INSTITUTIONAL ECONOMICS AND ECONOMIC GROWTH IN ASEAN+3

HO ZHI XIAN

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STATEMENT OF ORIGINALITY

The work described in this Final Year Project entitled

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Date Submitted   Ho Zhi Xian

60938

ABSTRACT

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By

HO ZHI XIAN

This paper examines the interactions between institutional economics and economic growth, with emphasis on developed and developing nations. The relationship between institutional variables (corruption, government effectiveness and political stability) and gross domestic product (GDP) per capita was assessed conceptually and empirically. Institutional convergence will be tested out to examine the catching-up effect among countries with different development levels as well. This study employs Pooled Ordinary Least Squares (OLS) Regression, Fixed-Effect Model, Random-Effect Model, Hausman Test and Philips-Sul Convergence Method, and utilizes panel data covering nine ASEAN+3 countries from 2002 to 2018. The results reveal that corruption and government effectiveness exert positive and significant impacts on growth, whereas no relationship is found between political stability and economic growth. Besides, countries with similar development level are more likely to converge into the same transition path.

ABSTRAK

INSTITUSI EKONOMI DAN PERTUMBUHAN ECONOMI DI ASEAN+3

Oleh

HO ZHI XIAN

Kajian ini mengkaji hubungan antara institusi ekonomi dan pembangunan ekonomi, terutamanya negara maju dan membangun. Hubungan antara penentu institusi (rasuah, keberkesanan kerajaan dan kestabilan politik) and keluaran dalam negara kasar (KDNK) per kapita telah dinilai secara konseptual dan empirik. Konvergensi institusi akan diuji untuk mengkaji kesan peningkatan antara negara-negara yang dalam tahap pembangunan yang berbeza. Kajian ini menggunakan Regresi Pemusatan Biasa Kurang Persegi, Model Kesan Tetap, Model Kesan Tambang, Ujian Hausman dan Kaedah Penumpuan Philips-Sul untuk mengkaji data panel yang merangkumi sembilan negara ASEAN+3 dari tahun 2002 sehingga 2018. Hasilnya menunjukkan bahawa rasuah dan keberkesanan kerajaan memberi kesan positif dan signifikan terhadap pertumbuhan, sedangkan hubungan antara kestabilan politik dan pertumbuhan ekonimi tidak dijumpai. Di samping itu, negara-negara yang dalam tahap pembangunan yang serupa cenderung ke jalan peralihan yang sama.

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1.0   Introduction

Institutional economics, a crucial aspect that determines a country's economic growth and development, has returned as the prime focus on economic growth and development. In general, institutional economics controls a country's economy by focussing on vital issues through various perspectives. According to North (1990), institutions are the regulation applied to a society where restrictions were devised by humans to structure human interaction. Formal institutions are the solidified version of informal institutions, where informal institution includes faiths, social cleavages, standards, and traditions in education. However, both formal and informal institutions comprise of similar characteristics such as establishment and protection of property rights, easing transactions as well as permitting economic collaboration and operation.

According to Todaru and Smith (2015), institutional economics is said to provide fundamental support to a nation's economy in terms of property rights. This statement was supported by Subramanian and Trebbi (2002) by stating that institutional economics is the most important factor that determines the income inequality issue between the economies of developed and under-developed nations. This theory was also noted by Adam Smith in his book *The Wealth of Nations,* by highlighting the importance of property rights, law, and judicial system.

The institutional variables utilised in this study are corruption, government effectiveness and political stability. Firstly, corruption involves the abuse of public power for private benefit and government or related organisation must control the country's rate of corruption. Secondly, government effectiveness measures the level of independence of public sectors and civil service from implanted regulations and political pressures. Thirdly, political

stability measures the government's ability in avoiding being threatened by illegal violence or terrorism. These determinants reveal the major roles played by the government in enhancing the economic growth of the country.

Corruption has been a worldwide phenomenon, regardless of the country's status and economic level. It is normally regarded as a constraint on a country's economic development. Generally, corruption does not affect growth directly, but through several transmission channels, for instances, private investment. Level of private investment is oppressed because as corruption occurs, uncertainty is increased while profitability is decreased. Entrepreneurial talent is diverted, and further decrease its attractiveness and productivity, where innovation and economic development and growth eventually affected. Thus, a report of the Corruption Perceptions Index (CPI) will be released every year by Transparency International, where the perception of corruption in up to 180 countries were review. This index is generally used as a guideline to gauge a country's corruption level.

Moreover, government effectiveness is another vital element that impacts a country's economic performance. Institutions and governments are humanly devised restrictions that configure human interactions and affect economic incentives (North 1990). Good governance promotes labour efficiency by productive investment through the implementation of economic and social. Government effectiveness commonly considered as an institution indicator from the perspective of modern public administration. It is often being shown as an indicator that reveals how a government is performing in terms of delivering anticipated outcome as well as managing the national budget. According to Rainey & Steinbauer (1999), the effectiveness of a government can be determined by the performance of public administrations in terms of how effective the officials are helping in achieving their mission and objectives. To be more specific, the effectiveness of a government is closely oriented to how the officials are ensuring the credibility and integrity in public sectors (Huther & Shah, 1998). A government is also

considered as effective when it protects personal and property rights of its citizens, to provide the infrastructure that brings convenience for its citizens and to improve their social welfare from time to time. Therefore, good governance provides efficient infrastructures, protects its nation from diversion, and further prosper economic growth of the country, on the other hand, bad governance pushes its nations to diversion by bad regulations, the implication of confiscatory taxation and expropriation.

Also, political stability and economic growth are interconnected. It is acknowledged by economists to be unbeneficial towards the economic performance of a country. Government's horizons on macroeconomic policies are shortened as well when the politics are unstable. Political instability is defined as the tendency of the disintegration of the government due to conflicts or competition between different political parties. Besides, political instability is a persistent phenomenon. Thus, the government of a country must protect its citizen from a destructive and violent environment. When a government can provide a platform that is politically stable for both its citizens and foreigners, the economy of the country will improve eventually as international trades are encouraged. Hence, this causes political stability to be interconnected with economic growth.

1.1   Research Background

1.1.1   ASEAN+3

The Association of South Asian Nations (or normally known as ASEAN), is a regional inter-governmental association that has been established since 8th August 1967 in Bangkok, Thailand through the ASEAN Declaration. The founding countries of ASEAN were Indonesia, Malaysia, Philippines, Singapore, and Thailand. Since then, ASEAN has adopted 6 fundamental principles to ensure effective and efficient growth and development in terms of economy, society, and culture among the member countries. ASEAN was established with a motto of "One Vision, One Identity, One Community".

In December 1997, the cooperation procedure of ASEAN Plus Three (APT), or commonly known as ASEAN+3 began by convoking an informal meeting among leaders of ASEAN, China, Japan and South Korea. Since then, the cooperation between member countries was to be strengthened and deepened in various fields and levels, particularly social, economy and politics. The APT Cooperation Work Plan was formulated to enhance the cooperation between member countries into a more mutually beneficial manner for the next decade (from 2007 to 2017).

Next, although there were challenges that derived from the global economy, the trading cooperation between the member countries of ASEAN+3 persisted. As of 2017, the total trade between the member countries has accumulated to USD 813.5 billion, which was equivalent to 31.6% of total trade in the ASEAN community. To strengthen the economic and financial cooperation between the ASEAN+3 community, several institutions such as the East Asia Business Council (EABC), ASEAN+3 Macroeconomic Research Office (AMRO) and Asian Bond Market Initiative (ABMI) were established. The economic collaboration and cooperation

will be enhanced through the framework suggested in the ASEAN+3 Economic Work Programme that is happening from 2019 to 2020.

The economic cooperation has been prioritized by the member countries of ASEAN+3, hence, Free Trade Agreements (FTA) was implemented to promote trade and investment within the region. The FTAs were aimed to act as a booster in reinforcing the economic relationship between the member countries of ASEAN+3. Economic competitiveness and integration are enhanced to create a transparent investment regime to reduce development gaps respectively. More jobs will be created, and the transfer of technology will be facilitated through the FTA by attracting foreign direct investments.

1.1.2 China

With a population of 1.3 billion people, China is regarded as the world's most populous country. Since being initiated from market reformation in 1978, China has experienced rapid social and economic growth and development by shifting from a central-planned economy to a market-based economy. Reformation was spotted in agriculture, price liberalization, decentralization of fiscal policies, stock market developments, modernization of banking system as well as openness towards foreign investment and trade. The nation is now one of the fastest-growing economies in the world by contributing approximately 30% of global growth in the past few years and is said to be experiencing a "second industrial revolution". According to World Bank, the GDP growth of China has averaged at approximately 10% annually, making China being the fastest expended economy in the history, where more than 950 million people have been eradicated from poverty status. Although the GDP growth of China has been slowed down since 2012, its growth rate is still considered high if compared with global standards. With the spectacular growth rate, China is also expected to exceed the United States and become the largest economy body in the world by 2025.

However, China's anti-corruption progress was never satisfying. Although the country's performance is relatively better compared to several countries, it still came behind India, a country that is much more under-developed compared to China. According to Global Corruption Barometer (GCB) (2017), it is common to see Chinese people to be involved in briberies when it comes to accessing public sectors, especially services that involve healthcare, education and even legal system (Figure 1.0). Among these sectors, the number of briberies paid to public schools was the highest. Although public education in China is free, however, parents are expected to gift the teachers or authorities to ensure their kids' wellness during school time. Such actions are widening the income inequality gap among the rich and poor, which will eventually affect the economy of the country in the long run.

Figure 1.0: Briberies Paid to Public Sectors in China 2017
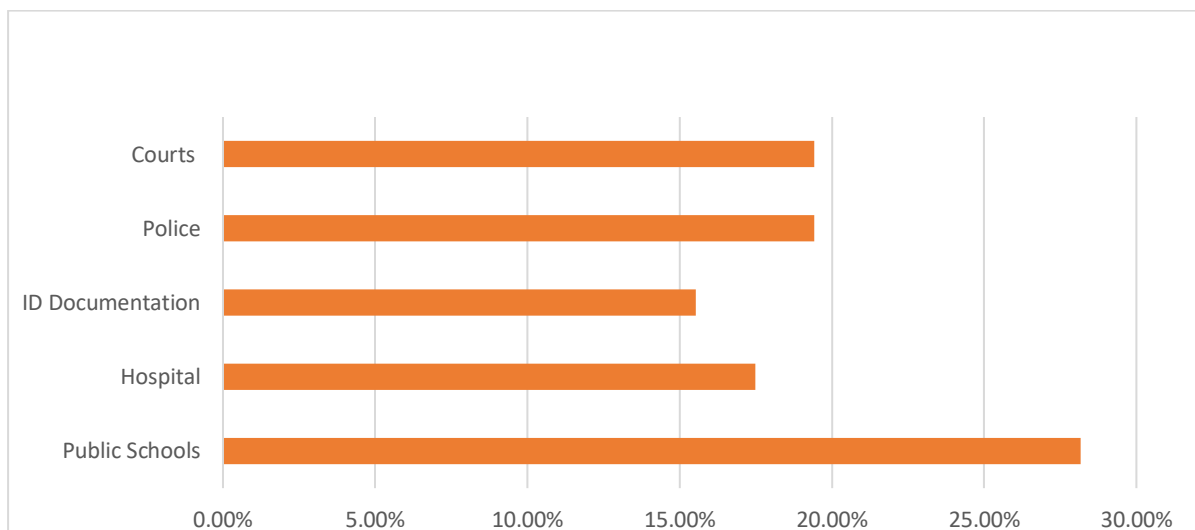
Source: Asia Pacific- Global Corruption Barometer, 2017

China is governed by the Communist Party of China where political power is centralised in the hands of few. Maintaining stability has been the focus of the Chinese governments, however, situations were diffused by resorting to violence, where violence has been made as part of the country's security's mechanism. For instances, Tiananmen Square has demonstrated the military reaction towards opposing voices in China. Besides, police riots can

deploy their citizen's houses to make way for infrastructure development, where such incidents further declining the country's political stability.

Moreover, instability has been one of the factors that contribute to the distortions in the Chinese government's administrations. For instances, when an area starts to experience the consequences of similar cases – for example, inadequate compensation for people whose houses were demolished for development purposes, district courts will be ordered to stop hearing such cases. Thus, the performance of the Chinese government is somehow associated with its political stability, although the association was not significant. China's pace of institutional growth and development is unable to catch up with the speed of its economic growth, hence, reformation and institutional gaps are widening where such issues need to be addressed to secure sustainable economic development and growth.

1.1.3 Indonesia

Indonesia, the largest economy in the Southeast Asia region, is a diverse country with more than 300 ethnic groups. The country has recorded significant economic development and growth since the Asian financial crisis that happened back in the late 1990s. The GDP per capita of the country has since increased steadily. Indonesia is not only just being the fourth most populous country in the world, but it is also the tenth biggest economy in the world in terms of purchasing power parity. As an arising low middle-income nation, Indonesia has done a significant job in eradicating poverty by diminishing the rate of poverty more than half since 1999.

However, poverty is not the only issue Indonesia has been fighting against on, corruption is another issue faced by the country. "KNN" is an abbreviation that is familiar to most Indonesian people, as it represents corruption, collusion, and nepotism. Corruption has been a notable part of the Indonesian government, especially during the New Order Regime of

the former president, Mohamed Suharto, where he was also ranked at the first place in the list of World's Top Ten Most Corrupted Leaders (2004) by embezzling around US$15 billion to US$35 billion. During Suharto's regime, it is undeniable that the Indonesian economy has experienced an impressive development and growth, where this is due to the governance during that regime was predictable and centralised. Investors can predict the amount of money required for bribery purposes and this reduces the uncertainties. Expectation and reduction of uncertainties are always one of the factors that pull the interest of investors. Thus, this is one of the reasons that boosted the high economic growth rate during Suharto's regime.

However, everything fell apart when Suharto was forced out of office in 1998, where the new era "Reformasi" started. Political power was decentralised, and reformations were launched to lay and strengthen the foundation of good governance in both public and financial sectors, where the independence of central bank from the government was also part of the plan. Extended social safety net programme was introduced by the transition government to aid the poor in supporting their level of consumption. A new governmental agency – the Corruption Eradication Commission (KPK) was established to monitor government effectiveness and tackle corruption issues. Unlike during Suharto's regime, the role military played in politics had weakened after 1998.

Although the establishment of KPK was to eradicate corruption and boost good governance, however, it ended up impacting a negative effect. Government authorities became hesitant and wary when it comes to the allocation of the budget as they are afraid to be pointed as a victim in a graft scandal, thus, this leads to a fall in government effectiveness. On the bright side, the media institution in Indonesia is enjoying sufficient amount of freedom, where space is provided for citizens to debate and discuss political or cultural related issues openly, and this is creating a healthy environment that fosters future democratic development, where politics are further stabilised. Besides, the Indonesian government has been increasing its allocation of

budget on infrastructure development, and this has led to a slight improvement in government effectiveness.

1.1.4 Japan

Japan is one of the post-World War II countries that best represent income convergence. The Japanese government had cooperated with industries to master high technology and allocation in defence in the past 70 years, and this has resulted in Japan being developed into one of the most advanced economies in the world. Japan has impressive achievements in boosting its economic growth, even it had experienced recessions for four times since 2008.

Japan's risks of corruption are relatively low compared to other nations due to the well-enforced of legalisation system and contracts. Revolving Door (amakudari), is a Japanese traditional institutionalized practice where senior bureaucrats are given post-retirement employment in public and private organisations that are involved in construction, financial, transportation, education, and pharmaceutical sectors. They are often being assigned to top positions of the organisation as well. Although the idea behind this practice was to improve the public-private relationship, however, this practice ended up being a platform that breeds bureaucratic corruptions. Majority of the corruption scandals were the result of shady deals done between companies and government to obtain infrastructure project contracts, however, government effectiveness is not affected, Japan remained as one of the developed nations with high government effectiveness index. Instead of being the factor that affects the government's performance, these corruption scandals should be regarded as a side effect of large Japanese corporations.

The political system in Japan is based on its constitution that was drafted after the end of World War II. The system is somehow similar to the United Kingdom's political system, where the monarchy has remained as the honorary figure of the country, and the ruling party is

elected through democratic votes. The prime minister of Japan – Shinzo Abe is by far the longest-serving prime minister in the country. Japan's politics has been very stable among other advanced democratic nations is because the ruling government – the Liberal Democratic Party is the only political party that offers consistent regulations and policies regarding national security. Besides, the top priority of most citizens – the alliance with the United States is remained by the ruling party as well. Besides, the opposition parties are having a hard time to secure the support of most of the citizens on them. Thus, this causes them to earn votes from most of the citizens. Moreover, the performance of the Japanese government is satisfying as well. Most of the Japanese government's shortcomings are issues that were stemmed from their cultural norms, for example, workplace gender inequality and unhealthy work culture, however, the living standard in Japan is still relatively high.

1.1.5 Malaysia

The diversion of Malaysian economy has been successful as the country has transformed from a commodity and agriculture-based economy to an economy that hosts the developing service and manufacturing sectors, where Malaysia was driven as one of the global leading exporters of electrical components, appliances and parts. The country's trade openness level is also one of the highest in the world. The country is expected to be transitioning into a high-income country by 2020 due to its impressive achievement in improving its economy in an upward trend since the Asian financial crisis.

Corruption has been a major issue in Malaysia since the past decades. Based on a survey done by Transparency International (2013), most of the households were aware that political parties of Malaysia were highly corrupted, and the government actions in eradicating corruption were ineffective. The Global Competitiveness Report (World Economic Forum, 204), had disclosed that most companies were involved in corruption to ensure the smoothness

of their businesses in Malaysia. For example, government contracts and tenders were often being awarded to companies that have ties with the authorities, and due to the superior position of Bumiputera in Malaysia, certain infrastructure projects were assigned to them without any open tender. As of today, two public institutions are being established to tackle Malaysian corruption issues, the Malaysian Anti-Corruption Commission (MACC) and the National Anti-Corruption Plan (NACP).

Malaysia's corruption scandal – the 1Malaysia Development Berhad (1MDB) broke out between 2009 to 2012, where the spread of news became uncontrolled since 2015. This corruption scandal has even been listed as one of the biggest scandals in the financial history, as the fraud involved a state-owned investment fund, Hollywood celebrities, and even the downfall of the former Malaysian prime minister – Najib Razak. Moreover, Rm2.6 billion was found deposited into Najib's account, which he claimed that the amount of money to be donations from Saudi Arab. Although he denied it to be bribery, however, there was evidence proving that the so-called donation came from companies that are related to 1MDB.

Malaysia has experienced a history of incidents that involved political instability. In 1948 to 1989, there was a communist rebellion, in 1963 to 1965, a conflict between Malaysia and Indonesia nearly led to a war, whereas in 1969, riots happened as a result of serious ethnic conflict, mainly between the Malay and the Chinese. Despite the riots that have been experienced by the country, Malaysia has achieved stable growth and emerged as one of the world's most politically stable and peaceful countries. Although Malaysia is a multi-party democratic country, however, Barisan Nasional had ruled as the government since the independence of the country, and this resulted in the deterioration of governance effectiveness.

The government effectiveness of the Malaysian government has not been satisfying for its citizens. It is often to hear their complaints on how public administrations not being effective

when performing their jobs. This is because being a public servant in Malaysia indicates that the individual has obtained a lifelong-secured job, and this resulted in the ineffectiveness of the Malaysian public administrations.

1.1.6 Philippines

The Philippines has one of the most vital economies in East Asia Pacific. As the urbanisation in the country increases, its population increases too. The dynamics of the Philippines' economy is based on a strong consumer demand whereby being supported by a large labour market, as well as prosperous remittances. The Philippines has progressed in delivering sustainable and inclusive growth by declining its rate of poverty. The country is also being estimated to reach as an upper-middle-income nation in a few years.

The Philippines suffered from serious corruption since the past decades, and this had plagued the country's businesses and economy. Two of its presidents were even ranked in the list of World's Top Ten Most Corrupted Leaders (2004). Ferdinand Marcos ranked behind Mohamed Suharto by embezzling between US$5 billion to USS$ 10 billion, while Joseph Ertrade ranked in the 10th place by embezzling between US$78 million to US$80 million. Besides, the political arena in the Philippines is generally being operated by the Padrino System, where family affiliation or alliances were being appointed for political purposes or promotion, instead of through that individual's merit. Hence, this system has laid a strong foundation in the Philippines' corruption issue. Due to this reason, the legislative framework to eradicate corruption is disorganised and not being enforced effectively due to the mutual benefits that occur between the involved individuals and agencies.

Moreover, the Philippines is politically unstable due to constant political violence. The numbers of murders and disappearance, as well as the government's inability to address the issue, has gotten the attention of international organisations. There are also criminal gangs and

terrorist groups that are operating in some regions of the Philippines, for example, the Sulu pirates had attacked and kidnapped visitors in Sabah and demanded a high amount of ransom. Besides, after Rodrigo Duterte stepped up as the president of the Philippines, he had attacked to eradicate drugs ruthlessly where a deadly program was employed based on people's fear.

Moreover, since the presidency of Rodrigo Duterte started in 2016, the Philippines' government effectiveness fluctuated, where one of the factors that influenced this result was the drug war declared by him. The number of killings during his term was significant, causing the people to have reigned under fear. Besides, although Philippines' governance institutions are considered well-developed, however, the application of justice and legalisation system is unsystematic and favours the elites heavily. The injustice in the jurisdiction system is causing the decline of government effectiveness as well.

1.1.7 South Korea

After a 3-year war with North Korea, South Korea has developed from one of the poorest countries back in the 1960s to a wealthy country in 2004 where its GDP exceeds US$1 trillion. The country is regarded as a successful transition story as it is an impressive example of a help recipient that turned into a high-income nation that combines accelerated economic growth with significant poverty eradication.

There had been several corruption scandals in South Korea in the past few years. The former president, Lee Wan Koo, was forced to resign in 2015 after his involvement in a corruption scandal was exposed. Lee Wan Koo was not the only president that was found corrupted and forced to step down, Park Geun-hye as well. The timing of the scandal was relatively closed with the incident – Sewol ferry tragedy, hence, according to a report that was released by the Government at a Glance (2015), majority of the South Koreans have trust issues with their government. Several factors cause the citizens to lose confidence in their national

government, for instances, poor economic outlook, changes in politics, major disasters, and scandals. It is critical for South Korea's government to restore its people trust in them to ensure the establishment of the future reformation in the country's public sector. Besides, if a country is associated with a low confidence level in governance and judicial system, it is more likely to affect the country's investment and further deteriorate national economic growth and development. However, corruption yields mixed results for nations like South Korea. Corruption is said to be associated with government effectiveness, however, evidence has proven corruption being a booster of economic growth, as well as the formation of large conglomerates such as Samsung.

The constitutional shuffling that happened back in 1987 has laid a strong foundation for the country's current multi-party democracy. The political environment in South Korea was dominated by family affiliations, or large businesses conglomerates. However, the democratic institutions such as quality of regulation, legalisation system and government effectiveness in South Korea are mature and strong, hence, further boosting the political stability of the country.

1.1.8 Singapore

Singapore has developed from a low-income nation to a high-income nation in years since independence. Its GDP growth has been one of the highest in the world with an average of 7.7%. The business environment provided by the country is one of the world's most business-friendly platform for both local and foreign entrepreneurs. Singapore's economy is also one of the most competitive among other countries. Singapore has been aligned with Hong Kong, Taiwan, and South Korea as part of Asia's newly industrialised nations, where both the service and manufacturing sectors remain as the pillars of Singapore's value-added economy.

The level of corruption in Singapore is very low, and the country has been indicated as one of the least corrupted nations in the world. This is due to the efforts of the government's

strong provision and political will where the Prevention of Corruption Act is enforced on individuals who were involved in corruption matters, regardless of his status and affiliation. Besides, the Corrupt Practices Investigation Bureau (CPIB) is bestowed with high legal powers, budget and manpower to fight against corruption. Moreover, the first president of Singapore, Lee Kuan Yew had set an integrity example to all civil servants by not accepting any gifts and favour any requests or considerations, where this has motivated the civil servants in Singapore to not involved in briberies.

As a soft authoritarian country, Singapore has one of the most secured political environments in the world. Singapore's low political risks were not due to its institutionalised and matured democracies, it is instead, due to the oppression of opposition. The Singaporean government viewed political oppositions as a factor of instability, where actions were constantly taken to curtain such issues. Singapore's democracy has been jeopardized to maintain their good political risks scores.

It is not a surprise to see Singapore being ranked in the 1st place for government effectiveness in 2016. Singapore's good governance was due to its effective public bureaucracy and policy context. Meritocracy is also emphasized within the public administrations of Singapore, and this led to personnel's high competence in implementing policies. Besides, the political framework of Singapore was not any dogmatic stance, instead, a pragmatic approach was adopted to formulate policies.

1.1.9 Thailand

Both Thailand's social and economic development has been progressing remarkably since the past four decades, where the country transitioned from a low-income nation to an upper-income nation in such a short amount of time. Thailand is remarkable with its impressive economic growth and poverty eradication, where millions of job opportunities were created to

lift millions of its citizens from poverty status. The social welfare of the country was spectacular as well, where every citizen is covered with health insurance. However, the disparities between regions remained large as of today.

According to the list of Top Five Most Corrupted Asian Countries ranked by Forbes (2017), Thailand was ranked at the 3rd place with 41% of corruption rate, which was far behind from then 2nd place – Vietnam, where its bribery rate was indicated at 65%. Thailand has been struggling with corruption charges that happen at all levels even though the military government has tightened the Anti-Corruption Act in 2015. The military government seized power in 2014 and overthrew the former prime minister Yingluck Shinawatra, who was said to be plaguing the country's economy by corruption. However, the military government had not been effective in fighting against corruption as the corruption score of the country did not diverge much.

Besides, Thailand had experienced instability since the seizure of power by the military government and broke its promises on restoring the country's democratic status in late 2015. The political instability of the country had weighted on the confidence of investors, and this has led the country's business outlook to be weakest among ASEAN countries. New initiatives were taken by King Maha Vajiralongkorn to further expand his control over the monarchy's economic assets and palace bureaucracy. As the royal powers were maintained, the military government had consolidated their power successfully. As of today, there are still uncertainties on the availability of future political election and the return of democracy to the country.

1.1.10 Vietnam

Vietnam is a developing nation with a dense population. The reformation of economics and politics that was launched in 1986 had led the country to develop from a central and agriculture-based country to a market-based and industrialised economy. Vietnam has spurred

from one of the poorest nations in the world into a lower middle-income nation over the past 30 years. The rate of poverty in Vietnam had decreased significantly from 70% to less than 6%, where more than 45 million people escaped from poverty status between 2002 to 2017.

Despite the improvement of the anti-corruption framework over the past few years, the corruption in Vietnam is still regarded as serious and lags compared to other Asian countries in respect of corruption control and governance indicators.

While the roots of the Vietnamese government were communism, however, Vietnam is run by a single party, making the country to be a socialist republic. Besides, the ruling party – the Communist Party of Vietnam had ruled the country for more than 40 years and the politics in Vietnam has been quite stable ever since. The government has followed China's economic model in terms of policy initiatives and fundamental approach to conduct its economic reformation, hence, the country's ranking in political stability has been rising steadily.

Decentralisation of political power has boosted the competition between the provinces and cities for infrastructure investments, as well as local GDP growth. It may sound good, however, it is causing the government and economy to be inefficient. This is because the local government does have the ability to implement the investment projects and might lead to rising rate of bad investment. Besides, there was no effective accountability and supervision on government activities, and this made corruption in the country to be uncontrollable. As stated above, the increased competition between the local governments has caused duplication of infrastructure projects such as airports and industrial parks, and these have hindered the Philippines' government effectiveness.

1.2   Institutional Economics and Convergence

Institutional economics acknowledges the major role played by social institutions in shaping economic behaviour and development. On the other hand, convergence, or commonly known as the catch-up effect, is an economic theory that emphasizes the economies of poor and underdeveloped nations tend to grow more rapidly compared to wealthy and developed nations, where the phenomenon of convergence occurs in respect of income per capita (Durlauf and Johnson, 2008). Diminishing marginal returns is the foundation of this theory, where the return of a country from an investment will decrease as it develops and reaches its maximum return. Poorer nations are beneficial at such situations as they can duplicate the production procedure, as well as the institutions and technologies of the developed nations that have been experiencing rapid growth frequently.

Institutional convergence has been a topic that raised the interests of Economists. Acemoglu et al. (2005) described the variables of economic growth pinpoint institutions as the foundation that boost development in the long run. Evidence has been found by Khanna et al. (2006) where countries that are economically dependent implement somehow identical corporate governance legalisation to protect their stakeholders. On the other hand, Knack (1996), and Keefer and Knack (1997) have proven that institution quality is the main booster that helps poor nations to catch up the income levels of rich nations, where the GDP per capita is sensitive when the initial income is at a lower level. In short, the institution plays a major role in converging the income per capita.

While convergence sounds like being beneficial towards poor nations, however, Abramovitz (1986) highlighted the limitation of convergence. Development and leverage of social capabilities in terms of the country's ability in absorbing new technologies, attracting capital, and participating in the global market are crucial if those poor nations want to benefit

from convergence. Generally, the presence and strength of institutions is the significant factor that determines if the country has the ability for convergence.

There are three types of convergence, namely conditional convergence, unconditional convergence, and no convergence. Conditional convergence indicates that the saving rate, production function and population growth rate of a poorer nation will ultimately catch up with the richer nation that is associated with low saving rate, production function and population growth rate. The poorer nation will never catch up with rich nations that are associated with high saving rate, production function and population growth rate. This is because the capital per worker in the poorer nation is lesser compared to the rich nations. Furthermore, foreign loans will eventually raise the worker's output and capital-labour ratios to be similar to the rich nations.

Next, unconditional convergence indicates that poorer nations will eventually catch up with richer nations in terms of living standards in the long run. According to the Solow Model, unconditional convergence is predicted under special conditions. As stated above, worker's output and capital-labour ration are higher in richer nations, where saving rates, production function and population growth rates are held constant, the poorer nations will eventually attain the same steady-state with richer nations.

Lastly, no convergence indicates that poorer nations are unable to catch up with richer nations. Therefore, the standard of living between these two types of countries will eventually diverge as the income gap between these two nations is widening, indicating that the poor are getting poorer while the rich are getting richer.

1.3   Problem Statement

The Association of Southeast Asian Nations (ASEAN) has a prominent achievement in promoting sustainable economic growth and integration of member countries. However, despite such achievements, most member countries still lack appropriate institutional development and economic structure to support the development of respective countries. The main issue faced by most members is not an integration problem, it is internal issues instead.

Most member countries in ASEAN+3 have a significant level of corruption. Transparency International (2019) had described the anti-corruption progress in the Asia Pacific region during 2018 was inefficient due to the weakening political rights and democratic institutions. Corruption is often being considered as obstructive determinants towards the economic growth and development in most nations. Such activities need to be eliminated as it brings negative impacts to the economy of a country, especially towards developing countries. International trade is discouraged as importers and exporters are forced to pay bribes to government officials to smoothen the trade, and eventually reduces the foreign capital inflow into the country.

Guisan (2009) highlighted government effectiveness as a meter than correlates significantly towards GDP per capita, life satisfaction and education expenditure. It is an important element that boosts economic growth and development as it assesses the performance of the government through perspectives such as how the government is managing public assets and resources, as well as how the government is performing in the establishment of a stable and transparent environment for development at every stage.

Investment and speed of economic growth and development are reduced when the environment is politically unstable. This is because the exchange rate of a country is highly affected when it is politically unstable, and this made investing in that country difficult.

Investors are discouraged to invest in a politically unstable environment, as a higher return is needed to remunerate for the increased risk faced by the firms. Thus, it is going to be costly to invest in such a country. However, if the economic performance of a country is worsened, for example, the widening of the income inequality gap, this will lead to a politically unstable situation to the country as well.

In short, as the pillars of institutional economics that will impact the economic growth of a country, corruption, government effectiveness and political stability are intercorrelated with GDP per capita significantly. Singapore, Japan and South Korea's performance were outstanding compared to the remaining member countries, hence, other member countries must associate with these countries to improve their performance in institutional economics, and further boost the country's economic growth.

1.4 Research Question

Several questions came into the researcher's mind when studying the relationship between institutional economics and economic growth in ASEAN+3 countries. The research questions are as follow:-

1. What are the impacts of institutional economics towards the economic growth of member countries of ASEAN+3 in both the short and long-run?

2. How determinants of institutional economics correlate with economic growth of member countries in ASEAN+3?

3. What are the club convergence and catching-up capabilities of institutional economics in ASEAN+3?

4. Are there any policies that can be implemented to institutional economics?

1.5   Research Objectives

1.5.1   General Objectives

The general objective of this study is to examine the relationship between institutional economics and economic growth of member countries of ASEAN+3.

1.5.2   Specific Objectives

1. To determine how institutional economics are affecting the economic growth of member countries in ASEAN+3 in both the short and long-run.

2. To assess the relationship between the determinants of institutional economics and economic growth of member countries in ASEAN+3.

3. To determine the club convergence and catching up capabilities of institutional economics in ASEAN+3.

4. To identify the policies that can be implemented towards institutional economics.

1.6   Significance of the Study

To the author's knowledge, the empirical research regarding institutional economics that has been done by previous researchers was limited. Most ASEAN+3 countries are developing nations that have institutional issues that might deteriorate their economic growth.

Institutional economics play an important role in influencing a country's economic performance, hence, policymakers need to determine the institutional variables that are affecting the country's economic growth, as well as minimising the negative effects of institutional economics towards the economic growth of their country.

Besides, institutional convergence has been serving as one of the economic interests as it indicates the transition paths of the countries. According to Acemoglu et al (2005), institutions act as a foundation for economic growth in long-run, where its quality determines

the strength of the laid foundation. Therefore, policymakers need to understand how it works and learn how to utilise its benefits to improve own's economic growth.

1.7   Organization of the Study

This chapter consists of the general review of the research topic, where elements such as introduction, research background, problem statement, research question, objectives of the study, significance of the study, and organisation of study that are related to institutional economics and economic growth are included.

Chapter 2

This chapter consists of the general review of relevant works of literature that are related to our research topic, where literature review regarding the relationship between the institutional variables, institutional convergence and economic growth is included.

Chapter 3

This chapter consists of data and methodology that were utilised in this study. The data collected and information of each determinant will be summarised and presented. GDP per capita is indicated as the dependent variables, whereas corruption, government effectiveness and political stability are indicated as the independent variables of this research.

Chapter 4

This chapter consists of empirical results that have been interpreted through data collected. A discussion will be done as well.

Chapter 5

This chapter consists of the conclusion of this research. Relevant policies will be recommended to be used as a reference for future studies.

2.0   Introduction

According to the studies done by previous researchers, the linkage between the institutional determinants and the economic growth of a country has been proven, where institutional determinants such as corruption, government effectiveness and political stability are said to impose impact towards a country's economic growth.

2.1   Literature Review

2.1.1   The Relationship Between Corruption and Economic Growth

The effect of corruption on economic growth has been controversial among economists as the results of previous findings were ambiguous. Some economists viewed corruption as an obstruction to the economic growth of a country and supported this theory with their empirical findings and results. This theory was pioneered Mauro (1995), as he observed that corruption associated with private investment negatively, where economic growth of a country is eventually affected trough Ordinary Least Squares (OLS) estimations and Two-Stage Least Squares (2SLS) estimations using Ethnolinguistic Fractionalization (ELF) index as the measurement instrument. When corruption index increases by 1 standard deviation, the investment rate will increase by 2.9% of the GDP. Thus, corruption, private investment and economic growth are associated negatively and significantly.

Mauro's findings were later supported by Mo (2001), where he has noted the significant impact inflicted by corruption on a country's economic growth, where the importance of the channels of transmission is highlighted as well. In his findings, he has proven that a 1% increase in corruption rate reduces the economic growth rate by 0.72%. The transmission channels that are associated with corruption is affecting the economic growth of a country are political stability (which is responsible for approximately 53% of the general effect), private investment

level and human capital. Corruption is regarded also as one of the forms of inefficient institution, for examples, weak legal and juridical system, as well as bureaucratic red tape. Hence, this caused international organizations such as the International Monetary Fund (IMF), the United Nation (UN), and the World Bank to criminalize bribery actions and participated in combating corruption.

Mustapha (2014) explored the effect of bribery on a country's GDP per capita. Her empirical result had proven that corruption level impacts the economic growth of a country significantly in a negative manner.

Ghalwash (2014) had studied the indirect and direct effect of corruption instilled on Egypt's economic growth by assimilating a growth model. The author used the Augmented Dickey-Fuller test to perform unit root test on the time series data, where his empirical result showed that corruption impacts growth negatively and moderately. Besides, when corruption is associated with foreign direct investment, trade openness, human capital and political instability can impact the economic growth negatively. On the other hand, when corruption is associated with government expenditure, economic growth is reduced as the government's effectiveness on expenditures related to growth is diminished.

Alfada (2019) utilised a threshold model by Hansen (2000) to evaluate if corruption will benefit or deteriorate the economic growth of Indonesian provinces according to its initial corruption level. The estimation results revealed that corruption destructs the economic growth of the provinces with a low level of corruption weaker than the deteriorating impact of corruption inflicted in provinces with a high level of corruption.

However, there were also researchers viewed corruption as a catalyst for economic growth. Ahmad, Ullah and Arfeen (2012) had investigated the empirical relationship between corruption and economic growth for developed and developing nations by utilising panel data.

Relevant data were analysed with the Generalised Method of Moments Estimations (GMM), where the results proved the graphical relationship between corruption and economic growth is an inverted U-shape. This indicates the impact of corruption towards the economic growth is not necessarily negative, for instances, China, Indonesia and Paraguay have average economic growth of 1% back in the 1980s, even though they were regarded as three most corrupted nations in the world.

Lastly, Heckelman and Powell (2010) examined the correlation between corruption and the economic growth by utilizing the economic freedom index. Their test was conducted with regression analysis, where corruption was proven to be enhancing the economic growth of a country when its economic freedom was limited, indicating the positive effect of corruption will fall when the level of economic freedom rises. However, such an effect mainly impacts on government and their regulations.

2.1.2 The Relationship Between Government Effectiveness and Economic Growth

Government is commonly being regarded as the central role in encouraging both the social and economic growth of a country. Government intervention has been supported by Keynesian economics since the 1930s to fix issues such as unemployment and recession. As one of the pillars of good governance, government effectiveness has been used to measure the performance of government frequently. Economists view the performance of the government of a country to be a catalyst to boost its economic growth as the government is responsible for managing the country's resources and policies.

According to a study done by Kaufmann et al. (1999), the causality strength between governance quality and development outcomes in terms of low infant mortality rate, high literacy rate and high GDP per capita is strong, as shown by the empirical result from the Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) tests.

Besides, some studies that suggested democracy and government effectiveness is positively related. This theory was pioneered by Barro (1996) by highlighting the strong influence of democracy in stimulating the GDP per capita of the country. However, once the country's democracy level reaches a moderate figure, any further expansion will deteriorate the economic growth.

Han, Khan and Zhuang (2014) have proven that government effectiveness is inflicting the growth performance of a country positively and significantly. It also benefits the economic prospects of a country. In short, governance plays an important role in development, where good governance is correlated with higher income and faster growth, however, its association with development differ across governance dimension and the development stage of a country.

Intending to examine how democracy can impact the economic growth of a country through its influence on governance quality in the long run, Rivera-Batiz (2002) has constructed an endogenous growth model to examine the association between the variables. The empirical result revealed by the researcher proved that democracy impacted growth significantly, however, such contribution only occurs when high-quality governance is associated with strong democratic institutions. Moreover, when the governance index increases by 1 standard deviation, the GDP per capita growth rate increase by 1.2% annually.

Cooray (2009) investigated how government influences a country's economic growth through the extension of the neoclassical production function. The quality (measured by government expenditure) and size (measured by governance) dimensions of government are incorporated in this study. The empirical result disclosed the quality and size of a government are important in boosting the country's economic growth.

Government effectiveness influences a country's economic growth significantly through its performance on various variables that include control of corruption, political

stability, rule of regulation quality and rule of law. Besides, the past performance of the economic growth of a country is one of the elements that affect the present and future economic growth rate of a country (Ramadhan, 2019).

Liu et al. (2018) have examined how governance quality can impact the economic growth of China and their study has proven that the quality of governance is correlated to economic growth on a country positively as good governance strengthens the power of "helping hand" and weakens the power of "grabbing hand". Besides, they stated diminishing marginal return is represented by the governance effectiveness, where high governance effectiveness boosts economic growth to develop in a faster pace in Western countries while high government effectiveness boosts economic growth to develop in high quality in Eastern countries.

Fayissa and Nsiah (2013) have investigated how governance boosts the economic growth in African countries. Their study indicated government effectiveness as one of the main variables that encourage Africa's economic growth by analysing the data set through random and Fixed-Effect models. In short, to ensure the successfulness of the New Partnership for Africa's Development (NEPAD) that strives to boost the sustainable development and growth and integrate African economies, it is crucial to maintain good governance. Their empirical results also proved that a 10% rise in government performance leads to a 0.73% rise in GDP per capita.

2.1.3 The Relationship Between Political Stability and Economic Growth

Political stability is one of the variables that support sustainable economic growth in a country. Historical evidence has suggested both political stability and economic growth is deeply interconnected, for example, the political instabilities that occurred in both Europe and the US back in 1920 have led to the happening of World War II.

Nazeer and Masih (2017) have examined the causal relationship between foreign direct investment (FDI), political instability, and the economic growth of Malaysia through the Autoregressive Distributed Lag (ARDL) Model as suggested by Pesaran et al. (2001). They have proven that a country's political instability is correlated with its foreign direct investment (FDI) and economic growth. Besides, GDP less sensitive to foreign direct investment and political instability.

Besides, Alesina et al (1992) have investigated how the degree of political instability impacts the GDP per capita of a country by running a Generalized Least Squares (GLS) regression. According to their findings, when the degree of political instability rises, the negative impact inflicted on GDP per capita rises as well. Low performance of economic growth in the past is not likely to lead to the political instability of a country. However, such an event is suggested to be a long-term phenomenon, as any changes in the government will raise the probability of future subsequent changes.

Aisen and Viega (2011) agreed that a high degree of political instability will cause fluctuations in the country's GDP per capita. Political instability often impacts the economic growth of a country indirectly, as it will lower the human and physical capital accumulation and productivity growth rate before impacting the GDP per capita.

Based on the study conducted by Abdullah (2018), political instability does not impact the country's economic growth in the short run, instead, it affects the economic growth in the long run. His empirical results revealed that political instability contributes 6.4% of the variations in economic growth, while transmission channels such as foreign direct investment, capital accumulation, and net trade balance contribute 69% of the variations in the country's economic growth.

Daylop (2018) stated that the relationship between political instability and economic performance is bi-directional as they granger cause to each other. Both aspects are correlated to each other closely as well. In short, the fluctuations in the economic growth is more likely to impact the degree of political instability in a conflict-affected nation. He also agreed that the instability in the political environment will affect the economic performance by several channels of transmissions such as tax system, government expenditure, fiscal deficits, and inflations.

However, Gurgul and Lach (2013) disagreed on the granger cause relationship between political instability and economic growth as proposed by Daylop (2018). They mentioned that the relationship between those aspects was not bi-directional, instead, political instability granger causes economic growth. They stated that economic growth is deteriorated when political instability occurs, major changes in the government do fluctuate the economic growth, however, the changes will not be persistent.

Sweidan (2015) determined the effect of political instability on Jordan's economic performance. He had examined Jordan's political instability through four dimensions, namely, cabinet changes, local wars and violence, neighbouring state's war and violence and regional states' violence. International financial aid has been one of the sources of Jordan's government revenue when political instability occurs in Jordan or its neighbouring country, its government expenditure is affected, further deteriorates its economic growth.

Moreover, Jong (2008) analysed the four dimensions of political instability – mass civil protest, politically motivated violence, instability of political regime and instability within political regime inflict different impact on the economic growth, where instability of political regime implies significant, robust and negative impact towards the economic performance of a country.

Brempong and Traynor (1999) concluded that economic performance and political stability granger cause to each other, where the effect of political instability towards economic performance can be either direct or indirect. They also pointed out investment being one of the channels that transmit the negative impact of political instability on the country's economic performance. Besides, the economic performance and political stability are jointly endogenous, where the latter is impacted through a fall of capital accumulation in the long run.

Lastly, Asteriou and Price (2001) claimed the linkage between political stability and economic growth is negative and strong. Although uncertainties in GDP growth rates are raised when political instability occurs, however, these uncertainties will not impact GDP growth rates.

2.1.4 Institutional Convergence

According to the study conducted by Savoia and Sen (2012), the gap between developed and developing nations is narrowing as developing nations are currently experiencing improvements in institutional quality at a slow pace. The initial institutional quality measure, as well as its subsequent change, is negatively and significantly correlated. The variations in terms of institutional quality will be transitory for a long time. The ending of the Cold War has also implied a positive impact on institutional convergence.

Secondly, Ahmad and Hall (2017) have utilized the Durbin Model and Spatial Error Model (SEM) to indicate the impact of institutional convergence and economic growth of developing nations, whereas property rights institution is considered as the critical factor towards the economic growth. Indirect overflow of an institution is proven as well, for example, when a country's institution boosted its economic growth, the economic growth of neighbouring countries will be impacted positively as well.

Knack (1994) mentioned that strong convergence is shown in income per capita among countries with institutions that secure property rights. Besides, income converges among the future potential of rich samples, where the quality of the institution is held constant. Moreover, rapid convergence on growth is not limited to middle-income nations.

Hall (2015) stated that no contributions are done to conditional convergence by democratic institutions. Nations with low economic freedom back in the 1980s converged at 0.7% annually on average. Furthermore, a positive effect is inflicted by institutional convergence on the GDP per capita and the speed of economic freedom.

Lastly, Siddiqui et al (2009) stated that the quality of institution impacts the economic performance of a country significantly. Initial GDP and growth are negatively correlated, indicating institutional convergence is likely to boost the developing nation to emerge as a developed nation. The performance of the institution is also being indicated as convergence's pre-requisite.

2.2   Concluding Remarks

Institutional economics shape the economic function of a country through socio-historical components. In short, the institution governs a country's economic performance, hence, Policymakers must understand how the determinants of institutional economics affect the economic growth and implement relevant regulations to enhance the country's economic performance.

The negative impact of corruption on economic performance has been commonly acknowledged by most economists. The empirical results of Mauro (1995), Mo (2001), Mustapha (2014), Ghalwash (2014) and Alfada (2019) supported the theory of corruption deteriorating the growth of a country in economic perspective. However, Heckelman and Powell (2010) and Ahmad. Ullah and Arfeen (2012) failed to agree on such a theory.

Next, the positive relationship between government effectiveness on economic performance has been agreed by every economist. Barro (1996), Kaufmann et al (1999), Rivera-Batiz (2002), Cooray (2009), Fayissa and Nsiah (2013), Han, Khan and Zhuang (2014), Liu et al (2018) and Ramadhan (2019) viewed the performance of a country's government as the catalyst of the country's economic performance.

Moreover, the positive impact of political stability on the economic performance of a country has also been agreed by all economists. Alesina et al (1002), Brempong and Traynor (1999), Asteriou and Price (2001), Jong (2008), Aisen and Viega (2011), Nazeer and Masih (2012), Gurgul and Lach (2013), Sweidan (2015), Abdullah (2018) and Daylop (2018) have highlighted the positive role of political stability is playing in enhancing the growth of a country in economics perspective.

2.3   Table Summary of Literature Review

No	Author (Date)	Data	Methodology	Finding
1	Mauro (1995)	• Ethnolinguistic Fractionalization (ELF) index • The sample consists of data between 1960-1985 • Variables:- ➢ GDP Per Capita ➢ Primary Education	• Ordinary Least Squares (OLS) • Two-Stage Least Squares (2SLS)	▪ Corruption is associated with economic growth negatively through private investment. ▪ The rise of 1 standard deviation in the corruption index is correlated with a rise

		➢ Secondary Education ➢ Population Growth ➢ Government Expenditure ➢ Revolutions and Coups ➢ Assassination		in investment rate by 2.9% of the GDP.
2	Mo (2001)	• Panel Data • The sample consists of data between 1970-1985 • Variables:- ➢ Real GDP Growth Rate (%) ➢ Corruption Index ➢ Ratio of Private Investment to GDP ➢ Initial Per Capita Income ➢ Gastil Index of Political Rights	▪ Ordinary Least Squares (OLS)	▪ Channels of transmission are important in valuing the effect of corruption towards the economic performance of a country. ▪ Corruption deters the economic growth through private investment, human capital and political stability. ▪ A 1% rise in corruption reduces the

				rate of economic growth by 0.72%

3	Mustapha (2014)	• Panel data
		• The sample consists of data between 2003-2011
		• Variables:-
		  ➤ GDP Per Capita
		  ➤ Corruption Index
		  ➤ Foreign Investment
		  ➤ Bank Loans
			• Pooled Ordinary Least Squares (OLS)
			• Fixed-Effect Model
			• Random-Effect Model
				• A significant negative correlation is spotted between corruption and GDP per capita.
				• An increase of 10 points in a country's corruption index leads to a decrease of US$2,849 of GDP per capita.

4	Ghalwash (2014)	• Time Series Data • The sample consists of data between 1990-2012 • Variables:-	• Augmented Dickey-Fuller Test • Unit Root Test	• Impact of corruption on growth is moderate and negative. • Interaction between corruption and FDI,

				human capital, trade openness and political stability inflict a negative impact on economic growth in Egypt.
		➢ Real GDP Per Capita ➢ Investment ➢ Human Capital ➢ Openness to Trade ➢ Government Expenditure ➢ Political Stability		• Interaction between corruption and government expenditure reduces the economic growth in Egypt by decreasing government effectiveness on expenditures related to economic growth.
5	Alfada (2019)	• Panel Data • The sample consists of data between 2004-2015 • Variables:- ➢ Regional GDP Per Capita Growth Rate	• Threshold Model • Unit Root Test	• The initial level of corruption impacts the strength of its effect on the economic growth.

		➢ Initial Regional GDP Per Capita (2004) ➢ Corruption ➢ Investment ➢ Government Consumption ➢ Government Investment ➢ Trade ➢ Schooling		
6	Ahmad, Ullah and Arfeen (2012)	• Panel Data • The sample consists of data between 1984-2009 • Variables:- ➢ Government Expenditure (% of GDP) ➢ External Competitiveness ➢ Population Growth Rate ➢ Primary School Enrolment Rate	• Generalised Method of Moments Estimations (GMM) • Random-Effect Model	• The graphical relationship between corruption and economic growth is an inverted U-shape. • The impact of corruption towards the economic growth is not necessarily negative.

		➢ Secondary School Enrolment Rate ➢ Gross FDI ➢ Risk-to-Investment Index ➢ Corruption Index ➢ Square of Corruption Index ➢ Bureaucratic Efficiency Index ➢ Political Stability Index ➢ Institutional Efficiency Index		
7	Heckelman and Powell (2010)	• Time Series Data • The sample consists of data between 1995-2000 (independent variables) and 2000-2005 (dependent variable) • Variables:- ➢ GDP Growth	• Regression Analysis • White Test	• The economic growth is enhanced by corruption when the country's economic freedom was limited. • The positive impact of corruption impacted the economic performance of a country will decrease

		➤ Initial GDP ➤ Investment ➤ Corruption Index ➤ Democracy ➤ EFW Index		once its economic freedom rises.
8	Kaufmann et al (1999)	• Panel Data • The sample consists of data between 1997-1998 (Governance indicators) and 1990-1995 (GDP per capita) • Variables:- ➤ GDP Per Capita ➤ Infant Mortality ➤ Adult Literacy ➤ Governance	• Ordinary Least Squares (OLS) • Two-Stage Least Squares (2SLS)	• The causality strength between governance quality and development outcomes in terms of a high rate of literacy, low rate of infant mortality and high GDP per capita are strong.
9	Barro (1999)	• Panel Data • The sample consists of data between 1972-1995 • Variables:- ➤ Electoral Rights	• Regression Analysis	• Democracy influences strongly on a country's economic growth as democracy and government

		➢ Civil Liberties ➢ GDP Per Capita ➢ Primary Schooling Years ➢ Gap between both genders' Primary Schooling ➢ Rate of Urbanization ➢ Population ➢ Oil			• effectiveness is positively related. • However, excessive democracy will lead to a deterioration of the economic growth.
10	Han, Khan and Zhuang (2014)	• Panel Data • The sample consists of data between 1998-2011 • Variables:- ➢ GDP Per Capita ➢ GDP Growth ➢ Governance Component ➢ Human Development Component ➢ Openness		• Fixed-Effect Model • Generalized Method of Moments (GMM) • Ordinary Least Squares (OLS)		• Government effectiveness inflicts significant positive result on the growth performance of a country. • Good governance benefits the economic prospects of a country.

		➤ FDI		

11	Rivera-Batiz (2002)	• Time Series Data
		• The sample consists of data between 1960-1990
		• Variables:-
		  ➤ Democracy
		  ➤ Governance Index
		  ➤ % of Population in Urban Area
		  ➤ People over 25 years in Tertiary Education
		  ➤ GDP Per Capita
			• Endogenous Growth Model
			• Ordinary Least Squares (OLS)
				• Democracy impacts the economic growth of a country significantly, however, high-quality governance needs to be associated with strong democratic institutions to achieve such a situation.
				• When governance index increases by 1 standard deviation, GDP per capita growth rate increase by 1.2% annually.

12	Cooray (2009)	• Time Series Data
		• The sample consists of data between 1996-2003
		• Variables:-
		  ➤ GDP Per Capita
		  ➤ Private Capital
		  ➤ Human Capital
			• Generalized Method of Moments (GMM)	• Quality and size of a government is a booster towards a country's economic growth.

		➢ Government Expenditure/GDP		
		➢ Credit/GDP		
		➢ Initial GDP		

13	Ramadhan (2019)	• Time Series Data
		• The sample consists of data between 2000 (Q1)-2018 (Q4)
		• Variables:-
		  ➢ GDP
		  ➢ Political Stability
		  ➢ Control of Corruption
		  ➢ Government Effectiveness
		  ➢ Rule of Law
		  ➢ Regulation Quality
			• Generalized Methods of Moments (GMM)	• Government effectiveness influences the economic growth of a country significantly.
				• The country's economic performance is not only being influenced by government performance, but it is also affected by the growth that happened in the past.

14	Liu et al. (2018)	• Panel Data • The sample consists of data between 2001-2015 • Variables:- ➢ GDP Per Capita	• Mixed-Effect Model • Fixed-Effect Model • Random-Effect Model	• Governance quality impacts the economic growth in China positively.

			Hausman Test	Good governance strengthens the power of helping hand.
		➢ Governance Quality ➢ Economic Growth Openness ➢ Education Development ➢ Urbanization ➢ Investment Proportion ➢ Human Capital		• High government effectiveness boosts the economic growth at a faster pace in developed nations while it boosts the economic growth in higher quality in developing nations.
15	Fayissa and Nsiah (2013)	• Panel Data • The sample consists of data between 1990-2004 • Variables:- ➢ GDP Per Capita ➢ Investment ➢ Human capital ➢ Trade ➢ Foreign Aid ➢ FDI Inflow ➢ Household Consumption	• Fixed-Effect Model • Random-Effect Model • Hausman Test	• Government effectiveness indicated as one of the factors that boost economic growth in Africa nations. • The effect of government effectiveness on economic growth is positive and significant.

		➢ Crude Oil Production ➢ Dependency Ratio ➢ Landline Phones per Thousand Population ➢ Governance Indicators		• A 10% increase in government effectiveness leads to a 0.73% increase in GDP per capita.
16	Nazeer and Masih (2017)	• Time Series Data • The sample consists of data between 1984-2013 • Variables:- ➢ Political Instability ➢ FDI ➢ GDP	• Autoregressive Distributed Lag (ARDL) Model • Unit Root Test	• Political instability is cointegrated with FDI, and further impact the economic growth of a country. • GDP is less sensitive towards the variations of political instability and FDI
17	Alesina et al. (1992)	• Time Series and Cross-Sectional Panel • The sample consists of data between 1960-1982. • Variables:-	• Chi-Squared Test • Generalized Least Squares (GLS) Regression	• The higher the degree of political instability, the higher the negative impact it inflicts on the GDP per capita. • Low economic growth in the past is not likely

		➢ Income Per Capita ➢ Human Capital ➢ Government Change		to cause political instability of a country. • However, political instability is suggested to be a long-term phenomenon as a change of government change raises the probability of subsequent changes
18	Aisen and Veiga (2011)	• Linear Dynamic Panel Data • The sample consists of data between 1960-2004 • Variables:- ➢ Initial GDP Per Capita ➢ Growth of GDP Per Capita ➢ Investment ➢ Primary School Enrolment ➢ Population Growth	• Generalized Methods of Moments (GMM)	• A high degree of political instability leads to low GDP per capita. • GDP per capita is affected by political instability by decreasing productivity growth rate, human and physical capital accumulation.

		➤ Trade Openness		
		➤ Cabinet Changes		
		➤ Inflation Rate		
		➤ Government		

19	Abdullah (2018)	• Time Series Data
		• The sample consists of data between 1982-2016
		• Variables:-
		  ➤ GDP Growth Rate
		  ➤ Political Stability
		  ➤ FDI
		  ➤ Capital Accumulation
		  ➤ Government Consumption Expenditure
		  ➤ Domestic Savings
		  ➤ Net Trade Balance
			• Vector Auto-Regressive Model	• Political instability affects the economic growth in the long run.
				• Political instability contributes 6.4% of the variations in economic growth, while the transmission channels contribute 69% of the variations in economic growth.

20	Daylop (2018)	• Panel Data	• Fixed-Effect Model • Chi-Squared Test	• Political instability and economic growth granger cause

		• The sample consists of data between 1980-2013
		• Variables:-
		  ➢ GDP
		  ➢ Political Instability
		  ➢ Tax System
		  ➢ Government Expenditure
		  ➢ Fiscal Deficits
		  ➢ Inflation
			• Subspace Gaussian Mixture Model (SGMM)
			• Unit Root Test
				significantly to each other, both aspects are correlated to each other closely.
				• The economic growth is affected by political instability through several transmission channels.

21	Gurgul and Lach (2013)	• Time Series Data
		• The sample consists of data between 1990-2009
		• Variables:-
		  ➢ GDP Growth Rate
		  ➢ Tertiary School Enrolment
		  ➢ Trade Openness
		  ➢ Unemployment Rate
		  ➢ Inflation Rate
			• Ordinary Least Squares (OLS)
			• Granger Causality Test
				• Economic growth is negatively impacted when political instability occurs.
				• Major government change deteriorates economic growth, but the changes are not persistent.
				• Political instability granger causes the economic growth of a country.

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		➢ World Growth Rate ➢ Major Government Change ➢ Government Change		
22	Sweidan (2015)	• Time Series Data • The sample consists of data between 1967-2009 • Variables:- ➢ Real Per Capita Value ➢ Money Supply ➢ Price Level ➢ Real Investment ➢ Political Instability Index ➢ Government Expenditure ➢ Economic Growth ➢ Real Government Revenue	• Autoregressive Distributed Lag (ARDL) Model • Kalman Filter (ML) • Ordinary Least Squares (OLS) • Unit Root Test	• The impact of political instability on both economic growth and real government expenditure is negative and significant.

| 23 | Jong (2008) | • Panel Data
• The sample consists of data between 1964-2003
• Variables:-
  ➢ GDP Per Capita
  ➢ Regime Instability
  ➢ Mass Civil Protest
  ➢ Within Instability
  ➢ Politically Motivated Violence
  ➢ Investment
  ➢ Secondary School Enrolment
  ➢ Population Growth | • Generalized Method of Moment (GMM) | • The four dimensions of political instability – mass civil protest, politically motivated violence, instability of the political regime and instability within political regime inflict different impacts towards the country's economic performance, where instability of political regime inflicts a significant, negative and robust impact on the economic performance of a country. |
| 24 | Brempong and Traynor (1999) | • Panel Data
• The sample consists of data between 1975-1988 | • Dynamic Generalized Method Moments (GMM) | • Political instability and economic growth granger cause to each other. |

		• Variables:-
		
		  ➢ GDP
		
		  ➢ Political Instability
		
		  ➢ Investment
				• Investment is one of the channels that transmit the negative effect of political instability towards the country's economic growth.
				
				• Instability in politics and economic growth are jointly endogenous.
				
				• Instability in politics impacts economic performance by decreasing capital accumulation in the long run.

25	Asteriou and Price (2001)	• Time Series Data
		
		• The sample consists of data between 1961-1997
		
		• Variables:-
		
		  ➢ Number of Terrorist Incident
		
		  ➢ Number of Strikes
			• Hausman Test
			
			• Ordinary Least Squares (OLS)
				• The linkage between political instability and economic growth is strong and negative.
				
				• Political instability raises the uncertainties in GDP growth rates.

		➤ Election ➤ Government Change ➤ Falkland's War ➤ GDP	51	• Political uncertainties do not impact GDP growth.
26	Savoia and Sen (2012)	• Panel Data • The sample consists of data between 1970-2010 • Variables ➤ Legal capacity ➤ Bureaucratic Level ➤ Administrative Quality	• Fixed-Effect Model • Pooled Ordinary Least Squares (OLS) Estimation • β-Convergence	• The gap between developed and developing countries is reducing as developing nations are experiencing improvement in institutional quality at a slow pace. • An initial quality measure of institutions and its corresponding change is negatively and significantly correlated. • Variations in the quality of institutions among countries are transitory for a long time.

				• The end of the Cold War has implied a positive impact on institutional convergence.

27	Ahmad and Hall (2017)	• Panel Data
		• The sample consists of data between 1984-2007
		• Variables:-
		  ➢ GDP Per Capita
		  ➢ Property Right Index
		  ➢ Political Index
			• Durbin Model
			• Spatial Error Model (SEM)
			• β-Convergence
				• Property rights institutions are critical for economic growth of developing nations.
				• Indirect overflow of an institution is proven, when a country's institution causes improvement in its economic growth, neighbouring countries' economic growth is positively impacted as well.

28	Knack (1994)	• Panel Data • The sample consists of data between 1960-1989 • Variables:-	• Regression Analysis	• Strong convergence is shown in income per capita among the countries (which conducive to investing, saving and producing)

		➢ Bureaucracy Quality ➢ Government Corruption ➢ Rule of Law ➢ Risk of Expropriation of Private Investment ➢ Repudiation of Contracts by Government ➢ ICRG Index ➢ BERI Index		with institutions that secure property rights. • Income converges among ex-ante rich samples, where institutional quality is held constant. • Rapid convergence on growth is not limited to middle-income countries.
29	Hall (2015)	• Time Series Data • The sample consists of data between 1980-2010 • Variables ➢ GDP Per Capita ➢ Human Capita Quality ➢ Economic Freedom	• β-Convergence • Conditional Convergence	• No contributions are done to conditional convergence by democratic institutions • Nations will low economic freedom back in 1980 converged at 0.7% annually on average. • Institutional convergence inflicts

				positive impacts on the country's GDP per capita and the speed of economic freedom
30	Siddiqui et al (2009)	• Variables:- ➢ GDP Growth ➢ Institutionalized Social Technology Index ➢ Anti-Rent Seeking Technologies	• Generalized Methods of Moments (GMM)	• Institutional quality impacts economic growth significantly. • Initial GDP and growth are negatively correlated, indicating the possible institutional convergence that boosts developing nation to the rank of a developed nation. • Performance of an institution is convergence's pre-condition.

3.0   Introduction

The purpose of this study is to investigate how institutional determinants such as corruption, government effectiveness and political stability affect the GDP per capita of the member countries in ASEAN+3, namely China, Indonesia, Japan, Malaysia, Philippines, South Korea, Singapore, Thailand and Vietnam. Chapter 3 will be divided into several sections to explain the methodology of this study in a more detailed manner. First, the type of data being used in this research will be described and explained in Section 3.1. Next, the conceptual framework for this study will be shown in a figure and explained in Section 3.2. The following section will include the empirical model that is used in this research. Lastly, the research methodology is included in the last section of Chapter 3.

3.1   Data Description

Panel data is utilised to run the analysis for this study, where the research period is 17 years, and 9 countries were analysed, which accumulates a total of 153 observations (17T x 9N).

All the institutional determinants are positioned as the independent variables. The first variable – corruption is measured annually by score, where 0 is indicated as the lowest rank and 100 is indicated as the highest rank to show the strength of corruption. Both government effectiveness and political stability are measured annually by estimate, where -2.5 is indicated as the lowest rank and 2.5 is indicated as the highest rank to show quality and level of government effectiveness and political stability. On the other hand, the economic growth of each country is measured by the GDP per capita in constant 2010 US$.

The data of GDP per capita, government effectiveness and political stability was extracted from World Bank Data, while the data of corruption was extracted from Transparency

International. Panel analysis such as Pooled Ordinary Least Square (OLS) Regression, Fixed-Effect Model, Random-Effect Model and Hausman Test will be run through eViews to analyse the relationship between the independent and dependent variables. Besides, Philips and Sul Convergence Method will be utilized to measure the degree of convergence between the dependant and independent variables.

3.2 Conceptual Framework

Figure 3.0: The Influence of Corruption, Government Effectiveness and Political Stability on GDP Per Capita in Member Countries of ASEAN+3
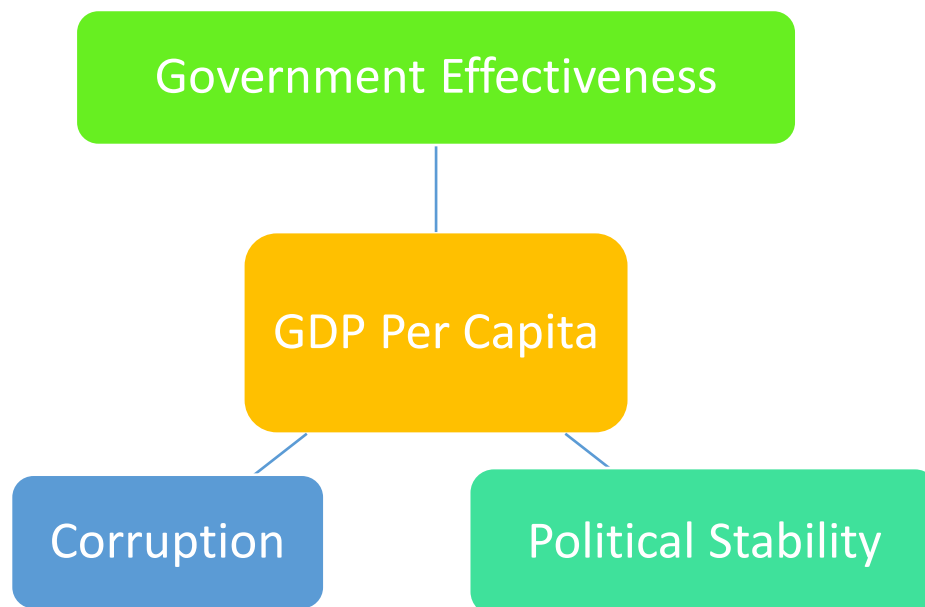
Figure 3.0 represents the impact of corruption, government effectiveness and political stability towards the GDP per capita. The expected impact of corruption towards GDP per capita is negative, while the expected impact of both government effectiveness and political stability towards GDP per capita is positive.

As mentioned above, the correlation between corruption and GDP per capita is negative. This indicates high corruption level will diminish the GDP per capita of a country. Based on

studies done by Hall and Jones (1999), Akai et al. (2005) and Hodge et al. (2011), corruption deteriorates GDP per capita of a country through a reduction in human capital.

Secondly, government effectiveness and GDP per capita are positively correlated. This indicates that higher governance quality can boost the GDP per capita of a country. Previous researchers such as Barro (1994), Kaufmann and Kraay (2002) and Acemoglu and Robinson (2008, 2010 & 2012) have highlighted the important role played by the government in boosting the GDP per capita of a country.

Lastly, political stability and GDP per capita are correlated positively as well. This indicates that as the political environment of a country stabilises, the country's GDP per capita is boosted. According to a research carried by Alesina et al. (1996), Jong (2009) and Aisen and Veiga (2006), political stability plays a crucial role in impacting the GDP per capita of a country.

Since corruption, government effectiveness and political stability play important roles as the pillars of institutional economics, hence, they are often being regarded as the important variables of institutional economics that impact a country's GDP per capita.

3.3   Empirical Model

This research investigates the institutional determinants that affect the economic growth of member countries of ASEAN+3. Hence, a functional relationship is formulated to investigate the panel data is expressed as shown below:-

$$GDP_t = \beta_o - \beta_1 COR_t + \beta_2 GOV_t + \beta_3 POL_t$$

Where GDP_t is GDP per capita, COR_t is corruption, GOV_t is government effectiveness, and POL_t is political stability. Besides that, β_o is the constant term, while β_1, β_2 and β_3 represent as the partial regression coefficients. This model reveals the relationship between the

institutional determinants – corruption, government effectiveness and political stability and GDP per capita of member countries of ASEAN+3.

3.4 Methodology

3.4.1 Pooled Ordinary Least Square (OLS) Regression

Panel data is a longitudinal data where time-series and cross-sectional variations can be observed. The Pooled Ordinary Least Square (OLS) Regression is implemented when a different annual or monthly sample of panel data is selected (Wooldridge, 2010). Hence, it comes in handy to solve issues that involve time series model, where the variables are being associated with multicollinearity. There are two dimensions in panel data observation, which are periods (T) and cross-sections (N). Since the same cross-sectional unit and time series is examined from time to time, hence, the data is pooled. In a balanced panel, each observation is present in every period, on the other hand, in an unbalanced panel, missing data is noted.

The advantages of panel data have been highlighted by Levitt (2001), Baltagi (2005), and Asteriou and Hall (2007). Firstly, Individual heterogenicity can be controlled when panel data is utilised. If that element is left uncontrolled, bias result will be shown on cross-sectional and time-series data. Secondly, informative data, higher variability, low collinearity, high-efficiency level, and degree of freedom is provided by panel data. Thus, these characteristics made panel data a better mechanism to study the dynamics of adjustments. Besides, effects that cannot be spotted easily in pure time-series or cross-section data can be identified and measured through panel data.

However, this model faces several limitations. Firstly, the intercepts of this model can either be identical or contrasting across the same time and cross-sectional units. When they are identical, the assumptions could be restrictive, when they are non-identical, endogeneity might increase due to omitted variables, measurement error and simultaneity.

3.4.2　Fixed-Effect Model

Two assumptions are involved in the Fixed-Effect Model, namely the 2nd and 3rd Assumption. The 2nd Assumption of the Fixed-Effect Model is allowing intercepts to differ across states or differ across both time and states. Through this assumption, as long as every state can own an intercept, it is a one-way Fixed-Effect Model.

$$y_{it} = \beta_{1i} + \beta_{2xit} + \varepsilon_{it}$$

A set of binary variables is created for each state and is included as regressors.

$$y_{it} = \sum_{i=1}^{N} a_{oi}D_{it} + a_1 x_{it} + u_{it}$$

If the number of states is high, the creation of required dummy variables will be tedious. The 3rd Assumption states that further expansion is required to ensure the intercept to differ across different time-periods, and this is regarded as a Two Way Fixed-Effect Model.

$$y_{it} = \sum_{i=1}^{N} a_{oi}D_{it} + \sum_{t=1}^{T} a_{2i}T_{it} + a_1 x_{it} + u_{it}$$

3.4.3　Random-Effect Model

Through the One Way Random-Effect Model, the unobservable effects that might be stochastic due to the assumption of the Fixed-Effect Model are dealt with.

$$y_{it} = a_0 + a_1 x_{it} + v_i + \varepsilon_{it}$$

v_i, which is the unobservable element, is treated as a random error term. It is also an error that differs between groups instead within groups. On the other hand, ε_{it} is regarded as the error that differs over time and group. Moreover, Random-Effects Model also assume the components to be homoscedastic and independent, where no autocorrelation will be found

between the components. Besides, there will not be correlation across the groups, and the components will not rely on regressors as well.

The next assumption of the Random-Effect Model is Two Way Random Effect Model. In this assumption, there will be an error element that differs across time-periods instead of groups.

3.4.4 Hausman Test

To determine if the Fixed-Effect Model or the Random-Effect Model is appropriate, the Hausman Test is carried out and applied on panel data analysis. If the regressors are uncorrelated with the country-specific effects, a consistent estimator will be delivered by the Random-Effect estimators, and this is regarded as being efficient. Otherwise, it will be biased. However, the effects will be unbiased under the Fixed-Effect Model. Nevertheless, a null hypothesis and alternative hypothesis are created as follow:-

H_0: Random-Effect Model is appropriate

H_1: Fixed-Effect Model is appropriate

By implementing a Wald test form that is normally reported in Chi-Squared form where the degrees of freedom is noted as k-1 (k = number of regressors) if the value of W is smaller than the critical value, the null hypothesis is accepted – the Random-Effect Model is the appropriate estimator.

3.4.5 Philips-Sul Convergence Method

To study how the convergence of institutions impact the performance of member countries of ASEAN+3, a nonlinear model introduced by Philips and Sul (2007) is implemented in this study. Simple linear regression, standard normal critical value and one-sided regression coefficient test are the reasons why the Philips and Sul Convergence Method

was utilized to analyse the institutions' transitional behaviour in ASEAN+3. Besides, empirical results in terms of the convergence speed will result from the test, and this is critical in analysing how slow or how fast for countries with different development levels converge to a steady equilibrium.

An agglomerated algorithm is yielded by the Philips and Sul Convergence Method, where the formation of club convergence can observe the transition behaviour among the clusters. Besides, as a nonlinear model which includes time-varying elements, the Philips and Sul Convergence Method is critical in analysing the possibility of both convergence and divergence of growth over time. Besides, the heterogeneous transition paths have covered across various economies. In short, this method determines the behaviour of the convergence clubs among time differing idiosyncratic transition coefficients that allow one to detect the panel's divergence sources. Thus, this method is critical in observing and measuring the transition of each country over time with their association with a representative, common trends and aggregate determinants.

To determine the institutional convergence in ASEAN+3, the Philips and Sul Convergence Method is utilised, where the panel data is decomposed as follow:-

$$logY_{it} = g_{it} + a_{it}$$

Where $logY_{it}$ is the natural logarithm of GDP per capita, and is decomposed into two elements, $logY_{it}$, which is the permanent common element that raises the dependence of the cross-sections, while a_{it} is transitory. To separate common from the idiosyncratic elements in the panel, the previous equation is formulated as follows:-

$$logY_{it} = \left(\frac{g_{it} + a_{it}}{\mu_{it}}\right)\mu_{it} = \delta_{it}\mu_{it}$$

Where μ_{it} represents a common element and δ_{it} represents an idiosyncratic element. This model also attempts to clarify the institutional convergence by measuring the share (δ_{it}) of common growth path (μ_{it}) that economy underwent. The transition of coefficient, h_{it} is formulated as follow:-

$$h_{it} = \frac{logY_{it}}{N^{-1} \sum_{i=1}^{N} logY_{it}} = \frac{\delta_{it}}{N^{-1} \sum_{i=1}^{N} \delta_{it}}$$

Where the common growth path is eliminated. This indicates that the transition path of the economy (*i*) is relatively connected to the cross-sectional average and is represented by h_{it}. Besides, h_{it} resulted in a twofold interpretation, firstly, the institutional behaviour in conjunction with the economy is measured, secondly, the relative departure of the economy is described through its common growth path. When all economies progress in the same transition path and converge to a steady level of $\delta_{it} => \delta$. In this case, h_{it} will converge to 0.

$$h_{it} = \frac{1}{N} \sum_{i=i}^{N} (h_{it} - 1)^2 \to 0 \; as \; t \to \infty$$

The null hypothesis (H_o) and the alternative hypothesis (H_a) of institutional convergence is written as follow:-

$$H_o = \delta_i = \delta \; where \; a \geq 0$$

$$H_a = \delta_i \neq \delta \; where \; a < 0$$

The null hypothesis will be tested by the log t regression as follow, where L(t) = log (t+1), while the parameter of log t is indicated as b=2a.

$$Log\left(\frac{H_i}{H_t}\right) - 2Log\, L(t) = a + b\log t + u_i \quad t = [rT], \dots, T$$

The t-statistic test is implemented and robust to autocorrelation and heteroscedasticity. The null hypothesis will be rejected when $t_b < -1.65$ (5% significance level). The convergence rate is affected by its magnitude, meaning that, as the value of b increases, the faster the convergence rate will be.

To determine the convergence from a panel of nations, Philips and Sul (2007) recommended using the following algorithm in the application of log t statistics:-

Figure 3.1: Convergence Algorithm

Ordering
- List panel members in accordance to previous observations.

Core Group Formation
- Identify core group of countries based on the subsequent log t regression.

Club Membership
- Evaluate the remaining countries one at a time. Include new countries when t-statistics > critical value (-1.65 at 5% significance level)

Stopping
- Stop and form next cluster when t-statistics < critical value (-1.65 at 5% significance level). If no subgroup is detected, divergence is indicated.

Recursion
- Repeat the process for each country and proceed all over with first convergence club from each country to determine the institutional convergence in ASEAN+3.

<u>Chapter 4 – Empirical Findings</u>

4.0   Introduction

The data is interpreted through relevant empirical findings to examine the relationship between the variables. This study investigates how institutional determinants such as corruption (COR), government effectiveness (GOV) and political stabilities (POL) impact the economic growth of the selected member countries of ASEAN+3. Chapter 4 will be divided into several sections to explain the empirical findings of this study in a more detailed manner. Panel tests such as Pooled Ordinary Least Square (OLS) Regression, Fixed Effect Model Random Effect Model and Hausman Test is continued in Section 4.1, 4.2, 4.3, and 4.4 respectively. The findings resulted from the panel tests will be explained in Section 4.5. The last empirical finding of this test will be the Philips and Sul Convergence Method, which will be in Section 4.6, where its findings will be explained in Section 4.7.

4.1   Pooled Ordinary Least Square (OLS) Regression

Panel data is utilised to estimate the model, where the data between 2002-2018 for the nine ASEAN+3 countries was analysed. The initial pooled effect result is displayed as below:-

Table 4.0: Pooled OLS Regression Result

Variable	Coefficient	Standard Error	t-Statistics	Probability
C	6.502897	0.087306	74.48364	0.0000
COR	0.021455	0.006026	3.560533	0.0005**
GOV	1.041598	0.146022	7.133180	0.0000**
POL	-0.147817	0.066064	-2.237474	0.0267**
R-squared	0.890693		Probability (F-statistics)	0.000000
Adjusted R-squared	0.888493			

Notes: ** denote as significance at 5 % level

The regression is presented as below:-

$$\log GDP = 6.503 + 0.021\ COR + 1.042\ GOV - 0.148\ POL$$

SE	(0.087)	(0.006)	(0.146)	(0.066)
T	(74.48)	(3.56)	(7.13)	(-2.24)
P-value	(0.0000)	(0.0005)	(0.0000)	(0.0267)

According to the above results, when corruption (COR) increases by 1%, GDP per capita will increase by 0.021%. On the other hand, when government effectiveness (GOV) increases by 1%, GDP per capita will increase by 1.042%. Lastly, when political stability (POL) increases by 1%, GDP per capita will decrease by 0.148%.

As for the individual test, the t-test for corruption (COR) is 3.56, which is larger than 1.96. Since its p-value is 0.0005, which is smaller than the alpha value of 5% significance level, there is enough statistical evidence to reject the null hypothesis and deduce that the impact of corruption (COR) is significant. Thus, corruption (COR) is said to impose a positive and significant impact on GDP per capita in these ASEAN+3 countries.

Furthermore, the t-test for government effectiveness (GOC) is 7.13, which is larger than 1.96. Since its p-value is 0.000, which is also smaller than the alpha value of 5% significance level, there is enough statistical evidence to reject the null hypothesis and reckon that the influence of government effectiveness (GOV) is significant. Therefore, government effectiveness (GOV) is said to inflict a positive and significant impact on GDP per capita in these ASEAN+3 countries.

The t-test for political stability (POL) is -2.24, which is smaller than -1.96. Since its p-value is 0.0267, which is smaller than the alpha value of 5% significance level, there is enough statistical evidence to reject the null hypothesis and conclude that the effect of political stability

(POL) is significant. Hence, political stability (POL) is said to impose a negative and significant effect on GDP per capita in these ASEAN+3 countries.

Lastly, since the p-value of the f-test is 0.000, which is smaller than the alpha value of 5% significance level, there is enough statistical evidence to reject the null hypothesis to conclude that coefficient is significant at 5% significance level. Besides, the adjusted R-squared shows that approximately 88.85% of the variation in the GDP per capita in ASEAN+3 nations can be resolved by its corruption (COR), government effectiveness (GOV) and political stability (POL).

4.2 Fixed Effects Model

Table 4.1: Fixed Effect Model Result

Variable	Coefficient	Standard Error	t-Statistics	Probability
C	7.230352	0.186689	38.72949	0.0000
COR	0.017352	0.004095	4.237669	0.0000**
GOV	0.648835	0.107495	6.035931	0.0000**
POL	-0.092337	0.052927	-1.744618	0.0832
R-squared	0.982661		Probability (F-statistics)	0.000000
Adjusted R-squared	0.981308			

Notes: ** denote as significance at 5 % level

The regression is presented as below:-

log GDP = 7.23 + 0.02 COR + 0.65 GOV – 0.09 POL

SE   (0.187)   (0.004)   (0.107)   (0.053)

T   (38.73)   (4.24)   (6.04)   (-1.74)

P-value   (0.000)   (0.000)   (0.000)   (0.083)

As per the results above, when corruption (COR) increases by 1%, GDP per capita will increase by 0.02%. On the other hand, when government effectiveness (GOV) increases by 1%, GDP per capita will increase by 0.65%. Lastly, when political stability (POL) increases by 1%, GDP per capita will decrease by 0.09%.

As for the individual test, the t-test for corruption (COR) is 4.24, which is larger than 1.96. Since its p-value is 0.000, which is smaller than the alpha value of the 5% significance level, there is enough statistical evidence to reject the null hypothesis. Thus, corruption (COR) is said to inflict positive and significant impact on the GDP per capita in these ASEAN+3 countries.

On the other hand, the t-test for government effectiveness (GOV) is 6.04, which is larger than 1.96. Since its p-value is 0.000, which is smaller than the alpha value of the 5% significance level, there is enough statistical evidence to reject the null hypothesis. Therefore, government effectiveness (GOV) is said to impose a positive and significant impact on the GDP per capita in these ASEAN+3 countries.

The t-test for political stability (POL) is -1.74, which is larger than -1.96. Since its p-value is 0.083, which is larger than the alpha value of the 5% significance level, there is not enough statistical evidence to reject the null hypothesis. Hence, no significant impact and relationship are revealed between political stability (POL) and GDP per capita in these ASEAN+3 countries.

Lastly, since the p-value of the f-test is 0.000, which is smaller than the alpha value of the 5% significance level, there is enough statistical evidence to reject the null hypothesis. Hence, the coefficient is significant at 5% significant level. Furthermore, the adjusted R-squared reveals approximately 98.13% of variations in the GDP per capita in ASEAN+3

countries can be elucidated by its corruption (COR), government effectiveness (GOV) and political stability (POL).

4.3   Random Effect Model

Table 4.2: Random Effects Model Result

Variable	Coefficient	Standard Error	t-Statistics	Probability
C	7.068841	0.235241	30.04932	0.0000
COR	0.018977	0.003990	4.756315	0.0000**
GOV	0.702002	0.103960	6.752619	0.0000**
POL	-0.093581	0.052405	-1.785746	0.0762
R-squared	0.482966		Probability (F-statistics)	0.000000
Adjusted R-squared	0.472556			

Notes: ** denote as significance at 5 % level

The regression is presented as below:-

$$\log GDP = 7.07 + 0.02 \text{ COR} + 0.70 \text{ GOV} - 0.09 \text{ POL}$$

SE   (0.235) (0.004)   (0.104)   (0.052)

T   (30.05) (4.76)   (6.75)   (-1.79)

P-value (0.000) (0.000)   (0.000)   （0.076）

As per the above result, when corruption increases by 1%, GDP per capita will increase by 0.02%. On the other hand, when government effectiveness (GOV) increases by 1%, GDP per capita will increase by 0.70%. Lastly, when political stability (POL) increases by 1%, GDP will decrease by 0.09%.

As for the individual test, the t-test of corruption (COR) is 4.76, which is larger than 1.96. Since its p-value is 0.000, which is smaller than the alpha value of the 5% significance

level, that there is enough statistical evidence to reject the null hypothesis. Thus, corruption (COR) is said to have a positive and significant impact on GDP per capita in these ASEAN+3 countries.

Next, the t-test of government effectiveness (GOV) is 6.75, which is greater than 1.96. Since its p-value is 0.000, which is smaller than the alpha value of the 5% significance level, there is enough statistical evidence to reject the null hypothesis. Therefore, government effectiveness (GOV) is said to have a positive and significant impact on GDP per capita in these ASEAN+3 countries.

The t-test of political stability (POL) is -1.79, which is greater than 1.96. Since its p-value is 0.076, which is greater than the alpha value of the 5% significance level, there is not enough statistical evidence to reject the null hypothesis. Thus, no significance and relationship are showed between political stability (POL) and GDP per capita of these ASEAN+3 countries.

Lastly, since the p-value of the f-test is 0.000, which is smaller than the alpha value of 5% significance level, there is enough statistical evidence to reject the null hypothesis to state that the coefficient is significant at 5% significance level. Moreover, the adjusted R-squared presents approximately 47.26% of variations in the GDP per capita in ASEAN+3 nations can be deduced by corruption (COR), government effectiveness (GOV) and political stability (POL).

4.4 Hausman Test

Table 4.3: Hausman Test result

Test Summary	Chi-Square Statistic	Chi-Square Degree of Freedom	Probability
Cross-Section Random	3.921022	3	0.2701

According to the above result, the value of the Chi-Square statistic is 3.92. Since its p-value is 0.27, which is larger than the alpha value of 5% significance level, there is not enough statistical evidence to reject the null hypothesis and denote that the Random Effect Model is the most appropriate model for our study. Therefore, the result of the study is supported by the Random Effect Model, where corruption (COR) and government effectiveness (GOV) impose positive and significant impact towards GDP per capita of these ASEAN+3 nations. Besides, no relationship is shown between political stability (POL) and GDP per capita.

4.5   Discussion

As stated earlier, the result of the Hausman Test states that Random Effect Model is the appropriate model to be utilised in this research. Hence, corruption (COR) is showed to have a significant and positive impact on the GDP per capita in these ASEAN+3 nations. Public's perception towards the impact of corruption is generally negative, however, corruption may induce a positive impact under certain circumstances. The positive relationship between corruption, government budget and GDP has been proven in LaPalombara (2014). According to Egger and Winner (2005), a clear positive relationship is found between corruption and foreign direct investment (FDI), and further boosted the economic growth of 73 developed and less-developed nations during 1995 to 1999. The positive impact of corruption on economic growth is supported by Podobnik, Shao, Njavro et al (2008), where their research revealed the significant dependence relationship between corruption and GDP per capita growth rate in all countries. Their empirical finding showed as corruption increases by 1%, GDP annual growth rate will increase by 1.7%. Moreover, a significant positive relationship between corruption and GDP per capita growth is presented by Barreto (2001) when utilising Mauro (1995)'s corruption indicator in his research.

The results of this study are supported by several previous studies, for instances, Italy, one of the top 25 developed nation, has been evaluated as one of the most corrupted nations in the Eurozone, where its 2019 corruption rank (51st place) is on par with other developing countries such as Saudi Arabia, Malta, and Grenada.

Figure 4.0: The Association Between Corruption Rank and GDP in Italy 2015-2018
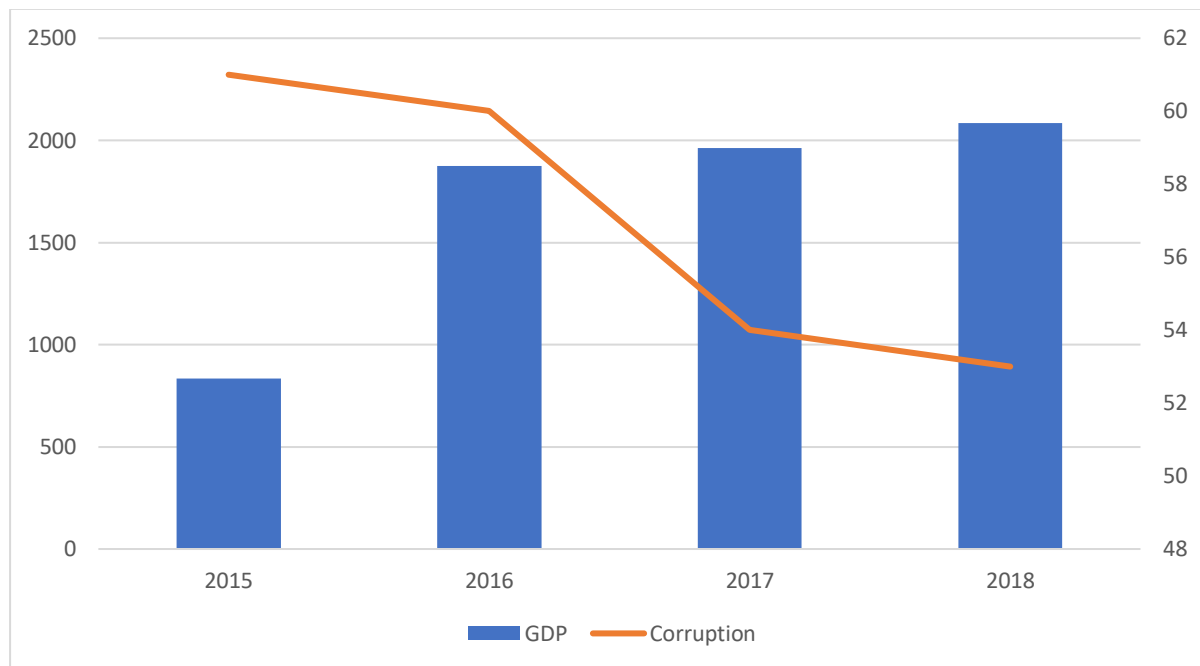
Source: Trading Economics, 2019

As shown in the above figure, Italy's GDP and corruption are positively correlated. At the same time, Italy's inflow of foreign direct investment (FDI) has risen from US$21,969 million to US$24,276 million between 2017 and 2018, where Hakizimana (2015) had highlighted the significant and positive relationship between foreign direct investment (FDI) inflow and GDP per capita, which will further boost the economic growth of a country in his study. Therefore, in some cases, corruption does grease the wheel and boosts a country's economic growth and development.

Next, the United States is ranked as the world's largest economy in terms of net wealth and nominal GDP. The country's purchasing power parity (PPP) is also ranked in second place in the world. However, the country's corruption rate has been increasing, and as of 2019, the country's Corruption Perception Index (CPI) has fallen to its lowest in eight years. Moreover, based on GAN Business Anti-Corruption Portal's report, corruption does not impose significant risks for foreign investors in the United States as abundant opportunities and competitive market are offered in the country. In fact, due to the country's decentralised structure, the cost of business rises as anti-corruption legislation tightens.

On the other hand, a positive and significant relationship is shown between government effectiveness and GDP per capita among ASEAN+3 nations as accordance with our Random Effects Model. In short, as governance improves, so does the country's economic growth. Such statement is supported by the finding of Campos and Nugent (1999), where they have statistically proven that the significant positive effect of governance on a country's economic growth and development. Similarly, Alam et al (2017) have demonstrated the positive relationship between these two variables in 81 countries by employing System Generalized Method of Moments (System GMM). Moreover, Osman et al (2011) also highlighted governance's positive and significant impact towards the economic growth in Sub-Saharan Africa by utilising panel data analysis.

Besides, Liu et al (2018) described governance as a tool that strengthens the "helping hand" of power, where their study proved that good governance boosts economic growth. They observed the presence of diminishing marginal returns in government effectiveness, which indicates that the effect of high-speed economic growth caused by good governance will lessen as time passes by, while the effect of high-quality economic growth caused by good governance will rises as time passes by. The impact of high-speed economic growth is shown in the western region, while the impact of high-quality economic growth is shown in the eastern region. Next,

research done by Abeyasinghe (2004) had demonstrated the positive effect of government effectiveness imposed on economic growth. Government plays a crucial role in influencing people and making decisions, hence, any action done by the government will affect the country's economy.

One of the good examples of good governance would be public health. According to the Endogenous growth model, health is the central to human's well-being and happiness and is a critical contribution to a country's economic progress, where human health catalyses the economic growth. Therefore, as the government improves the country's public health system, improvement in labour productivity is shown, and subsequently lead to the population's wellbeing. For example, the Netherlands' government has strengthened the country's position as one of the leading health countries by implementing social procurement into their healthcare system which further decreases unemployment. Besides, the Netherlands has a universal healthcare system, where working adults are required to have basic insurance that costs approximately €100-120 for their access to the healthcare system.

Africa's ineffective government has led to its poor economic development, despite the region's rich and bounty natural resources such as gold and diamonds. Incompetency, poor rule of law and institution, as well as inadequate infrastructures are the reasons that caused the country's poor government effectiveness. Although many African nations have undergone institutional reformation that improves their governance architectures since the 1990s. Specifically, Cote d'Ivoire has achieved its greatest improvements in terms of governance from 2008 to 2017. However, many still lagged, where most of its nations struggled among the poverty line.

Furthermore, no significant relationship is displayed between political stability and GDP per capita in these ASEAN+3 countries. In short, no impact will be imposed on the

country's GDP per capita no matter the fluctuating its level of political stability is. Rani and Batool (2016) have analysed the relationship between political stability and foreign direct investment (FDI) on Pakitan's economic development by utilising ARDL model. Their results demonstrated an insignificant result between these two variables. In a nutshell, political stability does nothing to a country's economic development in the short run. Besides, Glaser et al (2004) described political stability as economic growth's second-order effect, where the first-order effect originated form both social and human capital that shapes a society's productivity and institutional capacities. Thus, no obvious impact is demonstrated by political stability towards the GDP per capita in these ASEAN+3 countries.

4.6   Philips and Sul Convergence Method

Based on Philips and Sul (2007) convergence methodology, the null hypothesis is rejected when the value of t-statistics is smaller than the alpha value of the 5% significance level. In short, when null convergence is rejected, this postulates that full panel convergence is not achieved, hence, further observation is required. The analysis of full panel convergence is conducted on 9 member countries of ASEAN+3 in terms of GDP per capita (Table 4.4), corruption (Table 4.6) and government effectiveness (Table 4.8) in the sampling period of 2008 to 2018.

Table 4.4: GDP Per Capita Full Panel Convergence Results

Country	$\hat{b}$	Remarks
All countries (ASEAN+3)	-20.70715**	Divergence

Notes: ** denote as significance at 5 % level

Since the t-value is -20.71, which is smaller than the critical value of -1.65 at 5% significance level, there is enough statistical evidence to reject the null hypothesis. Therefore,

there is no full panel convergence within this period. Such results also indicate convergence can endure in the subgroup. Hence, further observation is needed.

Figure 4.1: GDP Per Capita Transition Path
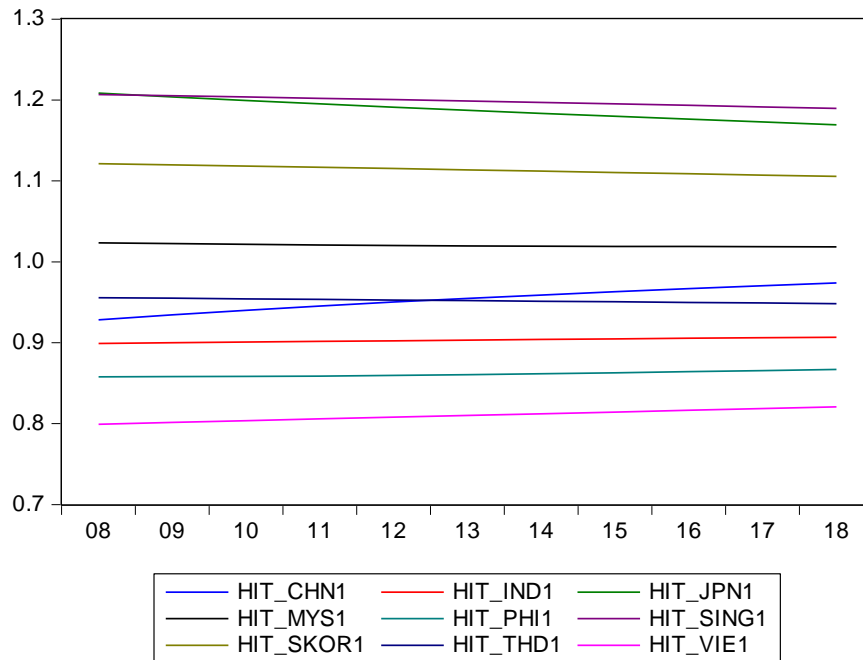
Table 4.5: GDP Per Capita Club Convergence Results

Rank	Country	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Club	Remark
1	SING	-11.5	Outlier							Diverge
2	JPN		Base							Diverge
3	SKOR		-6.7	Base						Diverge
4	MYS			-14.6	Base				1	Converge
5	CHN				11.0				1	Converge
6	THD				-2.3	Base				Diverge
7	IND					-2.8	Base			Diverge
8	PHI						-11.8	Base		Diverge
9	VIE							-18.5		Diverge

Table 4.5 demonstrates the club convergence of GDP per capita in ASEAN+3 countries. Singapore becomes an outlier particularly due to its face pace of economic growth in terms of GDP per capita. With that, Japan becomes the base and is followed by South Korea, where its accumulated t-value of -6.7 indicates that South Korea is diverging. Then, South Korea becomes the base country and adds the next country from the ranking list, which is Malaysia. It implies that Malaysia is diverging as well as the t-value is -14.6. Therefore, Malaysia is the base country now and China is added. Based on the t-value (11.0), both Malaysia and China are converging. Since China is converging, it now acts as the base country where Thailand is added to it. However, since their accumulated t-value (-2.3) is smaller than -1.65, thus, Thailand diverges to another path. Thailand is now the base country and Indonesia is added into it, their results insinuate that Indonesia is diverging with t-value of -2.8. Next, Indonesia becomes the base country as the Philippines joins in. With t-value of -11.8, the Philippines diverges and teams up with the last country, Vietnam. The results indicate that Vietnam is diverging with t-value of -18.5. In short, only two countries (Malaysia and China) converge into a club in terms of GDP per capita.

Table 4.6: Corruption Full Panel Convergence Result

Country	$\hat{b}$	Remarks
All countries (ASEAN+3)	1.585623**	Divergence

Notes: ** denote as significance at 5 % level

Since the t-value is 1.59, which is smaller than the critical value of 1.65 at 5% significant level, there is enough statistical evidence to reject the null hypothesis. Therefore, there is no full convergence within this period. Such results also indicate that convergence can endure in the subgroup. Hence, further observation is required.

Figure 4.2: Corruption Transition Path
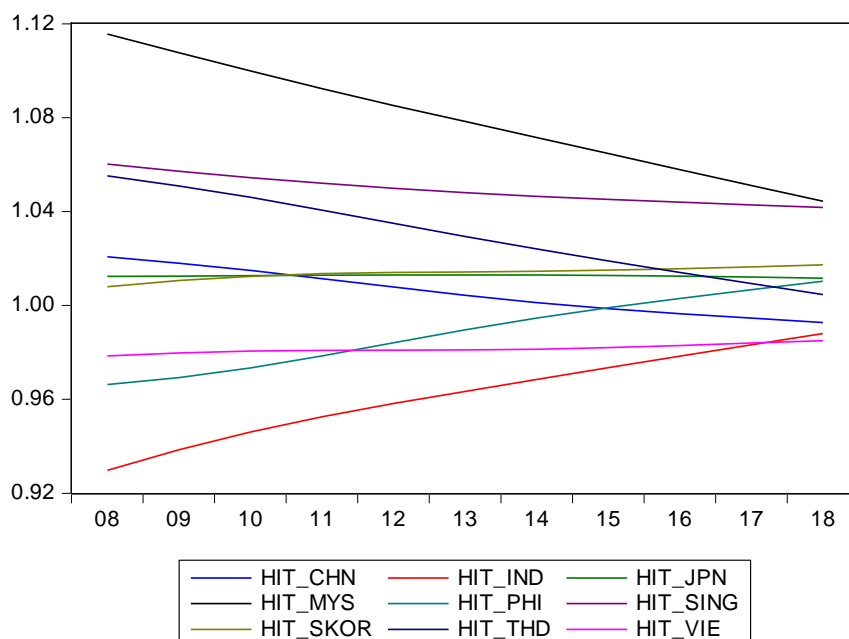
Table 4.7: Corruption Club Convergence Results

Rank	Country	Step 1	Step 2	Step 3	Step 4	Club	Remark
1	SING	Base				1	Converge
2	JPN	11.9				1	Converge
3	SKOR	-5.0	Base				Diverge
4	MYS		-11.9	Base		2	Converge
5	CHN			3.1		2	Converge
6	IND			8.6		2	Converge
7	PHI			8.0	Base	3	Converge
8	THD				5.2	3	Converge
9	VIE				11.7	3	Converge

Table 4.7 illustrates the club convergence of corruption in ASEAN+3 countries. Singapore is the first base country where Japan is added to compute t-value. The results reveal that Japan is converging on the same path as Singapore as its t-value is 11.9, which is higher

than 1.65. Next, South Korea is added to obtain new t-value. However, the t-value (-5.0) is smaller than the critical value of 5% significant level (-1.65), hence, South Korea diverges to another path. South Korea is now the base country where Malaysia is added. Similarly, the t-value (-11.9) indicates that Malaysia does not converge with South Korea. Malaysia is now appointed as the base country and China joins in. From the result, it implies that China is converging on the same path as Malaysia since its t-value is 3.1, which is higher than 1.65. Next, Indonesia is added to obtain new t-value. The t-value is 8.6, which is also higher than 1.65, hence, Indonesia converges too. The Philippines is then added into the list, where the t-value once again insinuates that the Philippines converges as well. However, the Philippines's t-value is smaller than the previous t-value, hence, it becomes the base of another club where Thailand is added in. With a t-value of 5.2, which is larger than 1.65, Thailand remains converged as the same club as the Philippines. Lastly, Vietnam is added in, and from the results, it shows that Vietnam converges as its t-value is 11.7, which is higher than 1.65. In short, Singapore and Japan converge in Club 1, where Club 2 of Malaysia, China and Indonesia, while the remaining countries (the Philippines, Thailand and Vietnam) converge into Club 3.

Table 4.8: Government Effectiveness Full Panel Convergence Result

Country	$\hat{b}$	Remarks
All countries (ASEAN+3)	-3.881670**	Divergence

Notes: ** denote as significance at 5 % level

Since the t-value is -3.88, which is smaller than the critical value of 1.65 at 5% significant level, there is enough statistical evidence to reject the null hypothesis. Therefore, there is no full convergence within this period. Such result also indicates that convergence can endure in the subgroup. Thus, further observation is needed.

Figure 4.3: Government Effectiveness Transition Path
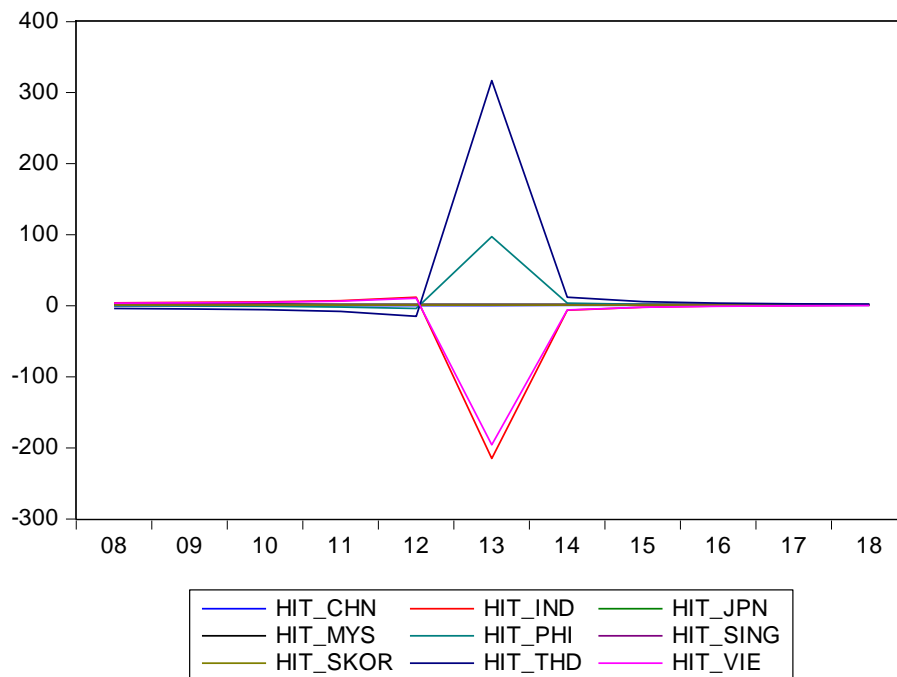
Table 4.9: Government Effectiveness Club Convergence

Rank	Country	Step 1	Step 2	Step 3	Step 4	Club	Remark
1	SING	Base				1	Converge
2	JPM	5.5				1	Converge
3	SKOR	-44.7	Base				Diverge
4	MYS		-5.1	Base		2	Converge
5	CHN			5.2		2	Converge
6	THD			2.1	Base	3	Converge
7	IND				8.8	3	Converge
8	PHI				14.9	3	Converge
9	VIE				0.5		Diverge

Table 4.9 demonstrates the club convergence of government effectiveness in ASEAN+3 countries. Singapore is set as the base country and paired with Japan to compute t-value. Based on the result, with a t-value of 5.5, Japan is converging on the same path as

Singapore. South Korea is further added into the group, however, since its t-value is -44.7, which is smaller than -1.65, hence, it indicates that South Korea diverges to another path. Next, South Korea is set as the base country and further paired with Malaysia, similarly, with a t-value of -5.1, which is also smaller than -1.65, Malaysia becomes diverged as well. Since then, Malaysia becomes the base country where China joins in. With a t-value of 5.2, China is proven to be converging in the same path with Malaysia. Thailand is the next country being added, however, its t-value is 2.1, which is smaller than previous t-values, hence, it converges into another club. With t-value of 8.8, the club is followed by Indonesia, where Indonesia converges into the same club with Thailand. Next, the Philippines is added, and since its t-value is 14.9, it indicates that the country is converging and remain in the same club with the Philippines and Indonesia. Lastly, Vietnam is added into the rank, however, its t-value is only 0.5, which is smaller than 1.65, hence, it diverges into another path. In short, Club 1 consists of Singapore and Japan, where Club 2 consists of Malaysia and China, and lastly, Thailand, Indonesia and the Philippines converge into Club 3.

4.7   Discussion

As demonstrated in Table 4.5, most countries reveal a diverging trend in terms of GDP per capita, where only Malaysia and China converges on the same path, forming a club. This is because both Malaysia and China are recognised as newly industrialised developing nations, making them cluster as a group. Besides, both countries have established a high standard of political and trade relations among each other where China has even remained as Malaysia's largest trading partner for 10 years in a row by constituting approximately 16.7% of Malaysia's total trade. On the other hand, as of 2018, China is accounted for 19.9% of Malaysia's share of total imports, making it to be Malaysia's largest source of imports. Besides, both countries have resumed the construction of "One Belt. One Road", where such economic strategy will further boost the confidence of investors, leading to a rise of foreign direct investment.

As for corruption, based on Table 4.7, most countries are revealing a converging trend.

The first club is formed between Singapore and Japan. Both Singapore and Japan are one of the few countries being regarded as the least corrupted nations in the Asia Pacific region. These two nations have shared similar historical experience, where they created an equal distribution of wealth and income by dissolving the landed elite after World War II. Jung (2016) had observed a chain reaction between inequality and corruption. Such pattern is shown in Asian countries such as Japan and Singapore. Countries that can reduce inequality are more likely to achieve a low corruption rate with more professional and meritocratic bureaucracies, as well as eliminating the clientelism in the political system. In short, countries in this club have a high degree of integrity.

On the other hand, Malaysia, China, and Indonesia converge to the same path, forming another club. Although the anti-corruption progress has been minimal in the Asia Pacific, however, Malaysia, China and Indonesia have better anti-corruption institutions compared to other nations. In fact, Malaysia has been ranked as the beacon of the region due to its low corruption rates in the Southeast Asia region. China has enforced stricter anti-corruption regulations, where the country's corruption has cracked down over the past eight years. Besides, China has announced a new campaign that will eliminate corrupt elements and create an ironclad army to curb corruption. Next, Indonesia's anti-corruption commission had been successful in going after several corrupt officials, making it one of the best within the region. In short, the anti-corruption progress in these countries are still insufficient to increase the countries' overall integrity levels.

The third club consists of the Philippines, Thailand and Vietnam. The countries in this club are from the Southeast Asia region, where corruption is said to reign there. Based on the rankings published by international organisations, the Philippines is said to be more corrupted

and less democratic under the governance of President Rodrigo Duterte (Mourdoukoutas, 2020). Public controversies have dominated the headlines as the President's scandal regarding his former police enforcer being charged with corruption by protecting officers who were linked to narcotics trafficking. Besides, the independence of the country's judicial system, in terms of courts, has been weakening. Despite the minimal improvement in Thailand and Vietnam, their rank of corruption is still relatively low. In short, the corruption level in these countries are still relatively high.

Table 4.9 reveals that most countries are converging on the same path. Singapore and Japan have had a bilateral relationship for more than 50 years, wherein 2016, a 50th anniversary (SJ50) have been achieved. Both Singapore and Japan face the ageing population and such issue is described as a "time bomb" as labour productivity will decrease as time passes by. Hence, the Japanese and Singaporean government have initiated some policies to curb such problem. The initiative taken by the Japanese government is to reconcile the negative association of ageing by aiding the senior citizens to be more active. On the other hand, the Singaporean government provide a friendly neighbourhood to senior citizens by prototyping a village (Kampung Admiralty) that is suitable for people from different age groups. Both countries have been curbing their issues efficiently and improve their welfare system to provide a better living standard for their citizens.

As stated earlier, Malaysia and China have resumed the foreign policy – One Belt, One Road, where such initiative will improve infrastructures in terms of transport routes. Governance is boosted because a massive transnational economic platform is provided, where such infrastructures will benefit both citizens and foreigners. After the completion of the project, businesses will be boosted, and this will somehow improve people's living standard. On the other hand, Thailand, Indonesia, and the Philippines face a similar issue – lack of accountability and transparency structure. As stated earlier, the convergence trend between

corruption and government effectiveness is similar. Even though Indonesia has one of the best anti-corruption commission in the region, however, its independence has been stripped off, hence, the country's governance is somehow affected. As one of the indicators to measure governance, the rate of corruption is somehow correlated to governance. When the government is unable to control the country's corruption, this indicates them to be less effective.

Chapter 5 – Conclusion

5.0   Introduction

The impact of institutional economics towards the economic growth in ASEAN+3 countries was determined in this study. There will be four subtopics in this chapter, where the summary of this research will be discussed in Section 5.1. The policy implications will be explained in Section 5.2, followed by the recommendation in Section 5.3. Lastly, the limitations faced by the author when conducting the research will be clarified in our last subtopic of this chapter – Section 5.4.

5.1   Summary

The main purpose of this study is to explore the impact of institutional economics towards the economic growth in ASEAN+3 nations. The empirical finding has proven one of the statements suggested by the conceptual framework, where government effectiveness will lead to a positive effect on economic growth. However, the empirical finding is unable to prove these statements as suggested by the conceptual framework – corruption harms economic growth and political stability inflicts a positive impact on economic growth. Instead, our results show vice versa results. Besides, based on the convergence test, Malaysia and China converge into a club in terms of GDP per capita. On the other hand, Singapore and Japan converge into a club, while Malaysia, China and Indonesia converge to another club, where lastly, the Philippines, Thailand and Vietnam converge into the last club in terms of corruption. Besides, Singapore and Japan once again converge into the same club, where Malaysia and China converge into another club, and lastly, Thailand, Indonesia and the Philippines converge into the final club in terms of government effectiveness.

One of the conclusions was led by empirical finding that is based on the Random Effect Model. The results revealed economic growth is partly affected by institutional economics in

both short and long run in ASEAN+3 countries. Institutional performance plays a major role in making a country to stand out in terms of economic growth. In short, the institutional performance of a country will reflect on its economic growth. As proposed by Bruinshoofd (2016), the growth potential of a nation is unlocked through institutional development, where the country will not suffer from diminishing returns intrinsically. Besides, countries with high institutional performance are more likely to raise their productivity and adopt frontier technology more successfully. In terms of convergence, countries that converge into the same club have similarities such as the country's development status and cooperation. Hence, the government needs to implement relevant policies to boost both institutional performance and economic growth of the country.

5.2   Policy Implication

Although our results show corruption benefits economic growth, it is still essential for the government to work on their anti-corruption policies to maintain their credibility to the public. The independence of the anti-corruption commission of each county needs to be ensured, where background check should be done before recruiting an officer to ensure he or she is not relevant to any government officials. Besides, the support of effective regulation is crucial for a government, especially after emerging from a crisis. Uncertainty needs to be reduced through the reformation of the judicial, economical, and political system to boost the institutional performance of a country. Such actions need to be taken as soon as possible as ineffective regulation will lead to growth restriction, whereby, in the long run, citizen's scepticism towards the government will rise. Moreover, similarity is the reason that causes the respective countries to converge into the same path, hence, the government of the countries which are in the same club should develop integration and cooperative initiative which can improve the institutions of own nations. Lastly, the government needs to address the root cause of incidents that would eventually lead to political instability and find ways to mitigate its

impacts when designing and implementing policies. Only then, economic policies can be more durable to boost the country's economic growth.

5.3   Recommendation

Officials should develop the institutional indicators and variable data in a more complete manner to facilitate the researcher to analyse the impact of institutional variables towards the economic growth of each country in a more effectively

5.4   Limitation of the Study

The biggest limitation faced by the researcher in this study was the limited availability of the institutional variable data. Such limitation causes the investigators to face difficulties when assessing the institutional performance of each country, where the accuracy of this study might be affected.

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APPENDIX

1. Data of dependent variable – GDP per capita and independent variables – corruption (perception index), government effectiveness (estimates) and political stability (estimates).

Country	ID	Year	GDP	COR	GOV	POL
China	1	2002	2061.162	35	0.94	1.77
China	1	2003	2253.93	34	0.92	1.54
China	1	2004	2467.133	34	0.94	1.71
China	1	2005	2732.166	32	0.88	1.60
China	1	2006	3062.535	33	1.07	1.56
China	1	2007	3480.153	35	1.18	1.60
China	1	2008	3796.633	36	1.15	1.61
China	1	2009	4132.902	36	1.09	1.65
China	1	2010	4550.454	35	1.09	1.44
China	1	2011	4961.235	36	1.09	1.50
China	1	2012	5325.16	39	1.02	1.56
China	1	2013	5710.588	40	1.00	1.56
China	1	2014	6096.488	36	1.32	1.58
China	1	2015	6484.436	37	1.41	1.55
China	1	2016	6883.895	40	1.35	1.60
China	1	2017	7308.065	41	1.42	1.87
China	1	2018	7752.56	39	1.48	1.84
Indonesia	2	2002	2259.308	19	0.59	0.52
Indonesia	2	2003	2335.594	19	0.54	0.01
Indonesia	2	2004	2420.397	20	0.58	0.19
Indonesia	2	2005	2524.222	22	0.52	0.58
Indonesia	2	2006	2627.905	24	0.67	0.68
Indonesia	2	2007	2757.894	23	0.72	0.90
Indonesia	2	2008	2885.309	26	0.76	1.04
Indonesia	2	2009	2979.005	28	0.70	1.35
Indonesia	2	2010	3122.363	28	0.79	1.25
Indonesia	2	2011	3270.619	30	0.74	1.33

Indonesia	2	2012	3421.274	32	0.73	1.51
Indonesia	2	2013	3563.3	32	0.80	1.58
Indonesia	2	2014	3692.973	34	0.96	1.68
Indonesia	2	2015	3824.275	36	0.76	1.48
Indonesia	2	2016	3968.056	37	1.01	1.73
Indonesia	2	2017	4120.429	37	1.04	1.60
Indonesia	2	2018	4284.653	38	1.18	1.57
Japan	3	2002	42190.8	71	2.07	3.28
Japan	3	2003	42744.01	70	2.22	3.13
Japan	3	2004	43671.68	69	2.36	3.13
Japan	3	2005	44393.63	73	2.29	3.14
Japan	3	2006	44995.49	76	2.59	3.24
Japan	3	2007	45687.27	75	2.45	3.11
Japan	3	2008	45165.79	73	2.46	2.99
Japan	3	2009	42724.76	77	2.45	3.08
Japan	3	2010	44507.68	78	2.53	2.98
Japan	3	2011	44538.73	80	2.47	3.10
Japan	3	2012	45276.87	74	2.42	3.05
Japan	3	2013	46249.21	74	2.62	3.12
Japan	3	2014	46484.16	76	2.81	3.07
Japan	3	2015	47102.58	75	2.78	3.17
Japan	3	2016	47444.14	72	2.82	3.08
Japan	3	2017	48438.83	73	2.62	3.21
Japan	3	2018	48919.8	73	2.68	3.16
Malaysia	4	2002	7112.056	49	2.02	2.64
Malaysia	4	2003	7374.343	52	2.16	2.59
Malaysia	4	2004	7720.83	50	2.09	2.45
Malaysia	4	2005	7974.251	51	2.09	2.66
Malaysia	4	2006	8255.286	50	2.27	2.39
Malaysia	4	2007	8605.018	51	2.24	2.29
Malaysia	4	2008	8850.009	51	2.11	2.21
Malaysia	4	2009	8559.234	45	1.98	2.06

Malaysia	4	2010	9040.566	44	2.12	2.24
Malaysia	4	2011	9372.008	43	2.02	2.18
Malaysia	4	2012	9743.105	49	1.92	2.09
Malaysia	4	2013	10061.72	59	2.00	2.15
Malaysia	4	2014	10524.07	52	2.12	2.37
Malaysia	4	2015	10912.15	50	1.95	2.36
Malaysia	4	2016	11244	49	1.87	2.24
Malaysia	4	2017	11728.98	47	1.83	2.22
Malaysia	4	2018	12120.08	47	2.08	2.34
Philippines	5	2002	1642.938	26	0.87	1.24
Philippines	5	2003	1689.573	25	0.90	0.54
Philippines	5	2004	1767.438	26	0.76	0.39
Philippines	5	2005	1817.22	25	0.96	0.92
Philippines	5	2006	1878.497	25	0.87	0.46
Philippines	5	2007	1968.812	25	1.07	0.50
Philippines	5	2008	2016.815	23	1.02	0.32
Philippines	5	2009	2006.594	24	0.97	0.37
Philippines	5	2010	2124.057	24	1.00	0.45
Philippines	5	2011	2164.855	26	1.09	0.71
Philippines	5	2012	2270.526	34	1.11	0.91
Philippines	5	2013	2390.129	36	1.12	1.02
Philippines	5	2014	2495.575	38	1.19	1.39
Philippines	5	2015	2605.494	35	1.11	1.24
Philippines	5	2016	2743.198	35	0.99	0.72
Philippines	5	2017	2884.381	34	0.95	0.92
Philippines	5	2018	3021.987	36	1.05	0.98
South Korea	6	2002	16734.85	45	1.91	2.34
South Korea	6	2003	17136.66	43	1.92	2.35
South Korea	6	2004	17905.23	45	1.90	2.53
South Korea	6	2005	18568.36	50	1.99	2.58
South Korea	6	2006	19427.19	51	2.05	2.52
South Korea	6	2007	20385.32	51	2.24	2.67

South Korea	6	2008	20803.5	56	2.05	2.52
South Korea	6	2009	20843.13	55	2.09	2.51
South Korea	6	2010	22086.95	54	2.20	2.43
South Korea	6	2011	22724.71	54	2.25	2.51
South Korea	6	2012	23123.76	56	2.20	2.37
South Korea	6	2013	23685.41	55	2.13	2.38
South Korea	6	2014	24323.57	55	2.16	2.21
South Korea	6	2015	24870.77	54	2.01	2.26
South Korea	6	2016	25497.92	53	2.06	2.26
South Korea	6	2017	26205.13	54	2.07	2.42
South Korea	6	2018	26776.78	57	2.18	2.64
Singapore	7	2002	33565.97	93	2.85	3.36
Singapore	7	2003	35609.68	94	2.95	2.98
Singapore	7	2004	38619.86	93	2.99	3.19
Singapore	7	2005	40498.71	94	2.96	3.26
Singapore	7	2006	42785.59	94	3.21	3.35
Singapore	7	2007	44742.42	93	3.38	3.27
Singapore	7	2008	43216.25	92	3.44	3.45
Singapore	7	2009	41983.07	92	3.27	3.28
Singapore	7	2010	47236.96	93	3.24	3.27
Singapore	7	2011	49159.38	92	3.15	3.29
Singapore	7	2012	50102.23	87	3.17	3.47
Singapore	7	2013	51671.15	86	3.09	3.48
Singapore	7	2014	52994.04	84	3.18	3.29
Singapore	7	2015	53883.82	85	3.24	2.76
Singapore	7	2016	54764.86	84	3.21	3.60
Singapore	7	2017	56740.75	84	3.22	3.72
Singapore	7	2018	58247.87	85	3.23	3.61
Thailand	8	2002	3731.265	32	1.31	2.61
Thailand	8	2003	3969.728	33	1.37	1.96
Thailand	8	2004	4190.479	36	1.32	1.38
Thailand	8	2005	4337.879	38	1.40	1.23

Thailand	8	2006	4525.959	36	1.45	0.97
Thailand	8	2007	4745.304	33	1.36	0.99
Thailand	8	2008	4801.877	35	1.22	0.83
Thailand	8	2009	4744.757	34	1.27	0.68
Thailand	8	2010	5076.343	35	1.19	0.66
Thailand	8	2011	5094.467	34	1.21	0.97
Thailand	8	2012	5437.871	37	1.22	0.88
Thailand	8	2013	5558.724	35	1.25	0.79
Thailand	8	2014	5589.312	38	1.34	1.19
Thailand	8	2015	5741.34	38	1.35	1.11
Thailand	8	2016	5911.951	35	1.34	1.11
Thailand	8	2017	6128.658	37	1.38	1.35
Thailand	8	2018	6361.625	36	1.35	1.37
Vietnam	9	2002	846.7263	24	0.56	2.45
Vietnam	9	2003	896.7044	24	0.55	2.23
Vietnam	9	2004	955.4473	26	0.52	2.25
Vietnam	9	2005	1018.121	26	0.77	2.58
Vietnam	9	2006	1079.062	26	0.75	2.50
Vietnam	9	2007	1145.14	26	0.76	2.35
Vietnam	9	2008	1198.417	27	0.79	2.26
Vietnam	9	2009	1250.796	27	0.74	2.37
Vietnam	9	2010	1317.891	27	0.74	2.25
Vietnam	9	2011	1385.89	29	0.77	2.29
Vietnam	9	2012	1443.493	31	0.73	2.37
Vietnam	9	2013	1505.811	31	0.73	2.35
Vietnam	9	2014	1579.189	31	0.93	2.08
Vietnam	9	2015	1667.172	31	1.07	2.17
Vietnam	9	2016	1752.532	33	1.02	2.33
Vietnam	9	2017	1852.963	35	1.01	2.39
Vietnam	9	2018	1964.476	33	1.00	2.30

Source: Transparency International, 2019; World Bank, 2019

2. eViews Result – Overall Test

Pooled Ordinary Least Square (OLS) Regression

Dependent Variable: LGDP
Method: Panel Least Squares
Date: 07/12/20   Time: 15:02
Sample: 2002 2018
Periods included: 17
Cross-sections included: 9
Total panel (balanced) observations: 153

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.502897	0.087306	74.48364	0.0000
COR	0.021455	0.006026	3.560533	0.0005
GOV	1.041598	0.146022	7.133180	0.0000
POL	-0.147817	0.066064	-2.237474	0.0267

R-squared	0.890693	Mean dependent var	8.928314
Adjusted R-squared	0.888493	S.D. dependent var	1.249431
S.E. of regression	0.417219	Akaike info criterion	1.115385
Sum squared resid	25.93669	Schwarz criterion	1.194613
Log likelihood	-81.32698	Hannan-Quinn criter.	1.147569
F-statistic	404.7124	Durbin-Watson stat	0.077412
Prob(F-statistic)	0.000000		

Fixed Effect Model

Dependent Variable: LGDP
Method: Panel Least Squares
Date: 07/12/20   Time: 15:02
Sample: 2002 2018
Periods included: 17
Cross-sections included: 9
Total panel (balanced) observations: 153

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.230352	0.186689	38.72949	0.0000
COR	0.017352	0.004095	4.237669	0.0000
GOV	0.648835	0.107495	6.035931	0.0000
POL	-0.092337	0.052927	-1.744618	0.0832

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.982661	Mean dependent var	8.928314
Adjusted R-squared	0.981308	S.D. dependent var	1.249431
S.E. of regression	0.170819	Akaike info criterion	-0.621245
Sum squared resid	4.114234	Schwarz criterion	-0.383564
Log likelihood	59.52527	Hannan-Quinn criter.	-0.524695
F-statistic	726.4557	Durbin-Watson stat	0.230906
Prob(F-statistic)	0.000000		

99

Random Effect Model

Dependent Variable: LGDP
Method: Panel EGLS (Cross-section random effects)
Date: 07/12/20   Time: 15:02
Sample: 2002 2018
Periods included: 17
Cross-sections included: 9
Total panel (balanced) observations: 153
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.068841	0.235241	30.04932	0.0000
COR	0.018977	0.003990	4.756315	0.0000
GOV	0.702002	0.103960	6.752619	0.0000
POL	-0.093581	0.052405	-1.785746	0.0762

Effects Specification

			S.D.	Rho
Cross-section random			0.496967	0.8943
Idiosyncratic random			0.170819	0.1057

Weighted Statistics

R-squared	0.482966	Mean dependent var	0.741735
Adjusted R-squared	0.472556	S.D. dependent var	0.235931
S.E. of regression	0.171346	Sum squared resid	4.374540
F-statistic	46.39400	Durbin-Watson stat	0.248604
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.837534	Mean dependent var	8.928314
Sum squared resid	38.55057	Durbin-Watson stat	0.028210

Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.921022	3	0.2701

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
COR	0.017352	0.018977	0.000001	0.0774
GOV	0.648835	0.702002	0.000748	0.0518
POL	-0.092337	-0.093581	0.000055	0.8668

Cross-section random effects test equation:
Dependent Variable: LGDP
Method: Panel Least Squares
Date: 07/12/20   Time: 15:03
Sample: 2002 2018
Periods included: 17
Cross-sections included: 9
Total panel (balanced) observations: 153

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.230352	0.186689	38.72949	0.0000
COR	0.017352	0.004095	4.237669	0.0000
GOV	0.648835	0.107495	6.035931	0.0000
POL	-0.092337	0.052927	-1.744618	0.0832

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.982661	Mean dependent var	8.928314
Adjusted R-squared	0.981308	S.D. dependent var	1.249431
S.E. of regression	0.170819	Akaike info criterion	-0.621245
Sum squared resid	4.114234	Schwarz criterion	-0.383564
Log likelihood	59.52527	Hannan-Quinn criter.	-0.524695
F-statistic	726.4557	Durbin-Watson stat	0.230906
Prob(F-statistic)	0.000000		

3. Data of GDP Per Capita

	Singapore	Japan	South Korea	Malaysia	China	Thailand	Indonesia	Philippines	Vietnam
2002	33565.97	42190.8	16734.8457	7112.056	2061.162	3731.265	2259.308	1642.9379	846.7263
2003	35609.68	42744.01	17136.6616	7374.343	2253.93	3969.728	2335.594	1689.5729	896.7044
2004	38619.86	43671.68	17905.2258	7720.83	2467.133	4190.479	2420.397	1767.4379	955.4473
2005	40498.71	44393.63	18568.3628	7974.251	2732.166	4337.879	2524.222	1817.21987	1018.121
2006	42785.59	44995.49	19427.1898	8255.286	3062.535	4525.959	2627.905	1878.49693	1079.062
2007	44742.42	45687.27	20385.32	8605.018	3480.153	4745.304	2757.894	1968.81242	1145.14
2008	43216.25	45165.79	20803.5005	8850.009	3796.633	4801.877	2885.309	2016.81466	1198.417
2009	41983.07	42724.76	20843.1348	8559.234	4132.902	4744.757	2979.005	2006.59384	1250.796
2010	47236.96	44507.68	22086.9529	9040.566	4550.454	5076.343	3122.363	2124.05677	1317.891
2011	49159.38	44538.73	22724.7056	9372.008	4961.235	5094.467	3270.619	2164.85508	1385.89
2012	50102.23	45276.87	23123.7614	9743.105	5325.16	5437.871	3421.274	2270.52587	1443.493
2013	51671.15	46249.21	23685.4067	10061.72	5710.588	5558.724	3563.3	2390.12929	1505.811
2014	52994.04	46484.16	24323.5728	10524.07	6096.488	5589.312	3692.973	2495.57529	1579.189
2015	53883.82	47102.58	24870.7709	10912.15	6484.436	5741.34	3824.275	2605.4936	1667.172
2016	54764.86	47444.14	25497.9216	11244	6883.895	5911.951	3968.056	2743.19836	1752.532
2017	56740.75	48438.83	26205.1323	11728.98	7308.065	6128.658	4120.429	2884.38059	1852.963
2018	58247.87	48919.8	26776.7846	12120.08	7752.56	6361.625	4284.653	3021.98686	1964.476

4. Data of Corruption

	Singapore	Japan	South Korea	Malaysia	China	Indonesia	Philippines	Thailand	Vietnam
2002	93	71	45	49	35	19	26	32	24
2003	94	70	43	52	34	19	25	33	24
2004	93	69	45	50	34	20	26	36	26
2005	94	73	50	51	32	22	25	38	26
2006	94	76	51	50	33	24	25	36	26
2007	93	75	51	51	35	23	25	33	26
2008	92	73	56	51	36	26	23	35	27
2009	92	77	55	45	36	28	24	34	27
2010	93	78	54	44	35	28	24	35	27
2011	92	80	54	43	36	30	26	34	29
2012	87	74	56	49	39	32	34	37	31
2013	86	74	55	59	40	32	36	35	31
2014	84	76	55	52	36	34	38	38	31
2015	85	75	54	50	37	36	35	38	31
2016	84	72	53	49	40	37	35	35	33
2017	84	73	54	47	41	37	34	37	35
2018	85	73	57	47	39	38	36	36	33

5. Data of Government Effectiveness

	Singapore	Japan	South Korea	Malaysia	China	Thailand	Indonesia	Philippines	Vietnam
2002	1.85	1.07	0.91	1.02	-0.06	0.31	-0.41	-0.13	-0.44
2003	1.95	1.22	0.92	1.16	-0.08	0.37	-0.46	-0.1	-0.45
2004	1.99	1.36	0.9	1.09	-0.06	0.32	-0.42	-0.24	-0.48
2005	1.96	1.29	0.99	1.09	-0.12	0.4	-0.48	-0.04	-0.23
2006	2.21	1.59	1.05	1.27	0.07	0.45	-0.33	-0.14	-0.25
2007	2.38	1.45	1.24	1.24	0.18	0.36	-0.28	0.07	-0.34
2008	2.44	1.46	1.05	1.11	0.15	0.22	-0.24	0.02	-0.21
2009	2.27	1.45	1.09	0.98	0.09	0.27	-0.3	-0.03	-0.26
2010	2.24	1.53	1.2	1.12	0.09	0.19	-0.21	0	-0.26
2011	2.15	1.47	1.25	1.02	0.09	0.21	-0.26	0.09	-0.23
2012	2.17	1.42	1.2	0.92	0.02	0.22	-0.27	0.11	-0.27
2013	2.09	1.62	1.13	1	0	0.25	-0.2	0.12	-0.27
2014	2.18	1.81	1.16	1.12	0.32	0.34	-0.04	0.19	-0.07
2015	2.24	1.78	1.01	0.95	0.41	0.35	-0.24	0.11	0.07
2016	2.19	1.82	1.07	0.87	0.36	-0.34	0.01	-0.02	0.01
2017	2.21	1.62	1.08	0.84	0.42	0.38	0.04	-0.06	0
2018	2.23	1.68	1.18	1.08	0.48	0.35	0.18	0.05	0

6. eViews Result – Full Panel Convergence

GDP Per Capita

Dependent Variable: GDP_ALL
Method: Least Squares
Date: 07/08/20   Time: 21:46
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.573337	0.064811	-8.846280	0.0000
LOG(TIME)	-0.544778	0.026309	-20.70715	0.0000

R-squared	0.979442	Mean dependent var	-1.906844
Adjusted R-squared	0.977158	S.D. dependent var	0.160240
S.E. of regression	0.024218	Akaike info criterion	-4.440467
Sum squared resid	0.005279	Schwarz criterion	-4.368122
Log likelihood	26.42257	Hannan-Quinn criter.	-4.486070
F-statistic	428.7862	Durbin-Watson stat	0.428237
Prob(F-statistic)	0.000000		

Corruption

Dependent Variable: COR_ALL
Method: Least Squares
Date: 07/08/20   Time: 22:16
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.448030	0.157137	-15.57899	0.0000
LOG(TIME)	0.101141	0.063786	1.585623	0.1473

R-squared	0.218356	Mean dependent var	-2.200457
Adjusted R-squared	0.131507	S.D. dependent var	0.063006
S.E. of regression	0.058718	Akaike info criterion	-2.669188
Sum squared resid	0.031030	Schwarz criterion	-2.596844
Log likelihood	16.68053	Hannan-Quinn criter.	-2.714791
F-statistic	2.514200	Durbin-Watson stat	0.438063
Prob(F-statistic)	0.147286		

Government Effectiveness

Dependent Variable: GOV_ALL
Method: Least Squares
Date: 07/08/20   Time: 23:22
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.596189	0.123679	-12.90595	0.0000

LOG(TIME)	-0.194878	0.050205	-3.881670	0.0037

R-squared	0.626050	Mean dependent var	-2.073212
Adjusted R-squared	0.584500	S.D. dependent var	0.071697
S.E. of regression	0.046215	Akaike info criterion	-3.148048
Sum squared resid	0.019223	Schwarz criterion	-3.075703
Log likelihood	19.31426	Hannan-Quinn criter.	-3.193651
F-statistic	15.06736	Durbin-Watson stat	0.403357
Prob(F-statistic)	0.003722		

7. eViews Result – Club Convergence

GDP Per Capita

Singapore Japan

Dependent Variable: GDP_ALL
Method: Least Squares
Date: 07/09/20   Time: 20:45
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	17.53076	1.521833	11.51950	0.0000
LOG(TIME)	-7.128404	0.617756	-11.53920	0.0000

R-squared	0.936688	Mean dependent var	0.081839
Adjusted R-squared	0.929653	S.D. dependent var	2.144056
S.E. of regression	0.568667	Akaike info criterion	1.871922
Sum squared resid	2.910440	Schwarz criterion	1.944267
Log likelihood	-8.295574	Hannan-Quinn criter.	1.826319
F-statistic	133.1531	Durbin-Watson stat	1.053566
Prob(F-statistic)	0.000001		

Singapore Japan South Korea

Dependent Variable: GDP_ALL
Method: Least Squares
Date: 07/09/20   Time: 20:49
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.578730	0.070819	-22.29260	0.0000
LOG(TIME)	-0.191694	0.028747	-6.668242	0.0001

R-squared	0.831667	Mean dependent var	-2.047959
Adjusted R-squared	0.812963	S.D. dependent var	0.061189
S.E. of regression	0.026463	Akaike info criterion	-4.263176
Sum squared resid	0.006303	Schwarz criterion	-4.190832
Log likelihood	25.44747	Hannan-Quinn criter.	-4.308780
F-statistic	44.46545	Durbin-Watson stat	0.449967

Prob(F-statistic)   0.000092

South Korea Malaysia

Dependent Variable: GDP_ALL
Method: Least Squares
Date: 07/09/20   Time: 20:57
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.438086	0.101145	-4.331274	0.0019
LOG(TIME)	-0.599243	0.041058	-14.59517	0.0000

R-squared	0.959463	Mean dependent var		-1.904914
Adjusted R-squared	0.954959	S.D. dependent var		0.178086
S.E. of regression	0.037795	Akaike info criterion		-3.550311
Sum squared resid	0.012856	Schwarz criterion		-3.477966
Log likelihood	21.52671	Hannan-Quinn criter.		-3.595914
F-statistic	213.0189	Durbin-Watson stat		0.409063
Prob(F-statistic)	0.000000			

Malaysia China

Dependent Variable: GDP_ALL
Method: Least Squares
Date: 07/09/20   Time: 21:09
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.786618	0.203353	-23.53842	0.0000
LOG(TIME)	0.911253	0.082547	11.03921	0.0000

R-squared	0.931226	Mean dependent var		-2.556050
Adjusted R-squared	0.923585	S.D. dependent var		0.274886
S.E. of regression	0.075988	Akaike info criterion		-2.153529
Sum squared resid	0.051967	Schwarz criterion		-2.081184
Log likelihood	13.84441	Hannan-Quinn criter.		-2.199132
F-statistic	121.8642	Durbin-Watson stat		0.426598
Prob(F-statistic)	0.000002			

Malaysia China Thailand

Dependent Variable: GOV_ALL
Method: Least Squares
Date: 07/09/20   Time: 21:13
Sample: 2008 2018

Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.855364	0.069761	-26.59612	0.0000
LOG(TIME)	-0.063785	0.028318	-2.252453	0.0508

R-squared	0.360502	Mean dependent var		-2.011497
Adjusted R-squared	0.289447	S.D. dependent var		0.030925
S.E. of regression	0.026068	Akaike info criterion		-4.293278
Sum squared resid	0.006116	Schwarz criterion		-4.220933
Log likelihood	25.61303	Hannan-Quinn criter.		-4.338881
F-statistic	5.073546	Durbin-Watson stat		0.361121
Prob(F-statistic)	0.050799			

Thailand Indonesia

Dependent Variable: GDP_ALL
Method: Least Squares
Date: 07/09/20   Time: 21:16
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.754241	0.121819	-14.40035	0.0000
LOG(TIME)	-0.138703	0.049450	-2.804925	0.0205

R-squared	0.466433	Mean dependent var		-2.093759
Adjusted R-squared	0.407148	S.D. dependent var		0.059120
S.E. of regression	0.045521	Akaike info criterion		-3.178342
Sum squared resid	0.018649	Schwarz criterion		-3.105997
Log likelihood	19.48088	Hannan-Quinn criter.		-3.223945
F-statistic	7.867602	Durbin-Watson stat		0.425213
Prob(F-statistic)	0.020547			

Indonesia Philippines

Dependent Variable: GDP_ALL
Method: Least Squares
Date: 07/09/20   Time: 21:20
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.048690	0.155562	-0.312996	0.7614
LOG(TIME)	-0.747578	0.063147	-11.83866	0.0000

R-squared	0.939660	Mean dependent var		-1.878614
Adjusted R-squared	0.932955	S.D. dependent var		0.224498
S.E. of regression	0.058129	Akaike info criterion		-2.689326
Sum squared resid	0.030411	Schwarz criterion		-2.616982
Log likelihood	16.79129	Hannan-Quinn criter.		-2.734929

F-statistic	140.1538	Durbin-Watson stat	0.383885
Prob(F-statistic)	0.000001		

Philippines Vietnam

Dependent Variable: GDP_ALL
Method: Least Squares
Date: 07/09/20   Time: 21:25
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.381956	0.033899	-40.76725	0.0000
LOG(TIME)	-0.254268	0.013760	-18.47820	0.0000

R-squared	0.974318	Mean dependent var	-2.004354
Adjusted R-squared	0.971465	S.D. dependent var	0.074986
S.E. of regression	0.012667	Akaike info criterion	-5.736667
Sum squared resid	0.001444	Schwarz criterion	-5.664323
Log likelihood	33.55167	Hannan-Quinn criter.	-5.782271
F-statistic	341.4439	Durbin-Watson stat	0.526730
Prob(F-statistic)	0.000000		

Corruption

Singapore Japan

Dependent Variable: COR_ALL
Method: Least Squares
Date: 07/09/20   Time: 13:16
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.675523	0.045038	-59.40609	0.0000
LOG(TIME)	0.217714	0.018282	11.90858	0.0000

R-squared	0.940324	Mean dependent var	-2.142601
Adjusted R-squared	0.933693	S.D. dependent var	0.065357
S.E. of regression	0.016829	Akaike info criterion	-5.168412
Sum squared resid	0.002549	Schwarz criterion	-5.096068
Log likelihood	30.42627	Hannan-Quinn criter.	-5.214016
F-statistic	141.8142	Durbin-Watson stat	0.669624
Prob(F-statistic)	0.000001		

Singapore Japan South Korea

Dependent Variable: COR_ALL

Method: Least Squares
Date: 07/09/20   Time: 13:20
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.794258	0.055420	-32.37568	0.0000
LOG(TIME)	-0.113584	0.022497	-5.048970	0.0007

R-squared	0.739071	Mean dependent var		-2.072290
Adjusted R-squared	0.710079	S.D. dependent var		0.038461
S.E. of regression	0.020709	Akaike info criterion		-4.753540
Sum squared resid	0.003860	Schwarz criterion		-4.681196
Log likelihood	28.14447	Hannan-Quinn criter.		-4.799143
F-statistic	25.49210	Durbin-Watson stat		0.485858
Prob(F-statistic)	0.000691			

South Korea Malaysia

Dependent Variable: COR_ALL
Method: Least Squares
Date: 07/09/20   Time: 13:24
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.232560	0.465281	9.096779	0.0000
LOG(TIME)	-2.254462	0.188871	-11.93652	0.0000

R-squared	0.940586	Mean dependent var		-1.285916
Adjusted R-squared	0.933985	S.D. dependent var		0.676682
S.E. of regression	0.173863	Akaike info criterion		-0.498136
Sum squared resid	0.272054	Schwarz criterion		-0.425791
Log likelihood	4.739746	Hannan-Quinn criter.		-0.543739
F-statistic	142.4805	Durbin-Watson stat		0.752667
Prob(F-statistic)	0.000001			

Malaysia China

Dependent Variable: COR_ALL
Method: Least Squares
Date: 07/09/20   Time: 13:27
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.234530	0.273279	-11.83602	0.0000
LOG(TIME)	0.341604	0.110932	3.079412	0.0132

R-squared	0.513060	Mean dependent var		-2.398351
Adjusted R-squared	0.458956	S.D. dependent var		0.138829
S.E. of regression	0.102117	Akaike info criterion		-1.562435

Sum squared resid	0.093850	Schwarz criterion	-1.490091
Log likelihood	10.59339	Hannan-Quinn criter.	-1.608038
F-statistic	9.482777	Durbin-Watson stat	0.380337
Prob(F-statistic)	0.013152		

Malaysia China Indonesia

Dependent Variable: COR_ALL
Method: Least Squares
Date: 07/09/20   Time: 13:54
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.616929	0.430422	-15.37311	0.0000
LOG(TIME)	1.501092	0.174721	8.591379	0.0000

R-squared	0.891320	Mean dependent var	-2.942552
Adjusted R-squared	0.879244	S.D. dependent var	0.462841
S.E. of regression	0.160837	Akaike info criterion	-0.653886
Sum squared resid	0.232817	Schwarz criterion	-0.581541
Log likelihood	5.596370	Hannan-Quinn criter.	-0.699489
F-statistic	73.81179	Durbin-Watson stat	0.393110
Prob(F-statistic)	0.000012		

Malaysia China Indonesia Philippines

Dependent Variable: COR_ALL
Method: Least Squares
Date: 07/09/20   Time: 14:06
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.585986	0.456407	-14.43007	0.0000
LOG(TIME)	1.489185	0.185269	8.037974	0.0000

R-squared	0.877732	Mean dependent var	-2.940755
Adjusted R-squared	0.864147	S.D. dependent var	0.462710
S.E. of regression	0.170547	Akaike info criterion	-0.536649
Sum squared resid	0.261776	Schwarz criterion	-0.464304
Log likelihood	4.951569	Hannan-Quinn criter.	-0.582252
F-statistic	64.60902	Durbin-Watson stat	0.400871
Prob(F-statistic)	0.000021		

Philippines Thailand

Dependent Variable: COR_ALL
Method: Least Squares
Date: 07/13/20   Time: 11:44

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-20.34139	3.012240	-6.752913	0.0001
LOG(TIME)	6.302111	1.222754	5.154029	0.0006

R-squared	0.746935	Mean dependent var		-4.915074
Adjusted R-squared	0.718817	S.D. dependent var		2.122687
S.E. of regression	1.125591	Akaike info criterion		3.237459
Sum squared resid	11.40259	Schwarz criterion		3.309804
Log likelihood	-15.80602	Hannan-Quinn criter.		3.191856
F-statistic	26.56401	Durbin-Watson stat		1.023771
Prob(F-statistic)	0.000600			

Philippines Thailand Vietnam

Dependent Variable: COR_ALL
Method: Least Squares
Date: 07/13/20   Time: 11:53
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8.759062	0.491593	-17.81771	0.0000
LOG(TIME)	2.326682	0.199552	11.65955	0.0000

R-squared	0.937908	Mean dependent var		-3.063805
Adjusted R-squared	0.931008	S.D. dependent var		0.699356
S.E. of regression	0.183695	Akaike info criterion		-0.388117
Sum squared resid	0.303694	Schwarz criterion		-0.315773
Log likelihood	4.134646	Hannan-Quinn criter.		-0.433721
F-statistic	135.9451	Durbin-Watson stat		0.522099
Prob(F-statistic)	0.000001			

Government Effectiveness

Japan Singapore

Dependent Variable: GOV_ALL
Method: Least Squares
Date: 07/09/20   Time: 17:31
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.537261	0.216013	-16.37522	0.0000
LOG(TIME)	0.480643	0.087686	5.481413	0.0004

R-squared	0.769502	Mean dependent var		-2.360743
Adjusted R-squared	0.743891	S.D. dependent var		0.159499
S.E. of regression	0.080718	Akaike info criterion		-2.032741

Sum squared resid	0.058639	Schwarz criterion	-1.960397
Log likelihood	13.18008	Hannan-Quinn criter.	-2.078344
F-statistic	30.04589	Durbin-Watson stat	0.462564
Prob(F-statistic)	0.000389		

Japan Singapore South Korea

Dependent Variable: GOV_ALL
Method: Least Squares
Date: 07/09/20   Time: 17:33
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.275906	0.034747	-7.940468	0.0000
LOG(TIME)	-0.631109	0.014105	-44.74447	0.0000

R-squared	0.995525	Mean dependent var	-1.820736
Adjusted R-squared	0.995028	S.D. dependent var	0.184128
S.E. of regression	0.012984	Akaike info criterion	-5.687242
Sum squared resid	0.001517	Schwarz criterion	-5.614897
Log likelihood	33.27983	Hannan-Quinn criter.	-5.732845
F-statistic	2002.068	Durbin-Watson stat	0.408968
Prob(F-statistic)	0.000000		

South Korea Malaysia

Dependent Variable: GOV_ALL
Method: Least Squares
Date: 07/09/20   Time: 17:39
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.74324	3.703584	5.060839	0.0007
LOG(TIME)	-7.721598	1.503391	-5.136123	0.0006

R-squared	0.745617	Mean dependent var	-0.157704
Adjusted R-squared	0.717352	S.D. dependent var	2.603098
S.E. of regression	1.383927	Akaike info criterion	3.650693
Sum squared resid	17.23728	Schwarz criterion	3.723038
Log likelihood	-18.07881	Hannan-Quinn criter.	3.605090
F-statistic	26.37976	Durbin-Watson stat	1.001391
Prob(F-statistic)	0.000614		

Malaysia China

Dependent Variable: GOV_ALL
Method: Least Squares
Date: 07/09/20   Time: 17:48

Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.850026	0.573782	-10.19556	0.0000
LOG(TIME)	1.208736	0.232914	5.189617	0.0006

R-squared	0.749528	Mean dependent var		-2.891279
Adjusted R-squared	0.721698	S.D. dependent var		0.406424
S.E. of regression	0.214406	Akaike info criterion		-0.078922
Sum squared resid	0.413731	Schwarz criterion		-0.006577
Log likelihood	2.434071	Hannan-Quinn criter.		-0.124525
F-statistic	26.93213	Durbin-Watson stat		0.374191
Prob(F-statistic)	0.000572			

Malaysia China Thailand

Dependent Variable: GOV_ALL
Method: Least Squares
Date: 07/09/20   Time: 17:53
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.951129	0.297217	-9.929199	0.0000
LOG(TIME)	0.251802	0.120649	2.087060	0.0665

R-squared	0.326136	Mean dependent var		-2.334768
Adjusted R-squared	0.251263	S.D. dependent var		0.128351
S.E. of regression	0.111062	Akaike info criterion		-1.394493
Sum squared resid	0.111013	Schwarz criterion		-1.322149
Log likelihood	9.669712	Hannan-Quinn criter.		-1.440096
F-statistic	4.355820	Durbin-Watson stat		0.381334
Prob(F-statistic)	0.066500			

Thailand Indonesia

Dependent Variable: GOV_ALL
Method: Least Squares
Date: 07/13/20   Time: 13:53
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-34.43047106943267	3.147867011809978	10.9377146303381	1.688872292963778e-06
LOG(TIME)	11.18932943338428	1.277809268906197	8.756650703404528	1.067824379231842e-05

R-squared	0.89495667 32674774	Mean dependent var	-7.0412078 61510398
Adjusted R-squared	0.88328519 25194192	S.D. dependent var	3.4430586 81883691
S.E. of regression	1.17627103 7127915	Akaike info criterion	3.3255413 27922895
Sum squared resid	12.4525219 7507383	Schwarz criterion	3.3978859 22977145
Log likelihood	-16.2904773 0357592	Hannan-Quinn criter.	3.2799381 944406
F-statistic	76.6789315 4143124	Durbin-Watson stat	1.2496699 85248638
Prob(F-statistic)	1.06782437 9232055e-05		

Thailand Indonesia Philippines

Dependent Variable: GOV_ALL
Method: Least Squares
Date: 07/13/20   Time: 13:23
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-28.61000	1.553010	-18.42229	0.0000
LOG(TIME)	9.393896	0.630411	14.90122	0.0000

R-squared	0.961047	Mean dependent var	-5.615599
Adjusted R-squared	0.956719	S.D. dependent var	2.789426
S.E. of regression	0.580317	Akaike info criterion	1.912481
Sum squared resid	3.030909	Schwarz criterion	1.984825
Log likelihood	-8.518644	Hannan-Quinn criter.	1.866878
F-statistic	222.0465	Durbin-Watson stat	2.572702
Prob(F-statistic)	0.000000		

Thailand Indonesia Philippines Vietnam

Dependent Variable: GOV_ALL
Method: Least Squares
Date: 07/13/20   Time: 13:28
Sample: 2008 2018
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9.839951	8.230500	-1.195547	0.2624
LOG(TIME)	1.774795	3.340995	0.531217	0.6081

R-squared	0.030401	Mean dependent var	-5.495605
Adjusted R-squared	-0.077332	S.D. dependent var	2.963074
S.E. of regression	3.075511	Akaike info criterion	5.247785
Sum squared resid	85.12890	Schwarz criterion	5.320129

Log likelihood	-26.86282	Hannan-Quinn criter.	5.202182
F-statistic	0.282192	Durbin-Watson stat	1.050513
Prob(F-statistic)	0.608127		