Journal of Economics, Finance and Accounting Studies
ISSN: 2709-0809
DOI: 10.32996/jefas
Journal Homepage: www.al-kindipublisher.com/index.php/jefas

JEFAS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

Determinants of GDP Growth in the Philippines: 1970-2020

Mathew Kieran C. Lumabao[1] ✉ Jessalyn Faye C. Rosales[2] and Carlos L. Manapat, DBA[3]
[123]Faculty of Arts and Letters, University of Santo Tomas. Philippines.
Corresponding Author: Mathew Kieran C. Lumabao, **E-mail**: mathewkieran.lumabao.ab@ust.edu.ph

| ABSTRACT
Gross Domestic Product Growth (GDPG) is one of the driving factors of economic development. The study aims to create an econometric model for the determinants of GDP growth in the Philippine setting. It also tackles a new approach while giving insights into how the selected variables of the researchers affect economic growth. The analysis used Gretl to acquire the results needed for the study. Microsoft Excel, on the other hand, was used to generate the trendlines of the variables. The result of the analysis shows that there is a significant relationship between the variables: General Government Consumption Expenditure (GGCE), Household and NPISHs Final Consumption Expenditure (HFCE), and Exports of Goods & Services (EoGS), the dependent variable, GDPG, also increases/decreases respectively. However, the relationship to Foreign Direct Investment (FDI) does not have a significant relationship with GDPG. Overall, the graphs have shown a positive uptrend; however, due to economic shocks, the economy experienced a rapid decline, especially between the years 1980-1990 and 2020 during the COVID-19 pandemic.

| KEYWORDS

GDP Growth Rate, Foreign Direct Investment, General Government Consumption Expenditure, Household Final Consumption Expenditure, Exports of Goods and Services

| ARTICLE INFORMATION

ACCEPTED: 01 January 2023 **PUBLISHED:** 18 January 2023 **DOI:** 10.32996/jefas.2023.5.1.6

1. Introduction

1.1 Background of the study

All around the world, GDP growth is one of the determining factors to check how well an economy is doing. Overall economic growth is estimated to grow by 6% in 2021 and is projected to grow by 4.9% in 2022 (IMF 2020). With economic shocks such as the COVID-19 pandemic and Russia's war against Ukraine, the entire world has experienced huge economic downfalls with higher rates of inflation, and due to these economic shocks, the global market and economy have significantly slowed down, affecting trade between countries, final consumption expenditure, and foreign direct investments.

Five of the main ASEAN countries' GDP growth: Indonesia, Malaysia, Thailand, Philippines, and Singapore, are projected to increase by 5% during the year 2022. However, due to the U.S. interest and inflation hike, GDP growth is expected to lessen than the projected 5% in the latter half. This is because ASEAN economies are reliant on the global economic environment, which significantly drives exports and investments (Taguchi, 2022).

The Philippines has shown great economic resilience and is one of the fastest growing economies in Asia, despite experiencing downfalls due to rising rates of inflation and other downward economic shocks, with GDP growth being projected to increase over the upcoming years. Gross Domestic Product (GDP) growth is used to measure overall economic performance, and it can determine the status that the economy is currently in. To put it into monetary terms, it is the measure of the number of goods and services produced in a country given a specific period. We can see a decrease in the annual GDP Growth through select years due to economic shocks such as inflation and the COVID-19 pandemic that started in 2020, which drastically decreased the GDP growth rate down to -9.5%. Exports of goods and services for the Philippines account for nearly ⅓ of the overall GDP and are important

in increasing a country's overall GDP, with its major exports being electronics (42%), manufacturers (10%), and woodcraft (6%). Japan is one of the country's main export partners, with 21% of overall exports (Philippine Statistics Authority, 2021). Exports have also been affected by downward economic shocks such as the year 2020; at the height of the pandemic, exports of goods and services decreased to -16.1%, which subsequently reduced GDP growth. According to some studies, Foreign Direct Investment has a positive relationship with GDP growth and can affect overall economic growth. It is also susceptible to economic shocks, and an example of this would be in the years 2019-2020, FDI has significantly decreased to -21.33% from the previous year, and we can see the decrease of FDI affecting GDP growth. General Government Expenditure has shown a positive trend, and the Philippines' General Government Final Consumption in 2020 was 55,230,000 US Dollars; the Philippines' general government's final consumption increased at an average yearly rate of 4.4%. The increase in the government's final consumption expenditure also led to an increase in GDP growth. Household and NPISHs Final Consumption Expenditure is also affected by economic shocks and is one of the major determinants of GDP growth. We can see a decrease in Household and Final Consumption Expenditure by -7% during the year 2020, where GDP growth was down by - 9.5% because of external economic shocks.

Over the past years, the goal of the Philippines has been to improve economic well-being, and the government, as well as economic researchers, are focused on creating solutions and identifying major economic factors that drive GDP growth. The study focuses on the relationship between Exports of goods of Services, Foreign Direct Investment, General Government Consumption Expenditure, and Household and NPISHs Final Consumption Expenditure to GDP growth.

1.2 Statement of the problem

The primary objective of this study is to identify the effects of each variable on Gross Domestic Product Growth in the Philippines and how important their relationship is to each other.

1. What is the trend of the following economic variables from years
1970-2020 of the Philippines:

1.1 Gross Domestic Product Growth Rate
1.2 Exports of Goods and Services
1.3 Foreign Direct Investment
1.4 General Government Consumption Expenditure
1.5 Household and NPISHs Final Consumption Expenditure

2. Is there a significant relationship between GDP Growth Rate and, Export of Goods & Services, Foreign Direct Investment, General Government Consumption Expenditure, and Household and NPISHs Final Consumption Expenditure?

1.3 Formulation of Hypothesis

This study focuses on the following hypothesis:

Ho: There is no significant relationship between GDP Growth rate to Exports of Goods & Services, Foreign Direct Investment, General Government Consumption Expenditure, and Household and NPISHs Final Consumption Expenditure to GDP Growth rate.

1.4 Scope and Limitations of the Study

This paper uses an annual data set from the year 1970 to 2020 based on data provided by the World Bank and is limited to the timeframe (years 1970 to 2020). This study will examine the relationship between the GDP growth rate tp Exports of Goods & Services, Foreign Direct Investment, General Government Consumption Expenditure, and Household and NPISHs Final Consumption Expenditure, General. The study will be beneficial to the government, policymakers, and economists in assessing the variables as main indicators of GDP growth in the Philippines for the next 10 years.

1.5 Significance of the study

• Findings of the study will be able to help local government offices such as the Department of Finance (DOF), Department of Trade and Industry (DTI) and the National Economic Development Agency (NEDA) in creating viable solutions and policies to help economic growth in the Philippines with regards to the variables that were used in the study.

• Findings of this study may help economic advisers in the Philippines by providing a new approach to understanding the factors that affect the GDP growth rate. Which could then be relayed to the current administration to look for solutions that could benefit the economy.

• It is highly beneficial to the academe in providing new insight from a new approach by using the factors that the researchers of this study have used. The academe would be able to publish this study for further reference in future studies with regard to GDP growth in the Philippines.

• Findings of this study may help future researchers with their studies by using the study as a reference or adding more findings to the study that could help improve the study of economic growth in the Philippines, provided by the already existing information by the researchers of this study.

• Results from the study would help the researchers of this paper to fulfill their requirements and to achieve the goal of making the study published to be used as a reference for other researchers.

2. Review of Related Literature

This part of the paper discusses different literature and research papers that are related to the variables Export of Goods and Services (EoGS), Foreign Direct Investment (FDI), General Government Consumption Expenditure (GGCE), Household and NPISHs Final Consumption Expenditure (HFCE) and their relationship to Gross Domestic Product Growth (GDPG). The theoretical framework and operational framework are to be discussed in the latter part of the chapter. This would include the theories that were used in the study and the concept in which the inputs, processes and outputs are to be made to conduct the research. The definition of terms would serve as a description of each of the variables that were used.

2.1 Gross Domestic Product Growth (GDPG)

The study by Dynan & Sheiner (2018) emphasized that utilizing real GDP to measure aggregate economic well-being should be avoided. Between the two concepts, there are several significant conceptual distinctions. For instance, private and public consumption is highly correlated with GDP, implying that investment involvement has little effec**t** on the value of GDP as an indicator of aggregate economic well-being. However, the GDP is still considered advantageous for government officials charged with stabilizing the economy as it focuses on the extent to which the economy is utilizing its productive resources. Dynan & Sheiner's (2018) study is relevant to the present study because it utilizes GDP to measure or define economic status.

Meanwhile, the Philippine Economic Update of World Bank Group (2017) revealed that the Philippine economy remained resilient in 2016. The GDP growth was 6.8% year on year, the unemployment rate dropped to a record low of 4.7% as the industrial and service sectors created new jobs, and the national poverty levels significantly declined, falling from 25.2% in 2012 to 21.6 percent in 2015. All of these are caused by capital formation, expansionary fiscal policy, accommodative monetary policy, and rising remittance inflows. The World Bank Group's (2017) report is relevant to the present study because the macroeconomic performance and activities mentioned above contribute to and shape the country's GDP. Due to the assassination of former president Ninoy Aquino, the value of the peso went down, and the country was not able to sustain economic growth, and businesses lost their confidence due to that event and the heavy borrowing from other countries (De Dios et al., 2021). After the Marcos regime, there has been an average of 4.5% economic growth rate from the years 2000-2009 while having a 6.4% growth rate from the years 2010-2017 where the country was considered to have the fastest growth rate during those years compared to other ASEAN countries (Felipe et al., 2018).

With one significant exception, changes in real GDP reasonably capture changes in economic well-being. Investigations indicate that while GDP, as described, is not a good measurement of welfare or even economic well-being, the GDP concept and the bits of GDP available through the national accounts are helpful in and of themselves and should provide a great deal of information that is welfare-related topics are strongly related (Dynan et al., 2018).

Consequently, the publication of the Philippine Statistics Authority (2020) showed the volume and value of agricultural exports and imports, agricultural foreign trade, and the contribution of the Philippines in the total world export trade in terms of agriculture. It was revealed that the agricultural sector had a significant contribution to the productive economic activities in the country. This report is relevant to the present study because the imports and exports measure the country's GDP.

2.2 Exports of Goods and Services

With the adoption of new technology and rising incomes, among other factors, services trade is anticipated to become the new driver of global trade growth in the upcoming years. The Philippines has already made considerable progress thanks to its notable performance in the business process outsourcing industry. Additionally, there are new prospects, particularly in the creative industries, digital trade, and perhaps telemigration. However, in recent times, Philippine service exports have been expanding much more slowly than in the past, as well as slower than both global and regional trends (Serafica 2019). 37.68% of exports came from the agricultural sector, down from 5.21% in 2000 when electronics exports predominated as a result of rising manufacturing costs

(Philippine Agricultural Exports, 2012). Despite barely improving from 1995 to 2014, the export basket of the nation has the potential to develop. The Philippines must go through a structural transformation, or the shift from the agricultural to the industrial,

and ultimately to the services sector, a process that wealthier and more developed countries underwent. There are only a few complex items that these economies might potentially diversify into '' in developing nations like the Philippines; therefore, they "need to undertake major reform in their industrial system (Dacuycuy 2019). However, despite the -19.9% decrease in exports of goods and services due to the negative effects of economic shocks, there has been an increase in merchandise exports and 67% of export growth was caused by the electronic industry (World Trade Organization, 1999). Agriculture and manufacturing were industries that helped exports perform (Mitra, 2013).

Within the Association of Southeast Asian Nations (ASEAN), the Philippines has been acknowledged as a leader in the development of micro, small, and medium-sized enterprises (MSMEs). Sadly, once they engage in foreign trade, even their own businesses don't appear to survive. For instance, this Policy Note discovers that only six out of ten Philippine MSMEs engaged in export commerce survive after their first year of business abroad. Considering the findings, it is urged that the government provide strategic support to Philippine MSMEs that export goods to ASEAN nations and other trading partners during the years that have been recognized as being crucial for export viability (Bautista et al., 2018).

Any nation cannot survive economically alone in the world of today. Every element of the economy of the country is intertwined. This results in the global Movements of labor, technology, investment capital, and business, as well as of commodities and services enterprise. International trade is essential in an endeavor to assist other countries in meeting their demands based on their national economic development strategies. Thus, one of the factors that can accelerate economic growth is international trade (Hemzawi et al., 2021).

Numerous studies have shown that exports have a favorable impact on economic growth (export-led growth due to improved economies of scale, the adoption of cutting-edge technology, and higher capacity utilization. Growth in exports encourages investment in industries where a nation has a competitive advantage, which boosts national output and accelerates economic growth. An increase in exports also boosts the influx of foreign currency and makes it possible to acquire more capital goods and services, both of which are crucial for boosting economic growth and productivity. However, based on some research indicated that exports have a detrimental influence on economic growth, pointing out that this effect is linked to the fact that primary items make up a significant portion of overall exports in some nations (Chamberlain et al., 2020). Export- led growth is confirmed in several developing nations, which is in line with the exogenous growth theory, which contends that economic growth is impacted by the economy of other countries (Smith, 2001).

2.3 Foreign Direct Investment

The growth of the Philippine economy may be impacted by foreign direct investment. The primary trading partners of the Philippines do not contribute to economic expansion, although it has been found that increased government spending slows down economic expansion. It led the exports to broaden their customer base and add new trading partners. According to the study's findings, the Philippine economy gains from FDI when the environment is conducive (Incorp 2021). The increase in FDI from the years 2004-2007 was caused by the food and beverage industry, which brought the share by 12.7 (Aldaba, 2020), where the sectors that contributed most in FDI were utilities, manufacturing, and administrative & support services activities (InCorp, 2021).

One of the subjects that have likely received the most attention in academic research over the past fifty years is the role of foreign direct investment in economic growth. Few research, nevertheless, has looked at both the immediate and long-term effects. The findings of this study demonstrate that FDI has a negative short-term effect on the countries in this study but that it has a positive long-term effect on stimulating economic growth. In other countries, other macroeconomic factors are crucial in understanding economic growth (Dinh et al., 2019).

Investments are a crucial component of any economic strategy since, in addition to providing a foundation for economic growth, they are also a requirement for the stability of social and economic trends. The financing of the global economy relies heavily on foreign direct investment, which also serves as the primary source of funding for the national economies of developing and transitional nations. Due to the high demand for foreign investment in the global market, governments have been busy undertaking numerous initiatives to improve the business climate (Susic et al., 2017). According to a study made by Borensztein et al. (1998), foreign direct investment had no impact on the increase in the Philippines' GDP and the significance of FDI as a means of technology transfer for widespread development. Herzer's (2010) study, which found that FDI generally has a negative association with growth in poor nations, also demonstrated this negative relationship.

Inflows of FDI have traditionally been the main source of capital for investment. FDI offers a chance to aid in essential economic recovery. To motivate governments and businesses to undertake a successful FDI recruitment plan, an internationalization model of FDI is constructed. Foreign direct investment (FDI) is crucial for assisting with the economy's recovery. Both developed and developing economies must work very hard to raise and restore capital inflows, particularly in the form of foreign direct investment (Botelho et al., 2021).

2.4 General Government Consumption Expenditure

The improvement of government expenditure will have a significant positive impact on domestic growth, but experts believe that furthering the economic recovery can increase tax revenue collections, which might help reduce the country's budget deficit. Government expenditure, meanwhile, has maintained its momentum and is set to do so through the end of the year. In terms of GDP (gross domestic product), this will be advantageous because government expenditure will have to make up for consumption and capital formation, which may yet resume their previous rate of expansion (Villanueva 2021).

A positive correlation between economic growth and government spending was not found by the Granger Causality Test. On the other hand, government spending has a big impact on economic expansion. The Keynesian economic system, which uses government spending as a tool for encouraging economic growth in a country, is supported by this study (Whayudi, 2020).

The costs associated with social protection turned out to have a bad, statistically significant, and substantial effect on GDP growth. Similar findings apply to public spending, and although public order spending also has a substantial and reliable coefficient, its sign is unclear. The article's results on lagged health and education spending, which support GDP growth, are what make government consumption positive on economic growth (Kutasi, 2020).

According to estimation results, corruption and reduced government spending both hurt economic growth. In particular, the relationship between government spending and corruption prevention might lessen the degree to which these two factors have a detrimental impact on economic growth. As a result, EMDEs in Asia may be able to positively influence government spending on economic growth if it exceeds the 0.01 level for corruption control (Bui, 2022).

Since the financial crisis of 2008/2009, economic development has been weak everywhere, particularly in emerging nations. Government spending is one of the main variables that can promote growth. It was discovered that government spending has little long-term effect on economic growth (Manete et al., 2017). During the term of former president Ferdinand Marcos, there was an increase in government spending for projects like highways and buildings, which caused a spike in overall government expenditure (Marcos, 1970). Whereas during the early 1980s, there was a low trend of government expenditure while a sudden growth can be seen when former president Benigno Aquino Jr. increased the budget for government spending in 2012 (Philippine Embassy Norway, 2012).

2.5 Household and NPISHs Final Consumption Expenditure

70% of the nation's Gross Domestic Product is made up of household final consumption expenditures, which also contribute most to GDP growth. This includes household spending on barter transactions, in-kind commodities and services, and goods and services produced and consumed by the same household. Since HFCE is one of the main drivers of economic expansion in ASEAN nations, it is crucial to consider it while studying demand (Pascasio et al., 2018). However, during the mid-1980s, there was a decreasing trend of household consumption due to high rates of poverty (Asian Development Bank, 2009) and a decrease during the year 2020 due to the COVID-19 pandemic due to limited transactions caused by the lockdown (Baker et al., 2020).

Economic expansion is a function of the process of raising the economic activities of producing goods and services in a society that is anticipated to raise the income of the community. According to the study's findings, household consumption has a favorable and substantial impact on economic growth; Investment impacts the economy favorably and significantly growth (Handriyani, 2018).

The empirical research demonstrates that household consumption and economic growth have a favorable long-term association. The data showed that a 1% rise in household consumption spending would result in a 0.7% improvement in economic growth. Additionally, Granger test-based causality analysis implies that variations in household consumption may be able to explain shifts in economic growth (Alassaf et al., 2019). According to the Keynesian macroeconomic model, household spending and other factors have a big impact on economic growth because they alter total expenditures. The economic growth rate is increased by 0.41% for every 1% rise in consumption spending. A key component of the gross domestic product is consumption (GDP). Regarding its contribution to economic growth, the total spending in an economy calculated as the sum of household and public expenditures is crucial. Therefore, one of the most significant factors in GDP is consumption (Alper, 2018).

Consumption is increasingly driving GDP growth. However, growth driven by consumption is typically much weaker than growth driven by other facets of aggregate demand, frequently because of the accumulation of imbalances. The incidence of consumption-led growth and rising debt service ratios significantly slow growth in the medium to long term, even though variables like loan growth and rising home values might increase demand in the near term. Therefore, the key to promoting long-term growth is to implement policies that reduce the accumulation of imbalances and boost investment (Kharroubi et al., 2017).

2.6 Synthesis

Private and public consumption is highly correlated with GDP, implying that investment involvement has little effect on the value of GDP. However, the GDP is still considered advantageous for government officials charged with stabilizing the economy. With the adoption of new technology and rising incomes, among other factors, services trade is anticipated to become the new driver of global trade growth. The Philippines has already made considerable progress thanks to its notable performance in the business process outsourcing industry. However, in recent times, Philippine service exports have been expanding much more slowly than in the past, as well as slower than both global and regional trends. The growth of the Philippine economy may be impacted by foreign direct investment. The primary trading partners of the Philippines do not contribute to economic expansion, although increased government spending slows down economic expansion. Because FDI and GDP are positively correlated over the short- and long-term, conductive policies and an enabling environment are required to draw in more FDI. The local governments in the Philippines have been tasked to increase autonomy, revenue-raising and expenditure responsibilities in order to increase economic growth. The improvement of government expenditure will have a significant positive impact on domestic growth. Experts believe that furthering the economic recovery can increase tax revenue collections, which might help reduce the country's budget deficit. 70% of the nation's Gross Domestic Product (GDP) is made up of household final consumption expenditures (HFCE). HFCE is one of the main drivers of economic expansion in ASEAN nations. There are differences between estimates from national accounts and those collected directly from the Family Income and Expenditure Survey (FIES). Such differences have implications for policy: if survey-based estimates are biased downward, poverty may be overstated, and income disparity may be underestimated. Although there are an in-depth number of studies correlating the factors individually: Exports of Goods and Services (EoGS), Foreign Direct Investment (FDI), General Government Consumption Expenditure (GGCE), and Household and NPISHs Final Consumption Expenditure (HFCE) to Gross Domestic Product Growth (GDPG). However, there are only a few related studies and research that are related to the Philippines within the timetable that the researchers have used. This present research aims to spot the positive and negative factors that affect GDP growth and to supply feasible solutions to the matter encountered with the consequences of the said factors. The researcher must consider both positive and negative factors to totally comprehend and analyze the present problems encountered and to relinquish solutions to them.

2.7 Theoretical Framework

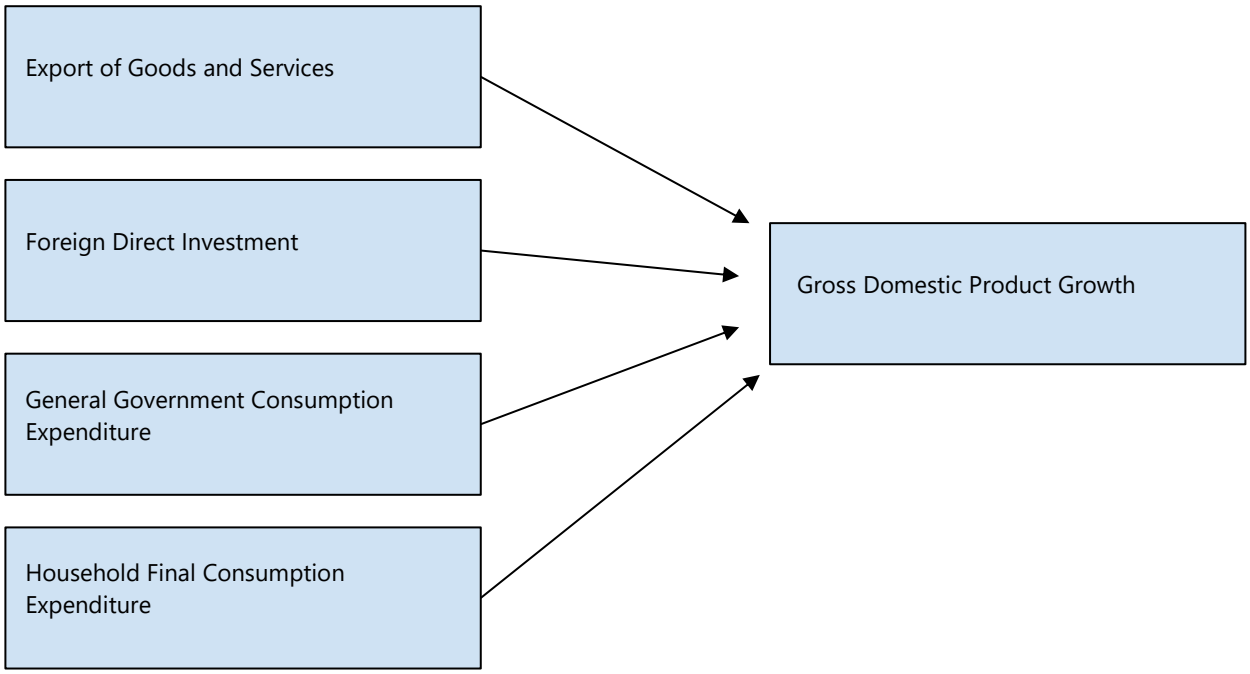


FIGURE 1: Theoretical framework

This paper uses two different theories to explain the relationships between the researchers' independent and dependent variables. The first theory used is the Keynesian Theory of Economics which relates the variables of Household and NPISHs Final Consumption Expenditure and General Government Consumption Expenditure to GDP Growth. The theory was developed by John Maynard Keynes during the Great Depression of the 1930s; wherein he stated that the economy's output is correlated with consumption as one of the determinants for the increase and decrease of demand. Whereas high aggregate demand promotes price stability and employment, which in turn leads to economic growth. (Jahan et al., 2014)

The second theory that this paper used was the Exogenous Growth Theory, a theory on neoclassical models, which relates the independent variables, Foreign Direct Investment and Export of Goods and Services, to the dependent variable, GDP Growth. This theory revolves around the idea that outside factors, such as investment and production, to name a few, affect economic growth. The relationship between Foreign Direct Investment and Exports is important in assessing the overall economic growth of a country; based on an impulse response analysis; it is shown that two variables have a dynamic response to exogenous shocks. (Pfaffermayr,2006)

2.8 Operational Framework

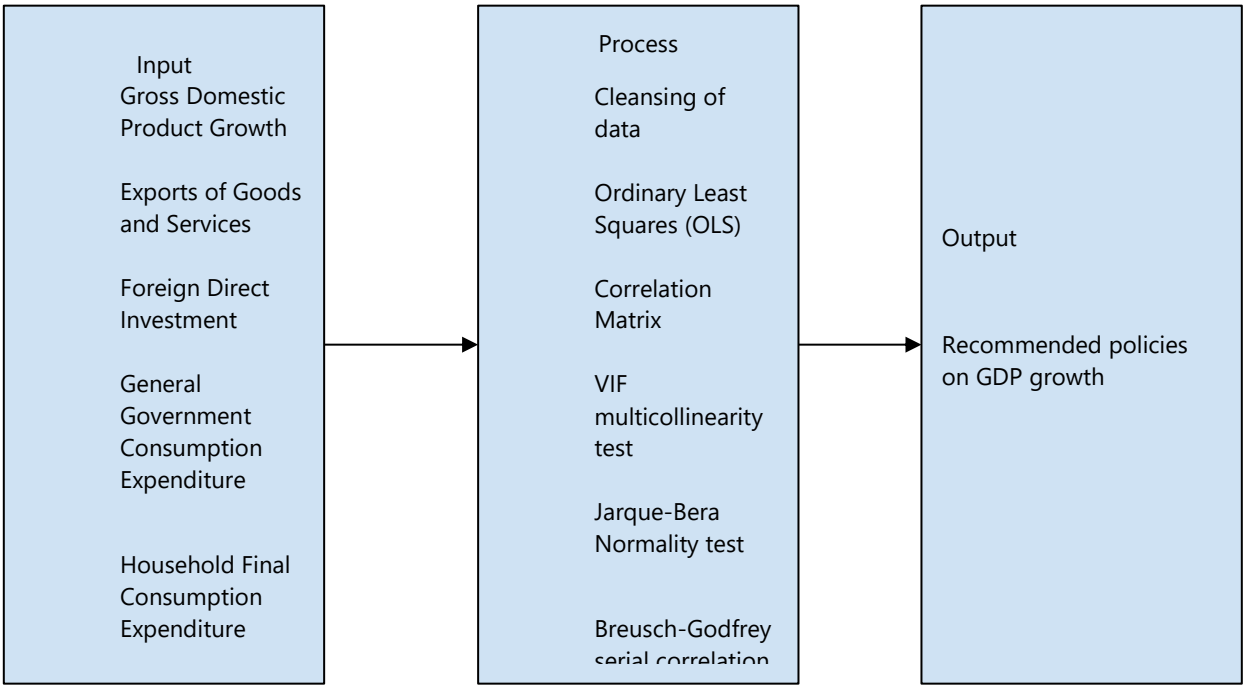


FIGURE 2: Operational Framework

The input of this study consists of the 5 variables that will be used for testing and will mainly focus on the independent variables: Export of Goods and Services (EoGS), Foreign Direct Investment (FDI), General Government Consumption Expenditure (GGCE), Household and NPISHs Final Consumption Expenditure (HFCE) and the dependent variable: Gross Domestic Product Growth (GDPG). The process of this study includes the statistical tests that will be used in conducting the study; these tests are the Augmented Dickey-Fuller Test, Jarque-Bera Normality test, Scatter Plot Ordinary Least Square (OLS), VIF multicollinearity test, Breusch-Pagan- Godfrey Heteroskedasticity, Breusch-Godfrey serial correlation test, Ramsey RESET test, Durbin-Watson test, and the CUSUM test structural stability. To obtain our output, the study will rely heavily on the results of the tests to achieve the desired goal of the study.

2.9 Definition of Terms

• Exports of Goods and Services (EoGS) - Exports of Goods and Services refers to the sale of a good or service from one country to another.

• Foreign Direct Investment (FDI) - Foreign Direct Investment is a type of investment where an investor or company, a resident of one economy, takes an interest in investing in another economy. This type of investment is beneficial to an economy because it promotes added knowledge, employment, and technology to an economy.

• General Government Consumption Expenditure (GGCE) - The total expenditure of a government for the purchase of goods and services in an economy.

• Gross Domestic Product Growth Rate (GDPG) - Gross Domestic Product Growth rate is used to measure the overall output of an economy. High GDPG rate countries tend to have a better standard of living and produce more goods and services. It is also a measure of economic activity and the health of an economy; it is typically measured annually. It is used to measure the GDP at its market price.

• Household and NPISHs Final Consumption Expenditure (HFCE) - Value of the total goods and services purchased by households.

• Non-Profit Institutions Serving Households (NPISH) - Organizations that are non-profit that serve households for free, like churches, charitable organizations, clubs, unions, and other similar types of organizations.

3. Methodology

3.1 Research Design

The study used a quantitative method of research design to determine the relationship and measure the strength of each variable in the econometric model. The research design is in reference to the approach used by Santos, Serrano and Pigao (2022), wherein a quantitative method was used to analyze the implications of the independent variables to the dependent variable. The Ordinary Least Squares is the statistical tool used in determining the said relationship with different tests for the strength of the econometric model.

3.2 Research Procedure

The study started with generating the trendline of each variable using Microsoft Excel to illustrate the status of the variables throughout the 51- year period and determine which years the variables showed an indifferent trend. Using the Gretl software, data testing started with the cleansing of the data through the stationary test, normality test, and checking the scatter plot. The Ordinary Least Squares were then conducted to test the significance of the independent variables (EoGS, FDI, GGCE and HFCE) to the dependent variable (GDPG). Different tests were also applied using the regression results to further examine if the model is valid and unbiased.

3.3 Data Gathering Procedure

This paper is a secondary data driven study; all data was gathered from a reliable database, World Bank Open Data. This database offers easy access to numerous countries which, includes the Philippines. The website's support for the alleviation of poverty and higher knowledge ensures minimal restrictions on data gathering and the spread of misinformation. The periodicity of all files is formatted annually, including the variables used by the researchers, which are dated from 1970-2020, covering 51 years of information. This was chosen to have a wider scope of the economic performance of the Philippines.

3.4 Variable Description

Variable Description

Variable	**Label**	**Description**	**Measurement**
Gross Domestic Product Growth	GDPG	Annual percentage growth rate of GDP at market prices based on constant local currency.	In percent, annual growth
Exports of Goods and Services	EoGS	Annual growth rate of exports of goods and services based on constant local currency	In percent, annual growth
Foreign Direct Investment	FDI	Net inflows in the	In percent, annual growth

		reporting economy from foreign investors and is divided by GDP.	
General Government Consumption Expenditure	GGCE	Annual percentage growth of general government final consumption expenditure based on constant local currency.	In percent, annual growth
Household Final Consumption Expenditure	HFCE	Annual percentage growth of household and NPISHs final consumption expenditure based on constant local currency	In percent, annual growth

Table 1. List of Variable Descriptions: All descriptions are taken from the World Bank Open Data

3.5 Assumptions

• Increase in Exports of Goods and Services will result in an increase in GDP growth (+)

• Increase in Foreign Direct Investment will result in an increase in GDP growth (+)

• Increase in General Government Consumption Expenditure will result in an increase in GDP growth (+)

• Increase in Household, and NPISHs Final Consumption Expenditure will result in an increase in GDP growth (+)

3.6 Econometric Model

$$GDPG = \beta 0 + \beta 1 EoGS + \beta 2 FDI + \beta 3 GGCE + \beta 4 HFCE + u$$

Where:
GDPG= Gross Domestic Product Growth
EoGS= Exports of Goods and Services
FDI= Foreign Direct Investment
GGCE= General Government Consumption Expenditure
HFCE= Household and NPISHs Final Consumption Expenditure
$\beta 0$ = Intercept
$\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$ = Coefficient of the variables
u = error term

3.7 Measurement and Instrumentation

This study used statistical software to conduct the necessary tests to conclude the hypotheses. Researchers used the software Gretl to test the relationship and robustness of the model. Illustrations are also generated from the software and from Microsoft Excel, including a copy of the results. The tests conducted using the software are:

3.7.1 Augmented Dickey-Fuller Test

ADF is a unit root test that determines if the time series of the variables are non-stationary. This is used to check if the data will not result in an inconsistent time series trend that could lead to unpredictable results in the long term. The p-value of the stationary test must be lower than 0.05, which is the significance level used in this paper, to reject the null hypothesis of non-stationary.

$$\Delta yt = yt - yt - 1 = \alpha + \beta t + \gamma yt - 1 + et$$

3.7.2 Jarque-Bera Normality test

The Jarque-Bera is a type of test used in testing the normality of the variables. To determine if the data of each variable is normally distributed, a Jarque-Bera value of less than 10 is needed with a p-value of more than 0.05 to accept the null hypothesis of normal distribution. Having a not normally distributed set of data can mean there are extreme values in the time series.

$$JB = n\ [(\sqrt{}b1)2 / 6 + (b2 - 3)2 / 24]$$

3.7.3 Scatter plot

A scatter plot is used to determine the relationship between two variables through dots that represent each data of the variables. A positive relationship is observed when the movement of the dots is in an upward trend. In contrast, a negative relationship is seen through a downward movement of the dots. Correlation is measured through the closeness of each dot; outliers can be present in these graphs that would suggest being apart from the regression line.

3.7.4 Ordinary Least Squares (OLS)

This test is used in estimating coefficients of a linear regression model that determines the relationship between a single or multiple independent variables and a dependent variable. Under this, several results were obtained, and the t-stat and p-value were used to determine the significance of the independent variables to the dependent variable; a value of less than 0.05 is needed to prove this significance. F-stat serves as a basis to conclude if one variable is nonzero. Lastly, the R2. is used, which measures the goodness of fit of the model and the proportion of the dependent variable explained by the independent; an ideal R2 is between 80-90 percent.

$$y = \beta0 + \beta1\ x + \beta2\ x + \beta3\ x + \beta4\ x + \varepsilon$$

3.7.5 Variance Inflation Factor (VIF) multicollinearity test

Unlike the correlation matrix, using the VIF will identify the degree of multicollinearity present in the model; a value of more than 10 is used to detect multicollinearity in the equation. This test will help the researchers avoid the violation of the CLRM assumptions that lessens the credibility of the study once failed. The presence of multicollinearity in each model since one independent variable can fluctuate the other independent variable once it undergoes the slightest change. This would lead to biased and inaccurate results.

$$VIF_i = \frac{1}{1 - R_i^2}$$

3.7.6 Breusch-Pagan-Godfrey heteroskedasticity test

This test is used to identify if heteroskedasticity is present in the model; a value of more than 0.05 results in failure to reject the null hypothesis of the error variances being equal. The presence of heteroskedasticity means that whenever there is an increase in values in the plot, residuals tend to spread out more apart from one another. The violation of this assumption would result in the inaccuracy of the model since the residuals are not distributed with equal variance.

$$\theta = \frac{1}{2}(ESS) \sim X_{m-1}^2$$

3.7.7 Breusch-Godfrey serial correlation test

The presence of autocorrelation in a model violates the CLRM assumption, which invalidates the results of the significance of the independent variables to the dependent variable. This test is used to identify if the economic model possesses that kind of problem wherein there is a correlation between the variables that similarity during lagged versions of the variables in different intervals takes place. A value of more than 0.05 is needed to accept the null hypothesis of no serial correlation in the model.

$$LM = (n - p)R^2 \sim X_P^2$$

3.7.8 Ramsey's RESET test

The RESET test is a specification error test that checks if there are any omitted variables in the regression equation. It determines if the combination of the non-linear residual from the variables helps explain the dependent variable. Failure in this test results in inaccurate and unreliable results since CLRM assumptions are not met; a value of more than 0.05 is needed to accept the null hypothesis of no omitted variables.

$$F = \frac{\frac{(R_{new}^2 - R_{old}^2)}{number\ of\ new\ regressors}}{(1 - R_{new}^2)/(n - number\ of\ parameters\ in\ new\ model}$$

3.7.9 Durbin Watson test

This test has the same objective as the Breusch-Godfrey serial correlation test that indicates if there is a presence of autocorrelation in the regression model. Unlike the Breusch-Godfrey, it only uses one time lag in checking the residuals. The Durbin Watson has a

value ranging from 0 to 4, in which the ideal value would be between 1.5 to 2.5 to reject the presence of autocorrelation in the equation.

$$DW = \frac{\sum_{t=2}^{T} (e_t - e_{t-1})^2}{\sum_{t=1}^{T} e_t^2}$$

3.7.10 CUSUM Test Structural stability

Testing for structural stability is used to check if the movement of the residuals is unaffected by small changes. It assesses the stability of coefficients once split in half; the breaking of the trend through surpassing the divided data margin shows a structural break or not staying within the significance level zone. This instability will result in invalid conclusions that lead to forecast errors.

3.8 Ethical Considerations

The use of secondary data is a highly ethical practice in and of itself: it maximizes the value of any (public) investment in data collection, reduces the burden on respondents, ensures replicability of study findings, and, thus, greater transparency of research procedures and integrity of research work. However, the value of secondary data can be fully realized only if the benefits outweigh the risks, particularly in terms of the re-identification of individuals and disclosure of sensitive information. For the conduct of the research, the researchers are to follow the following ethical approaches for the research:

1. Honesty: The researcher will honestly report data, results, methods and procedures, and publication status. Citing the literature and studies will not fabricate, falsify, or misrepresent data.

2. Objectivity: The researcher will strive to avoid bias in data analysis, data interpretation and other aspects of research

3. Carefulness: The researcher will avoid careless errors and negligence; carefully and critically examine your own work.

4. Respect for Intellectual Property: The researcher will honor copyrights and other forms of intellectual property. Researchers will not use unpublished data, methods, or results without permission. Give credit where credit is due. Never plagiarize

5. Responsible Publication: The researcher will avoid wasteful and duplicative publication.

4. Results and Discussion

This chapter discusses the results from the different statistical tests conducted in determining the relationship between the dependent and independent variables. Plots are also used to further discuss the said relationship of the variables. This section also includes illustrations of the current state of the variables during the chosen years.

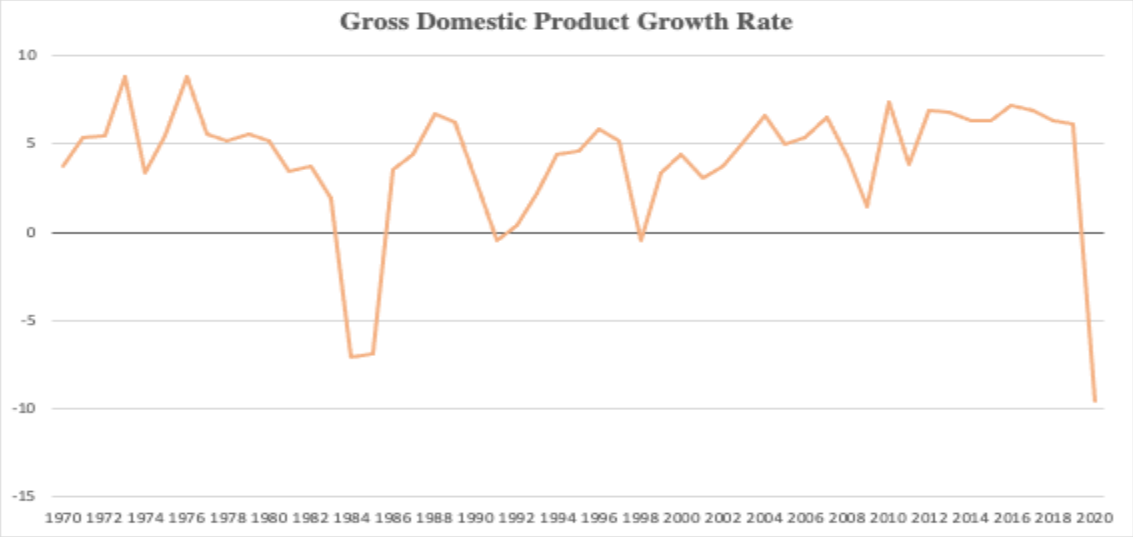


Figure 4.1 Growth Rate of the Philippines from 1970-2020

Figure 4.1 illustrates the growth rate of the Philippines from 1970-2020. It can be observed that the average GDP growth of the country was 3.8 % during the Marcos era. The economy was in an expansionary state resulting in average growth of 16.8% for the years 1970-1975. However, the trend shows a drastic decrease during the mid-1980s, becoming a notable recession after WWII. The country's inability to sustain growth was led by the loss of business confidence from the Aquino assassination, devalued peso, and heavy borrowing. (de Dios et al., 2021). Continuous growth spurt after the regime where an average of 4.5% annual growth rate between 2000-2009 took place and 6.4% for 2010-2017, having a faster growth than the neighboring countries. (Felipe & Estrada, 2018). The 2020 pandemic took a deeper fall of economic growth worldwide, resulting in the downfall of the Philippines which was worse than the historical events of the Marcos Regime.

Figure 4.2 shows the current State of the Exports of Goods and Services of the Philippines from the years 1970-2020

Figure 4.2 illustrates the present status of the Philippines' exports of goods and services from 1970 to 2020. 1980 marked the country's strongest year for exports between 1970 and 2020. According to Philippine Agricultural Exports (2012), the agricultural sector accounted for 37.68% of exports during this year, down from 5.21% in 2000 when electronics exports predominated due to rising production costs. The annual growth rate of exports of goods and services plunged to -19.9% in 1998; however, despite the negative effects, merchandise exports increased, with the electronic industry accounting for 67% of all export growth. (World Trade Organization, 1999). The service sector has been responsible for the growth of exports and services where Overseas Filipino Workers covered more than 10 million from 2010 and onward, except for 2020 when the pandemic impacted the performance of the country. Agriculture and manufacturing are still fundamental industries in maintaining the high performance of exports (Mitra, 2013).

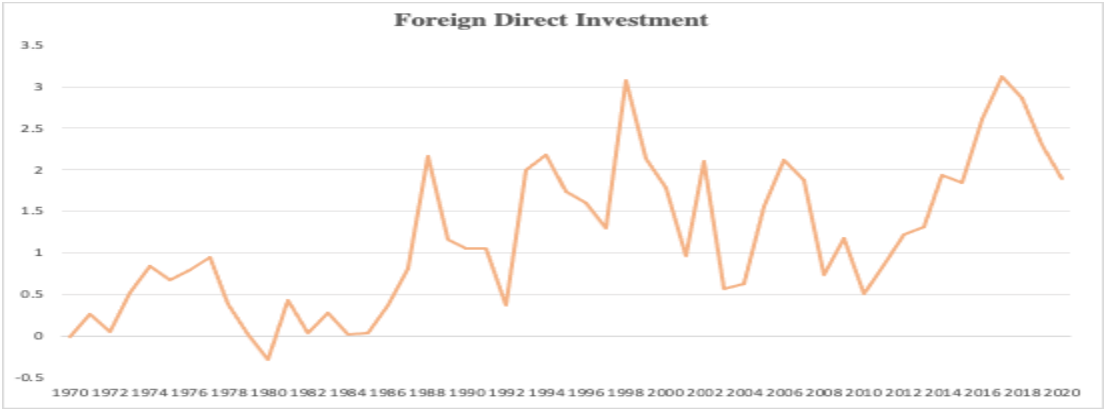


Figure 4.3 shows the current State of the Foreign Direct Investment of the Philippines from the years 1970-2020

Figure 4.3 illustrates the current state of Foreign Direct Investment in the Philippines from the year 1970-2020. The average FDI of the country for the years 1970 to the mid-1980s is around 0.5%. Expansion of FDI is seen to boost exportation, which resulted in the economy opening to this idea. The years 1986-1988 showed a steady increase which resulted in $843 million through the debt

equity program. Investment showed a fall in 1990 but recovered from 1992 to 1993. An increase from 2004 to 2007 is observed, which was caused by the food and beverage industry with a 12.7 share. (Aldaba, 2010). Since the approved FDI does not account for actual generated investments but rather the commitment that can be of use in the future, the trend shows a consistent growth of FDI from 2010 onwards. In accordance with the 38th Global Investment Trend Monitor, the Philippines received a higher FDI of 29% compared to the neighboring countries in Asia, reaching an approved FDI of $749 million for the 4th quarter of 2020. Sectors that had the most FDI are the utilities, manufacturing, and administrative and support service activities. (InCorp Philippines, 2021).

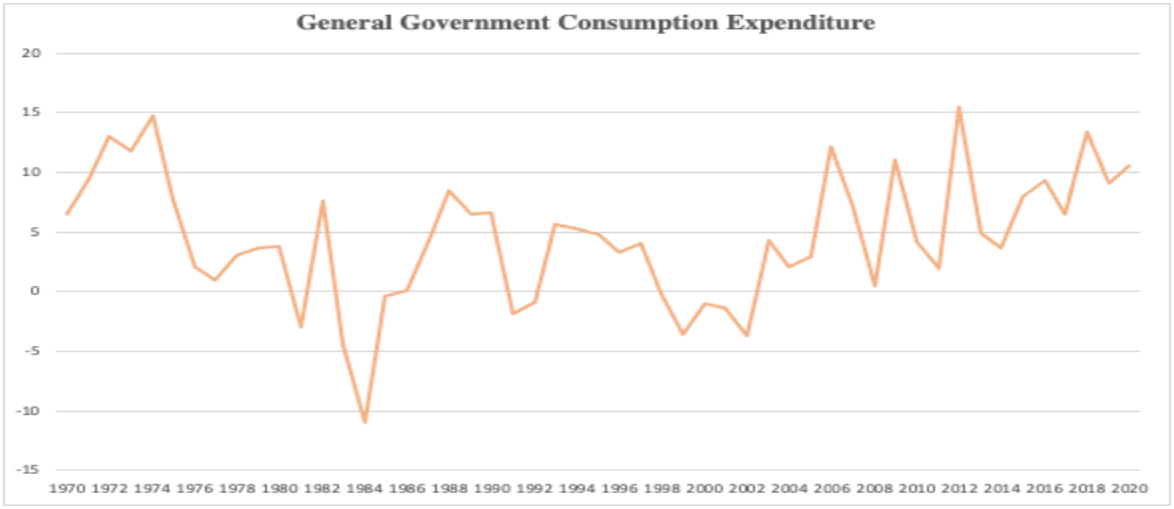


Figure 4.4 shows the current State of the General Government Consumption Expenditure of the Philippines from year 1970-2020

Figure 4.4 illustrates the current state of the General Government Consumption Expenditure of the Philippines from 1970-2020. The graph shows an increase in government spending from 1970 to mid 1970's where it marks as the second highest annual growth government expenditure of the country. Expenditures increased for these years since a 4-year development plan was created during the State of the Nation Address of the late former president Ferdinand Marcos which centered on the restructuring of economic activities. Infrastructure like highways had the highest allocated budget in this development plan (Official Gazette, 1970). However, the early 1980 showed the lowest trend where the economic crisis was getting worse, and Marcos declared bankruptcy. The highest annual growth of government expenditure was during the PPP, and increased budget on education of the late former president Benigno Aquino Jr during 2012. (Philippine Embassy Norway, 2012).

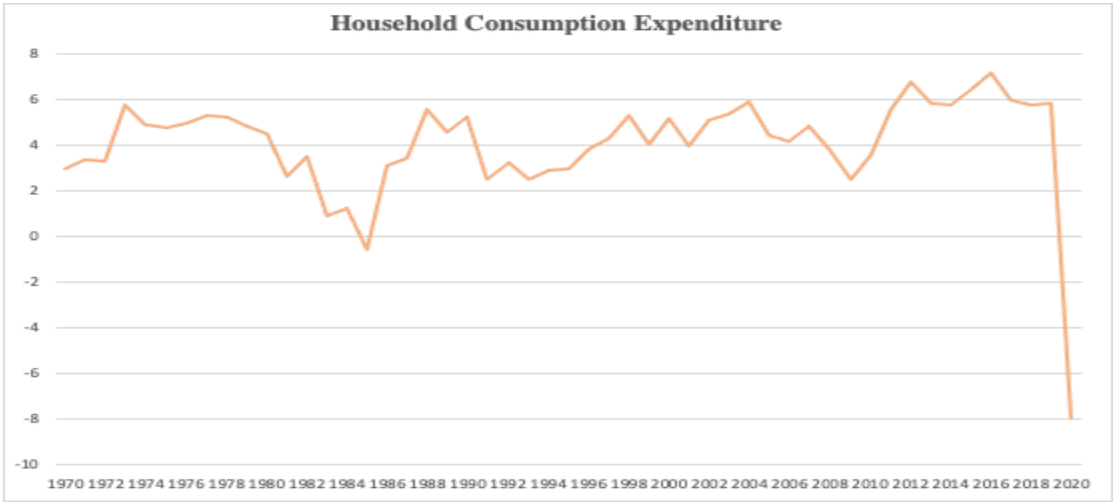


Figure 4.5 shows the current state of the Household Consumption Expenditure of the Philippines from the years 1970-2020

Figure 4.5 illustrates the current state of the Household and NPISHs Final Consumption Expenditure Philippines from 1970-2020. Household consumption growth showed a decreasing trend until it decreased to a negative rate during the mid-1980s. This incident was driven by the failure to create a significant change in the poverty rate. The poor population was almost 27 million during this timeframe. (Asian Development Bank, 2009). The economic crisis during the Marcos Regime also contributed to low

household consumption. However, consumption plummeted in 2020, when the COVID-19 pandemic changed the spending habits where transactions became limited, thus decreasing the usual consumption of Households. (Baker et al., 2020)

Table 2. Regression Summary Model

VARIABLES	COEFFICIENT	P-VALUE	R-SQUARED
constant	-1.60758	0.0043	0.8087
FDI	-0.170849	0.542	
EoGS	0.113218	2.32E-05	
HFCE	1.03931	4.83E-12	
GGCE	0.186965	0.0001	

Using the GRETL software, the OLS regression results showed an R-Squared of 80.87 percent; this would mean that 80.87 percent of the variability of the dependent variable is explained by the independent variables. This percentage also indicates that the data used fits the model since a higher R-Squared indicates nearer points around the regression line. The FDI showed a P-value of 0.542, at a 5% level of significance; this would mean that the independent variable is insignificant to the dependent variable. The coefficient of the FDI shows a negative value which means that for every 1 unit increase in FDI, GDPG will fall by 0.1708. This negative relationship was also shown in the study of Herzer (2010), where a cross country study was conducted between different developing countries. It showed that FDI has an average negative relationship with growth when it comes to developing countries. This is prompted by the restrictions imposed by the government or entity and the mismanagement of investments allocated in the chosen economy. Long term causation of negative impact was driven by the supply of natural resources and volatility of FDi Khaliq & Noy (2007) state that there is a positive relationship between FDI and GDP growth, especially in the developing world where attracting inflows has been a priority of the host economies. Borensztein et al. (1998) also identify the importance of FDI as a vehicle for transferring technology for a greater mass of development. In this study, foreign direct investment had no bearing on the growth of the Philippines' gross domestic product. The exogenous growth theory, however, makes it clear that foreign direct investment affects economic growth. (Mahembe & Odhiambo, 2014).

The Exports of Goods and Services showed a P-value of 2.32115E-05, indicating that the independent variable is significant to the dependent variable. With the above coefficient, every 1 unit increase in EoGS will result in an increase in GDPG by 0.1132. Gylfason (1997) states that developing countries tend to be dependent on exportation, which covers a higher percentage of their GDP compared to developed countries. In accordance with the exogenous growth theory that states economic growth is influenced by outside economies, export led growth is verified in some developing countries. (Smith, 2001).

The Household and NPISHs Final Consumption of Expenditure showed a P-value of 4.83242E-12, stating there is a significant relationship between the HCE and GDPG. This also shows that for every 1 unit increase in HFCE, GDPG will increase by 1.0393. Handriyani et al. (2018) discuss that the greater the consumption expenditure an individual has will have the more positive the economic impact. Consumption is a crucial aspect of GDP that accounts for the analysis of demand, which contributes to the spending of individuals enough to generate growth.

The P-value of the General Government Consumption Expenditure is 0.0001; this means that the independent variable is significant to the dependent variable. The coefficient of GGCE is 0.1870; with this, for every 1 unit increase of GGCE, the GDPG will increase by 0.1870. Günalp and Gür (2002) proved that there is a positive relationship between government and economic growth in developing countries where the impact is also determined by the size of the government. The keynesian theory proposes that there is a direct relationship between government spending and growth. This means that the more a government spends, the higher the economic prosperity. (Romer, 1986, as cited in Nyasha & Odhiambo, 2019).

5. Summary, Results, and Conclusions

5.1 Summary

There are currently no other studies that used the economic determinants in the paper in determining the variables that are significant to the Gross Domestic Product Growth in the Philippines. While the Philippines is still working on its economic development, aspects such as Foreign Direct Investment (FDI), Exports of Goods & Services (EoGS), Household and NPISHs Final Consumption Expenditure (HFCE), and General Government Consumption Expenditure (GGCE) are important in improving the economy's Gross Domestic Product Growth (GDPG); Where the GDP growth rate of the Philippines is in a downward state due to economic shocks such as the global pandemic during 2020 and an economic recession in the 1980s. But through the years 2000-2017, the GDP growth of the Philippines has shown a positive increase of 4.5% from 2000-2009 and by 6.4% from 2010-2017. Foreign Direct Investment (FDI) and General Government Consumption Expenditure (GGCE) are shown to have a positive trend with a stable increase after the year 1980. However, these variables were severely affected by the economic recession during the mid-1980s but have then shown a positive trend when the Philippine economy was recovering from the recession. Exports of goods and services (EoGS) have shown a negative downward state where a decline of 5.1% was seen during the year 2000. However, EoGS still contributed heavily to the GDP growth of the Philippine economy. The data underwent cleansing before testing the OLS to comply with the standards of econometrics.

To prove the relationship between the variables, a series of tests were conducted using GRETL Software during the years 1970-2020. As seen during the year 2020, there was a big negative impact on GDP growth which led to the loss of exports and investments and the lessened amount of consumption for household expenditures due to the lockdown. Government spending, however, was increased due to the response plan of the government regarding the COVID-19 pandemic. During the years 2010-2017, we could see a positive trend for GDP growth which was the result of the increase of all other variables. Based on the results provided in the previous chapter GDPG has a positive relationship with EoGS, GGCE, and HFCE. However, the variable FDI was shown to be insignificant.

GDPG = -1.60758 - 0.170849FDI + 0.113218EoGS + 1.03931HFCE+ 0.186965GGCE + u

Gross Domestic Product, Foreign Direct Investment, Exports of Goods and Services, General Government Consumption Expenditure and Household and NPISHs Final Consumption Expenditure all showed a massive decline during the 1980s. These were all impacted by the governance during the Marcos Administration. This decline of determinants worsened during the year 2020 when the COVID-19 pandemic managed to disrupt the economy of the entirety. However, the General Government Consumption Expenditure showed an increasing movement since the government compensated for the expansion of the healthcare sector and other subsidies to reduce the detrimental effects of the pandemic.

5.2 Conclusions

The findings of this study are that Exports of Goods and services, Household and NPISHs Final Consumption Expenditure, and General Government Expenditure Consumption contribute to the Philippines' economic growth. The three variables showed an average positive relationship with the dependent variables. The insignificance of Foreign Direct Investment is possibly resulted of the lagging distribution of technological inflows causing a delay in economic impact and the level of freedom of the economy causing a delay in the economic impact of the economy. Certain barriers like corruption limit the movement of the inflows and tend to be excluded in the money supply chain. Therefore, resulting in the insignificance to the economy, The econometric model underwent different tests to measure its robustness. The assumptions for the presence of multicollinearity and autocorrelation were rejected. This means that the independent variables of the regression model are not dependent on one another. Heteroscedasticity is detected in the model due to the variable GGCE. This is mainly caused by the presence of outliers. The outliers for this variable were caused by the economic crisis from poor governance and natural calamities. Cleansing using the Jarque-Bera normality test and Augmented Dickey-Fuller Test showed that some variables are non-normal and non-stationary; the researchers managed to treat the data to reject the null hypothesis of the unit root test and accept the null hypothesis of the normality tests. However, when the OLS was tested, it resulted in an unacceptable econometric model caused by the new total number of observations, thus limiting the robustness tests. (See Appendix F). Based on the study of Mortera, Ocampo & Suin (2022), which also discussed the Determinants of the Philippine Economic Growth during the year 1987-2018, they were able to deliver their results without the process of cleansing the data. The remaining tests, which are the Ramsey RESET test and CUSUM test Structural stability, generated satisfactory results. Using the multiple regression results of the raw data, it was able to generate the econometric model above. The independent variables affect the Gross Domestic Product Growth differently. For every 1 unit increase in the independent variables, it will result in a decrease in GDPG by 0.1708 from FDI, an increase in GDPG by 0.1132 from EoGS, an increase in GDPG by 1.0393 from HFCE, and will increase by 0.1870 from GGCE.

5.3 Recommendations

Researchers recommend removing the FDI from the econometric model since it showed an insignificant relationship to the dependent variable. This would also denote that the exogenous theory is not applicable when it comes to foreign direct investment in the Philippines. The key findings of this study can be used to aid the government in creating policies that could benefit the country's GDP growth. Agencies such as the Department of Trade and Industry (DTI) and the National Economic Development Agency (NEDA) are responsible for creating and implementing fiscal policies, monetary policies, economic planning, and development; therefore, using this study would be beneficial in order to help achieve economic growth. The Department of Finance would also be able to make use of this study in order to allocate the government's budget to further boost economic prosperity. Given this, the researchers could suggest that the government should identify Exports, Household Consumption, and General Government Consumption as significant to overall GDP growth since the variables have a positive relationship with the dependent variable GDPG. However, Foreign Direct Investment has shown a negative relationship with the dependent variable. But studies and research prove that the help of FDI leads to higher human capital development. The study is highly beneficial to future research regarding the economic growth of the Philippines. Lastly, the authors of this study would like to recommend using a different econometric model that includes a different set of variables using other economic theories that would be useful in studying economic growth in the Philippines. The researchers also suggest looking for the determinants that are significant to the independent variables used in this study since these variables are important in increasing the overall economic growth of the country.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

[1] Agub, S. (2012, February 29). Philippine Agricultural Exports At a Glance. Retrieved fro, https://legacy.senate.gov.ph/publications/AG%202012-02%20-%20Agricultural%20Exports.pdf

[2] Alassaf, M., Alzahrani, Y., & Al Rasasi, M. (2019). On the Casual elationship between Household Consumption and Economic Growth in Saudi Arabia. sama.gov.sa. https://www.sama.gov.sa/en-US/EconomicResearch/WorkingPapers/On%20the%20Casual%20 Relationship%20between%20Household%20Consumption%20and%20Economic%20Growth%20in%20Saudi%20Arabia.pdf

[3] Aldaba, R. (1994). Foreign Direct Investment in the Philippines: A Reassessment. United States Agency for International Development. Retrieved November 19, 2022, fromhttps://pdf.usaid.gov/pdf_docs/PNABX021.pdf

[4] Aldaba, R., & Aldaba, F. (2010, November). Assessing the spillover effects of FDI to the Philippines. Retrieved November 19, 2022, from https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps1027.pdf

[5] Alper, A. E. (2018). The Relationship of Economic Growth With Consumption, Investment, Unemployment Rates, Saving Rates and Portfolio Investments In The Developing Countries. dergipark.org. https://dergipark.org.tr/tr/download/article-file/504227

[6] Aldaba, F. (2009). Philippines: The Marcos debt. ADB.ORG.https://www.adb.org/sites/default/files/publication/27529/poverty-philippines-causes-constraints-opportunities.pdf

[7] Arwansyah, M., & Handriyani, R. (2018). Analysis the Effect of Household Consumption Expenditure, Investment and Labor to Economic Growth: A Case in Province of North Sumatra. researchgate.net.https://www.researchgate.net/publication/329447732_Analysis_the_Effect_of_Household_Consumption_Expenditure_Investment_and_Labor_to_Economic_Growth_A_Case_in_Province_of_North_SuMatra

[8] Asian Development Bank. (2022, November 7). Poverty in the Philippines: Causes, constraints and opportunities. Asian Development Bank.Retrieved December 2, 2022, fromhttps://www.adb.org/publications/poverty-philippines-causes-constraints-and opportunities

[9] Baker, S. R., Farrokhnia, R., Meyer, S., Pagel, M., & Yannelis, C. (2020). HOW DOES HOUSEHOLD SPENDING RESPOND TO AN EPIDEMIC? CONSUMPTION DURING THE 2020 COVID-19PANDEMIC. NBERhttps://www.nber.org/system/files/working_papers/w26949/w26949.Pdf

[10] Barro, R. (1996, August). DETERMINANTS OF ECONOMIC GROWTH: A CROSS-COUNTRY EMPIRICAL STUDY. National Bureau of Economic Research. Retrieved October 2, 2022, from https://www.nber.org/system/files/working_papers/w5698/w5698.pdf

[11] Bautista, M. E. Q., & Manzano, G. N. (2018). Duration of Export Relationships of Philippine MSMEs. PIDS. https://www.pids.gov.ph/publication/policy-notes/duration-of-export-relationships-of-philippine-msmes

[12] Bayudan-Dacuycuy, C. (2019). Diversification of products is key to improving PH export basket. PIDS.https://www.pids.gov.ph/details/diversification-of-products-key-to-improving-ph-export-basket

[13] Borensztein, E., De Gregorio, J., & Lee, J.-W. (1998, May 25). How does foreign direct investment affect economic growth? RetrievedDecember 1, 2022, fromhttps://olemiss.edu/courses/inst310/BorensztеinDeGLee98.pdf

[14] Botelho, J., Maksymova, I., Padalka, O., Mamanazarov, M., & Kulishov, V. (2021). Foreign Direct Investment as a Driver of Economic Recovery and Business Innovation. Shs-conferences.org. https://www.shs-conferences.org/articles/shsconf/abs/2021/11/shsconf_iscsai2021_01015/shsconf_iscsai2021_01015.html

[15] Bui, N. T, & Nguyen, M. T.(2022). Government expenditure and economic growth: does the role of corruption control matter?. Heliyon, 8(10),e10822. https://doi.org/10.1016/j.heliyon.2022.e10822

[16] Chamberlain, T., & Kalaitzi, A. (2020). Exports and Economic Growth: Some Evidence from the GCC. Springer.com. https://link.springer.com/article/10.1007/s11294-020-09786-0

[17] Dinh, T. H., Vo, D., Vo, A., & Nguyen, T. (2019). Foreign Direct Investment and Economic Growth in the Short Run and Long Run: EmpiricalEvidence from Developing Countries. MDPI.com.https://www.mdpi.com/1911-8074/12/4/176

[18] Dios, E. S. de, Gochoco-Bautista, M. S., & Punongbayan, J. C. (2021, November). (DP 2021-07) martial law and the Philippine economy. UPSE Discussion Papers. Retrieved November 19, 2022, from https://econ.upd.edu.ph/dp/index.php/dp/article/view/1543

[19] Duenas-Caparas, M. T. S. (2008). Firm-Level Determinants of Export Performance: Evidence from the Philippines. PIDS. https://www.pids.gov.ph/publication/philippine-journal-of-development/firm-level-determinants-of-export-performance-evidence-from-the-Philippines

[20] Dynan, K., & Sheiner, L. (2018). GDP as a Measure of Economic Well-being. www.brookings.edu. https://www.brookings.edu/wp-content/uploads/2018/08/WP43-8.23.18.pdf

[21] Felipe, J., & Estrada, G. (2018, April 11). Why Has the Philippines' GrowthPerformance Improved? From Disappointment to PromisingSuccess. ADB Economics Working Paper Series. RetrievedNovember 19, 2022, fromhttps://ideas.repec.org/p/ris/adbewp/0542.html

[22] Gatpolitan , L. (2019). Improving PH investment attractiveness to benefitfrom trade war. PIDS. https://www.pids.gov.ph/details/improving-ph-investment-attractiveness-to-benefit-from-trade-war

[23] Günalp, B., & Gür , T. H. (2002). Government expenditures and economic growth in developing countries: Evidence from a panel data analysis. ajindex.com. http://www.ajindex.com/dosyalar/makale/acarindex-1423910098.pdf

[24] Gylfason, T. (1997). Exports, Inflation, and Growth. imf.org.https://www.imf.org/external/pubs/ft/wp/wp97119.pdf

[25] Handriyani , R. (2018). Analysis Effect of Household Consumption,Investment and Labor to Economy Growth In Sumatera Utara.digilib.unimed.ac.id.http://digilib.unimed.ac.id/35344/2/ARTICLE.pdf

[26] Hemzawi, B., & Umutoni, N. (2021). Impact of exports and imports on economic growth. jonkoping university. http://hj.diva-portal.org/smash/get/diva2:1560984/FULLTEXT01.pdf

[27] Herzer, D. (2010). How does foreign direct investment really affectdeveloping countries'growth?https://www.econstor.eu/bitstream/10419/57319/1/641054777.pdf?fbclid=IwAR2UH-ShxRZ6c27M1FRAG_nx9h-EEYPaWJPl49vcTAS2JhV5HwMtDPu056c. ww.econstor.eu

[28] IMF (2017). Philippines Economic Update April 2017. www.worldbank.org.https://www.worldbank.org/en/news/feature/2017/05/04/philippines-economic-update-april-2017

[29] IMF(2022). World Economic Outlook. imf.org.https://www.imf.org/en/Publications/WEO#:~:text=Description%3A%20The%20global%20economy%20is,2021%2C%20especially%20for%20Emerging%20Asia

[30] Incorp (2021). What to Know About Foreign Direct Investments in the Philippines for 2021. kittelsoncarpo.com.https://kittelsoncarpo.com/foreign-direct-investments-in-the philippines/#:~:text=Foreign%20Direct%20Investment%20in%20the%20Philippines&text=The%20sectors%20that%20gained%20the,administrative%20and%20support%20service%20activities.

[31] Jahan, S., Mahmud, A., & Papageorgiou, C. (2014). What Is Keynesian Economics? www.imf.org. https://www.imf.org/external/pubs/ft/fandd/2014/09/basics.htm

[32] Khaliq, A., & Noy, I. (2007). Foreign Direct Investment and Economic Growth: Empirical Evidence from Sectoral Data in Indonesia.Economics Hawaii.https://www.economics.hawaii.edu/research/workingpapers/WP_07-26.pdf

[33] Kharroubi, E., & Kohlscheen, E. (2017). Consumption-led expansions. www.bis.org. https://www.bis.org/publ/qtrpdf/r_qt1703e.pdf

[34] Kutasi, G., & Marton, A. (2020). The long-term impact of public expenditureson GDP-growth. akjournals.com.https://akjournals.com/view/journals/204/42/4/article-p403.xml?body=contentsummary-24716

[35] Mahembe, E., & Odhiambo, N. (2014). FOREIGN DIRECT INVESTMENTAND ECONOMIC GROWTH: A THEORETICAL FRAMEWORKvirtisinterpress.org.https://virtusinterpress.org/IMG/pdf/10-22495_jgr_v3_i2_p6.pdf

[36] Manete, T., Meyer, D., & Muzindutsi, P. (2017). The Impact of Government Expenditure and Sectoral Investment on Economic Growth in South Africa. journals.asers publishing.eu.https://journals.aserspublishing.eu/jarle/article/view/1837

[37] Mapa , D. S., Ph.D (2021). Philippine GDP posts -8.3 percent in the fourthQuarter 2020; -9.5 percent for full-year 2020. Philippine StatisticsAuthority. https://psa.gov.ph/content/philippine-gdp-posts-83-percent-fourth-quarter-2020-95-percent-full-year-2020

[38] Marcos , F. E. (1970). Ferdinand E. Marcos, Fifth State of the NationAddress, January 26, 1970. Official Gazette.https://www.officialgazette.gov.ph/1970/01/26/ferdinand-e-marcos-fifth-state-of-the-nation-address-january-26-1970/

[39] Medina-Smith, E. J. (2001, January 23). Is the export-led growth hypothesis valid for developing ... - UNCTAD. UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT. Retrieved December 1, 2022,from https://unctad.org/system/files/official-document/itcdtab8_en.pdf

[40] Mitra, R. M. (2013, September). Leveraging Service Sector Growth in the Philippines. ADB Economics Working Paper Series. Retrieved November 19, 2022, fromhttps://www.adb.org/sites/default/files/publication/30385/ewp-366.pdf

[41] Mortera, S. G. C., Ocampo, J. V. P., & Suin, K. A. (2022). An Empirical Analysis on the Determinants of the Philippine Economic Growth: 1987-2018. Journal of Economics, Finance and Accounting Studies, 4(2), 65–77. https://doi.org/10.32996/jefas.2022.4.2.6

[42] Nyasha, S., Ph.D. (2019). THE IMPACT OF PUBLIC EXPENDITURE ON ECONOMIC GROWTH: A REVIEW OF INTERNATIONAL LITERATURE. sciendo.com.https://sciendo.com/downloadpdf/journals/foli/19/2/article-p81.xml

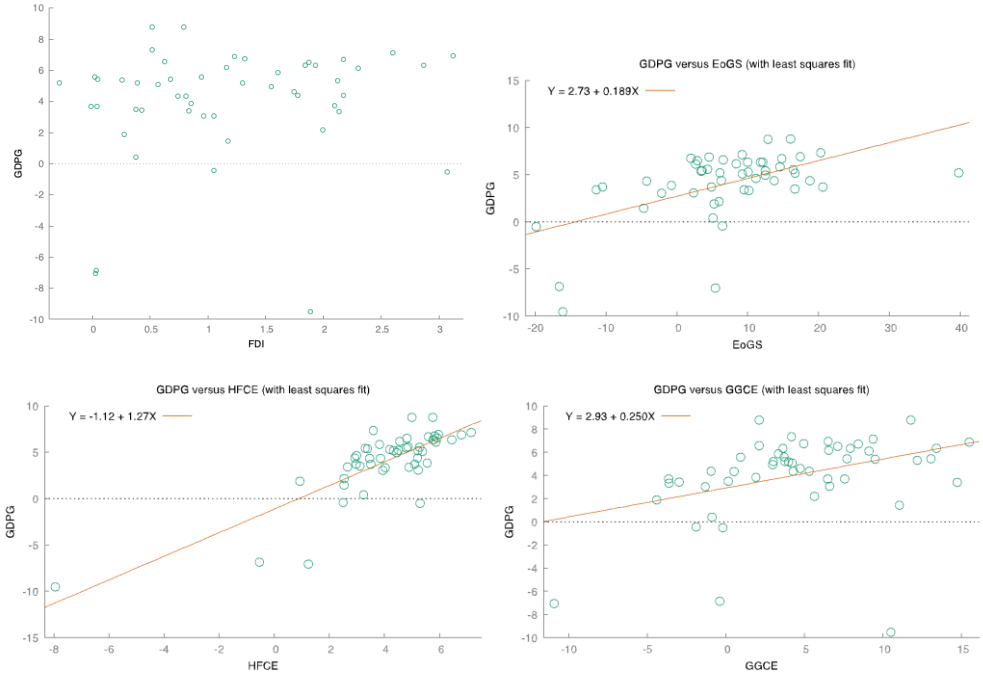
[43] Pascasio, M., Dimafelix, A., Gamis, J., Chavez, L., & Robredo, J. (2018). Demystifying the Household Final Consumption Expenditure (HFCE) in the Philippine System of National Accounts (PSNA). psa.gov.ph.https://psa.gov.ph/sites/default/files/1.1.1%20Demystifying%20the%20Household%20Final%20Consumption%20Expenditure%20%28HFCE%29%20in%20the%20Philippine%20System%20of%20National%20Accounts%20%28PSNA%29_0.pdf

[44] Pfaffermayer, M. (2006). Foreign direct investment and exports: a timeseries approach. www.imf.org.https://www.imf.org/external/pubs/ft/fandd/2014/09/basics.html

[45] PSA (2020). Agricultural Indicators Systems. psa.gov.ph.https://psa.gov.ph/sites/default/files/AIS_Agri%20Exports%20and%20Imports%202020_signed_0.pdf
[46] Santos, B. M. ., Serrano, K. S., & Pigao, K. J. (2022). An Assessment: The Philippine Outstanding Debt and other Economic Determinants towards its Implication on Economic Growth. *Journal of Economics, Finance and Accounting Studies, 4*(2), 126–147.https://doi.org/10.32996/jefas.2022.4.2.11
[47] Serafica , R. B., & Bayudan-Dacuycuy, C. (2018). Discovering the Philippines' Potential Export Portfolio through the Product Space: Some Products and Ways Forward. PIDS.https://www.pids.gov.ph/publication/discussion-papers/discovering-the-philippines-potential-export-portfolio-through-the-product-space-some-products-and-ways-forward
[48] Serafica , R. B. (2017). Performance of Philippine Services Trade: An Update. PIDS. https://www.pids.gov.ph/publication/discussion-papers/performance-of-philippine-services-trade-an-update
[49] Susic, M., & Trivanovic, M. (2017). Foreign direct investments and their impact on the economic development of Bosnia and Herzegovina. IOPScience.com. https://iopscience.iop.org/article/10.1088/1757-899X/200/1/012019
[50] Tadem , E. C. (2018). Philippines: The Marcos debt. CADTM.https://www.cadtm.org/Philippines-The-Marcos-debt
[51] Taguchi, S. (2022). ASEAN economy to slow down in 2nd half of 2022:JCER/Nikkei survey. asia.nikkei.com.https://asia.nikkei.com/Economy/ASEAN-economy-to-slow-down-in-2nd-half-of-2022-JCER-Nikkei-survey#:~:text=Gross%20domestic%20product%20for%20the,Research%20and%20Nikkei
[52] Villanueva, J. (2021). Positive impact of rise in gov't spending on GDP cited.pna.gov. https://www.pna.gov.ph/articles/1157743
[53] Wahyudi, W. (2020). The Relationship between Government Spending and Economic Growth Revisited. International Journal of Economics andFinancial Issues, 10(6), 84–88. Retrieved fromhttps://www.econjournals.com/index.php/ijefi/article/view/10614
[54] Worku, U. (2021, February 20). The Determinants of GDP Growth Rate inEast Africa. David Publishing. Retrieved October 2, 2022, from https://www.davidpublisher.com/Public/uploads/Contribute/6035b73 cc994f.pdf
[55] World Trade Organization. (1999, September 20). The Philippines: September 1999. WTO. Retrieved November 19, 2022, fromhttps://www.wto.org/english/tratop_e/tpr_e/tp114_e.html

Appendicies

Appendix A. Scatter Plot



Appendix B. Data

Year	GDPG	FDI	EoGS	HFCE	GGCE
1970	3.692487487	-0.0137581	20.6108367	2.96522806	6.46350044
1971	5.389008416	0.2577884	3.41319118	3.38143673	9.48195396
1972	5.430387494	0.04521457	12.4886053	3.29933112	13.044405
1973	8.782009122	0.51960929	16.0481753	5.75828403	11.7685878
1974	3.394606379	0.83765675	-11.410099	4.8867834	14.7130767
1975	5.45110287	0.67554592	3.53352091	4.79890312	7.69607842
1976	8.778403331	0.79201501	12.828658	4.99858906	2.10514338
1977	5.562970252	0.94241465	16.4134305	5.27431314	0.93168394
1978	5.19238453	0.39204913	6.05524575	5.21313815	3.00554291
1979	5.595571076	0.0224226	4.29415479	4.84923183	3.69608097
1980	5.200711079	-0.2876664	39.8182114	4.50766968	3.74007607
1981	3.422208738	0.42469508	9.47540517	2.65573573	-2.9934033
1982	3.698406099	0.03790929	-10.536179	3.50103417	7.54913495

1983	1.89695179	0.27807765	5.24979954	0.92660419	-4.4263511
1984	-7.039378201	0.02518877	5.43051171	1.2367268	-10.947279
1985	-6.858377209	0.03432341	-16.650887	-0.5462826	-0.4120468
1986	3.51068403	0.37367032	16.6632635	3.10742798	0.13330529
1987	4.361809673	0.81235322	6.25072202	3.46229017	4.27826916
1988	6.696931105	2.16907284	14.7896567	5.59571	8.41541054
1989	6.183918203	1.16049608	8.37958588	4.553765	6.5291751
1990	3.082672529	1.04933276	2.33234118	5.220629	6.58990725
1991	-0.436390081	1.05051333	6.414631	2.49883226	-1.9028181
1992	0.417629066	0.37734407	5.08226977	3.23673154	-0.8971273
1993	2.181889986	1.99559534	5.9444269	2.52801909	5.63110082
1994	4.373665918	2.17470805	18.7822938	2.91499437	5.30045661
1995	4.625225117	1.74613222	11.1549901	2.98563941	4.72038792
1996	5.860347872	1.6027794	14.5358739	3.82032999	3.32897723
1997	5.186411674	1.29853316	16.6926601	4.33288544	3.97952383
1998	-0.5140906	3.07011493	-19.914152	5.29229026	-0.2006387
1999	3.346451184	2.13568092	10.1670403	4.02826376	-3.6305088
2000	4.382504833	1.77722654	13.7234084	5.19710346	-0.9583225
2001	3.04923151	0.96298544	-2.1681625	3.94228445	-1.3240973
2002	3.716255002	2.09827639	4.8451275	5.09998198	-3.6591211
2003	5.086911135	0.5652629	9.23322913	5.37956036	4.21287932
2004	6.569228512	0.62314459	6.54133495	5.90439231	2.11618497
2005	4.942505119	1.54906032	12.4981093	4.44446757	2.97671711
2006	5.316416821	2.12091998	10.0571796	4.18240539	12.1659985
2007	6.51929155	1.87121282	2.86215308	4.8094314	7.10624158
2008	4.344487305	0.73780079	-4.3003482	3.8526134	0.50987625
2009	1.448323063	1.17324851	-4.7083174	2.53144893	11.041124
2010	7.33449996	0.51369846	20.3077311	3.58979951	4.17352455
2011	3.858232828	0.85696227	-0.7808624	5.55213422	1.905882
2012	6.896951711	1.22763015	4.50742252	6.79897026	15.4886337

2013	6.750531301	1.31642685	1.97360863	5.81900321	4.94014803
2014	6.347987483	1.92937723	12.1370955	5.78445518	3.62490437
2015	6.348309717	1.84017849	9.96700307	6.44457249	7.91279914
2016	7.14945675	2.59851001	9.2064565	7.14960846	9.36107581
2017	6.930988326	3.12238655	17.4017812	5.9573665	6.50679219
2018	6.341485572	2.86833663	11.8163379	5.76521637	13.3903975
2019	6.118525662	2.30117574	2.63601727	5.86691455	9.1028686
2020	-9.518294741	1.88586378	-16.143499	-7.9565293	10.5009136

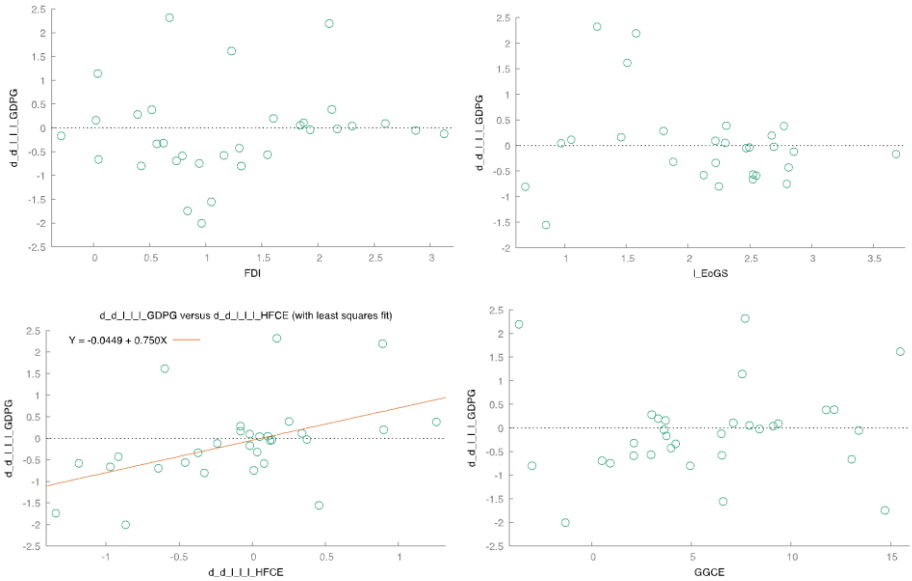
Appendix C. Unit Root Test (Cleansing) - Variable HFCE did not pass, first difference was added

VARIABLES	AT LEVEL	FIRST DIFFERENCE
GDPG	0.01363	
EoGS	3.825e-08	
FDI	0.03663	
HFCE	0.1318	6.441e-05
GGCE	0.03349	

Appendix D. Normality Test (Cleansing) - Treatments used for variables GDPG, EoGS and HFCE to pass the normality test.

VARIABLES	JARQUE-BERA	P-VALUE
GDPG	88.2435	6.88901e-20
EoGS	6.1887	0.0453045
FDI	2.5243	0.283044
HFCE	439.873	3.03976e-96
GGCE	0.314057	0.85468
d_d_l_l_GDPG	3.94259	0.139277
l_EoGS	0.909735	0.634532
d_d_l_l_HFCE	0.0641841	0.968417

Appendix E. Scatter Plot (Cleansed Data)



Appendix F. Multiple Regression (OLS of Cleansed Variables)

Model 1: OLS, using observations 1970-2020 (T = 27)

Missing or incomplete observations dropped: 24

Dependent variable: d_d_l_l_l_GDPG

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.259882	0.620903	0.4186	0.6796	
l_EoGS	−0.181914	0.229872	−0.7914	0.4372	
d_d_l_l_l_HFCE	0.478445	0.315473	1.517	0.1436	
GGCE	0.0193202	0.0398693	0.4846	0.6328	
FDI	0.0277197	0.196551	0.1410	0.8891	

Mean dependent var	0.033004	S.D. dependent var	0.848828
Sum squared resid	16.23287	S.E. of regression	0.858986
R-squared	0.133471	Adjusted R-squared	-0.024079
F(4, 22)	0.847164	P-value(F)	0.510493
Log-likelihood	−31.44256	Akaike criterion	72.88512
Schwarz criterion	79.36430	Hannan-Quinn	74.81172

Appendix G. Multiple Regression (OLS Raw Data)

Model 2: OLS, using observations 1970-2020 (T = 51)

Dependent variable: GDPG

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	−1.60758	0.535564	−3.002	0.0043	***
FDI	−0.170849	0.278103	−0.6143	0.5420	
EoGS	0.113218	0.0240451	4.709	<0.0001	***
HFCE	1.03931	0.112562	9.233	<0.0001	***
GGCE	0.186965	0.0443922	4.212	0.0001	***

Mean dependent var	4.047067	S.D. dependent var	3.615910
Sum squared resid	125.0385	S.E. of regression	1.648705
R-squared	0.808734	Adjusted R-squared	0.792102
F(4, 46)	48.62560	P-value(F)	5.89e-16
Log-likelihood	−95.23416	Akaike criterion	200.4683
Schwarz criterion	210.1274	Hannan-Quinn	204.1594
rho	−0.027669	Durbin-Watson	2.038766

Appendix H. Multicollinearity Test

Variance Inflation Factors

Minimum possible value = 1.0

Values > 10.0 may indicate a collinearity problem

FDI	1.101
EoGS	1.155
HFCE	1.226
GGCE	1.066

Appendix I. Heteroskedasticity Test

Breusch-Pagan test for heteroskedasticity

OLS, using observations 1970-2020 (T = 51)

Dependent variable: scaled uhat^2

coefficient	std. error	t-ratio	p-value
const	2.53125	0.519915	4.869 1.36e-05 ***
FDI	−0.538873	0.269977	−1.996 0.0519 *
EoGS	0.00211329	0.0233426	0.0905 0.9283
HFCE	−0.0800110	0.109274	−0.7322 0.4678
GGCE	−0.130916	0.0430951	−3.038 0.0039 ***

Explained sum of squares = 49.1479

Test statistic: LM = 24.573943,

with p-value = P(Chi-square(4) > 24.573943) = 0.000061

Appendix J. Serial Correlation Test/ Autocorrelation Test

Breusch-Godfrey test for first-order autocorrelation

OLS, using observations 1970-2020 (T = 51)

Dependent variable: uhat

	coefficient	std. error	t-ratio	p-value
const	−0.00879474	0.543291	−0.01619	0.9872
FDI	−0.00243441	0.281364	−0.00865	0.9931
EoGS	0.000359800	0.0243767	0.01476	0.9883
HFCE	0.00206488	0.114292	0.01807	0.9857
GGCE	9.90082e-05	0.0448683	0.00220	0.9982
uhat_1	−0.0283784	0.151092	−0.1878	0.8519

Unadjusted R-squared = 0.000783

Test statistic: LMF = 0.035277,

with p-value = P(F(1,45) > 0.0352772) = 0.852

Alternative statistic: TR^2 = 0.039949,

with p-value = P(Chi-square(1) > 0.0399495) = 0.842

Ljung-Box Q' = 0.0411891,

with p-value = P(Chi-square(1) > 0.0411891) = 0.839

Appendix K. Ramsey's RESET Test

Auxiliary regression for RESET specification test.

OLS, using observations 1970-2020 (T = 51)

Dependent variable: GDPG

	coefficient	std. error	t-ratio	p-value	
const	−1.25710	0.561547	−2.239	0.0302	**
FDI	−0.0552880	0.280167	−0.1973	0.8445	
EoGS	0.130969	0.0256504	5.106	6.46e-06	***
HFCE	0.985136	0.114481	8.605	4.61e-11	***
GGCE	0.248678	0.0560930	4.433	5.90e-05	***
yhat^2	−0.0249288	0.0143323	−1.739	0.0888	*

Test statistic: F = 3.025319,

with p-value = P(F(1,45) > 3.02532) = 0.0888

Appendix L. Durbin Watson Test

Durbin-Watson statistic = 2.03877

H1: positive autocorrelation

p-value = 0.457141

H1: negative autocorrelation

p-value = 0.542859

Appendix M. CUSUM Test