shaded area) indicates a contradictory...
outcome and the R value (white color) indicates the “Remainder” outcome which means that it is not empirically supported by the existing data, but is theoretically possible.

v. Code “010” indicates that Singapore is a country with casual TK = 0, GEI = 1, GII = 0, and outcome = 1.

vi. The code “100” indicates that the Philippines and Cambodia have a casual TK condition = 1, while the other casual is 0, and the outcome = 0.

vii. Code “101” indicates that Indonesia and Vietnam with casual conditions of TK = 1, GEI = 0, GII = 1, and outcome C.

viii. Code “111” indicates that Malaysia and Thailand are in casual conditions, TK = 1, GEI = 1, GII = 1, and outcome = 1.

So, if we look at the explanation of the 8 points above, it can be seen that the country that gave outcome 1 (good category) is Singapore, although it has a casual value in TK and GII of 0, but the outcome is still good. For Malaysia and Thailand, all of the casual values are good, so that the outcome also gets category 1 (good), in this case we can conclude that in countries that get an outcome value of 1, it means that casual (TK, GEI and GII) has a positive role or impact on GDP or it can be interpreted that the better the nominal increase in TK, GEI and GII receipts, it will give an increase in GDP and based on the results of the truth table, the best to get the casual value and the best outcome at point 1 are Malaysia and Thailand.

For Malaysia, a high population size goes hand in hand with a more educated and capable workforce and education reforms to ensure the nation grows in the right direction, namely better economic performance. In addition, capital formation can be accumulated through the attractiveness of foreign direct investment, the attraction to invest in Malaysia as well as technological advances to maximize and maximize capital productivity, therefore Malaysia’s potential is large enough to increase GDP (Hashim, et al., 2018).

For Thailand has the potential to increase GDP in a better way. Thailand is more convenient to attract tourists because it is a central place in regional air routes. Then it has beautiful beaches including the islands of Phuket and Ko Samui where tourists love to enjoy and relax on primitive beaches. Furthermore, Thailand is rich in culture where visitors can enjoy cultural heritage including crafts, folk arts. Thailand has a national resort. Eighty percent of Thai visitors will come to Bangkok because they enjoy recreation, culture and the arts, with the potential to generate even more GDP in the future (Kuy, 2014).

Conclusion

The economic growth of a country can be seen from the increase in GDP growth. In this study, it was found that the GEI and GII variables had a significant effect on GDP per capita income, while the labor variable did not have a significant effect on GDP per capita income. In the future we will use the model as an alternative variable for human capital, a weighted average of the population enrolled in primary, secondary, and tertiary education to highlight how outcomes are affected by selecting a proxy for human capital (Pelinescu, 2015). The rapid development of technology and the increasing number of entrepreneurs have caused GDP per capita of seven countries, namely; Singapore, Thailand, Malaysia, Indonesia, Philippines, Vietnam, and Cambodia are leaders in the ASEAN region. Good economic policies are an important determinant in attracting entrepreneurship and pushing economic growth. A one percent increase in technological progress can more than double output is accompanied by increases in the productivity of capital and labor. The results of this study answer the current conditions regarding the role of technology in increasing and encouraging the development of the number of new entrepreneurs so that it will indirectly have an impact on the growth of GDP per capita income. Further research should focus on the quality of the labour and the use of technology inefficiency so that a qualified labour can operate and create better technology. In addition, the increase in unemployment due to technological advances should be a serious concern for every country.

Explained in the theory expressed by Solow and SWAN, that the population, labor and capital accumulation, as well as the level of technological progress are explained in the development of knowledge. The classical theory believes that the condition of full employment (the absence of unemployment) is also the main feature that distinguishes this model from other growth models, such as the Harrod-Domar model. Not all workers can be productive well, because there is still unemployment, the available jobs are not in accordance with the number of available jobs, but in this study we can find out that entrepreneurship and technology can play a positive role on per capita GDP growth as expressed in the theory of the neo-classical growth model, its total factor productivity (TFP). The concept of TFP is to determine the effect of technological process (technological development) on economic growth, which in the Solow model technological progress factors are described as exogenous factors. TFP in the production function can be described as managerial competence, research and development (R&D), resource transfer, and technology diffusion (Juho & Trisnanto, 2018).

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