

**AN ANALYSIS OF THE ECONOMIC IMPACT OF CORRUPTION
IN SOUTHEAST ASIAN COUNTRIES**

A THESIS



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YOGYAKARTA**

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YOGYAKARTA**

2024

DECLARATION OF AUTHENTICITY

Here I declare the originality of the thesis; I have not presented anyone else's work to obtain my university degree, nor have I presented anyone else's words, ideas, or expression without acknowledgment. All quotations are cited and listed in the bibliography of the thesis.

If in the future this declaration is proven to be false, I am willing to accept any sanction complying with the determined regulation or its consequence.

Yogyakarta, 13 September 2024



A stylized handwritten signature in black ink.

Salwa Atsilah Humaira

ADVISORS' APPROVAL

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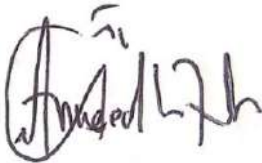
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Prof. Johan Arifin, S.E., M.Si., Ph.D.

I present this thesis for my Beloved parent

Abah Riza Pahlefi and Mama Hera Tri Wahyuni

Your love is the quiet whisper in my heart,

guiding me through each storm.

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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As I close this chapter and look toward the future, I carry the wisdom that life's sweetest moments often lie in this journey, not just the destination. And so, I am eternally grateful for this journey, for it has brought me to this moment and imbued my life with a richness and sweetness that I will cherish forever. But before I seal this story, let me show my mighty gratitude with these words to the people who have been through the tapestry of my years. This work is not solely the product of my efforts but is deeply rooted in the love, guidance, and unwavering support of those around me.

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My endless appreciation for all the people mentioned or in quiet remembrance. Now, here I present the fruits of my research, an undergraduate thesis titled “An Analysis of The Economic Impact of Corruption In Southeast Asian Countries.” I aspire for this research to offer new insights to diverse people regardless of their background, reaching beyond the bookshelf and finding their way into minds and discussions.

As the author, I recognize that this work may bear the marks of imperfection, with shortcomings and limitations that still require refinement. Therefore, I offer my sincere apologies for any errors or deficiencies that may be present in this thesis and with heartfelt gratitude, I thank you for journeying through the pages of this thesis with me.

Yogyakarta, 1st September 2024



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ABSTRACT

This research explores the impact of economic growth on various socio-economic and political variables in Southeast Asian countries, including Indonesia, Malaysia, Philippines, Thailand, and Vietnam, from 2005 to 2020. Utilizing the panel data regression model to assess how corruption influences economic performance and identify the channels through which it operates, the research investigates how economic growth affected by corruption levels, investment, political rights, political stability, average schooling years, and population growth. The study finds that while corruption, political stability, and average schooling years are not significantly influenced by economic growth, investment, and political rights positively correlate with higher growth rates. However, excessive political rights show diminishing returns. Additionally, higher population growth is associated with lower economic growth. These findings provide crucial insights for policymakers on achieving balanced economic and political reforms for sustainable development.

Keywords: Economic Growth, Corruption, Political Rights, Socio-economic Development, Southeast Asian Economies

ABSTRAK

Penelitian ini mengeksplorasi dampak pertumbuhan ekonomi pada berbagai variabel sosial-ekonomi dan politik di negara-negara Asia Tenggara, termasuk Indonesia, Malaysia, Filipina, Thailand, dan Vietnam, dari tahun 2005 hingga 2020. Dengan memanfaatkan model regresi data panel untuk menilai bagaimana korupsi memengaruhi kinerja ekonomi dan mengidentifikasi saluran tempat korupsi beroperasi, penelitian ini menyelidiki bagaimana pertumbuhan ekonomi dipengaruhi oleh tingkat korupsi, investasi, hak politik, stabilitas politik, rata-rata tahun sekolah, dan pertumbuhan populasi. Studi ini menemukan bahwa sementara korupsi, stabilitas politik, dan rata-rata tahun sekolah tidak dipengaruhi secara signifikan oleh pertumbuhan ekonomi, investasi, dan hak politik berkorelasi positif dengan tingkat pertumbuhan yang lebih tinggi. Namun, hak politik yang berlebihan menunjukkan hasil yang semakin berkurang. Selain itu, pertumbuhan populasi yang lebih tinggi dikaitkan dengan pertumbuhan ekonomi yang lebih rendah. Temuan-temuan ini memberikan wawasan penting bagi para pembuat kebijakan untuk mencapai reformasi ekonomi dan politik yang seimbang untuk pembangunan berkelanjutan.

Kata Kunci: Pertumbuhan Ekonomi, Korupsi, Hak Politik, Asia Tenggara, Pembangunan Sosial Ekonomi, Perekonomian Asia Tenggara

CHAPTER I

INTRODUCTION

1.1 Background

Corruption is often defined as the abuse of public office for private gain. It can be analogized to a cancer that spreads to all levels of society around the world. Just as cancer silently invades healthy cells, corruption infiltrates various sectors, weakening the ethical foundations that sustain a nation's development. It starts in isolated incidents but is left unchecked and metastasizes, affecting government institutions, economies, and even everyday lives of citizens. In the longer term, it is like a disease that can cripple vital organs by eroding the functions of law and order, disrupting societal progress, and causing damage that is difficult to reverse. This definition encompasses various forms of corrupt practices, including bribery, graft, and embezzlement, where officials exploit their positions to benefit personally rather than serve the public interest (Rose-Ackerman, 1999). Thus, corruption naturally becomes an issue and continues to occur throughout the world, especially in developing countries.

Corruption, indeed, will cause a hazardous effect, as stated by Tanzi (1998). In many cases, corruption erodes trust in the government and threatens the social contract. Moreover, the practice of corruption causes concern around the world because it undermines the enforcement of formal institutions, perpetuates developmental challenges, and hinders inclusive growth, ultimately obstructing efforts to establish a robust rule of law and stable governance (Khan, 2017). When corruption permeates

the conduct of policymakers within democratic, market-driven economies on a large scale, it becomes increasingly challenging to advocate for the viability of such economic and political systems. It also reduces economic growth by inhibiting investment and reducing the efficiency of resource allocation, undermining investor confidence. Therefore, the result of corruption will lead to economic inequality and hinder the development of infrastructure needed to improve society's welfare (Mauro, 1995).

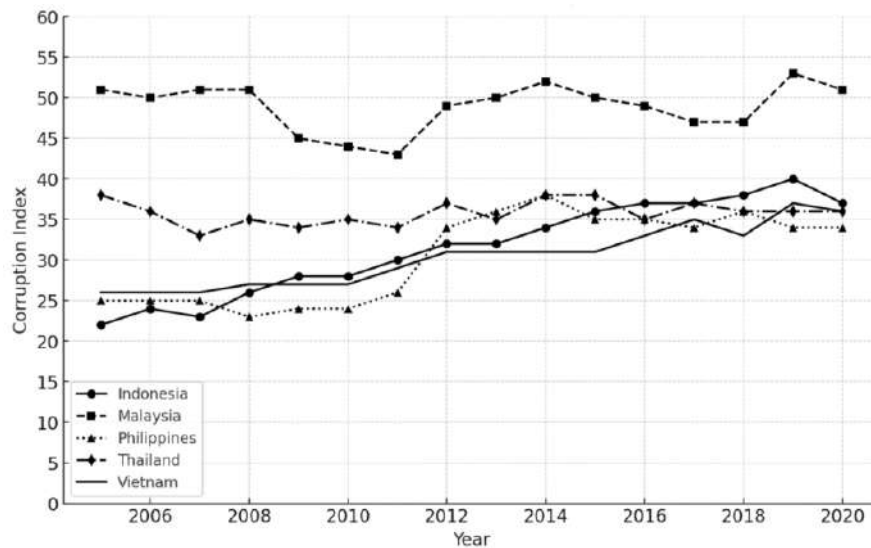
Economic growth is a fundamental driver of progress and prosperity in developing countries, serving as a catalyst for poverty reduction and human development. Real GDP indicators are essential economic performance barometers, reflecting nations' capacitate wealth and improve living standards. With rapid economic growth, it is hoped that a country can create employment opportunities, increase income, and access to important services such as education and health services, which are important for increasing living standards and reducing poverty (Spyromitros & Panagiotidis, 2022). In developing countries, economic growth can also increase government revenues, which can be invested in public services and infrastructure that benefit the poor and vulnerable. Although rapid economic growth is generally considered a sign of progress, it is important to assess the sustainability of this growth to resist any obstacle, such as corruption. It has emerged as a major obstacle, capable of hampering efforts towards sustainable economic expansion (Irina et al., 2019). By hindering the efficient allocation of resources, reinforcing inequality,

and undermining public trust in institutions, corruption presents a formidable challenge for countries seeking to maintain their economic momentum.

The nexus between corruption and economic growth constitutes a subject of extensive scholarly inquiry, rooted in theoretical frameworks and empirical evidence. Looking theoretically, literature and models have highlighted the complex relationship between corruption and economic growth. Corruption can serve as a significant barrier to sustainable economic growth through various channels. One of the main channels is fund misallocation, which causes corruption-induced inefficiency, where public funds that should be used for infrastructure development or important public services are wasted or utilized inefficiently (Barro, 1999). The improper allocation arises from the likelihood that a corrupt decision-maker will include potential "bribes" as one of the factors in their decision-making process.

Furthermore, the research conducted by Ahmad et al. (2012) explains that corruption can potentially distort private investors' assessments of the comparative advantages of various investments, especially due to corruption-driven shifts in the relative prices of goods, services, resources, and factors of production. It explains how corruption may undermine both domestic and foreign investor confidence, which is a key factor in driving investment and long-term economic growth. As corruption undermines the efficiency of public institutions, distorts market mechanisms, and erodes investor confidence, its adverse impact on economic growth in developing countries becomes increasingly apparent. In the case of Southeast Asia, where rapid

economic growth is accompanied by institutional fragility, the negative impact of corruption on governance and development is deeply entrenched.



Source: Transparency International
Figure 1.1 The Corruption Perceptions Index

Corruption and economic growth in developing countries in Southeast Asia, such as Indonesia, Malaysia, Vietnam, Thailand, and Philippines, reflect the complexity of each country's political, economic, and social context. Data on the Corruption Perception Index in Graph 1.1 shows each country's corruption level. The CPI ranks them based on their perceived level of public sector corruption on a scale of 0 (very corrupt) to 100 (very clean) (Transparency, 2023). Against the backdrop of pervasive corruption and developing economic aspirations in Southeast Asia, this study aims to unravel the intricate relationship between corruption and economic growth across selected countries in the region.

Indonesia, the largest archipelagic country in the world with a large population, has its challenges in managing government and reducing levels of corruption. Indonesia's complex political history, particularly the New Order era notorious for pervasive corruption, has profoundly shaped its political and administrative culture. During this period, many officeholders from companies or government agencies took advantage of the power they had to obtain personal gain.¹ However, post-reform in 1998, Indonesia has taken steps to reduce corruption, including establishing the Corruption Eradication Commission (KPK) in 2002, tasked with ensuring clean and transparent governance and preventing state losses due to corruption (Herdani et al., 2024). Despite these efforts, Indonesia still has much work to do in its fight against corruption. While the establishment of the KPK and other reforms have made significant strides, corruption remains a persistent issue within various levels of government and the private sector. The deeply rooted practices from the New Order era continue to pose challenges, and ongoing vigilance and reform are necessary to ensure that progress is supported. The path to fully transparent and accountable governance is ongoing, requiring sustained commitment and further systemic changes.

Malaysia has a unique political history, with Barisan Nasional, who has held power for more than six decades before their defeat in the 2018 general election. The level of corruption in Malaysia has become a significant issue, with a major corruption

¹ CNN Indonesia. *Korupsi era Orde Baru dan munculnya raja baru usai Reformasi*. Retrieved on May 8, 2024, from <https://www.cnnindonesia.com/nasional/20210608192828-12-651889/korupsi-era-orde-baru-dan-munculnya-raja-baru-usai-reformasi/>

scandal from the 1Malaysia Development Berhad Company (1MDB) involving former Malaysian prime minister Najib Razak that has attracted international attention. The Department of Justice claims that approximately \$3.5 billion has been stolen from 1MDB, which is causing major debt for the country and company.² Despite the severe corruption issues, Malaysia has demonstrated resilience and is on a path to recovery. The country has recorded significant economic growth, driven by a robust manufacturing sector, a thriving tourism industry, and substantial contributions from the oil and gas sector. While challenges remain, particularly in fully addressing the corruption scandals, Malaysia's economic foundation continues to provide opportunities for continued progress and development.

Corruption in the Philippines is a widespread and ingrained problem that affects various aspects of the country's government, economy, and society. The Philippines is considered one of the most corrupt countries, with the country's score of 33 out of 100 reflecting the views of experts or surveys of business-people regarding several corrupt behaviours in the public sector, such as diversion of public funds, nepotism among civil servants, and use of public office for profit personal.³ Judiciary and law enforcement, health services, and natural resources are some of the most seriously impacted sectors in the Philippines, hampering the country's democratic and economic progress (Gogidze, 2023). The government has committed to eradicating corruption by

² BBC News. *How corruption works in the Philippines*. Retrieved on May 8, 2024, from <https://www.bbc.com/news/world-asia-33447456>

³ Inquirer. *A look at how corruption works in the Philippines*. Retrieved on May 8, 2024, from <https://business.inquirer.net/390650/a-look-at-how-corruption-works-in-the-philippines>

establishing an Anti-Corruption Commission and giving the Ministry of Justice a mandate to investigate allegations of corruption throughout the government. The establishment of a Large Corruption Eradication Task Force has resulted in the submission of corruption complaints directly to the Office of the Minister of Justice (UNDP, 2005). The United Nations Office on Drugs and Crime (UNODC) and the Secretariat of the Inter-Agency Committee of the United Nations Presidential Convention Against Corruption (UNCAC) hosted a workshop in Manila to strengthen the Philippines' commitment to fighting corruption and identify specific areas requiring attention.⁴ In short, corruption in the Philippines is a complex problem that requires immediate attention and effective action to address and more efforts are required to combat this widespread problem.

Thailand has experienced a sensational political history, with a series of military coups and political instability. The level of corruption in Thailand is also a concern, with several political scandals shaking political stability and public trust in institutions. The government has established anti-corruption agencies such as the National Anti-Corruption Commission (NACC). However, this institution has been criticized for needing to be more effective and coordinated. The NACC was particularly less effective in prosecuting high-profile corruption cases, and some cases were pending

⁴ United Nations Office on Drugs and Crime (UNODC). *Anti-corruption measures in the Philippines*. Retrieved on May 8, 2024, from <https://www.unodc.org/roseap/en/philippines/2023/11/anti-corruption-measures/story.html>

for years without any action.⁵ Thailand's ranking in the Corruption Perception Index (CPI) has fallen significantly over the years, from 38th in 2014 to 35th in 2023.⁶ This decline reflects the country's persistent corruption problem and the lack of progress in addressing it. The World Economic Forum's Global Competitiveness Report 2016-2017 ranked corruption as the third biggest obstacle to business in Thailand, after government instability and inefficient government bureaucracy. The public's perspective on corruption in Thailand is also concerning, with the 2017 Global Corruption Barometer survey revealing that only 14% of respondents believed the government was doing well in fighting corruption (OECD, 2018). Overall, corruption in Thailand is an important issue that requires urgent attention and effective action.

Vietnam, a communist country, has experienced an impressive economic transformation since the adoption of reform policies in 1986. The Communist Party of Vietnam (CPV) has been actively pursuing anti-corruption campaigns to combat corruption at many levels. However, many critics express that these campaigns are used as a tool for political purges rather than genuinely addressing corruption.⁷ The recent corruption scandals in Vietnam have underlined the importance of more efficient laws and regulations and transparency among government and business activities. The

⁵ Nation Multimedia. *PM vows to let NACC work with no interference*. Retrieved on May 8, 2024, from <https://web.archive.org/web/20151210231426/http://www.nationmultimedia.com/politics/PM-vows-to-let-NACC-work-with-no-interference-30274627.html>

⁶ Bangkok Post. *Thailand falls 7 places in corruption survey*. Retrieved on May 8, 2024, from <https://www.bangkokpost.com/thailand/general/2733266/thailand-falls-7-places-in-corruption-survey>

⁷ CNN. *Truong My Lan: Vietnam's corruption crisis*. Retrieved on May 8, 2024, from <https://edition.cnn.com/2024/04/12/business/truong-my-lan-vietnam-corruption-crisis-hnk-intl/index.html>

scandals have also raised concerns about the country's regulatory methods and the contribution of the government to economic activity.⁸ Although corruption remains a significant challenge in Vietnam, the country has achieved remarkable economic growth, demonstrating its potential to overcome these issues and continue its development.

Against the backdrop of pervasive corruption and emerging economic aspirations in Southeast Asia, the research endeavours to shed light on the nuanced dynamics shaping developmental trajectories. By analysing the impact of corruption on economic growth in Southeast Asian countries. Specifically, the study aims to investigate the intricate causal relationship between corruption, economic growth, and other relevant factors in five Southeast Asian countries, including Indonesia, Malaysia, Philippines, Thailand, and Vietnam. The scope of the study covers the period from 2005 to 2020, providing a comprehensive analysis of the dynamic relationship between corruption and economic growth over the past 15 years. The selection of variables includes real GDP, corruption perception index, investment, political rights index, political stability index, rate of population growth, and average schooling years in the total population. These variables are chosen based on their relevance to the research topic and theoretical framework, which draws from the literature on corruption, economic growth, and institutional factors. The corruption index, for instance, is used to measure the level of

⁸ The Diplomat. *How Far the Rot of Corruption Has Spread in Vietnam*. Retrieved on May 8, 2024, from <https://thediplomat.com/2023/11/how-far-the-rot-of-corruption-has-spread-in-vietnam/>

corruption in each country, while real GDP serves as a proxy for economic growth. The other variables are included to control for potential confounding factors that may influence the relationship between corruption and economic growth. By analyzing these variables, this study aims to provide a comprehensive understanding of the impact of corruption on economic growth in Southeast Asian countries and inform policy decisions aimed at promoting economic development and reducing corruption in the region. This research's findings may also inform targeted interventions and reform initiatives aimed at fostering sustainable growth and inclusive development in each country. Given the outlined background, the researcher then determined to arrange research with the title **"An Analysis of The Economic Impact of Corruption in Southeast Asian Countries."**

1.2 Problem Formulation

Based on the research background and constraints identified in prior research concerning corruption and economic growth, along with the mixed findings on the related factors, the research questions are formulated to address the central issue in the following manner:

1. Is there any influence of corruption on the economic growth?
2. Is there any influence of the investment ratio to GDP on economic growth?
3. Is there any influence of political rights on economic growth?
4. Is there any influence of the average schooling years from 2005 to 2020 on economic growth?

5. Is there any influence of political stability on economic growth?
6. Is there any influence of the rate of population growth on economic growth?

1.3 Research Objectives

Based on the issue that has been identified previously, the objectives of this research are as follows:

1. To investigate and analyse the influence of corruption on economic growth.
2. To investigate and analyse the influence of the ratio of investment to GDP on economic growth.
3. To investigate and analyse the influence of political rights on economic growth.
4. To investigate and analyse the influence of the average schooling years in the years 2005 to 2020 on economic growth.
5. To investigate and analyse the influence of political stability on economic growth.
6. To investigate and analyse the influence of the rate of population growth on economic growth.

1.4 Research Contributions

This research aimed to offer enhanced scientific insights and benefits, along with up-to-date and prospective references for future research. The outcomes of this research are expected to provide advantages to the following stakeholders:

1. To Academics: This research significantly enriches the literature on the impact of corruption in developing countries, thereby advancing knowledge development.
2. Policymakers: The results of this research will help enhance and strengthen anti-corruption regulations and laws.
3. Society: This research offers valuable information, providing additional knowledge and empirical evidence concerning corruption.

1.5 Systematic of Writings

The structure of the research is as outlined below:

CHAPTER I: INTRODUCTION

Chapter I of the thesis reveals an overview of the research, detailing the research background, problem formulation, research objectives, research contributions, and the arrangement of the writing structure.

CHAPTER II: THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Chapter II discusses the theory that forms the foundation of this research. It also discusses the basis of the definition concerning corruption and its effect on economic growth. Moreover, it encompasses the development of a research framework and the formulation of proposed hypotheses in this research.

CHAPTER III: METHODOLOGY

Chapter III elucidates the operational definition of each variable, the methodologies and techniques adopted for collecting the data, the criteria for population and sample, and the data analysis methodology utilized in this research.

CHAPTER IV: DATA ANALYSIS AND DISCUSSION

Chapter IV describes the data processing results and provides a detailed analytical discussion of the findings obtained from the estimation results to achieve the optimal results.

CHAPTER V: CONCLUSION

Chapter V contains conclusions and suggestions for further research related to the topics examined in this study.

CHAPTER II

LITERATURE REVIEW

This chapter provides an overview of the relevant literature underlying the current research. Previous theories and findings were discussed to establish the concept and direction of this research. This section also explains the hypotheses that emerged using theoretical foundations and insights from the literature review.

2.1 Literature Review

Several previous studies have become the basis for research that can provide information and a basis for the research. These aim to determine the relationship between previous research and current research. The following are literature reviews that were selected and used in this study:

2.1.1 “Corruption and Economic Growth” by Pak Hung Mo (2001)

The research focuses on investigating the relationship between corruption and economic growth, particularly understanding how corruption influences economic performance through various channels such as political instability, human capital, and private investment. The study utilises data from a panel data set covering over 46 countries from 1970 to 1985 to analyse the impact of corruption on growth rates and the relative importance of different transmission channels.

In this study, the researcher quantifies the Impact of Corruption by estimating its effect on economic growth, specifically examining how a change in the corruption level

affects the growth rate. Furthermore, this study identifies and assesses the importance of different channels through which corruption influences economic growth, including political instability, human capital, and private investment. By considering corruption as part of broader institutional inefficiencies, the research seeks to understand how corruption interacts with other institutional factors to affect economic growth.

The result of this study finds that an increase in the corruption level reduces economic performance, indicating a negative impact of corruption on economic performance. The transmission channel estimation also reveals how political instability is identified as the most significant channel through which corruption affects economic growth. The results suggest that reducing corruption and addressing institutional inefficiencies have positive implications for economic growth. Overall, the study contributes to the understanding of how corruption influences economic growth and underscores the importance of addressing corruption and improving institutional quality for sustainable economic growth.

2.1.2 “Corruption and Growth” by Paolo Mauro (1995)

Research conducted by Mauro focuses on the relationship between corruption and economic growth by examining data from the 1980-1983 period and covering 70 countries. The research aims to analyse how corruption, along with other institutional factors such as red tape, judicial system efficiency, and political stability, influences investment decisions and, consequently, affects countries' overall economic growth trajectory.

This research study found a negative relationship between corruption, investment, and economic growth. This negative correlation underscores the detrimental impact of corruption on economic growth. It highlights the significance of addressing corruption and improving institutional efficiency to promote higher investment levels and sustainable economic growth. The research also highlights the importance of efficient government institutions in driving economic growth and emphasises the detrimental impact of corruption on investment and growth

**2.1.3 “Corruption, Political Stability and Economic Growth” by Shabbir et al.
(2016)**

Research on corruption, political stability, and economic growth in Developing Eight Muslim countries utilizes a set of variables, including corruption and political stability. Some control variables include government expenditure, investment-output ratio, population growth rate, and education. The research also includes an interaction term between corruption and political stability to assess the conditional relationship between these two factors and their combined effect on economic growth.

The results of the research highlight the dynamic interaction between corruption and political stability on economic growth, showcasing how corruption's effects vary based on the stability of the political landscape. In politically unstable environments, corruption tends to act as a catalyst for economic growth by streamlining processes and overcoming bureaucratic obstacles. Conversely, in politically stable nations, corruption acts as a hindrance to economic development by introducing inefficiencies, escalating

transaction costs, and diverting resources towards unproductive endeavours. In addition, this study underscores the pivotal role of political stability in promoting economic growth in the countries studied, where increased political stability is positively correlated with economic growth by creating a conducive environment for investment and economic growth.

2.1.4 “Does Corruption Affect Economic Growth?” by Ahmad et al. (2012)

The research paper investigates the relationship between corruption and economic growth using panel data analysis. The study utilises data from 71 developed and developing countries to analyse how corruption, institutional quality, and control variables influence economic growth over a specific period. This study aims to examine corruption models by utilising existing theoretical foundations for cross-country analysis. One of the main focuses is identifying the highest corruption growth rate. In addition, this study also seeks to determine whether the growth of corruption is the result of corrupt practices alone or a combination with institutional quality in various countries. In this case, institutional quality includes aspects such as the political stability index, bureaucratic efficiency index, and institutional efficiency index in the countries under study. It is intended that this study not only measures the level of corruption but also understands the dynamics between corruption and institutional factors that may aggravate or mitigate the level of corruption in different countries.

One key result of the research is the identification that a moderate level of corruption may not necessarily hinder economic development and could even stimulate

growth. However, beyond this optimal threshold, corruption is shown to have detrimental effects on economic growth. Furthermore, the research findings indicate a positive association between institutional quality and GDP per worker, underscoring the crucial role of good governance practices and stable political environments in fostering economic prosperity.

2.1.5 “Corruption and Economic Growth: New Empirical Evidence” by

Gründler & Potrafke (2019)

Klaus Gründler and Niklas Potrafke's research aims to investigate the relationship between corruption and economic growth using new empirical evidence. This research was conducted by analyzing how corruption affects economic growth in 175 countries during the period 2012-2018. The study also measures the long-term impact of corruption on real GDP per capita, explores the differences in the impact of corruption in authoritarian countries and countries with different government effectiveness, and identifies the transmission channels of corruption on foreign direct investment (FDI) and inflation.

The findings indicated that as corruption levels increased, real per capita GDP decreased by approximately 17% in the long run. The result suggests that corruption poses a substantial obstacle to economic development, with higher levels of corruption associated with lower economic growth rates. Moreover, the study found that corruption had a particularly pronounced effect in autocracies, countries with low government effectiveness, and the rule of law. In these environments, where

governance structures are weak, the detrimental effects of corruption on economic performance are more significant. The study also identified that corruption decreased Foreign Direct Investment inflows and increased inflation rates, indicating that corruption hinders investment and contributes to economic instability.

2.1.6 “Does corruption grease or sand the wheels of growth?” by Méon & Sekkat (2005)

This research examines the intricate relationship between corruption, economic growth, and investment across a diverse sample of 63 to 71 countries from 1970 to 1998 by using the “grease the wheels” versus the “sand the wheels” hypothesis. The “grease the wheels” hypothesis suggests that corruption can have a beneficial effect on economic activity. In contrast, the “sand the wheels” hypothesis posits that corruption is primarily detrimental to economic performance. The study aims to investigate the impact of corruption on economic growth and investment by considering governance quality as a moderating factor. The authors seek to determine whether the effects of corruption on growth are independent of its effects on investment and evaluate how varying levels of governance quality influence the relationship between corruption and economic performance.

The findings of this study identify that corruption has a substantial negative impact on economic growth and investment, strengthening the argument that corruption sands the wheels. The authors highlight the more complex mechanisms by which corruption works. The study highlights that the adverse effects of corruption are

more severe in countries with poor governance, indicating that the quality of governance plays an important role in shaping the impact of corruption on economic outcomes.

Table 2.1 Recapitulation of previous research

No	Authors and Title	Objective	Result
1	Pak Hung Mo (2001): Corruption and Economic Growth	This research examines the role of corruption in economic growth and provides a numerical assessment of its impact on economic growth and the importance of transmission channels.	The outcomes reveal that an increase in corruption significantly reduces the growth rate. Political instability is the most important channel, accounting for the majority of the total impact. Furthermore, corruption reduces the amount of human capital and the share of private investment.
2	Paolo Mauro (1995): Corruption and Growth	This research explains the mechanisms of corruption and	The findings indicate that higher levels of corruption are associated with lower

		institutional inefficiency that shape the dynamics of economic growth and emphasizes the importance of effective governance in promoting sustainable economic development.	levels of investment, which leads to slower economic growth rates.
3	Shabbir et al. (2016): Corruption, Political Stability and Economic Growth	The research tests hypotheses regarding the effects of corruption on economic growth and explores the conditional relationship between corruption and political stability.	The study reveals that corruption tends to promote economic growth in politically unstable countries but hinders growth in politically stable nations.
4	Ahmad et al. (2012): Does Corruption Affect Economic Growth?	This research aims to determine the corruption model, identify the level of	The research findings reveal an optimal level of corruption that can positively influence

		corruption that maximizes growth, analyze the combined influence of corruption and institutional quality on economic growth, and examine the impact of corruption on real GDP and the positive relationship between institutional quality and economic growth.	economic growth in an inverted U-shaped manner. Institutional quality indices are positively associated with GDP per worker, highlighting the importance of good governance practices.
5	Gründler & Potrafke (2019). Corruption and Economic Growth: New Empirical Evidence	To investigate the nexus between corruption and economic growth by using new empirical evidence.	The result shows that an increase in corruption will decrease economic growth in the long run. A weak governance structure will adversely affect economic performance. Lastly, corruption not only hinders investment but also

			contributes to economic instability.
6	Méon & Sekkat (2005): Does corruption grease or sand the wheels of growth?	The objective of the study is to assess the impact of corruption on economic growth and investment, considering the quality of governance as a moderating factor.	This research reveals that corruption sands the wheels. Corruption has a negative impact on economic growth and investment. Moreover, countries with poor governance can exacerbate corruption.

Based on the theoretical review above, most of the empirical evidence appears to be consistent with the theories that hold corruption to be purely detrimental. However, all these empirical studies assume that corruption only has a monotonic impact on economic growth. Therefore, it assumes that the hypotheses that consider this impact as a phenomenon vary depending on the level of corruption.

2.2 Theoretical Background

This part will discuss an overview of the theoretical concepts underlying this research. The main focus will be on the effect of corruption on economic growth and the factors that can influence it.

2.2.1 Model for Economic Growth

Economists have developed various economic models to analyse the factors that influence economic growth. These models explain the mechanisms that drive economic growth and predict how changes in certain variables can affect overall economic performance.

Mo's (2001) research uses a standard production function to propose a model that analyses the relationship between corruption and economic growth. The following model is developed from the general production function model:

$$Y = Tf(K, L)$$

Where Y is the total output level, T is the total factor productivity, and K and L are the capital stock and labour, respectively. The model is then interpreted using Schumpeter's theory of economic development, which distinguishes two groups of influences on the evolution of an economy and encapsulates the complex interactions between corruption, initial economic conditions, and human capital in determining economic outcomes. This relationship is expressed as:

$$\gamma = \gamma(CORRUPT, y_0, HUMAN)$$

Where γ represents the growth rate, CORRUPT is an index for the level of corruption, y_0 is the initial GDP per capita, and HUMAN is an index for human capital stock. This variable represents the growth and development components that influence the economy's growth. The model deliberately suggests that the level of corruption

influences the growth rate of an economy, the initial economic conditions represented by GDP per capita, and the quality of human capital.

Aligning with the model, research conducted by Levine and Renelt (1992) found that some variables are robust in determining economic development, such as the share of investment in GDP, population growth rate, initial level of real GDP per capita, and human capital, whereby each of these variables significantly influences the manner in which an economy grows.

The model developed by Mo provides a theoretical framework for understanding the complex interactions between corruption, initial income, and human capital in determining economic growth. Furthermore, to explain how corruption can hinder growth, the author uses the multiplier effect to illustrate how economic growth is affected by corruption and other transmission variables.

2.2.2 The Theory of Multiplier

The concept of multiplier was initially introduced by John Maynard Keynes in 1936 in “The General Theory of Employment, Interest, and Money” which the economy will flourish the more the government spends, and the aggregate effect is greater than the actual amount spent (Adelstein, 1991). In the context of the economy, a multiplier refers to the marginal impact of a change in one economic variable on another. Specifically, the multiplier measures how much a change in an independent variable-such as investment or government spending, and a dependent variable, such

as GDP or national income. The concept describes the dynamic relationship between an initial change in economic activity and its broader effects on the whole economy (Lange, 1943).

The Multiplier Effect plays an important role in economic theory by describing the impact of changes in an economic variable on other economic variables. In Keynesian economics, the multiplier concept highlights how an initial spending injection can produce multiple increases in demand and aggregate output through successive rounds of spending and income gains. This process is driven by the impact of changes in initial spending when households and companies respond to changes in income by consuming and investing more (International Monetary Fund, 2014).

This empirical research will use the multiplier effect as its primary theoretical foundation to explain the main theory. The purpose of using the multiplier effect is presumably to explain the overall impact of corruption on the economy as a whole. It develops simply because the multiplier effect portrays how an initial increase or decrease in spending can affect the national income (GDP). Changes that occur in one field can generate further change for others, creating a ripple effect throughout the economy. To analyze the interconnected multiplier effect and economic growth, use the formula as follows:

$$\kappa = \frac{\Delta Y}{\Delta G}$$

Where:

κ = Multiplier

ΔY = Change in National income

ΔG = Change in Government spending

To explain the relationship between the corruption and its transmission channel to economic growth, the formula is rearranged as bellow:

$$\Delta Y = \kappa \cdot \Delta G$$

This new formula arrangement captures the impact of government spending. The multiplier theory explains how a small change in spending can have a multiplying impact on national income. In this case, corruption lowers the effectiveness and efficiency of using public funds. Consequently, government spending will not be optimal. In the formula above, ΔG or changes in government spending are constant. However, corruption reduces the value of the multiplier mainly because the allocated funds are only partially used for productive purposes. If a portion of these funds are being misused, it will subsequently decrease the potential impact on national income ΔY . As a result, government spending does not generate maximum economic growth. Various other variables, including unstable political behavior, investments, political rights, and education, may also influence the κ and the result of ΔY .

To explain how the multiplier effect works, this study will correlate it with two theories: institutional economy theory and the concept of ICOR.

2.2.2.1 Institutional Economic Theory

Institutional economics theory encompasses various perspectives and applications within the realm of political economy and economic development. Rooted in the new institutional economics framework, it plays a crucial role in understanding and addressing the economic challenges faced by developing nations. From the foundational works of Thorstein Veblen and John Commons to the modern integration of institutional logic in organizational political economy, this theory emphasizes the role of institutions in shaping economic behavior and outcomes (Li, 2023).

Radionov (2021) explains that this theory emphasizes the significance of economic institutions in shaping societal behavior and economic outcomes, highlighting the importance of incorporating institutional perspectives into economic analyses. The quality of good institutions is determined by the efficiency of the government, protected rights, and strong law, which will emphasize the environment conducive to investment, innovation, and economic efficiency. However, bad institutions like corruption and political instability can hinder economic growth. If this occurs, it will lead to a decrease in the value of κ because of the inefficiency in government spending.

The interaction between Institutional theory and the multiplier effect implies that problems in institutions create widespread effects on economic activity. For instance, funds allocated for government projects that should be productive development are misused and diverted to projects that are more susceptible to misuse. This problem

causes expenditure distortions. Eventually, the value of κ will become smaller, and ΔG will not produce the expected ΔY , which leads to inadequate output.

2.2.2.2 The Concept of ICOR

The Harrod-Domar theory of economic growth, developed by Roy Harrod and Evsey Domar, explains the relationship between investment, savings, and economic growth. This theory assumes that all savings in the economy are used for investment and that the economy is at full capacity. It means that for an economy to achieve a certain growth rate, it must have a corresponding level of savings and investment (Zrilić, 2023). The basic formula of the Harrod-Domar model is:

$$g = \frac{s}{ICOR} = \frac{\text{Marginal propensity to save}}{\text{Incremental Capital Output Ratio}}$$

Where g is the economic growth rate, s is the savings rate as a percentage of GDP, and k is the capital-output ratio, which is often associated with ICOR (Incremental Capital Output Ratio).

The Incremental Capital Output Ratio (ICOR) is an economic concept that measures the efficiency of using investment to produce additional output in an economy. ICOR indicates how many additional units of investment are needed to increase one unit of output or gross domestic product (GDP). ICOR can be calculated using the formula:

$$ICOR = \frac{\Delta Capital}{\Delta Output} = \frac{\Delta K}{\Delta Y}$$

Where ΔK represents the change in capital (investment) and ΔY represents the change in output (GDP). Yamani (2022) explains that a high ICOR value indicates that each additional unit of investment put into the economy does not result in a significant increase in output; consequently, the investment proved inefficient. Conversely, a low ICOR value indicates that additional investment results in a significant increase in output, indicating the high efficiency of the investment made. It follows that economic growth is inversely correlated with ICOR.

The implication from the concept of ICOR to the multiplier effect provides an overview of how government investment and spending affect economic output. For example, if the ICOR is 4, it means that an investment of 4 million is required to produce an additional 1 million output per year. It indicates that the investment efficiency in the economy is relatively low. The reason behind this is that the higher the ICOR value, the more additional capital must be spent to achieve the same increase in production. In this context, a larger investment expenditure is required to obtain a disproportionate additional output and eventually lower the value of κ . Thus, government spending aimed at stimulating economic growth through investment may only be effective if investment efficiency is high. It will reduce the multiplier effect simply because additional spending is unlikely to be placed to productive use, limiting its beneficial effects on economic output.

2.3 Analytical Framework

This research aims to examine the influence of corruption to economic growth with the influence of various additional variables. Presented below are the research frameworks that elucidate this study:

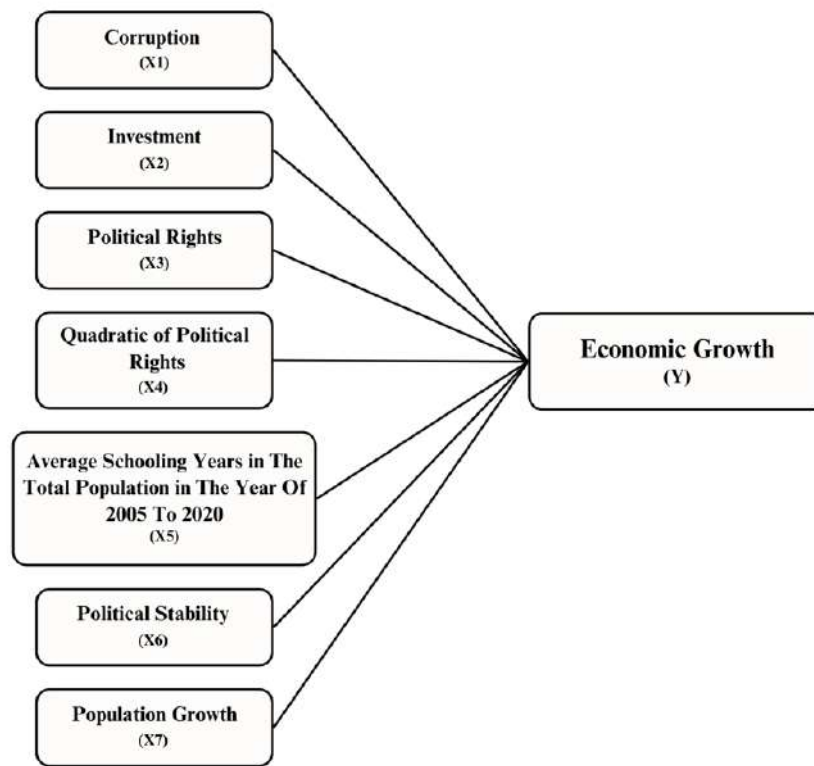


Figure 2.1 Research Framework

The 2.1 framework illustrates a conceptual model that identifies and examines various factors influencing economic growth. The central focus is on economic growth, which is the dependent variable or the primary outcome that the model seeks to explain. Several independent variables are predicted to influence this result. These include corruption, which is expected to have a negative impact on economic growth by

undermining trust and efficiency in economic transactions. Investment is another crucial variable that typically boosts economic growth by enhancing capital formation and productivity. Political rights and its quadratic term highlight a potentially complicated relationship in which the impact of political rights on economic growth is distinct alongside various degrees of political freedom. Average schooling years in the total population from 2005 to 2020 reflects the role of human capital, with higher education levels generally fostering economic growth through an enhanced skilled and productive labour force. Political stability is presumed to stimulate economic growth by creating a predictable and secure environment for economic activity. Lastly, population growth can have an uneven effect on economic growth, depending on how it creates more jobs or strains resources. Each of these variables has an association with economic growth, indicating the direction of their expected influence and providing a comprehensive view of the multifaceted determinants of economic performance.

2.4 Hypothesis Development

A hypothesis is a temporary assumption that is used temporarily to explain existing research problems, and the truth of this research hypothesis has yet to be confirmed. Based on the formulation above, in this research the hypothesis formulation is used to provide direction and guidance in conducting research. The hypothesis that serves to direct this research is as outlined below:

1. Corruption has a negative effect on Economic Growth.
2. Investment has a positive effect on Economic Growth.

3. Political Rights have a positive effect on Economic Growth.
4. Average schooling years in the total population from 2005 to 2020 has a positive effect on Economic Growth.
5. Political Stability has a positive effect on Economic Growth.
6. Population Growth has a mixed effect on Economic Growth.

CHAPTER III

RESEARCH METHODOLOGY

This chapter outlines the systematic approach applied in the research while explaining the selection of the sample, the categories of data, and the data collection methods. It also defines the research model with the details of the operational definition of all the variables and the ways of measuring them. This chapter also discusses the methods of data analysis applied in the research and the functional hypotheses that are used as the guidelines for considering the results of the research.

3.1 Population and Sample

The main intention of this research is to analyze the influence of corruption on economic growth and find out to which extent corruption may affect economic growth. More specifically, this research also seeks to investigate the relationship between economic growth and corruption while considering some related variables, that is, the Ratio of Investment to GDP, the Index of Political Rights, The Average Schooling Years in the total population in the years 2005 to 2020, Measure of Political Stability, Rate of Population Growth. These data were collected from various eligible sources that provide cross-country information from 2005 until 2020. The countries that are being included in this study are several countries from Southeast Asia, namely Indonesia, Malaysia, Philippines, Thailand, and Vietnam, because these countries have the available data that is needed for this research. The sample encompasses 80

observations for the five countries and spans over 16 years. Each observation includes measurements for eight different variables.

3.2 Data Collection Method

The data being composed in this research was secondary data collected from several reliable sources that the relevant organization has gathered. The panel data that combines the cross-sectional and time-series spans from five Southeast Asian countries, Indonesia, Malaysia, Philippines, Thailand, and Vietnam, from 2005 until 2020. Data related to this research was obtained from several sources, i.e., the World Bank, to obtain data on the Growth rate of real GDP, Ratio of Investment to GDP, and Rate of Population Growth. The data for the Index of Political Rights and Measure of Political Stability was derived from theglobaleconomy.com, which provides reliable economic data on foreign countries, for the Corruption Perception Index (CPI) data was obtained from Transparency.org, which provides the index regarding corruption for each country. Lastly, the average schooling years for the total population from 2005 to 2020 were gathered from the UNDP's Human Development Report.

3.3 Operational Definition and Variable Measurement

The operational definition includes a detailed explanation of the technical terms and measurements used in collecting and describing data. It provides data standardization in representing concrete and measurable concepts, allowing researchers to translate abstract ideas into terms that can be observed and measured. By

understanding operational definitions and variable measurements, researchers ensure that the measurement techniques used and research findings are based on reliable and valid data.

3.3.1 Dependent Variable

The dependent variable in this research endeavour is economic growth. This variable represents each country's annual economic growth, portrayed by the percentage growth rate of actual gross domestic product (GDP). It represents a nation's economy's overall economic performance and expansion over a specified period. The GDP growth rate is calculated as the annual percentage change in GDP after adjusting for inflation to reflect real growth. GDP growth rates are typically reported by national statistical agencies and international organizations such as the World Bank and the International Monetary Fund (IMF). This measure clearly indicates the economic condition of a nation and its improvements.

3.3.2 Independent Variable

This section describes how the researchers measured the independent variable in the study, which includes the Corruption Perception Index, Ratio of Investment To GDP, Index of Political Rights, Average Schooling Years in The Total Population in The Years 2005 To 2020, Measure of Political Stability, and Rate of Population Growth. The description of the measurement technique used will be condensed below.

3.3.2.1 Corruption Perception Index

The corruption index evaluates the perceived amount of corruption in a country's governmental organizations. It reflects the degree to which public power is used for private gain, including both minor and major forms of corruption. Transparency International provides the Corruption Perception Index (CPI), an index designed to evaluate corruption in countries. The CPI ranks countries on a scale of 0 to 100, with 0 indicating a highly corrupt environment and 100 referring to immaculate countries. The adoption of CPI as a corruption index is based on Transparency's standardization in comparative evaluations of countries over time. In the statistical analysis that will be performed, corruption will be presented as a variable CORRUPT.

3.3.2.2 Ratio of Investment To GDP

The investment-to-GDP variable represents the percentage of how much investment a country obtains, which is determined by how much it affects gross domestic product (GDP). The total investment is measured by employing the total investment in contrast to the total percentage of GDP. The data is gathered from the World Bank. This variable refers to variable IY in the estimation.

3.3.2.3 Index of Political Rights

Political rights are defined as the extent to which individuals in a country are free to engage in political activities, such as the ability to vote, participate in elections, and influence government policy. The Freedom House Political Rights Index is an established instrument that measures political rights. It ranks countries on a scale of 1

to 7, with 1 indicating the most political freedom and 7 indicating the least. Freedom House's Political Rights ratings encompass evaluations in three domains: the electoral process, political pluralism and participation, and governmental functionality.⁹ This variable will be known as the PRIGHT variable in the estimation.

Furthermore, this research will be using quadratic terms in the regression model to capture the non-linear relationship between political rights and economic growth. This approach is applied because of the possibility that political rights are not entirely linear, and the quadratic term allows the model to detect such turning points and better fit complex patterns in the data. This approach was supported by previous research by Mo (2001) that discovered political rights have a parabolic relation with economic growth. Generally, a higher political rights index leads to higher economic growth. However, a higher political right index can decrease economic growth beyond a certain point. Therefore, it is essential to incorporate the quadratic political rights index variable to capture marginal effects at various levels of political rights. This variable will be defined as PRIGHT2 in the estimation.

3.3.2.4 Average Schooling Years in The Total Population in The Years 2005 To 2020

⁹ Freedom House. *Mounting Damage: Flawed Elections and Armed Conflict*. Retrieved on July 9, 2024, from <https://freedomhouse.org/report/freedom-world/2024/mounting-damage-flawed-elections-and-armed-conflict>

Average schooling years are measured by educational attainment data collected by UNDP and presented in the Human Development Report. This measurement technique helps to assess the human capital in a country, which is considered a critical component in economic growth. This variable represents the average number of years of education received by individuals aged 25 and older in a given country, reflecting the overall educational attainment of the adult population. This variable will be addressed as the HUMAN variable in the estimation.

3.3.2.5 Measure of Political Stability

The Political Stability Index measures the probability of significant political changes or disturbances that could affect the functioning of governments and the nation's overall stability. The index is an average of several other indexes, which involve the Economist Intelligence Unit, the World Economic Forum, and Political Risk Services, and it ranges from -2.5 (weak) to 2.5 (strong). This index considers factors such as the frequency of politically motivated violence and the likelihood of government destabilization. This variable will be referred to as the POLSTAB variable throughout the estimation.

3.3.2.6 Rate of Population Growth

Population growth is the annual increase in the total amount of people living in a nation. It accounts for the net effect of births, deaths, and migration. In the Implication, population growth is measured by the annual percentage change in population, as

reported by the national statistics departments and international organizations such as the World Bank. This variable acts as a control variable, separating its impact on economic growth from other fundamental variables. In this estimation, the population growth variable is referred to as POPG.

3.4 Data Analysis Method

The method that is being used in this research is using panel data, which is a combination of time series data and cross-section data (Gujarati & Porter, 2012). The purpose of this analysis is to unveil to which degree corruption is able to affect economic growth and to which extent other variables may influence the impact. Hence, the use of panel data is appropriate for this estimation.

3.4.1 Descriptive Statistic Analysis

Descriptive statistics were used to quantify and compare a variable. It concentrates on both the central tendency and the dispersion of the data. Descriptive analysis provides a general overview of the collected data, allowing researchers and analysts to gain insights into the characteristics without making assumptions about the underlying population. It includes identifying the most common or average value and providing a clear, concise, and accurate representation of the data (Barrow, 2017).

3.4.2 Tool of Analysis

In estimating the data, it requires a model specification test to choose which model is going to be adopted. Three models that are being used for estimating the panel

data regression method are the Common Effect Model, the Fixed Effect Model, and the Random Effects Model. The determination of an appropriate model for observing data aims to ensure that the estimated parameters are reliable and form whether the model specifications and assumptions adequately represent the underlying data-generating process (Widarjono, 2009). In order to establish the model, certain tests need to be performed to decide which model should be utilized. The tests that are being carried out are the Chow test and the Hausman test.

3.4.2.1 Common Effect Model Test (Lagrange Multiplier)

The Common Effect Model (CEM) is a type of panel data regression model that assumes that the intercept and slope are constant across all units and periods. This model is often used when the researcher wants to estimate the average effect of a variable on the dependent variable without considering the individual-specific effects or time-specific effects. The Common Effect Model is typically estimated using the Ordinary Least Squares (OLS) method, which is a simple and efficient method for estimating the parameters of the model. The OLS method assumes that the residuals are normally distributed and that there is no correlation between the residuals and the independent variables.

To examine the appropriate model between the Random Effect Model (REM) and the Common Effect Model (CEM), the Lagrange Multiplier (LM) test was employed to define the optimal model for the regression. The Lagrange Multiplier

(LM) test is based on the probability of the Breusch-Pagan test and is used to choose the optimal model.

- If the F-value of the probability cross-section is above > 0.05 , the suitable model selected is the Common Effect Model (CEM).
- If the F-value of the probability cross-section is below < 0.05 , the suitable model selected is the Random Effect Model (REM).

3.4.2.2 Fixed Effect Model Test (Chow Test)

The fixed effects model test is a statistical method used to decide whether the Fixed Effects model (FEM) is a better fit for the data compared to the Common Effects Model (CEM). The test assumes that the Fixed Effects Model (FEM) is a more realistic representation of the data, as it accounts for the individual-specific effects that are correlated with the independent variables. The Fixed Effects Model (FEM) test involves comparing the estimates of the Fixed Effects Model (FEM) with those of the Common Effects Model (CEM).

In determining the optimal model choice between the Common Effect Model (CEM) and the Fixed Effect Model (FEM) to estimate panel data, the Chow test was carried out. This test is needed to compare and identify the suitable model for conducting panel data regression. Widarjono (2009) explains that the decision foundation in the Chow test is determined based on the F-value of the probability cross-section.

- If the F-value of the probability cross-section is above > 0.05 , the suitable model selected is the Common Effect Model (CEM).
- If the F-value of the probability cross-section is below < 0.05 , the suitable model selected is the Fixed Effect Model (FEM).

3.4.2.3 Random Effect Model Test (Hausman Test)

The Random Effects Model (REM) is a statistical method used to analyze panel data by accounting for unobserved heterogeneity within groups or clusters. It is a type of hierarchical linear model that assumes that the individual-specific effects are randomly distributed and uncorrelated with the independent variables. This model is used to estimate the effect of an independent variable on a dependent variable while considering the variability within each cluster.

The Hausman test is applied to decide the optimal model choice for panel data modeling, specifically between the Fixed Effect Model (FEM) and the Random Effect Model (REM). The decision-making criteria in the Hausman test are based on the probability value derived from the random cross-section (Widarjono, 2009).

- If the probability value from the random cross-section is above > 0.05 , the suitable model selected is the random effect approach.
- If the probability value from the random cross-section is below < 0.05 , the suitable model selected is the fixed effect approach

3.4.3 Classical Assumption

The classical assumptions refer to the underlying assumptions of the classical linear regression model (CLRM), which are essential for ensuring that the Ordinary Least Squares (OLS) estimators are the best linear unbiased estimators (BLUE). In the context of panel regression, these assumptions need to be considered to ensure valid and reliable results.

3.4.3.1 Normality Test

A normality test is a statistical method used to examine a dataset's distribution. The normality test helps to identify whether the data is normally distributed or not to ensure the validity of the statistical analysis (Napitupulu et al., 2021). Normality tests ensure the data are being properly modelled and the statistical analysis is valid. If the data is not normally distributed, the results of the statistical analysis may be biased or unreliable. However, Savitri et al. (2021) stated that according to the Central Limit Theorem, the distribution of sample means will approach a normal distribution as the sample size increases or observation is more than 30, regardless of the distribution of the underlying population. It means that even if the population is not normally distributed, the sample mean will be approximately normally distributed if the sample size is large enough.

3.4.3.2 Multicollinearity Test

Multicollinearity is a common issue in regression analysis where two or more independent variables are highly correlated with each other. It may lead to unstable estimates of the regression coefficients, inflated variances, and difficulty in interpreting

the result. In panel data regression, multicollinearity can be particularly problematic because it can affect the accuracy of the estimates and the reliability of the results. To detect any similarities, the multicollinearity test needs to be performed to evaluate the correlation between the independent variables and other variables within the model (Barrow, 2017). Detecting multicollinearity also serves the purpose of preventing bias in concluding the effects of independent variables on the dependent variable during testing.

Multicollinearity Test Using a Correlation Coefficient Table is an efficient technique for identifying multicollinearity by measuring the strength and direction of the linear relationship between each pair of variables. This table contains the correlation coefficients between each pair of variables by measuring the strength and direction of the linear relationship between the two variables. The correlation coefficient between variables is the same or higher than > 0.85 , and it can be concluded that the data does not pass the multicollinearity test (Napitupulu et al., 2021). By analyzing the correlation coefficient table, it can be identified that there are strong correlations between independent variables, which may indicate multicollinearity.

Another way to test for multicollinearity is to use the R-squared value. The R-squared value measures the proportion of the variance in the dependent variable that is explained by the independent variables. If the R-squared value is high, it may indicate multicollinearity. In more detail, multicollinearity is thought to occur if the estimation produces a high R-squared value. However, the statistical T-value for some or all the

variables is not significant (Janie, 2012). By analyzing the R-squared value, it can be identified that the proportion of the variance in the dependent variable is explained by the independent variables, which may also indicate multicollinearity.

3.4.3.3 Heteroscedasticity Test

Heteroscedasticity is a common issue in regression analysis where the variance of the residual changes across different levels of the independent variables. It can lead to biased and inconsistent estimates of the regression coefficients. The heteroscedasticity test is used to determine whether the residuals are homoscedastic or heteroscedastic. Homoscedasticity refers to a scenario where the residuals of the observations remain constant, whereas heteroscedasticity arises when there are variations in the residuals of the observations (Barrow, 2017).

In this study, the Glejser test is being adopted to determine the presence of heteroscedasticity. Pay attention to Prob. In the Glejser heteroscedasticity test, the absence of heteroscedasticity is indicated if none of the independent variables have a significant influence on the dependent variable Absolute Residual Value, which is indicated by evaluating the probability above 0.05 ($\alpha = 5\%$).

3.4.3.4 Autocorrelation Test

Autocorrelation appears to measure the correlation between a variable's current value and its past values. In other words, *autocorrelation* is defined as a measure of how well a variable's current value is predicted by its past values. It is used to identify

patterns and trends in data and to make predictions about future values. Autocorrelation can also be used to identify and correct errors in data analysis. Several types of autocorrelations could occur:

- Positive Autocorrelation

This type of autocorrelation occurs when a variable's current value is positively correlated with its past values. It means that if the variable has been increasing, it is likely to continue increasing.

- Negative Autocorrelation

This type of autocorrelation occurs when a variable's current value is negatively correlated with its past values. If the variable has been increasing, it is likely to decrease.

- No Autocorrelation

This type of autocorrelation occurs when a variable's current value is not correlated with its past values. It means that the variable's values are independent and do not follow any pattern.

One of the effective ways to examine the autocorrelation is by using the Durbin-Watson test. The test is used to determine whether the residuals from a regression model are serially correlated, meaning that the errors are correlated with each other over time. To find the answer, the researcher needs to calculate the Durbin-Watson

statistic using the residuals. The statistic is a value between 0 and 4, with a value close to 2 indicating no autocorrelation. The basis for making the decision is as follows:

- a. If d is smaller than d_L or greater than $(4-d_L)$, then the null hypothesis is rejected, which means there is positive autocorrelation.
- b. If d lies between d_U and $(4-d_U)$, then the null hypothesis is accepted, which means there is negative autocorrelation.
- c. If d lies between d_L and d_U or between $(4-d_U)$ and $(4-d_L)$, then there is no autocorrelation.

3.4.4 Regression Analysis

The tests accomplished in this study will utilize regression analysis techniques. The purpose of regression analysis in this estimation was to determine the relationships between a dependent variable and one or more independent variables by predicting and identifying the factors that influence a specific outcome. The regression analysis in this study used a variety of tests, including simultaneous significance testing (F-test), partial significance testing (t-test), and coefficient determination (R^2).

3.4.4.1 F-Test

The F-test is an analytical tool that distinguishes variances across samples or populations. It is commonly used in hypothesis testing to determine the assumption that the data are normally distributed, and the samples are independent and identically

distributed. The F-test is based on the F-distribution, which is a continuous probability distribution that is used to model the ratio of two independent chi-square variables by consulting the F-distribution table and comparing the test results to the specified degrees of freedom and significance level.

If the F value is less than 5%, the results are significant and suggest a meaningful relationship. However, if the F value is greater than 5%, the results are not significant, and consequently, there is a lack of simultaneous effect. Once the compatibility and significance of the regression model are established, it can be applied to develop predictions.

3.4.4.2 The Coefficient of Determination Test (R^2)

The Coefficient of Determination, also known as R-squared (R^2), is a statistical measure that evaluates a model's ability to predict or explain the outcome of a dependent variable using one or more independent variables. This examination demonstrates how well the independent variables explain the variability in the dependent variable.

The Coefficient of Determination is a simple measure that ranges from 0 to 1 ($0 < R^2 < 1$). When the coefficient of determination equals zero, it indicates that there is no relationship between the dependent and independent variables. Vice versa, when the coefficient value is close to 1, it indicates that independent variables have a greater influence in explaining changes in the dependent variable.

3.4.4.3 T-Test

The T-test is a statistical test used to discover the possibility of an expected occurrence between each variable to ascertain if there is a significant difference and impact between each variable—the examination proceeds by inspecting the p-value obtained from statistical analysis. Furthermore, the T-test assumes that the variances of the two groups are equal or that the sample sizes are large enough to make the unequal variance assumption reasonable.

The T-test is used to explore whether the difference implied throughout the variables is statistically significant. The T-statistic is compared to a critical value from the T-distribution to see if the null hypothesis can be rejected. If the T-statistic surpasses the critical value, the null hypothesis is rejected, indicating that each of the variable outcomes varies significantly.

CHAPTER IV

DATA ANALYSIS AND DISCUSSION

This chapter presents the findings from data analysis, elucidating the results of each variable researched. First, the explanation will outline the main results, followed by an interpretation of these findings throughout the context of the research questions and theoretical framework. Furthermore, this study explains the analysis and discusses whether every parameter has a significant influence on the economic growth.

4.1 Data Analysis Result

The following data analysis results provide insights into the key variables and relationships examined in this study.

4.1.1 Descriptive Statistic Analysis Result

The descriptive statistic in this research was employed to summarize and describe the basic features in the dataset. This includes calculating measures of central tendency (mean, median) and measures of dispersion (standard deviation). The descriptive statistics for each variable are outlined as follows:

Table 4.1 Descriptive Analysis Result

Variable	Mean	Maximum	Minimum	Std. Dev.	N
Economic Growth	0.044000	0.090000	-0.090000	0.031041	80
Corruption	35.42500	53.00000	22.00000	8.191961	80
Investment	0.268000	0.420000	0.160000	0.060763	80

Political Right	4.312500	7.000000	2.000000	1.825236	80
Quadratic of Political Right	21.88750	49.00000	4.000000	17.01153	80
Average Schooling Years	8.375599	10.74828	6.703828	0.975895	80
Political Stability	-0.538750	0.570000	-1.780000	0.663776	80
Population Growth	0.022025	0.077000	0.008000	0.019140	80

Source: Results generated by Eviews, 2024

Drawing upon the descriptive analysis presented in the table 4.1, the subsequent conclusions can be inferred considering the previously mentioned data analysis results.

Economic growth is measured as the annual percentage change in Gross Domestic Product (GDP), exhibiting a mean value of 4.4%. It suggests that, on average, the economies in the dataset are expanding. However, growth rates range widely, from a maximum of 9% to a minimum of -9%, indicating that while some economies are experiencing robust growth, others are contracting significantly. The 3.1% standard deviation emphasizes the variation in economic performance observed across countries or periods. Such a broad range implies diverse economic conditions, with some economies thriving and others experiencing challenges.

The corruption index encounters a mean score of 35.425 and ranges from 22 to 53. This index measures the perceived level of corruption, and higher scores indicate less corruption. The relatively low mean score shows that corruption is a major issue

in many of the countries studied. The standard deviation of 8.19 implies significant differences in corruption levels across the dataset. The wide range and high variability indicate that, while some countries have relatively low levels of corruption, other countries suffer from high levels of corruption, which can impede economic development and governance.

Investment, expressed as a percentage of GDP, indicates the total amount of investment received by a country. The data reveal an average investment rate of 26.8%, with values ranging from 16% to 42%. The standard deviation of 6.1% indicates moderate variability in investment levels across countries. The generally high mean investment rate emphasizes the importance of investment in driving economic growth, though differences in investment rates reflect different capacities and priorities across countries.

Political rights are measured on a scale with a mean score of 4.3125 and range from 2 to 7. The variable measures the level of political freedom and citizen participation in the political process. The standard deviation of 1.825 indicates a significant variation in political rights between countries. The average score expresses how the countries have moderate political freedoms, with some offering extensive rights and others providing limited rights. This variability in political rights may impact overall governance, citizen engagement, and stability.

The quadratic of political rights, with a mean value of 21.8875 and a range of 4 to 49, is a transformed variable used to investigate nonlinear relationships. The high

standard deviation of 17.011 highlights the data's significant spread. This transformation amplifies the differences at higher levels of political rights, allowing for a more nuanced examination of how extreme values influence other variables. The wide range and high variability indicate that the impact of political rights on other factors can vary greatly depending on the level of political rights.

The average number of years of schooling is 8.3756, with a range of 6.7 to 10.7 years. This variable represents the average number of years of education attained by the adult population. The relatively low standard deviation of 0.9759 hints that less variation in educational attainment among the countries. The mean value indicates that, on average, the adult population has completed about eight years of schooling, indicating a moderate level of education.

Political stability, with a mean score of -0.53875, ranges from -1.78 (very unstable) to 0.57 (more stable). This variable estimates the probability of instability in politics or conflict. The negative mean score indicates that many countries in the dataset are susceptible to instability, which can harm economic performance and development. The standard deviation of 0.6638 highlights significant differences in stability over countries.

Population growth rates average 2.2025%, ranging from 0.8% to 7.7%. This variable represents the annual percentage increase in a country's population. The standard deviation of 1.914% indicates substantial differences between countries.

4.1.2 Model Specification Test

This chapter delves into the critical process of model specification, an essential step to ensure the accuracy and reliability of the findings. Model specification involves selecting the appropriate independent variables and functional form for the econometric model.

4.1.2.1 Chow Test

To perform an estimation of the model utilizing the Chow test, it is necessary first to estimate the model using the Fixed effect approach. This involves adopting an analysis to allow for a comparison that forms the basis of the Chow test application.

Table 4.2 Fixed Effect Model

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	0.037177	0.135189	0.274999	0.7842
CORRUPT	0.001200	0.001200	0.999694	0.3210
IY	0.379439	0.127310	2.980433	0.0040
PRIGHT	-0.027973	0.045784	-0.610972	0.5433
PRIGHT2	0.003162	0.004577	0.690834	0.4920
HUMAN	-0.011979	0.008420	-1.422608	0.1594
POLSTAB	-0.039996	0.020634	-1.938349	0.0567

POPG	-0.325549	0.656753	-0.495694	0.6217
Effect Specification				
R-squared		0.253907		
Adjusted R-squared		0.133216		
S.E. of regression		0.028900		
Sum squared resid		0.056793		
F-statistic		2.103770		
Prob(F-statistic)		0.031516		

Source: Results generated by Eviews, 2024

After conducting the Fixed Effect estimation as shown in table 4.2, Chow Test then performed to determine which model is better, the Common Effect or the Fixed Effect model, for panel data regression. The results of estimation using the Chow Test are as follows.

Table 4.3 Chow Test Result

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.169194	(4.68)	0.0817
Cross-section Chi-square	9.607291	4	0.0476

Source: Results generated by Eviews, 2024

The determination using Chow Test to adopt the optimal approach between Fixed Model and Common Model present that based on the table shown above, the

Prob Cross-section F-value is 0.0817 and higher than $\alpha = 5\%$, it means that it fails to reject the null hypothesis. Hence, the optimal model chosen is the Common Effect Model. Following the Chow test, the analysis proceeds to the Lagrange Multiplier (LM) test to ascertain the appropriate model for the panel data analysis method.

4.1.2.2 Lagrange Multiplier Test

To determine the model using the Lagrange Multiplier (LM) test, the estimation using common effects must first be carried out. The initial procedure for estimating using the common effect result is described as follows.

Table 4.4 Common Effect Model

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-0.076250	0.088829	-0.858391	0.3935
CORRUPT	0.000848	0.001142	0.742390	0.4603
IY	0.288601	0.115223	2.504722	0.0145
PRIGHT	0.049166	0.026537	1.852750	0.0680
PRIGHT2	-0.005088	0.002833	-1.795998	0.0767
HUMAN	-0.009757	0.008194	-1.190749	0.2377
POLSTAB	-0.019807	0.015881	-1.247156	0.2164
POPG	-0.760493	0.445856	-1.705692	0.0924
Effect Specification				

R-squared	0.158706
Adjusted R-squared	0.076914
S.E. of regression	0.029823
Sum squared resid	0.064039
F-statistic	1.940349
Prob(F-statistic)	0.075490

Source: Results generated by Eviews, 2024

Based on the Common Effect estimation results, the LM Test is being performed to determine which model is greater between the Common Effect or the Random Effect model to obtain panel data regression. The outcomes of the LM test is described in the following table.

Table 4.5 LM Test Result

Test Summary	Cross-section	Time	Both
Breusch-Pagan	1.022416 (0.3119)	62.78926 (0.0000)	63.81167 (0.0000)

Source: Results generated by Eviews, 2024

Given the result of the LM test above, the result denotes that the p-value of Breusch-Pagan is 0,3119. It indicates that the probability is higher than 0.05 (alpha = 5%), which implies that the null hypothesis fails to reject, and the best model is the Common Effect Model. In accordance with the Chow test that was conducted, it

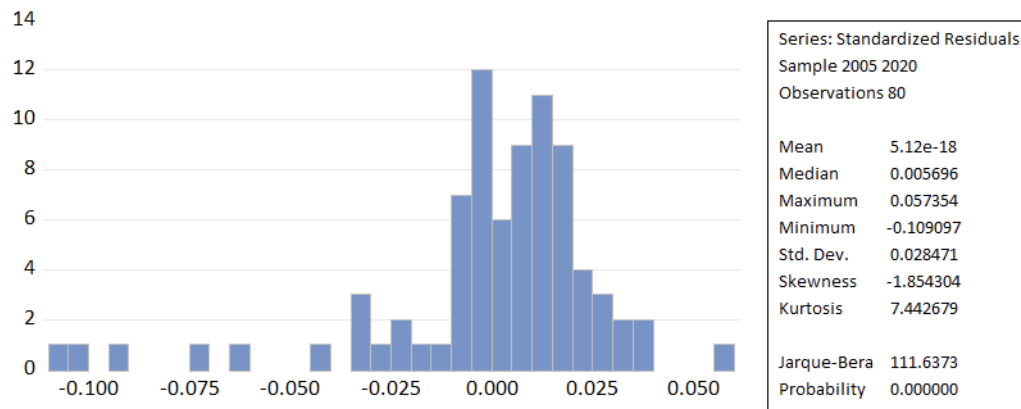
confirmed that the most appropriate model for this panel regression is the Common Effect Model.

4.1.3 Classical Assumption Test

In accordance with the previous test outcomes, the Common Effect Model (CEM) was adopted. The following procedure is to perform a classical assumption test on the chosen model. Classical assumption testing for panel data encompassed normality tests, multicollinearity tests, heteroscedasticity tests, and autocorrelation tests.

4.1.3.1 Normality Test

The normality test is a statistical test used to determine whether a dataset is normally distributed or not. The test is used to determine whether the null hypothesis that the dataset is normally distributed can be rejected. If the test statistic is greater than the critical value, the null hypothesis is rejected, indicating that the dataset is not normally distributed.



Source: Results generated by Eviews, 2024

Figure 4.1 Result of Normality Test

The table above shows a probability value of $0.000000 < 0.05$, indicating the data is not normally distributed (Napitupulu et al., 2021). However, the Central Limit Theorem states that when the number of observation samples exceeds 30, the normality test is unnecessary, given that the distribution of the research sample data has approached normal distribution. Based on the explanations provided, it can be inferred that there is no obligation to perform a normality test for this research. The decision based on the study applied 80 observations, implying that the data are normally distributed.

4.1.3.2 Multicollinearity Test

This study used the multicollinearity test to determine the presence of correlation among independent variables throughout the regression model, where an ideal regression model should not correlate with independent variables. According to

Napitupulu et al. (2021), If each independent variable's coefficient of correlation is less than 0.85, the null hypothesis is accepted, indicating there are no multicollinearity issues. If the correlation coefficient value for each independent variable exceeds 0.85, the null hypothesis is rejected, indicating the presence of multicollinearity issues.

Table 4.6 Multicollinearity Test Result

Correlation Coefficient							
	Corrupt	IY	Pright	Pright ²	Human	Polstab	Popg
Corrupt	1.000000	- 0.260453	- 0.053863	- 0.136356	0.645911	0.498513	0.060965
IY	- 0.260453	1.000000	0.196310	0.307763	- 0.559844	0.418383	- 0.247137
Pright	- 0.053863	0.196310	1.000000	0.988119	- 0.160252	0.430548	0.144710
Pright ²	- 0.136356	0.307763	0.988119	1.000000	- 0.247903	0.442317	0.077607
Human	0.645911	- 0.559844	- 0.160252	- 0.247903	1.000000	0.210667	- 0.281257
Polstab	0.498513	0.418383	0.430548	0.442317	0.210667	1.000000	- 0.442924
Popg	0.060965	- 0.247137	0.144710	0.077607	- 0.281257	- 0.442924	1.000000

Source: Results generated by Eviews, 2024

The table shows that the correlation coefficient between variables is <0.85, except for the correlation between Pright and Pright2. It indicates that the estimation does not pass the multicollinearity test. Therefore, researchers used another alternative

to test multicollinearity by inspecting the R-squared value. Multicollinearity occurs if the estimation produces a high R-squared value, but the statistical T-value of most of all variables is not significant.

Table 4.7 R² and T-Statistic Value

Variable	Prob.
C	0.3935
CORRUPT	0.5347
IY	0.1188
PRIGHT	0.2862
PRIGHT ²	0.2846
HUMAN	0.1141
POLSTAB	0.6727
POPG	0.2873
R-Squared	0.060970

Source: Results generated by Eviews, 2024

Considering Table 4.6, the R Square value is 0.158706, and six variables are not significant, namely CORRUPT, PRIGHT, PRIGHT2, HUMAN, POLSTAB, and POPG. This indicates that it is possible to conclude the null hypothesis and pass the multicollinearity test.

4.1.3.3 Heteroscedasticity Test

In examining heteroscedasticity, the method used is the Glejser method. The Glejser method is a statistical technique used to detect heteroscedasticity in regression analysis. Heteroscedasticity occurs when the variance of the errors in a regression model is not constant across observations to avoid potentially leading to inefficient estimates and incorrect conclusions.

Table 4.8 Heteroscedasticity Test Result

Variable	Prob.
C	0.3935
CORRUPT	0.5347
IY	0.1188
PRIGHT	0.2862
PRIGHT2	0.2846
HUMAN	0.1141
POLSTAB	0.6727
POPG	0.2873

Source: Results generated by Eviews, 2024

The parameters to evaluate heteroscedasticity is by verifying if the probability value surpasses the critical value of $\alpha = 0.05$ and can be inferred that there are no heteroscedasticity issues. Conversely, if the coefficients are significant, this indicates

the presence of heteroscedasticity. Drawing upon the heteroscedasticity test results table, the value of all variables is higher than $\alpha = 0.05$, as a result the regression equation model passes the heteroscedasticity test.

4.1.3.4 Autocorrelation Test

The autocorrelation test is a test of assumptions in regression where the dependent variable is not correlated with itself. The autocorrelation test was carried out by looking at the Durbin Watson value using a significance level of 5%. In this test, the researcher used $(4-DU) \leq DW \leq (4-DL)$ formula to determine the existence of autocorrelation.

Table 4.9 Autocorrelation Test Result

Test Summary	Value
Durbin-Watson Stat	1.490180

Source: Results generated by Eviews, 2024

The decision-making criteria for analyze autocorrelation, from the table above it can be seen that the Watson Durbin value is 1.490180. The number of independent variables (k) in this study was 7 variables and the number of observation (n) was 80. Based on this data, the value of DL value was 1.4526 and the DU value was 1.8308. Based on these numbers, the value substituted into the formula $(4-DU) \leq DW \leq (4-DL)$ is $2.1691 \leq 1.490180 \leq 2.5474$), which means no autocorrelation exists. Therefore, researchers used other alternatives in autocorrelation testing. From the table above it

can be seen that the Watson Durbin value of 1.490180 is between -2 to +2 ($-2 < 1.490180 < +2$), hence the regression equation model does not have autocorrelation.

4.1.4 Panel Regression Analysis Result

Following previous data testing, the Common Effect Model (CEM) has been selected as the most appropriate fit for the regression analysis. Within this study, regression analysis is a practical technique for investigating and modeling interactions among research variables. Furthermore, the following regression equation was utilized for this inquiry.

Table 4.10 Regression Test Result

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-0.076250	0.088829	-0.858391	0.3935
CORRUPT	0.000848	0.001142	0.742390	0.4603
IY	0.288601	0.115223	2.504722	0.0145**
PRIGHT	0.049166	0.026537	1.852750	0.0680*
PRIGHT2	-0.005088	0.002833	-1.795998	0.0767*
HUMAN	-0.009757	0.008194	-1.190749	0.2377
POLSTAB	-0.019807	0.015881	-1.247156	0.2164
POPG	-0.760493	0.445856	-1.705692	0.0924*
Effect Specification				
R-squared		0.158706		
Adjusted R-squared		0.076914		
S.E. of regression		0.029823		
Sum squared resid		0.064039		
F-statistic		1.940349		
Prob(F-statistic)		0.075490		

Source: Results generated by Eviews, 2024

*Note: The superscript indicates the t-statistic significant level as follows; * significant at the 10 % level, ** significant at the 5% level, *** significant at the 1% level*

Based on the provided regression results, the model for the estimation can be expressed as a linear equation with the dependent variable (GR) and the independent variables (CORRUPT, IY, PRIGHT, PRIGHT2, HUMAN, POLSTAB, and POPG). The coefficients of each independent variable are provided in the results, along with the constant term.

$$GR_{it} = \beta_0 + \beta_1 CORRUPT_{it} + \beta_2 IY_{it} + \beta_3 PRIGHT_{it} + \beta_4 PRIGHT^2_{it} + \beta_5 HUMAN_{it} + \beta_6 POLSTAB_{it} + \beta_7 POPG_{it} + \varepsilon_{it}$$

Substituting the estimated coefficients into the given formula:

$$GR_{it} = -0.076250 + 0.000848 CORRUPT_{it} + 0.288601 IY_{it} + 0.049166 PRIGHT_{it} + -0.005088 PRIGHT^2_{it} + -0.009757 HUMAN_{it} + -0.019807 POLSTAB_{it} + -0.760493 POPG_{it} + \varepsilon_{it}$$

Whereby:

GR	=	Growth Rate of Real GDP
CORRUPT	=	Corruption Perception Index
IY	=	Ratio of Investment to GDP
PRIGHT	=	Political Rights Index
PRIGHT ²	=	Quadratic Function of Index of Political Rights
HUMAN	=	Average Schooling Years in the Total Population in the Year of 2005 to 2020

POLSTAB	=	Political Stability Index
POPG	=	Rate of Population Growth
$\beta_1; \beta_2; \dots; \beta_4$	=	Regression coefficient
ε	=	Error term
i	=	Country
t	=	Year

This model illustrates the relationship between the economic growth rate and the given explanatory variables by employing panel data from 2005 to 2020. The regression coefficients provide the approximated effect of the variables on the growth rate, with the associated standard errors and significance levels indicating the reliability and statistical significance of these estimates, respectively.

4.1.4.1 F-Test

The F-test is based on the F-distribution, a continuous probability distribution used to compare variances or means across two or more groups or samples, along with testing for variance or regression homogeneity. The author used a 10% significance level to interpret the F-test to discover additional potential effects of the independent variables on the dependent variable. By choosing 10%, the researcher may be able to recognize a slightly higher risk of making a mistake in detecting an effect that does not exist to avoid missing a real impact and make it easier to detect any meaningful relationships, particularly in the early or exploratory stages of research.

Table 4.11 F-Test Result

Test Summary	Value
F-Statistic	1.940349
Prob(F-Statistic)	0.075490

Source: Results generated by Eviews, 2024

According to the results presented in Table 4.10, the F-statistic result is 1.940349 with p-value of 0.075490. Considering the significance level is less than the alpha 10%, the null hypothesis is being rejected. This implies that there is enough evidence to suggest that the independent variables, taken together, have a statistically significant effect on the dependent variable.

4.1.4.2 The Coefficient of Determination Test (R²)

The analysis produces an R-squared value of 0.158706 and an Adjusted R-squared value of 0.076914. This value shows that around 15.87% of the variability in the dependent variable is explained by the model, while the figure adjusted for the number of predictors is around 7.69%.

Table 4.12 The Coefficient of Determination Result

Test Summary	Value
R-Squared	0.158705

Source: Results generated by Eviews, 2024

These relatively low values indicate that the current model has limited explanatory power, and some predictors in the model may not make a significant contribution in explaining the variability of the dependent variable. However, potential interactions and transformations will be considered to increase the explanatory power of the model.

4.1.4.3 T-Test

The t test is used to determine whether there is an influence of each independent variable individually on the dependent variable, which is tested at a significance level of 0.10, 0.05, and 0.01. If the probability is smaller than the significance level stated, then the result is that there is an influence of the individual independent variables on the dependent variable.

Table 4.13 T-Test Result

Variable	Coefficient	T-Statistic	Probability
C	-0.076250	-0.858391	0.3935
CORRUPT	0.000848	0.742390	0.4603
IY	0.288601	2.504722	0.0145**
PRIGHT	0.049166	1.852750	0.0680*
PRIGHT2	-0.005088	-1.795998	0.0767*
HUMAN	-0.009757	-1.190749	0.2377
POLSTAB	-0.019807	-1.247156	0.2164
POPG	-0.760493	-1.705692	0.0924*

Source: Results generated by Eviews, 2024

*Note: The superscript indicates the t-statistic significant level as follows: * significant at the 10 % level, ** significant at the 5% level, *** significant at the 1% level*

Based on the table 4.13, The data obtained from the probability t-statistical value and the interpretation results are as follows:

1. Corruption

The coefficient for CORRUPT is 0.000848, with a p-value of 0.4603. This indicates that failure to reject $\alpha = 10\%$ and corruption, as measured in this model, is not significantly associated with the growth rate. The positive sign suggests that a higher corruption index (less corruption) is associated with a slight increase in the growth rate.

2. Investment

The coefficient for IY is 0.288601, with a p-value of 0.0145, meaning that investment is statistically significant at $\alpha = 5\%$ level. It indicates that higher investment as a percentage of GDP is associated with higher growth rates. The effect is statistically significant in strengthening economic growth, where a 1% increase in the investment-to-GDP ratio leads to approximately a 28% increase in the growth rate.

3. Political Right

The coefficient for PRIGHT is 0.049166, with a p-value of 0.0680, indicating a marginal significance at the $\alpha = 10\%$ level. Political rights have a positive and marginally significant impact on growth rates. The positive coefficient suggests that better political rights are associated with higher growth rates, and more political freedom (lower right index) is associated with remarkable growth.

4. Quadratic of Political Right

The coefficient for PRIGHT² is -0.005088, with a p-value of 0.0767, which indicates that it is statistically significant at the $\alpha = 10\%$ level. The quadratic term for political rights is negative and marginally significant, suggesting diminishing returns. While initial increases in political freedom contribute to economic growth beyond a certain threshold, further expansion of political rights yields diminishing benefits, potentially negatively impacting growth.

5. Average Schooling Years

The coefficient for HUMAN is -0.009757, with a p-value of 0.2377, indicating it is not statistically significant in $\alpha = 10\%$. This suggests that the average schooling years of the total population, as measured in this model, do not have a significant effect on the growth of the economy.

6. Political Stability

The coefficient for POLSTAB is -0.019807, with a p-value of 0.2164; the result indicates that it is not statistically significant in $\alpha = 10\%$. This result indicates

that political stability does not have a significant effect on economic growth in this model.

7. Population Growth

The coefficient for POPG is -0.760493, with a p-value of 0.0924, this result indicates that the population growth is significant in $\alpha = 10\%$. Given the negative effect, higher population growth rates are associated with lower economic growth.

4.2 Result Interpretation and Discussion

After an in-depth analysis of previous data estimates, the following section discusses the outcome comprehension, as well as further discussion of the research.

4.2.1 The Influence of Corruption on Economic Growth

The impact of corruption on economic growth is a complex issue, with mixed findings from the prior literature. Although some studies show that corruption significantly hinders economic growth, the estimation results indicate that corruption has a positive coefficient but no statistically significant effect on GDP growth, which implies a different relationship between corruption and economic growth. The insignificance of the corruption variable in the estimation results suggests that, in this particular analysis, corruption may not be a primary determinant of economic growth compared to other factors. It could be due to several reasons, such as the potential offsetting effect of corruption, where the proceeds are reinvested into the economy or

used to facilitate business activities. Moreover, the small magnitude of the coefficient implies that the relationship, while positive, lacks enough strength to be conclusive.

The lesser impact of corruption is potentially associated with people's behavior. The habit of giving bribes as a form of facilitating bureaucracy provides benefits for both parties, so it becomes culturized. Theoretically, corruption tends to weaken government bureaucracies, making them less effective in promoting political growth. However, certain forms of corruption can paradoxically contribute to economic growth. In certain contexts, corruption can act as a "lubricant" that facilitates bureaucracy in government and business (Huntington, 2006). It may seem unethical and categorized as a moral hazard. Still, the practice of "lubricant" may accelerate processes that are usually hampered by slow and cumbersome administrative procedures, resulting in inefficiency.

Furthermore, the explanation for this insignificance may also relate to where the proceeds of corruption go, as they may eventually find their way back into the economic cycle. For instance, when funds are allocated for a development project, corruption may result in the misallocation of some of these funds, diverting them toward personal expense rather than the intended project. Although this diversion undermines the efficiency and effectiveness of the project, the funds spent on personal consumption still re-enter the economy through the purchase of goods and services. While corruption is often seen as a detrimental factor, some of the funds raised through

corruption remain in the economy, so its impact is not entirely negative when measured in terms of specific economic indicators.

This phenomenon creates a paradox where corruption, which in theory hinders economic efficiency and growth, may also indirectly stimulate the economy through spending by corrupt actors. However, this dynamic also affects the Incremental Capital Output Ratio (ICOR). Corruption distorts the allocation of capital, leading to inefficiencies and lower productivity per unit of capital investment. The misallocation of resources toward non-productive uses (such as luxury spending) increases the ICOR, meaning more capital is required to produce the same level of economic output. Thus, while the funds may circulate back into the economy, the increased ICOR reflects the underlying inefficiency caused by corruption, further explaining why the overall effect of corruption on economic growth remains ambiguous and statistically insignificant in some contexts.

Nonetheless, this does not mean that corruption is not harmful. The relatively small effect could be linked to the presence of other variables that are more responsible for slowing down economic growth. Therefore, while the immediate impact of corruption may not always seem large, its long-term and systemic effects can be very detrimental to the economy.

4.2.2 The Influence of Investment on Economic Growth

Based on the findings presented investment, exhibited a favorable impact on economic growth, with alpha significant at 0.01, indicating that a 1% increase in the ratio of investment to GDP induces economic growth of approximately 28%. In contrast to corruption, investment has been shown to have a positive influence on economic growth in both the short and long term. This result indicates how investment plays a crucial role in determining the growth of the economy by serving as a key driver of productivity, innovation, and overall economic growth.

Investment is one of the main components that affect national income because increased investment can encourage higher economic growth. The result also aligns with the prior research by Mankiw et al. (1992), which highlights that investment is a crucial determinant of economic growth. De Long & Summers (1992) explain that several types of investments that can significantly drive the economy, particularly in relation to economic growth and productivity, such as human capital development, infrastructure improvements, R&D, and supportive economic policies, collectively contribute to enhancing productivity. Following these results, there would be a strong tendency for poor countries to grow faster if supported by adequate investments and allocations.

In regard to the multiplier effect, investment triggers a chain reaction that amplifies its impact on the economy. For instance, a firm's investment generates a significant number of new job opportunities, raising income levels for many individuals and resulting in higher consumer spending and overall enhanced

consumption in the economy. This subsequently leads to further investment and economic activity, which creates a cycle of growth.

4.2.3 The Influence of Political Rights on Economic Growth

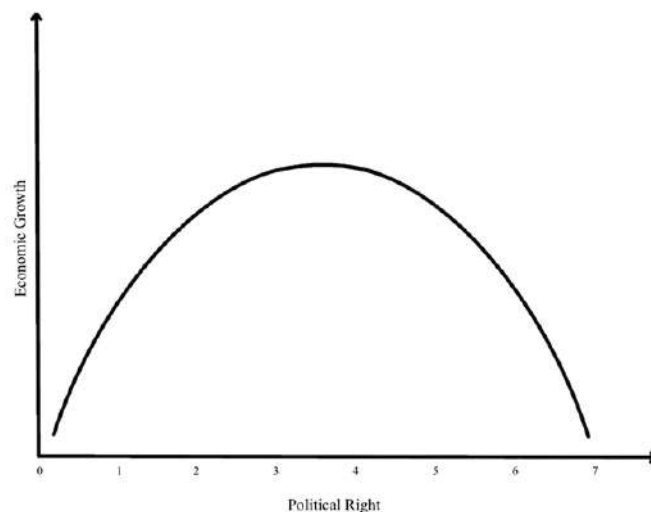
Political rights are defined as the capacity of individuals to engage in the civil and political life of society and the state without the fear of discrimination or oppression. These rights encompass not only the right to vote in general elections but also the right to join political parties, seek public office, and freely participate in political rallies, events, or protests.¹⁰ In this study, the estimation of political rights is divided into two variables, namely political rights and the quadratic variable of political rights. The quadratic function of this variable is adapted from a study conducted by Mo (2001) to examine whether there is a non-linear relationship between political rights and economic growth. By using the quadratic term, the model may capture the possibility of curvature in this relationship.

The results of the estimation revealed that both political right and quadratic political right variables significantly affect economic growth but with different coefficients. The political right variable has a coefficient of 0.049166, which indicates that this variable has a positive relationship with economic growth. In other words, every 1% increase in the political right index will cause a 0.049% increase in economic

¹⁰ U.S. Commission on Security and Cooperation in Europe. *Citizenship and political rights*. Retrieved on August 5, 2024, from <https://www.csce.gov/issue/citizenship-and-political-rights/#:~:text=Political%20rights%20refer%20to%20an,tied%20closely%20to%20citizenship%20stat%20us>

growth. Vice versa, the quadratic of the political right variable has a coefficient of -0.005088, which indicates that this variable has a negative relationship with economic growth, where a 1% increase in the political right will cause a 0.005% decrease in economic growth.

The application of the quadratic function for political rights is designed to uncover the long-term impact of political rights on economic growth. These results show that up to a certain point, the influence of political rights will have a positive impact on economic growth. However, further estimation found that the increase in political rights will have a negative impact on the economy, where the higher the political rights, the lower the economic growth, which exhibits diminishing returns over time. This outcome can be illustrated as follows:



Source: Author's Analysis Result

Figure 4.2 Inverted U-Shaped Relationship Between Political Right and Economic Growth

These findings highlight the relationship between the characteristics of the political situation and its impact on economic growth. A political rights index ranging from 1 to 7 indicates a country's level of political freedom, where an index of 1 reflects high freedom and an index of 7 reflects low freedom. The results show that as the index approaches these two ends, either 1 or 7, economic growth tends to decline and inflict non-linear dynamics, which are then depicted by the inverted U-shaped relationship between political rights and economic growth.

The index of 1 indicates a very high level of political freedom, where people have the freedom to participate in all decision-making. Public participation in the political process enhances accountability and policy representation, which is beneficial for economic growth. However, despite providing ample space for political participation, this freedom will lead to many political parties that can be involved in the government and provoke competing interests from numerous political factions, resulting in unstable governance and political fragmentation. This result is in line with Mankiw's (2016) statement explaining that a policy approach that is too loose or changes too often may create uncertainty, especially for economic actors.

On the other hand, an index of 7 indicates a very low level of political freedom, where authoritarianism or tight government control dominates the political process. In this situation, people's freedom to voice opinions, participate in government, and contribute to political decision-making is severely restricted. Authoritarian governments tend to concentrate power and decision-making on a small elite, ignoring

the aspirations and needs of the wider community. These restrictions not only reduce individual innovation and initiative but also create an unfavorable environment for healthy economic dynamism. Moreover, policies resulting from a highly centralized political system tend to be less responsive to the changing needs of the market. Therefore, these overly restrictive policies can reduce market efficiency, stifle innovation, and ultimately have a negative impact on economic growth in the long run (Mankiw, 2016). Hence, the quadratic term captures this complex relationship, illustrating that in driving economic growth, there needs to be a balance between public and government participation in aligning needs to achieve long-term growth.

Therefore, an Index in the middle of the scale can be categorized as an optimal level of political freedom, where there is an ideal balance between political freedom and economic stability. Political freedoms are broad enough to allow for significant public participation in the political process, so policies tend to represent the public interest. However, government intervention still plays a role in decision-making, creating an environment that can be considered stable and productive. This balance is akin to ‘The Goldilocks Principle,’ where political freedom is not so great that it invites instability and not so small that it stifles innovation and market dynamics. It is this balance that ultimately creates an environment conducive to sustainable and inclusive economic growth.

4.2.4 The Influence of Average Schooling Years on Economic Growth

The analysis of average years of schooling data reveals no significant impact on economic growth. These findings imply that, despite education being considered crucial for advancing a country's economy, this study's empirical result does not substantiate the hypothesis that the average duration of schooling directly influences economic growth.

This finding is contradictory to previous research stating that there is a positive relationship between the average length of education and economic growth, where the higher the average years of education, the higher the tendency for economic growth to increase (Lau et al., 1993), there is a possible mechanism for other factors to contribute to education and economic growth.

Research conducted by Hanushek et al. (2008) emphasizes that the quality of education, as measured by students' cognitive skills, has a significantly larger impact on economic growth than merely the number of years of schooling. Research conducted by Glawe and Wagner (2020) also asserts that although average years of schooling may have a positive impact on economic growth, the impact is less robust than the impact of education quality. This research proves that non-formal education, such as vocational training and skills exposure courses, plays an interesting role in supporting an individual's skills and experience. This sort of education allows individuals to acquire competencies that are directly applied in the work environment without having to go through lengthy formal education, therefore having a direct impact on the quality of human capital. This shift in focus from average years of schooling to educational

achievement reflects a new understanding that emphasizes the need for more comprehensive indicators of education quality to support the country's economy.

However, it is important to highlight that this finding does not imply by any means that formal education does not hold an important role. Formal education provides a broad foundation of knowledge, critical thinking skills, and character development that are essential for holistic individual growth. In this regard, formal education and non-formal education must be harmonized as complementary components to enhance the quality of human resources to drive economic growth.

4.2.5 The Influence of Political Stability on Economic Growth

Political stability is one of the factors that can be a determinant of good economic growth, but the results of this estimation may provide a new insight. According to the estimation results, political stability does not have a significant effect on economic growth. This finding clearly contradicts the majority of research, which asserts that political stabilization has a significant impact on economic growth. One such study by Aisen and Veiga (2013) states that political instability negatively affects growth by reducing productivity and, to a lesser extent, inhibiting the accumulation of physical and human capital.

However, the less significant result of political stability on economic development aligns with Barro's (1999) study, which suggests that in certain contexts, political instability may not have a statistically significant impact on growth rates. This outcome can be attributed to various external factors that may mitigate or overshadow

the effects of political instability on economic performance. Furthermore, this statement is reinforced by Ake's (1975) research, which explains that the importance of political stability can also depend on the specific political and cultural context. In some societies, a degree of instability may be necessary to challenge an oppressive regime or to facilitate a democratic transition. As a result, even though political stability is generally seen favorably, certain circumstances might not warrant its importance. Ake also warns that an excessive focus on maintaining stability can sometimes hinder necessary economic reforms. If political stability is prioritized to the extent that it suppresses dissent or prevents change, it may lead to stagnation rather than growth.

In another study, Rathnayake (2022) explained that political instability does not significantly impact short-term economic growth but significantly hinders long-term growth, emphasizing the importance of a stable political regime for sustainable economic growth. These explanations underline the complexity of the dynamics of the relationship between political stability and economic growth. In conclusion, although the results of this study indicate that political stability is insignificant to economic growth in certain contexts, it is important to consider various factors that may influence this relationship.

4.2.6 The Influence of Population Growth on Economic Growth

Population growth is an unavoidable phenomenon, and its impacts can vary greatly, depending on a country's specific circumstances. Previous studies have suggested that population growth can drive economic growth through increased labor

force and larger market potential (Najafov, 2023). However, the estimated results obtained from this study show that population growth harms economic growth. Data analysis shows that every 1% increase in population growth will lead to a 0.76% decrease in economic growth. This finding indicates that while there are potential benefits from population increase, the negative impact is more dominant.

This result highlights a crucial issue: population growth, if not properly managed, can strain the infrastructure necessary to support the increasing number of people. As a country's population grows, the demand for vital services such as transportation, healthcare, and education will also increase. Without corresponding growth in infrastructure, these services become overburdened, leading to inefficiencies that can stunt economic development.

In accordance with prior research by Zahir (2023), even though higher population growth may have beneficial values, the research pointed out that higher population growth negatively impacts economic growth due to strains on resources, infrastructure, and labor. This strain on resources involves increasing demand for premier human needs that have limited availability. Moreover, rapid population growth can cause pressure on infrastructure, such as transport, health facilities, and education, which may develop slower than the population increases. In the long run, this pressure is also affecting the labor force, where an increase in the size of the labor force is only sometimes accompanied by an adequate increase in employment opportunities, which may lead to a decline in productivity.

This analysis clearly shows a link between population growth and infrastructure development. While a growing population can bring more workers and larger markets, these benefits are only achieved when infrastructure growth keeps pace. An adequate infrastructure system ensures that people have access to reliable transportation, education, healthcare, and other essential services, all of which are necessary to sustain productivity and economic stability. When infrastructure fails to keep up, congestion, resource depletion, and service inefficiencies take root, undermining potential economic gains.

Therefore, although population growth can bring some economic benefits, the challenges posed by pressure on resources can be more significant in hampering economic growth. Population growth must also be accompanied by adequate infrastructure development and good resource management to ensure stable development in terms of both human capital and economic growth.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

5.1 Conclusions

This study delves into the intricate relationship between corruption and economic growth in Southeast Asia. Focusing on Indonesia, Malaysia, Philippines, Thailand, and Vietnam from 2005 to 2020. The analysis expresses how corruption, investment, political rights, average schooling years, political stability, and population growth shape the economic landscape. The research reveals the real-world impacts of these factors on economic growth. The results of the research can be summarized into the following conclusions.

1. Corruption exerts no substantial influence on economic growth. Although corruption is generally considered a barrier to economic growth, the findings of this study indicate that corruption does not have a statistically significant impact on economic growth. This result points out that corruption may act as a “lubricant” that facilitates bureaucratic processes, potentially generating short-term economic benefits. Furthermore, corruption may not have a significant impact because the proceeds of corruption eventually flow back into the economic cycle, thereby stimulating the economy. However, in the long run, there might be a possibility that corruption is detrimental and debilitating to a country’s system of governance. Although corruption does not have a significant impact on economic growth, the government must still strengthen and improve

the capacity of anti-corruption institutions and measures. The goal is not only to combat unethical practices but also to increase public trust in government and create a more conducive investment environment.

2. Investment exhibits a significant impact on economic growth. The estimation indicates that every 1% increase in the investment-to-GDP ratio is associated with an approximately 28% increase in economic growth, highlighting the important role of investment in driving productivity, innovation, and overall economic growth. Thus, the results of this study indicate the importance of fostering a good investment climate to drive economic progress.
3. Political rights evince a meaningful, significant influence on economic growth. The relationship between political rights and economic growth is found to be non-linear in this study. An optimal level of political freedom promotes economic stability and growth, while extreme levels—either too high or too low—can be detrimental to economic growth. These results show that a balance is required to achieve notable economic growth. This balance allows for public participation in decision-making but imposes limits through government intervention in policy-making to maintain political stability. This balance aims to create a conducive situation to support economic growth. Hence, policymakers should strike this balance to maintain political stability and economic progress.
4. The study finds no significant impact of average schooling years on economic growth, contradicting previous research that highlights a positive link between years of education and economic growth. This result suggests that factors beyond

the mere quantity of schooling may mediate this relationship. The quality of education and its relevance to market needs may be more critical in influencing economic growth than the sheer number of years spent in school. Therefore, focusing on improving educational quality and alignment with economic demands may be more effective for fostering economic advancement.

5. Political stability does not have a statistically significant effect on economic growth. The results of this study's estimates challenge the assumption that political stability is the main determinant of economic growth and instead reveal that it does not have a significant impact on economic growth in the observed context. This finding contrasts with the majority of research, which typically emphasizes the importance of political stability for fostering economic growth. However, it aligns with some studies that suggest that the impact of political stability may vary depending on external factors like political situation, cultural contexts, or considered short-term or long-term growth. These results highlight the relationship between political stability and economic growth, suggesting that political stability might not play as crucial a role as traditionally believed in certain situations.
6. Population growth demonstrated a notable positive influence on economic growth. The result revealed that while population growth has the potential to boost economic growth by expanding the workforce and market opportunities, it ultimately has a detrimental impact on economic growth. The analysis shows that a 1% increase in population growth results in a 0.76% decrease in economic

growth. It is estimated that this negative impact arises from pressure on resources, infrastructure, and labor, which exceeds their potential benefits. Hence, there is a need to align population growth with adequate infrastructure and effective resource management to ensure sustainable economic progress.

5.2 Implications

Based on several considerations from the results of this study, the researcher offers several implications that can be considered by the government to strengthen economic growth and ensure long-term stability:

1. The government should strengthen anti-corruption measures. Although corruption did not significantly impact economic growth in the study, maintaining a strong stance against it is crucial. Governments should continue to enhance transparency, accountability, and the effectiveness of anti-corruption agencies. The anti-corruption approach aims to improve public trust and create a more conducive environment for investment and sustainable economic growth.
2. The government should protect and promote political rights by enhancing freedom of speech, assembly, and press. By ensuring that citizens can freely express their views and participate in the political process, the government can create a more dynamic and responsive governance structure that not only focuses on particular interests but is also suitable to the citizens' needs and conditions.
3. The government should focus on creating a policy and environment that attracts domestic and foreign investment. This may be achieved not only by improving

infrastructure or simplifying the regulatory framework but also by ensuring a stable and predictable economic environment. The government has to enhance the transparency of fund management to ensure that the investment received will be efficiently managed. The investment received is expected to help drive economic growth by encouraging more capital inflows and creating more job opportunities for citizens.

4. Education quality is a crucial step for long-term economic growth and needs to be improved over time due to the development of science. Despite the analysis not showing a direct significant effect of average schooling years on economic growth, enhancing the quality of education is essential. Governments should prioritize education reforms focusing on better teaching methods and increased resource access to ensure students acquire more relevant skills and knowledge to create qualified human resources. A workforce with higher educational attainment and better skills will be more capable of driving economic innovation by increasing productivity and adapting to technological advancements. It will ultimately contribute to sustained economic growth and development

5.3 Research Limitations

This study has several limitations that require improvement in further research. The following are the limitations related to this research:

1. The lack of significance of the corruption index variable may be due to how corruption perceptions are measured. The corruption index tracks changes over

time within a country, but this may not accurately reflect those changes. Instead, the index may be more useful for comparing different countries or analyzing differences between them over a certain period. For time series analysis, it might be more effective to use indirect measures of corruption, such as the number of days it takes to start a business.

2. Due to limited data availability, this study is limited to certain countries and a specific time period. This limitation may affect the generalizability of the findings and may only partially reflect the economic dynamics in other countries or different periods.
3. The estimated results of some of the variables studied do not match the initial hypothesis of the study. This discrepancy indicates the presence of other factors that may influence the results that were not identified in this analysis.
4. Due to data limitations and variable discrepancies, the interpretation of the study results may be limited. Therefore, it may affect the in-depth understanding of the phenomenon studied.

5.4 Recommendations

Based on the results that have been carried out, the researcher suggests the following recommendations for future researchers:

1. For future research on the effects of corruption on the economy, the author recommend using the Incremental Capital Output Ratio (ICOR) as an alternative to the Corruption Perception Index (CPI) to reduce bias. ICOR objectively

measures the inefficiency of investment turning into output, which can reflect the impact of corruption on economic performance. This approach can provide clearer insights into how corruption distorts capital accumulation and growth. Future studies should also explore the interaction of ICOR with other institutional and governance factors, offering a more holistic view of how corruption impedes sustainable economic growth.

2. Future research may consider to excluding Malaysia from the sample. Malaysia's corruption index is notably different from other countries in the study, which may skew the results. By removing Malaysia, researchers may capture more balanced insights into how corruption affects the economy across the remaining countries. This adjustment may allow for a more accurate analysis of patterns and trends in countries with extreme corruption levels, potentially leading to more generalizable conclusions.
3. Future research may explore additional variables contributing to the insignificance of this research's results. By considering other variables, the study is expected to provide a more comprehensive understanding of the factors that influence the economy, resulting in a more diverse perspective.
4. Future research may improve this study by taking samples from different countries and using different observation periods. This step aims to examine more deeply the influence of corruption and other variables on economic development in a broader context

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APPENDICES

Appendix 1.1 Data of Research Samples

Country	Years	GR	CORRUPT	IY	PRIGHT	PRIGHT 2	HUMAN	POLSTAB	POPG
Indonesia	2005	0.05	22	0.28	2	4	7.320812	-1.52	0.012
Indonesia	2006	0.05	24	0.28	2	4	7.59423	-1.42	0.013
Indonesia	2007	0.06	23	0.28	2	4	7.02243	-1.2	0.013
Indonesia	2008	0.06	26	0.33	2	4	7.06902	-1.06	0.013
Indonesia	2009	0.04	28	0.31	2	4	7.30959	-0.75	0.012
Indonesia	2010	0.06	28	0.32	2	4	7.4121747	-0.85	0.012
Indonesia	2011	0.06	30	0.32	2	4	7.51476	-0.77	0.012
Indonesia	2012	0.06	32	0.35	2	4	7.6086736	-0.59	0.012
Indonesia	2013	0.05	32	0.33	2	4	7.7025867	-0.52	0.012
Indonesia	2014	0.05	34	0.34	2	4	7.7965	-0.42	0.011
Indonesia	2015	0.04	36	0.34	2	4	7.91448	-0.62	0.011
Indonesia	2016	0.05	37	0.33	2	4	7.97615	-0.38	0.010
Indonesia	2017	0.05	37	0.33	2	4	8.23959	-0.5	0.010
Indonesia	2018	0.05	38	0.34	2	4	8.16204	-0.55	0.009

Indonesia	2019	0.05	40	0.33	2	4	8.359275	-0.5	0.009
Indonesia	2020	-0.02	37	0.32	2	4	8.55651	-0.46	0.008
Malaysia	2005	0.05	51	0.23	4	16	7.59145	0.57	0.023
Malaysia	2006	0.05	50	0.23	4	16	8.0844	0.29	0.022
Malaysia	2007	0.06	51	0.23	4	16	8.57735	0.19	0.021
Malaysia	2008	0.04	51	0.22	4	16	9.0703	0.11	0.020
Malaysia	2009	-0.01	45	0.18	4	16	9.56325	-0.04	0.019
Malaysia	2010	0.07	44	0.23	4	16	9.69796	0.14	0.017
Malaysia	2011	0.05	43	0.23	4	16	9.809385	0.08	0.016
Malaysia	2012	0.05	49	0.25	4	16	9.92081	-0.01	0.016
Malaysia	2013	0.04	50	0.26	4	16	10.032235	0.05	0.015
Malaysia	2014	0.06	52	0.25	4	16	10.143661	0.27	0.015
Malaysia	2015	0.05	50	0.25	4	16	10.255085	0.25	0.014
Malaysia	2016	0.04	49	0.26	4	16	10.36651	0.13	0.014
Malaysia	2017	0.05	47	0.25	4	16	10.45936	0.11	0.014
Malaysia	2018	0.04	47	0.23	4	16	10.55221	0.25	0.013
Malaysia	2019	0.04	53	0.21	4	16	10.64506	0.15	0.012
Malaysia	2020	-0.05	51	0.19	4	16	10.748281	0.12	0.011

Philippines	2005	0.04	25	0.18	3	9	8.6599	-1.18	0.019
Philippines	2006	0.05	25	0.16	3	9	8.67683	-1.64	0.018
Philippines	2007	0.06	25	0.16	4	16	8.69376	-1.6	0.018
Philippines	2008	0.04	23	0.18	4	16	8.71069	-1.78	0.018
Philippines	2009	0.01	24	0.17	4	16	8.81284	-1.73	0.018
Philippines	2010	0.07	24	0.20	3	9	8.91499	-1.65	0.018
Philippines	2011	0.03	26	0.20	3	9	8.991987	-1.39	0.017
Philippines	2012	0.06	34	0.19	3	9	9.068983	-1.19	0.017
Philippines	2013	0.06	36	0.20	3	9	9.14598	-1.08	0.016
Philippines	2014	0.06	38	0.20	3	9	8.971109	-0.71	0.016
Philippines	2015	0.06	35	0.21	3	9	8.79624	-0.85	0.016
Philippines	2016	0.07	35	0.24	3	9	8.62137	-1.38	0.017
Philippines	2017	0.06	34	0.25	3	9	8.4465	-1.19	0.017
Philippines	2018	0.06	36	0.27	3	9	8.7078	-1.1	0.017
Philippines	2019	0.06	34	0.26	3	9	8.9691	-0.93	0.016
Philippines	2020	-0.09	34	0.17	3	9	8.97141	-0.78	0.016
Thailand	2005	0.04	38	0.30	3	9	7.081585	-0.87	0.077
Thailand	2006	0.04	36	0.27	7	49	6.9673	-1.13	0.075

Thailand	2007	0.05	33	0.25	6	36	7.1283574	-1.11	0.076
Thailand	2008	0.01	35	0.28	5	25	7.289415	-1.27	0.074
Thailand	2009	-0.06	34	0.20	5	25	7.4504724	-1.42	0.071
Thailand	2010	0.07	35	0.25	5	25	7.61153	-1.44	0.067
Thailand	2011	0.08	34	0.26	4	16	7.7107067	-1.13	0.064
Thailand	2012	0.07	37	0.28	4	16	7.809883	-1.22	0.064
Thailand	2013	0.02	35	0.27	4	16	7.90906	-1.31	0.060
Thailand	2014	0.09	38	0.23	6	36	8.04458	-0.91	0.054
Thailand	2015	0.03	38	0.22	6	36	8.1801	-1	0.047
Thailand	2016	0.03	35	0.21	6	36	8.31562	-0.99	0.044
Thailand	2017	0.04	37	0.22	6	36	8.343885	-0.75	0.041
Thailand	2018	0.04	36	0.25	6	36	8.37215	-0.8	0.032
Thailand	2019	0.02	36	0.23	7	49	8.69712	-0.49	0.025
Thailand	2020	-0.06	36	0.23	6	36	8.83456	-0.58	0.023
Vietnam	2005	0.07	26	0.36	7	49	6.7038283	0.48	0.010
Vietnam	2006	0.06	26	0.37	7	49	6.914104	0.41	0.009
Vietnam	2007	0.07	26	0.42	7	49	7.124379	0.25	0.009
Vietnam	2008	0.05	27	0.39	7	49	7.334655	0.17	0.009

Vietnam	2009	0.05	27	0.4	7	49	7.54493	0.27	0.010
Vietnam	2010	0.06	27	0.37	7	49	7.6274652	0.15	0.010
Vietnam	2011	0.06	29	0.32	7	49	7.71	0.19	0.010
Vietnam	2012	0.05	31	0.30	7	49	7.7925353	0.27	0.010
Vietnam	2013	0.05	31	0.30	7	49	7.87507	0.25	0.010
Vietnam	2014	0.06	31	0.30	7	49	7.9576054	-0.02	0.010
Vietnam	2015	0.06	31	0.32	7	49	8.04014	0.06	0.010
Vietnam	2016	0.06	33	0.31	7	49	8.122675	0.23	0.010
Vietnam	2017	0.06	35	0.32	7	49	8.205211	0.21	0.009
Vietnam	2018	0.07	33	0.32	7	49	8.287745	0.03	0.009
Vietnam	2019	0.07	37	0.31	7	49	8.37028	0.04	0.009
Vietnam	2020	0.02	36	0.31	7	49	8.455349	-0.04	0.009

Appendix 1.2 Common Effect Model (CEM) Regression

Dependent Variable: GR

Method: Panel Least Squares

Date: 05/23/24 Time: 22:09

Sample: 2005 2020

Periods included: 16

Cross-sections included: 5

Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.076250	0.088829	-0.858391	0.3935
CORRUPT	0.000848	0.001142	0.742390	0.4603
IY	0.288601	0.115223	2.504722	0.0145
PRIGHT	0.049166	0.026537	1.852750	0.0680
PRIGHT2	-0.005088	0.002833	-1.795998	0.0767
HUMAN	-0.009757	0.008194	-1.190749	0.2377
POLSTAB	-0.019807	0.015881	-1.247156	0.2164
POPG	-0.760493	0.445856	-1.705692	0.0924
Root MSE	0.028293	R-squared	0.158706	
Mean dependent var	0.044000	Adjusted R-squared	0.076914	
S.D. dependent var	0.031041	S.E. of regression	0.029823	
Akaike info criterion	-4.092408	Sum squared resid	0.064039	
Schwarz criterion	-3.854205	Log likelihood	171.6963	
Hannan-Quinn criter.	-3.996906	F-statistic	1.940349	
Durbin-Watson stat	1.490180	Prob(F-statistic)	0.075490	

Appendix 1.3 Fixed Effect Model (FEM) Regression

Dependent Variable: GR

Method: Panel Least Squares

Date: 05/23/24 Time: 22:15

Sample: 2005 2020
Periods included: 16
Cross-sections included: 5
Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.037177	0.135189	0.274999	0.7842
CORRUPT	0.001200	0.001200	0.999694	0.3210
IY	0.379439	0.127310	2.980433	0.0040
PRIGHT	-0.027973	0.045784	-0.610972	0.5433
PRIGHT2	0.003162	0.004577	0.690834	0.4920
HUMAN	-0.011979	0.008420	-1.422608	0.1594
POLSTAB	-0.039996	0.020634	-1.938349	0.0567
POPG	-0.325549	0.656753	-0.495694	0.6217

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.026644	R-squared	0.253907
Mean dependent var	0.044000	Adjusted R-squared	0.133216
S.D. dependent var	0.031041	S.E. of regression	0.028900
Akaike info criterion	-4.112499	Sum squared resid	0.056793
Schwarz criterion	-3.755195	Log likelihood	176.5000
Hannan-Quinn criter.	-3.969246	F-statistic	2.103770
Durbin-Watson stat	1.519819	Prob(F-statistic)	0.031516

Appendix 1.4 Chow Test Estimation Results

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.169194	(4,68)	0.0817

Cross-section Chi-square	9.607291	4	0.0476
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Cross-section fixed effects test equation:

Dependent Variable: GR

Method: Panel Least Squares

Date: 09/04/24 Time: 12:11

Sample: 2005 2020

Periods included: 16

Cross-sections included: 5

Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.076250	0.088829	-0.858391	0.3935
CORRUPT	0.000848	0.001142	0.742390	0.4603
IY	0.288601	0.115223	2.504722	0.0145
PRIGHT	0.049166	0.026537	1.852750	0.0680
PRIGHT2	-0.005088	0.002833	-1.795998	0.0767
HUMAN	-0.009757	0.008194	-1.190749	0.2377
POLSTAB	-0.019807	0.015881	-1.247156	0.2164
POPG	-0.760493	0.445856	-1.705692	0.0924

Root MSE	0.028293	R-squared	0.158706
Mean dependent var	0.044000	Adjusted R-squared	0.076914
S.D. dependent var	0.031041	S.E. of regression	0.029823
Akaike info criterion	-4.092408	Sum squared resid	0.064039
Schwarz criterion	-3.854205	Log likelihood	171.6963
Hannan-Quinn criter.	-3.996906	F-statistic	1.940349
Durbin-Watson stat	1.490180	Prob(F-statistic)	0.075490

Appendix 1.5 Lagrange Multiplier Estimation Results

Lagrange Multiplier Tests for Random Effects

Null hypotheses: No effects

Alternative hypotheses: Two-sided (Breusch-Pagan) and one
-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1.022416 (0.3119)	62.78926 (0.0000)	63.81167 (0.0000)
Honda	-1.011146 (0.8440)	7.923967 (0.0000)	4.888103 (0.0000)
King-Wu	-1.011146 (0.8440)	7.923967 (0.0000)	2.737339 (0.0031)
Standardized Honda	1.622060 (0.0524)	8.055287 (0.0000)	3.556262 (0.0002)
Standardized King-Wu	1.622060 (0.0524)	8.055287 (0.0000)	2.256945 (0.0120)
Gourieroux, et al.	--	--	62.78926 (0.0000)
