The Determinants of Economic Growth: Empirical Study of 10 Asia-Pacific Countries

by Muhammad Nasir

The Determinants of Economic Growth: Empirical Study of 10 Asia-Pacific Countries

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Abstract

The purpose of this research to examine the influence of corruption (CPI), foreign investment (FDI), population growth, and government spending on economic growth in 10 Asia-Pacific countries (such as New Zealand, Australia, Singapore, Japan, South Korea, Malaysia, China, Thailand, Indonesia, Vietnam), and to prove the Hypothesis sand wheels theory whether corruption causes a decline and slows down economic growth. This study uses panel data from 10 Asia Pacific countries with the period 2009-2018. The results showed that corruption (CPI), foreign investment (FDI), population growth, and government expenditure simultaneously affect economic growth. Partially, corruption (CPI) does not significantly affect economic growth, while foreign investment (FDI), population growth, and government expenditure have a significant positive effect on economic growth. The results of the research can be used as a reference for policymakers that to increase economic growth in 10 Asia Pacific countries can be done by creating a conducive business climate, providing ease of doing business, increasing population growth followed by increasing the quality of human capital and increasing government expenditure on infrastructure and resource development human beings to create quality economic growth.

Keywords:

economic growth, corruption, FDI, Population Growth, Government Expenditure, Sand the Wheels Theory.

Introduction

In recent decades, countries worldwide have competed in increasing their economic growth, including countries in the Asia-Pacific Region. The history of economic upheaval has colored many Asia-Pacific countries, for example, the Monetary Crisis in 1998, which caused many falls in all sectors for countries in Asia. The financial crisis in 2008 also caused many countries to feel the impact, including in the Asian region- Pacific. Economic growth is a continuous change in input-output or the Gross Domestic Product (GDP) in a region.

The higher the economic growth reflects the better development and economic activities in the region of the country. Several factors can affect economic growth, namely capital accumulation, technology used, and population. However, other variables can affect the economic growth of each country, one of which is corruption. Corruption is a global phenomenon and a problem in every country. Corruption can enter into economic, social, and even cultural aspects.

Figure 1 Average Economic Growth and CPI
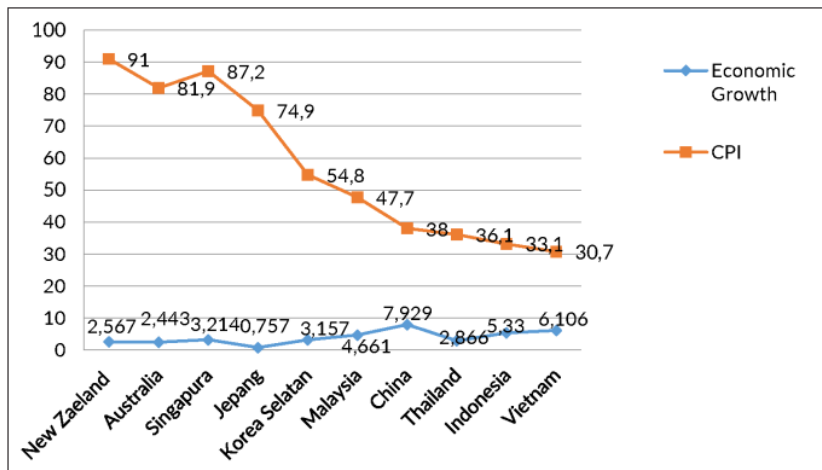
Source: Transparency International, World Bank 2008-2018 (processed)

Based on Figure 1, the average Corruption Perception Index (CPI) or the Corruption Perception Index (IPK) and economic growth during 2009-2018. The CPI value shows that the higher the CPI value, the cleaner the country will be from corruption. However, it shows that countries with high CPI values above 50, such as New Zealand, Singapore, Australia, Japan, and South Korea, have low economic growth, but countries with low CPI values tend to have high economic growth. Regarding corruption and economic growth, historians and political experts generally debate corruption harming economic growth. A widespread view is that corruption can violate the rules of efficient resource allocation in an economy.

Research conducted by D'Agostino et al. (2012) in 53 African countries during 2003-2007 shows that corruption and the military's burden reduce the rate of per capita economic growth. Corruption can increase economic efficiency only if the actual government is above the optimal level, which implies that the level of corruption can maximize economic growth (Dzhumashev, 2014). The results of panel data 22 in developing countries during 2001-2012 show a statistically significant negative relationship between corruption and economic growth (Shera et al., 2014).

Haque & Kneller (2015) also examined using panel data from 63 countries for the period 1980-2003, showing that corruption reduces the returns on public investment and makes it ineffective in increasing economic growth. Another research conducted by Obamuyi & Olayiwola (2019) in India and Nigeria shows that with the transmission mechanism, corruption has a negative impact on economic growth through investment and human resources in both countries. Corruption decreases the growth rate of per capita income directly by reducing the productivity of existing resources and indirectly affects the reduction in investment. Corruption shows a decline in growth in all provinces in Indonesia, with corruption levels below the threshold of 1,765 points, and the destructive effect of corruption appears to be stronger for provinces with levels of corruption above the threshold (Alfada, 2019).

However, the results of Ugur's (2014) research show that corruption does not significantly affect GDP per capita and is negative. Huang (2016), using the Granger causality prediction in thirteen Asia Pacific countries during the period 1997-2013, shows that there is no significant effect of corruption on economic growth. Lutfi et al. (2020), in four ASEAN countries, Indonesia, Malaysia, Thailand, and Vietnam, from 2004 to 2015 also show that corruption does not significantly affect economic growth.

The other independent variables in this study are FDI or foreign investment directly entering a country, population growth, and government expenditure. According to the results of research conducted by Nizar et al. (2013) that FDI has a significant positive effect on economic growth and can reduce the national poverty rate. FDI has a significant positive effect on economic growth. FDI is an essential part of the investment that can stimulate economic growth. FDI is still the driving force for China's economic growth in the new era (Hong, 2014). The results of research conducted by Belloumi (2014) show that there is no Granger causality from FDI to short-term economic growth in Tunisia. FDI has a significant positive effect on economic growth in Eurozone countries (Pegkas, 2015).

FDI contributes positively to economic growth, primarily through the abundance of knowledge, and higher technological developments are proxied by government and business R&D (Silajdzic & Mehic, 2015). In the short term, there is no effect of FDI on economic growth, but in the long run, FDI has a significant positive effect on economic growth (Putra et al., 2017). Prawira et al. (2017) found that FDI has a positive effect on Indonesia's economic growth, which is consistent with Adam Smith's classical theory that natural resources, human resources, and capital are the three determining factors for economic growth. FDI has a significant positive effect on economic growth (Akisik et al., 2020; Bunte et al., 2018).

Apart from corruption and FDI, population growth can increase economic growth, even though economic growth depends on many factors. A country's population can drive economic development because it is the subject of development itself, and economic growth will increase if the population has high productivity. Population growth is an essential factor for economic growth and may even contribute to increasing per capita output growth in some cases. Population growth has a significant positive effect on economic growth. A high population means a larger number of workers, which indicates lower wages, lower production costs, and sustainable economic growth (Ali et al., 2013). J.S.Mills in classical theory, states that population growth will increase demand and economic growth due to the increase in output produced (Rochaida, 2016).

In low-income countries, rapid population growth is likely to be detrimental in the short and medium-term because it leads to many dependent children. In the long term, it will be a demographic dividend in these countries as young people become productive adults (Peterson, 2017). By Kremer's theory, population growth has a significant and positive impact on economic growth in the short and long term (Azam et al., 2020). There is a long-term positive relationship between an aging population and GDP per capita in Bangladesh (Mamun et al., 2020). However, research by Lai & Cheung (2016) shows that there is no population influence on economic growth in Hong Kong.

Public funding can also use to create more economic activity to prevent recessions and increase economic growth. The results of Wahyuni et al. (2014) using the path test show that government expenditure has a significant positive effect on economic growth. Government support is needed in an economy that is considered the most effective means of intervention. Wu et al., (2010) that Granger's panel causality test results from 180 countries support Wagner's law and the hypothesis that Government expenditure helps economic growth. Increased uncertainty in government expenditure policies has a sizeable negative impact and a lasting effect on economic activity (Kim, 2019). Government expenditure on infrastructure and technology has a significant positive effect on economic growth, but government expenditure on education and the economy does not significantly affect the economy (Dinh Thanh et al., 2020).

Based on the empirical results of previous research, shows that the effect of corruption on economic growth is still ambiguous apart from that from Figure 1 also shows that 10 Asia Pacific countries that have high average CPI values have low average growth and vice versa, this indicates a problem on this topic. This research will contribute by focusing on 5 Asia Pacific countries with a CPI value above 50 with economic growth below 5% and five countries with a CPI value below 50 with economic growth above 5% besides this research. Besides that, this research also includes other variables in GDP, CPI, FDI, Population Growth, and Government expenditure using the latest data. It is exciting for the author to examine whether corruption, FDI, population growth, and government expenditure affect countries' economic growth in the Asia and Pacific region. So, this research aims to examine the determinant of economic growth in 10 Asia-Pacific countries.

Method

This study divides into two variables: independent variables that affect or cause the change or the emergence of the dependent variable. Researchers as independent variables determined corruption, FDI, Population Growth, and Government expenditure. The dependent variable in this study is economic growth using GDP data. The data used is panel data, namely data from longitudinal and cross-section. In panel data analysis, it is known that there are several approaches used, including the OLS (Ordinary Least Square) model approach or the least-squares approach (regression). Several significance tests are needed to choose the right model, including the Hausman test and the Chow test. The chow test is used to determine whether the appropriate model is the common effect or the fixed effect. Likewise, the Hausman test is to find out the best model using a fixed effect or random effect. In this case, the research object consists of 10 Asia-Pacific countries, namely Australia, New Zealand, Singapore, Japan, South Korea, China, Malaysia, Thailand, Indonesia, and Vietnam, and within ten years from 2009-2018. The data used in this study are secondary data obtained from Transparency International (corruption index) and World Bank reports, as well as several national and international journals (See Table 1).

This study uses panel data regression with the research model as follows:

$\ln GDPit = \beta_0 + \beta_1 \text{corruption}_{it} + \beta_2 \text{LnFDI}_{it} + \beta_3 \text{Pop}_{it} + \beta4 \text{LnGovspend}_{it} + e_{it}$

Where:

Bo : Intercept for country 1
β1 to β6 : Regression coefficient
lnGDP : Natural Log of Economic Growth
Corruption : Corruption Perception Index
lnFDI : Log Natural Total foreign investment
LnGovt : Natural Logs of Government expenditure and Population Growth

Table 1. Operational Definitional

Variable	Operational Definition	Source
Dependent Variable		
Gross Domestic Product (GDP)	Gross Domestic Product (GDP) GDP is the value of all goods and services produced by a country during a certain period.	World Bank
Independent Variable		
Corruption Perception Index (CPI)	An index of corruption perceptions in the public sector, which has a scale score from 0 to 100. The score is close to or equal to 0, a very corrupt country, while a score of 100 means that it is clean from Transparency International (TI) corruption.	*Transparency International* (TI).
Foreign direct investment (FDI)	Foreign investment or FDI is the flow of foreign capital into a country.	World Bank
Population growth	Population growth is the average population growth in each country (%)	World Bank
Government expenditure	Government expenditure uses the final total data of all government expenditures within a certain period of data from the Bank Word.	World Bank.

Results and Discussion

Panel data consists of three approaches: the Cammon effect model, fixed-effect model, and random effect model. Based on Table 2, the results of the Chow test conducted obtained a value (Prob> F) of the Fix effect of 0.0000 or less than the alpha level of 0.05 so that H_0 is rejected and H_1 is accepted, which indicates that the Fixed Effects Model (FEM) is a suitable model used in estimation. Furthermore, FEM will be compared with the Random Effects Model (REM) with the Hausman test.

Table 2. Chow Test

Fixed effect test	Prob > F= 0.0000

Source: Author's Computation (2020)

Based on Table 3, the Hausman test conducted shows that the probability column's random cross-section value is 0.2958 or more excellent than the alpha level of 0.05, so that H0 is not rejected. However, according to Wooldridge (2018), failure to reject H0 in the Hausman test means that the estimation of REM and FEM close enough that it does not matter if you choose one or both. This study, the model chosen is FEM. This result is because the data used is at the state level, so conceptually it is better to use FEM. Also, considering that each country has different cultures and government systems so that the intercept between countries may vary.

Table 3. Hausman Test

Hausman Test	Prop >chi2 =. 0.2958

Source: Author's Computation (2020)

A simultaneous test is used to determine whether all independent variables jointly affect the dependent variable. If the calculated F value is greater than the F table, then the independent variables together significantly affect the dependent variable or reject H0 and accept H1. Based on the simultaneous test from the table above, the F-statistic value is 985.59, and the Prob> F value is 0.0000 smaller than 0.05, meaning that together the independent variables CPI, lnFDI, population, and Government expenditure can explain the dependent variable of economic growth in 10 Asia Pacific countries during 2009-2018.

The Adjusted R^2 value is used so that the variations described are not biased. Based on Table 4, the determination value taken from Adjusted R^2 is 0.9613 meaning that economic growth is influenced by the level of corruption (CPI), foreign investment (FDI), population growth (pop), and Government expenditure (govspend) the variation can be explained by 96.10% where other variables explain the remaining 3.90%.

Table 4. Panel Regression Result

Variable	Pooled	Fixed	Random
CPI	-0.0069	-0.0013906	-0.0018
	(0.000)*	-0.257	-0.177
lnFDI	1.88541	0.4269951	0.43106
	(0.000)*	(0.044)*	(0.038)*
Pop	0.04189	0.0333447	0.03381
	-0.327	(0.001)*	(0.001)*
lnGOVSPEND	0.83904	0.9354561	0.93258
	(0.000)*	(0.000)*	(0.000)*
CONS	6.38942	3.694089	3.79185
R^2	0.9755	0.9787	0.9786
Adjusted R^2	0.9745	0.961	0.9625
F statistic	945.38	985.59	4127.07
Prob (F-statistic)	0.000000	0.000000	0.000000

p< 0.05* ; p < 0.1**

The t difference test is used to test how far the independent variable's influence affects the dependent variable with the assumption that the other independent variables are constant. If the significance probability value> 0.05, then the hypothesis is rejected, or the independent variable does not affect the dependent. Conversely, if the probability of significance <0.05, the hypothesis is accepted, based on the partial regression test in the table above, it can be concluded that:

Based on the regression test results, Table 4 shows that the CPI variable has a negative and insignificant effect on economic growth with a coefficient of -0.0013906 and a probability value of 0.257. Based on Figure 1, which has been described above, the average CPI figure during 2008-2018 shows that a group of countries such as New Zealand, Australia, Singapore, Japan, and South Korea have a high average CPI but low economic growth. On the contrary, countries that have a lower average CPI value have higher economic growth. This result shows that corruption in the 10 Asia Pacific countries has not become a significant barrier or driver in economic growth.

This study is in line with Ugur's (2014) research, which found that corruption does not significantly affect GDP per capita and negatively. Also, the results of Huang's (2016) research using the Granger causality prediction in thirteen Asia Pacific countries during the period 1997-2013 show no significant effect of corruption on economic growth. Research conducted by Lutfi et al. (2020) in four ASEAN countries, Indonesia, Malaysia, Thailand, and Vietnam, from 2004 to 2015 also shows that corruption does not significantly affect economic growth.

The test results show that the FDI variable has a significant positive effect on economic growth with a coefficient of 0.4269951 and a probability value of 0.044. This result shows that foreign investment or FDI in the 10 Asia-Pacific countries has a significant positive effect on economic growth where the higher the incoming foreign investment, the higher the economic growth. Therefore, the ease of doing business, including the facilities provided by a country, a good investment climate with easy bureaucracy, and safe state conditions, will increasingly attract investors and make a country very competitive to attract foreign investors. The amount of incoming capital can be used as a driving force in a country's economy, and there is a transfer of technology in it to increase the productivity of these countries that then increases economic growth.

These results are supported by research by Prawira et al. (2017), which found that FDI has a positive effect on economic growth by Adam Smith's classical theory that natural resources, human resources, and capital are the three determining factors for economic growth. This research is also supported by research (Akisik et al., 2020; Putra et al., 2017; Silajdzic & Mehic, 2015) that FDI has a significant positive effect on economic growth.

The test results show that the population growth variable has a significant positive effect on economic growth with a coefficient of 0.0333447 with a probability value of 0.001. Population growth leads to increased demand and increased workforce as a result of additional population. This will increase production capacity and increase the number of goods or services in the market, indicating a country's economy is running and increases economic growth. Thus population growth must be followed by developing the quality of human resources, such as through education, training, and others, so that population explosion does not occur, which will become a burden to the state. If population growth and per capita GDP growth were genuinely independent, a higher population growth rate would result in a higher rate of economic growth. GDP per capita growth will improve the economic welfare of (Piketty, 2015). J.S.Mills in classical theory, it states that population growth will increase demand and economic growth due to the increase in output produced (Rochaida, 2016).

Population growth is an essential factor for economic growth and may even contribute to increasing per capita output growth in some cases. In low-income countries, rapid population growth is likely to be detrimental in the short and medium-term because it leads to many dependent children. There will likely be a demographic dividend in these countries, as young peoples will become a productive adult (Peterson, 2017). By Kremer's theory, the population growth has a significant and positive impact on economic growth in the short and long term (Azam et al., 2020). There is a long-term positive relationship between an aging population and GDP per capita in Bangladesh (Mamun et al., 2020).

The government expenditure variable has a significant positive effect on economic growth with a coefficient of 0.9354561 with a probability value of 0.000. Government expenditure can run the economy in a country because usually, the government distributes the budget in productive things such as infrastructure development, education, and

personnel expenditure to improve the economy. It is hoped that economic growth can increase. This research is supported by Wahyuni et al. (2014); the path test results show that government expenditure has a significant positive effect on economic growth. Government support is needed in an economy that is considered the most effective means of intervention.

This study is also by the research of Wu et al. (2010) that Granger's panel causality test results from 180 countries support Wagner's law and the hypothesis that Government expenditure helps economic growth. Also, Olaoye et al. (2019) show that Government expenditure has a positive effect on economic growth in 15 countries of the West African Economic Community (Ecowas). The influence of government expenditure is very much dependent on the quality of institutions; Africa must develop a healthy institutional environment. Sedrakyan & Varela-Candamio (2019), the results of research in Armenia and Spain during 1996-2014 show that the state government positively influences economic growth. So, the government should increase the government spending to stimulate the economic growth.

Conclusion

Based on the results of data analysis and discussion in this study, it can conclude that corruption (CPI), foreign investment (FDI), population growth, and government expenditure simultaneously affect economic growth. Partially, corruption (CPI) does not significantly affect economic growth, while foreign investment (FDI), population growth, and government expenditure have a significant positive effect on economic growth. The results of the research can use as a reference for policymakers that to increase economic growth in 10 Asia Pacific countries can be done by creating a conducive business climate, providing ease of doing business, increasing population growth followed by increasing the quality of human capital and increasing government expenditure on infrastructure and resource development human beings to create quality economic growth. The study results show that currently, the CPI level has not become a significant factor to encourage or inhibit economic growth in 10 Asia Pacific countries.

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Disclaimer

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