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**| RESEARCH ARTICLE**

**An Assessment: The Philippine Outstanding Debt and other Economic Determinants towards its Implication on Economic Growth**

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**| ABSTRACT**

The ability to generate funds is crucial to a country's economic progress. Following the government's monetary and fiscal policies, an adequate quantity of money must be made accessible. The Philippines is no exception to borrowing. The Philippine government borrows money to pay for public goods and services, fostering economic security. The Philippine debt would increase over time due to the need to satisfy economic needs, especially now that economic development has slowed to the point of negative GDP growth and financial markets have been badly damaged by the pandemic. The goal of this study is to look at the Philippines' present condition in terms of public debt and other economic factors and see how public debt and other economic drivers affect the country's real GDP growth rate. Data from the Philippine Bureau of Treasury and the Philippine Statistics Authority were used to calculate the corresponding public debt and real GDP growth rates from 1986 to 2020. The impact of public debt and other economic variables on economic growth, as represented by the variable real GDP growth rate, was estimated using multiple regression. Furthermore, the results show that the relationship between public debt and real GDP growth is insignificant in the short run. The inflation rate, population growth, openness, and gross capital formation have no significant relationship with real GDP growth. In contrast, government consumption has a significant relationship with the real GDP growth rate. The findings might aid the National Economic Development Authority, and the government analyze the state of our economy and, as a result, strengthen the country's economic policies.

**| KEYWORDS**

Public Debt, Philippine Outstanding Debt, Philippine Economic Growth, Economic Determinants

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**1. Introduction**

Public debt was rising in many developed nations. In the Philippines, it grew due to the Great Recession, cutting tax revenues and increasing social security payments. Public debt is fueling economic development in numerous countries, although this is generally overlooked owing to a lack of empirical evidence. Economic growth is a short-term rise in material demand linked to product output. In economic theory, the annual growth of material production is reflected in value and national income. Growth is feasible but not in line with the economy's growth trend (Ivic, 2015). Investments in infrastructure, education, labor-intensive industries, health, social welfare, and other economic sectors are required to accomplish economic growth and development. Due to the high expenses of these initiatives, tax revenues are insufficient to fund the expenditures, causing budget deficits. As a result, public borrowing is vital in supporting emerging countries.

Public borrowing is assumed to be driven by external and domestic debt, which could positively affect the country's economic growth in the short run and negatively impact when not adequately managed in the long run. Further studies argue that the negative effect of public debt may be much more significant if debt raises uncertainty (Tran, 2020). Huge budget deficits have put a strain on governments and policymakers in terms of funding mechanisms. Public debt allows fiscal authorities to play a role in

economic stabilization and aggregate development (Owusu-Nantwi & Erickson, 2016). The Philippines is not an exception. For economic stability, the Philippine government borrows money. The government used to collect taxes and borrow from residents, but their financial needs rose as their security and development positions improved. Thus public borrowing financed deficits. In the form of subsidies and loans, foreign aid became necessary when domestic savings and investments failed to fulfill the government's financial demands. Human needs and desires are infinite, but the tools to satisfy them are finite. Governmental debt, taxes, and spending policies continue to be significant monetary policy issues. Public debt has long been contested in third-world nations like the Philippines (Saungweme & Odhiambo, 2019). The increased occurrence of financial crises in both emerging and industrialized countries and the global diversity in economic growth rates have rekindled interest in public debt's impact on economic growth. The link between public debt and economic development has become a significant issue for policymakers everywhere. The connection between government debt and economic development has been studied in academic circles (Lartey, Musan, Okyere, & Yusif, 2018). While some public borrowing benefits economic growth, it is harmful when it surpasses a certain threshold (Zoriana Buryk, 2019).

### **1.1 Background of the Study**

ASEAN countries have been debt-free for two decades now. Because public debt exceeds the normal value in most ASEAN nations, it will undoubtedly slow economic development since large debt generates both economic and political insecurity (Thao, 2018). It is difficult for developing nations to increase economic development rates since they have low incomes, savings, investments, and capital stock. So, in addition to resolving temporary balance of payments issues, developing nations borrow to narrow the saving-investment gap, build their capital base, and drive growth (Duran, 2020). Foreign economic dominance developed from 1972 until President Marcos declared martial law in 1986. The Philippines was now in a \$30 billion debt trap. The IMF, World Bank, and other commercial institutions set the terms of these loans. In 1965, the country owed \$599 million—2.3 billion in 1970. In February 1986, it was \$4.9 billion under Corazon Aquino's leadership. Philippine debt reached \$26.3 billion under Marcos' reign. Marcos' supporters went on a crediting spree to fund firms that acquired loans and then sold them to the government in the 1970s because of this focus on Third World countries like the Philippines. Both causes exacerbated long-term BSP issues (Pineda-Ofreneo, 2010). Financial hemorrhaging is inevitable in a heavily indebted nation. The Philippines owed \$4,719 billion in debt service in 1990, compared to \$3,670 billion in 1989. A rise in interest and principal payments has resulted in a net capital outflow. These losses totaled \$6,893 billion between 1988 and 1990 (Pineda-Ofreneo, 2010). Surprisingly low investment levels in comparison to other emerging Asian economies. Conglomerates inhibit private sector investment because of poor income growth, costly debt service, and high manufacturing costs (Tolo, 2011). Compared to the rest of the globe, the Philippines' GDP percentage position has slipped, according to Country Economy statistics from 2020. It presently ranks 77th in debt to GDP and 70th in terms of debt per capita (National Public Debt Philippines, 2020). The pandemic-induced recession pushed the country's debt load to a 14-year high of 54.5 percent last year. The debt-to-GDP ratio reached 58.8% in 2020, the highest since 2006 (De Vera, 2021). This global debt crisis has shown the dangers of high and rising debt. Debt levels that do not threaten economic growth must be calculated by policymakers, lenders, and creditors. Thus, public debt is essential for economic growth, especially in countries with low savings and investment rates. The economy may suffer if not properly handled. Between 1986 and 2020, this research will examine the strong correlation between public debt and economic growth indicators to understand better how public debt affects the Philippine economy. It would also add to the Philippine research literature as few studies have focused solely on public debt and its influence on economic development.

### **1.2 Theoretical Framework**

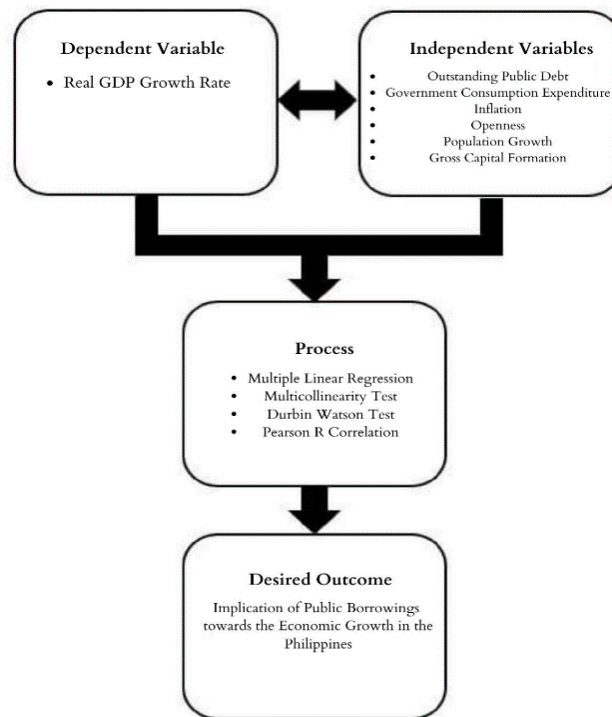
#### **1.2.1 Solow Growth Theory**

Robert Solow, alongside Trevor Swan, developed this economic model in the 1950s in a seminar paper titled "A Contribution to the Theory of Economic Development," for which he was awarded the 1987 Nobel Prize in Economics. The model's production function is a critical component since it describes how resources and inputs generate outputs. The theory asserts that an economy's production is critically dependent on its initial labor and capital endowments (Dowling & Valenzuela, 2019). Solow's model analyzes the improvements in an economy's production over time due to demographic changes and technological advancements. Solow's model is oriented around long-run economic development. According to the model, persistent increases in capital investment temporarily raise growth rates while the capital-labor ratio rises.

#### **1.3 Keynesian Theory of Public Debt**

In 1936, John Maynard Keynes published "The General Theory of Employment, Interest, and Money," establishing Keynesianism. Keynesians argue that government intervention is needed to maximize productivity. They believe that government intervention through expansionary economic policies will stimulate investment and demand, thereby enabling maximum production (Mamo, 2012). According to economist John Keynes, the government will stimulate economic growth through debt and fiscal deficit financing. Keynesian policies are often regarded as having a temporary effect on the economy. Keynes concluded that the government should abstain from intervening in the economy's condition because the economy is believed to be autonomous and self-sufficient.

**1.4 Conceptual Framework**



The figure above shows the analysis between the independent variable Public Debt, and the dependent variables that compose Economic Growth. This study aims to provide an insight into how Economic Growth will respond to public borrowings.

**1.5 Statement of the Problem**

This study aims to determine the impact of public borrowings on economic growth. Specifically, the researcher seeks to measure the following:

1. What is the current Public Debt situation of the Philippines from the period 1986 to 2020
2. What is the current situation of the Economic Determinants of the Philippines from the period 1986 to 2020 based on the following:
  - 2.1 Government Consumption Expenditure Rate
  - 2.2 Inflation
  - 2.3 Openness
  - 2.4 Population Growth
  - 2.5 Real GDP Growth Rate
  - 2.6 Gross Capital Formation
3. Is there a significant relationship between the Public Debt and other Economic Variables towards Economic Growth?
4. Is there a significant prediction Public Debt and other Economic Variables towards Economic Growth?

**1.6 Hypothesis**

Null<sub>1</sub>: There is no significant relationship between Public Debt and other Economic Variables towards Economic Growth.

Null<sub>2</sub>: There is no significant prediction between Public Debt and other Economic Variables towards Economic Growth.

Alternative<sub>1</sub>: There is a significant relationship between Public Debt and other Economic Variables towards Economic Growth.

Alternative<sub>2</sub>: There is a significant prediction between Public Debt and other Economic Variables towards Economic Growth.

### **1.7 Significance of the Study**

The Philippines has encountered many difficulties in managing its debt and achieving economic development. As a result, the Philippine economy's future growth is hindered. This study aims to determine the effect of Philippine public borrowing and other Economic Determinants on Economic Development. Individuals and entities that would profit from the study include the following:

**Philippine Government.** This study will enable them to use this study as a reference for decision making, as well as a valuable contribution to information on the public debt-economic growth issues and to look at ways to ensure both the debt's sustainable growth and the ability to be serviced regardless of economic or financial market conditions.

**Bangko Sentral ng Pilipinas.** The findings of this study will assist Bangko Sentral ng Pilipinas in making more effective policy decisions that will drive the country forward.

**Department of Budget and Management.** The study's findings can aid them in managing the country's finances and budgeting for capital expenditure on various assets.

**National Economic Development Authority.** This study will bolster NEDA's capacity to assess the condition of the Philippine economy's development, considering the country's rising public debt.

**Future Investors.** The prospective investors will benefit significantly from the analysis because financial analysts use a country's debt as a percentage of GDP to calculate a country's ability to fulfill future debt obligations, which affects the country's cost of financing.

**Future Researchers.** The findings of this study may serve as a practical guide for future economists and researchers interested in the impact assessment of public debt on the country's economic growth. The data obtained and computed are all new pieces of knowledge that will be accessible to potential researchers.

### **1.8 Scope and Limitations**

This study is concentrated on the data gathered from the Bureau of the Treasury of the Republic of the Philippines and the Philippine Statistics Authority, dated between 1986 and 2020. Its objective is to determine the effect of the Philippine Public Debt on the country's economic development. This study will take place starting from the second semester of the University of Santo Tomas' Academic Year 2020-2021 until the first and second semesters of the Academic Year 2021-2022.

## **2. Literature Review**

This part discusses previously published papers on public debt impact and economic growth. This also includes the theories which support the study's theoretical and conceptual framework.

### **2.1 Role of Public Debt on the Economy**

For the past few years, developing countries' indebtedness has become a significant development policy problem. The term "public debt" refers to the amount of foreign and domestic debt. A substantial percentage of developing countries' unprecedented growth since the 1950s can be traced to debt. As per traditional neoclassical economic development models, emerging countries initially have lower capital stocks, fewer revenue streams, and less capital mobility from developed countries, boosting economic growth. Similarly, external debt enables domestic savings and investments, promoting economic Growth (Akram, 2017).

On the other hand, excessive debt has a detrimental impact on productivity and economic growth. In this regard, Krugman describes this negative relationship as a "debt overhang," which occurs when the repayment potentials of outstanding facilities are less than the signed value. 'Crowding out' and 'uncertainty' are used to characterize these effects. According to the 'debt overhang' hypothesis, if a country's potential debt is likely to be greater than its repayment capacity, the investment would be suppressed by the anticipated costs of debt servicing (Krugman, 1988).

Following World War II, economic thought underwent a rapid change in response to the reality of economic progress, and the role of economic growth in raising living standards became a focal point of economic literature (Akram, 2017).

Numerous theoretical studies have investigated the importance of public borrowing and its impact on the economy. The following significant schools of thought can be used to sum up the role of public debt in economic growth: The Classical Theory, Neoclassical Theory, Keynesian Theory, and the Ricardian Equivalence Theorem.

### **2.2 Variables affecting the Economic Growth**

Following the studies of (Owusu-Nantwi & Erickson, 2016) and (Lartey, Musan, Okyere, & Yusif, 2018) that used Government Consumption Expenditure, Inflation, Openness, Population Growth, Gross Capital Formation, Foreign Direct Investment and Real GDP Growth Rate as their economic variables to analyze the relationship between Public Debt and Economic Growth, the researchers adopt some of the variables, and these are stated in the following literature.

### **2.2.1 Government Consumption Expenditure**

Pegkas, (2018) empirically examined the relationship between economic growth and economic variables, specifically investment, private and public consumption, trade openness, population growth, and government debt in Greece. Public and private consumption has a noteworthy effect on the development of the economy. A possible reason for this result is Greece's public and private sector expenditures have risen over the past four decades. Therefore, investments as private and public consumption contribute to growth.

### **2.2.2 Inflation**

Inflation is defined as a gradual increase in the general level of pricing for goods and services. As prices grow, each currency unit purchases more little products and services. Inflation is a prolonged rise in the overall price level. Inflation may harm a country's economy and people. A rise in the overall price level may affect buying power, raising people's living expenses and standards in each nation. Inflation affects economic growth adversely ( Islam, Ghani, Mahyudin, & Manickam, 2017).

A 2017 study by (Marin & Romero, 2017) examined the influence of governmental debt on inflation. A panel of net debtor nations was utilized to estimate the panel's size. The research suggests that rising public debt often raises inflation, particularly in high-debt nations. This is because improving the debt/GDP ratio relates to lower inflation in highly indebted industrialized nations.

Another research conducted by (Fukunaga et al., 2019) shows the effect of inflation shocks on the public debt-to-GDP ratio in 19 emerging economies. The findings indicated that a transient one-point increase in inflation reduces the debt-to-GDP ratio by about 0.5 to 1%. Additionally, results showed that modestly higher inflation, followed by any financial repression, would only marginally decrease the public debt burden in many emerging economies.

More significantly, the relationship between inflation and economic development in developed and developing countries was examined, emphasizing theoretical and empirical data. This highlights how innovation's impact on economic development differs by country and over time. Additionally, the study discovered that country-specific characteristics influence these studies' results, data set, and methodology. In general, the study found that inflation and economic growth have a negative relationship, especially in developed economies (Akinsola & Odhiambo, 2017).

### **2.2.3 Openness**

Trade openness increased over the whole duration at an annual rate of 3.7 percent of GDP on average. Additionally, trade openness increased the slowest during the 2000s, while GDP growth was rapid. Meanwhile, during the economic depression (2010–2016), trade openness rose by an average of 3.4 percent a year. Beginning with the long-run findings, it is possible to conclude that trade openness has a substantial long-run positive effect on economic development in the long run. Furthermore, a 1% growth in trade openness and government consumption will boost the economy by 0.68 and 0.75 percent, respectively (Pegkas, 2018).

Another study from (Zafar et.al., 2018) examined the impact of external debt and trade openness on economic growth. This is in line with the point that well-developed trade liberalization in developing countries could significantly increase GDP, triggering economic growth. The results show that trade openness has a beneficial impact, and its coefficient is statistically significant, as predicted. Trade with no barriers is often advantageous to the economic development of less developed countries. Trade liberalization has resulted in miraculous improvements in the Economic Growth of China and India. Nations with free trade are on the right track to prosperity because they use their time, energy, and money wisely to specialize in manufacturing products in which they have a competitive advantage. Furthermore, free trade improves trade terms by increasing export prices and lowering import prices, consequently enhancing developing countries' health. After being exposed to foreign exchange, Singapore saw a rapid increase in its people's living standards.

İpek & Kızılgöl (2021) analyzed the impacts of trade openness on external debt for the Turkish economy. Based on the researchers' findings, external borrowing has a positive influence on economic development. Similarly, it is believed that trade openness has a beneficial effect on external debt. In the short and long term, trade openness and inflation positively impact external debt. GMM estimates indicate that trade openness and terms of trade boost external debt, while savings and foreign direct investment reduce it.

### **2.2.4 Population Growth**

Over the last century, the human population has risen at an exponential rate. The reason humans have grown in population so quickly and effectively is that we have avoided the two issues of food scarcity and disease. Another factor contributing to our rapid population growth is medical progress since there were advanced technologies invented and improved sanitation, increasing births. Economists believe that economic growth in high-income countries will be relatively small in the coming years, in part because demographic growth in these countries is projected to slow dramatically (Peterson, 2017). Others would argue that population growth has become a problem since more people consume more of the earth's limited resources, reducing long-term

future Growth (Linden, 2017). Also, economists would argue that population trends influence economic development, housing, employment, and poverty, as well as wealth management.

Tsuchiya, (2016) examined the effect of population growth on a tax cut's dynamic impact. One of the results is that population increase benefits a government's long-run spending in two ways. The first is that an economy seeing faster population growth has more space for tax cuts while still adhering to its long-run fiscal constraints. The second reason is that it takes less time for a country to repay its debt in a population-growing economy.

Consequently, the researchers should conclude the deteriorating effect of population aging on long-term government budgets. This result implies that the recent slowdown of population growth in several developed countries will severely impact their governments' budgets.

Furthermore, debt-to-GDP levels and population growth are correlated. It has a substantial positive impact on economic growth. However, population growth has detrimental long-run implications on economic growth (Pegkas, 2018).

### **2.2.5 Real Gross Domestic Product (GDP) Growth Rate**

The annual percentage change in GDP at current market rates is the real GDP growth rate. It is highly relevant as a measure of economic growth because it incorporates the effects of inflation on economic growth. An assessment of this is required when measuring economic growth, especially when comparing economic welfare, international welfare, and business cycle forecasts within an economy. The GDP growth rate at consumer prices was calculated as the average percentage growth rate of GDP in constant local currency at market rates (Lartey, Musan, Okyere, & Yusif, 2018). Public debt is productive and significantly increases the country's long-term prosperity, confirming that public debt helps efficiently and considerably to the nation's GDP (Owusu-Nantwi & Erickson, 2016).

### **2.2.6 Gross Capital Formation**

Pasara & Garidzirai, (2020) emphasize the role of gross capital formation in employment creation, human capital development, and output. Their study examined the correlation between unemployment, economic growth, and gross capital creation in South Africa from 1980 to 2018. The study applied time series analysis (granger causality analysis) and its related VAR model to evaluate this hypothesis. As a result, gross capital formation is expected to reduce unemployment and accelerate economic development. The study's findings indicate that gross capital development has a favorable effect on unemployment and economic growth. Thus, the gross capital formation was viewed as a stimulant for economic growth and employment. The Granger causality findings further prove that economic growth is a source of gross capital formation.

For (Lartey, Musan, Okyere, & Yusif, 2018), the term "gross capital creation" refers to the accumulation of all new capital goods during a certain time period. Additionally, it is defined as the share of GDP invested in future output and income growth. That is, the Gross Capital Formation quantifies how much newly created value is invested rather than consumed in the economy. The Gross Capital Formation is a critical factor in determining economic growth since its changes throughout time provide insight into the economy's growth or lack thereof. The majority of research has confirmed that it has a favorable effect on economic growth, especially in emerging nations. The authors also identify the Gross Capital Formation's contributions as the expansion of the market pool and scale economies, as well as the cross-border flow of information, communication, and technology. This optimizes resource usage for economic growth, which is especially important in today's fast-paced technology environment. Further, the authors hypothesize that Gross Capital Formation and economic growth are associated positively.

### **2.3 Relationship between Public Debt and Economic Growth**

The Public Debt is assumed to boost the economy by subsidizing government initiatives that may ultimately lead to economic growth. Too much borrowing may raise debt costs and affect the country's assets. Economists have recognized various macroeconomic factors as having negative short- and long-term effects on debt. Deficits in future earnings and intergenerational injustice have recently been linked to high debt-to-GDP ratios. It is also well-known that Public Debt negatively influences Economic Growth. The extensive literature on the consequences of government debt on economic development backs it up (Rugy & Salmon, 2020).

From 2000 to 2016, the research examined the impact of public debt on economic development in six CAMECOM members. The Debt Ratio to Economic Growth regression result showed that, generally, more public debt means worse economic growth. In all cases, the public debt ratio is negative. A 1% increase in government debt reduces economic growth by 0.512 percent. Moreover, a 1% increase in government and domestic expenditure raised economic growth by 0.207 and 0.148 percent, respectively, and lastly, a 1% increase in inflation results in a 0.545% reduction in economic progress. This analysis determined that public debt is materially harmful to economic development (Ndieupa, 2018).

From 1961 to 2013, (Gómez-Puig & Sosvilla-Rivero, 2017) examined the long-run link between public debt and GDP growth in core and periphery Eurozone nations. The authors found that public debt slows long-term GDP growth in Eurozone nations. The results confirm a commonly held view that the short-term consequences of debt on efficiency are more susceptible to short-term disruptions. Studies suggest that government debt hurts long-term output. According to previous studies, heavy public debt slows development by generating uncertainty about possible income, crowding out private investment, and reducing a country's ability to respond to shocks.

In light of recent research (Ajayi & Edewusi, 2020), the influence of Nigeria's state debt on economic growth was examined. Short- and long-term repercussions were discussed. The research examined the influence of domestic and foreign borrowing on economic growth in Nigeria and the relationship between public debt and economic growth. The study used secondary time series data from 1982 to 2018. The research found that increasing foreign debt has a negative long-term and short-term effect on Nigerian economic development. An economic strategy aimed at increasing the nation's productive capacity by delivering lasting assets and adopting quality policies may boost the nation's economic growth. Increasing internal, national, or domestic debt, often contracted in the country's native currency, will govern an adequate level of domestic debt economic growth. The absence of currency risk of exchange rate misalignment, say the experts, explains this.

Wibowo, (2017) looked at the ASEAN public debt and economic development. The study used data from 2006 to 2015 to examine the notion of finance-led development. The study's main result is that public debt may significantly improve economic development, but it takes time. It is triggered by the public debt shock variable (PD). In several ASEAN nations, government debt substantially influences economic growth. The debt's effect is not visible for 1 or 2 years after the debt, but 4-5 years.

Based on quarterly data from 1980 to 2013, (Kempa, B, & Khan, N. S, 2016) investigated the Granger-causality link between debt and growth in the G7 nations, i.e., Contrary to earlier studies, the data show that expansion causes debt, not the other way around. Although growth has a short- to medium-term negative effect on debt, it has no long-term repercussions. They also observed that findings vary by sample time, with current financial crisis effects being substantially more prominent.

A similar effect has been seen in Malaysia (Burhanudin et.al, 2017) and various European nations (Gómez-Puig & Sosvilla-Rivero, 2017). Applying Elmendorf and Mankiw's conventional concept of debt (1998). While opposing the link between public debt and economic growth, this stance is optimistic on both sides. Increasing government debt would assist boost aggregate demand and output by stimulating job creation and productive investment. However, this is a short-term romance. If it persists, it will be harmful.

Gómez-Puig & Sosvilla-Rivero, (2017) found that debt's good benefits on productivity are more likely to be seen in the short term than in the long run. Their research shows that public debt has a long-term negative influence on output. According to the researchers, decreased response to shocks and uncertainty about possible taxes seem to be the main effects of increased public debt. It will depend on the country's characteristics and the eventual debt allocation. They also noted the possibility of a growth in public debt benefiting the economy's productivity in the near term. The relationship between public debt and economic development varies by nation and historical period, making it challenging to define a uniform threshold.

Rahman, Ismail , & Rah, (2019) also looked at the influence of public debt on economic development. The poll found no consensus on the link between government debt and economic growth. In turn, the connection might be linear or non-linear. Assume that government debt and economic growth are linked. In such an instance, the government may regularly research the best amount of debt to borrow. Inefficient money management leads to slow economic development. The results suggest that governments adopt fiscal policies that raise public debt and promote economic growth. The subject of how government debt affects the economy remains unanswered. It depends on the country's economic and political circumstances.

Additionally, (Gómez-Puig & Sosvilla-Rivero, 2017) analyzed the long-run relationship between public debt and gross domestic product growth rates in central and peripheral Eurozone countries from 1961 to 2013. The authors discovered that public debt harms the long-run GDP growth rates of Eurozone member countries. The findings corroborate a widely held belief that the positive effects of debt on efficiency are more likely to be impacted in the short term than in the long run. The empirical studies show that government debt harms production in the long run. As a result, their results corroborate prior research suggesting that excessive public debt retards growth by raising uncertainty about potential revenues, crowding out private investment, and eroding a nation's responsiveness to shocks. In light of a study that shows the effects of debt are immediate, (Ajayi & Edewusi, 2020) studied the impact of Nigeria's public debt on economic development. The authors concentrated on both short- and long-term consequences. The study estimated the effect of domestic borrowings on economic Growth in Nigeria, external borrowings on economic Growth in Nigeria, and the correlation between Public Debt and Economic Growth in Nigeria. In the analysis, secondary time series data spanning 37 years were gathered from 1982-2018. The study results indicate that external borrowings have an adverse long-run and short-run impact on Nigerian economic growth; this implies that rises in external debt would result in slower economic growth. External debt, as an economic policy geared toward enhancing the nation's productive capacity through the

delivery of enduring assets and implementing quality policies to increase the nation's development, can increase the nation's economic growth. On the other hand, domestic debt has a positive long-run and short-run effect on Nigerian economic growth, implying that an increase in internal, national, or domestic debt, typically contracted in the country's local currency, will regulate a good level of domestic debt economic growth. According to the researchers, this is easily explained by the complete lack of currency risk of exchange rate misalignment.

#### **2.4 Public Borrowings and Economic Growth in the Philippine Setting**

Akram, (2015) examined the effect of public debt on economic growth and investment in the Philippines. Correspondingly, it looks at the influence of other macroeconomic factors on economic growth and investment. The significant aspect of the study is that public external debt has substantial negative correlations with actual gross domestic product and investment, suggesting the presence of excessive debt. On the other hand, debt servicing has a negligible correlation with expenditure and actual GDP, implying that the crowding-out effect does not exist. Domestic debt has a significant negative correlation with investment but a positive correlation with actual gross domestic product.

The findings suggest that population growth has harmed real GDP while transparency and spending have benefited it. Furthermore, it demonstrates that domestic debt has an adverse influence on investment due to crowding out but a positive impact on the actual gross domestic product. As a result, if policymakers want to boost the economy through domestic debt, they must understand the investment consequences. The forecast findings also indicate that population growth is detrimental to economic growth. It needs to impose successful population control policies such as contraception, surgical abortion, abstinence, and family planning to ensure efficient development.

Similarly, openness and investment boost development, trade, and investment-friendly policies are needed. Investment is critical in determining the effect of domestic debt on economic growth. On the other hand, domestic debt affects private and public investment differently; it encourages public investment while reducing private investment.

#### **2.5 Synthesis**

Public debt includes all external and internal debt. Global public debt has spurred exponential growth since the 1950s. In his book *The Wealth of Nations*, Adam Smith recommended national debt. Postwar economic literature focused on rising living standards. Classical, Neoclassical, Keynesian, and Ricardian models all emphasize the importance of public debt in economic growth. It is traditional to believe in *laissez-faire* policy, which means "let you do" or "government out of economics." Government debt is supposed to cause crowding-out. For economic stabilization, Keynesians developed their theory during the Great Depression. Keynes, like public corporations, believes capital borrowing is necessary. Inflation is caused by government borrowing, which raises interest rates. Keynesian theory says government borrowing is needed to increase demand. They claim funding government spending with current receipts and deficits is equivalent to borrowing. Investors and consumers understand that future taxes will pay off debt. Inflation Impacts Debt-ridden Countries Developing Nations A rise in public debt often leads to an increase in inflation, the study showed. Investment, private and public consumption, and trade openness help economic growth. Free trade raises export prices and lowers import expenses. Most free trade agreements allow emerging countries. Moreover, trade liberalization has boosted China and India's economies. They prosper because they specialize in competitive things. Trade openness and inflation affect foreign debt positively, given population growth and debt-to-GDP ratios. But population growth stifles growth—the annual percentage growth rate of the GDP at constant local currency values. Taking inflation into consideration makes it an excellent economic growth indicator—a 12-month average GDP growth rate at market prices. Public Debt is supposed to help the economy by funding government activities. Borrowing too much may increase debt costs and impair assets. Debt growth slows by 0.512 percent. Economic growth is aided by public expenditure and private investment. It is more likely than not that short-term debt boosts production. Meanwhile, the results suggest that public debt reduces output in the long run. Uncertainty about future taxation, private investment, and shock resilience hinder development. But foreign debt inhibits Nigeria's economic growth. Both short-term and long-term benefits of domestic debt to the Nigerian economy Thus, growing domestic or national debt in the debt country's currency should stimulate economic growth. The absence of currency risk of exchange rate mismatch, say researchers, explains it. According to the study's major finding, less public debt can lead to faster economic growth. Less than one year after the loan, the influence is seen 4-5 years later. Like in Malaysia and Europe, public debt may spur economic development. Encouraging job creation and productive investment would help increase government debt levels and demand. But this is a short-term alliance. Long-term growth may be hazardous. So the economic impact of government debt is uncertain. It depends on the nation's and economy's status. Assume debt and economic growth are connected. Define optimum debt borrowing for the government. Improper financial management may damage economic growth. Inflationary pressures on real GDP and spending Domestic debt discourages investment. But actual GDP and national debt are connected.



### **3. Methodology**

#### **3.1 Research Design**

To answer the research problems of the study, the researchers will use the quantitative method to analyze the data. The statistical tool that the researchers will be using is IBM's Statistical Package for the Social Sciences (SPSS).

The data used in this study were sourced from credible databases such as the World Bank, Philippine Statistics Authority, Bureau of the Treasury of the Philippines, and International Monetary Fund.

This paper conducted econometric tests on the relationship between economic growth and public debt in the Philippines using annual time series data from 1986-2020.

#### **3.2 Data Gathering Procedure**

Data were obtained from the databases of the World Bank, International Monetary Fund, Bureau of Treasury of the Philippines, and Philippine Statistics Authority. These data cover the years 1986 to 2020.

The variables used in the estimation are described below:

- Outstanding public debt obtained from the Bureau of Treasury of the Philippines
- Government consumption expenditures as a percentage of GDP are based on data from the World Bank.
- Inflation data is derived from the World Bank's database yearly.
- Openness, which refers to the ratio of the sum of exports and imports proportional to the Gross Domestic Product
- Population Growth as documented by the Philippine Statistics Authority
- Real GDP Growth Rate is taken from the database of the International Monetary Fund
- Gross Capital Formation taken from the database of the World Bank

#### **3.3 Statistical Treatment of Data**

The researcher will utilize the statistical instrument Statistical Package for Social Sciences (SPSS) to determine the relationship and predictive outcome between the dependent and independent variables.

The gathered data will be subjected to a series of tests, including multiple regression analysis, multicollinearity to determine if there is a relationship between the independent variables in the model, the Durbin Watson test to determine whether there is serial autocorrelation, and Pearson R Correlation to determine if there is a significant relationship between the independent and dependent variables.

**Multiple Regression.** The multiple regression equation illustrated below is as follows:

$$Y = mx_1 + mx_2 + mx_3 + mx_4 + mx_5 + mx_6 + b$$

Where Y refers to the dependent variable of the regression, m refers to the slope of the regression,  $x_1$  refers to the first independent variable of the regression,  $x_2$  refers to the second independent variable of the regression,  $x_3$  refers to the third independent variable of the regression,  $x_4$  refers to the fourth independent variable of the regression,  $x_5$  refers to the fifth independent variable of the regression,  $x_6$  refers to the sixth independent variable of the regression and b which refers to the constant.

**Multicollinearity Test.** This test will be conducted to assess if there are robust correlations or associations between independent variables. It is a form of data distortion, and if present, statistical inferences about the data can be unreliable. (Gujarati D. N., 2002)

**Durbin Watson.** The Durbin Watson Test is a statistic that measures autocorrelation (a.k.a. serial correlation) in regression residuals. Autocorrelation is a measure of a time series' similarity over successive time intervals. This can result in underestimating standard error and leading you to believe that predictors are substantial when they are not.

The Durbin Watson test's hypotheses are as follows: (Gujarati D. N., 2002):

$H_0$  = no first order autocorrelation.

$H_1$  = first order correlation exists.

**Pearson R Correlation.** Pearson R Correlation is a statistical test used to assess the degree of association between variables in an estimated model and the quality of other predictive models. The formula for this test is (Read, 2016):

$$r = \frac{\sum(X - \bar{X}) - (Y - \bar{y})}{\sqrt{\sum(X - \bar{X})^2} \sqrt{\sum(Y - \bar{y})^2}}$$

Where  $r$  refers to the correlation coefficient,  $\bar{x}$  refers to the mean of the independent variable, and  $\bar{y}$  refers to the mean of the dependent variable.

Size of Correlation	Interpretation
.90 to 1.00 (-.90 to -1.00)	Very high positive (negative) correlation
.70 to .90 (-.70 to -.90)	High positive (negative) correlation
.50 to .70 (-.50 to -.70)	Moderate positive (negative) correlation
.30 to .50 (-.30 to -.50)	Low positive (negative) correlation
.00 to .30 (.00 to -.30)	negligible correlation

The above table shows the interpretation of Pearson's Correlation coefficient. The researcher used this as a guide in interpreting the strength of the correlation.

#### 4. Results and Discussion

By using the statistical methods presented in Chapter 3 and using secondary data from the World Bank, International Monetary Fund, Bureau of Treasury of the Philippines, and Philippine Statistics Authority, The stated problems relative to this research were addressed accordingly.

This chapter of the research will address the stated problems by presenting the results, findings, analysis, and further discussions to support the interpretations. In addition, this chapter includes hypothesis testing of the following statements:

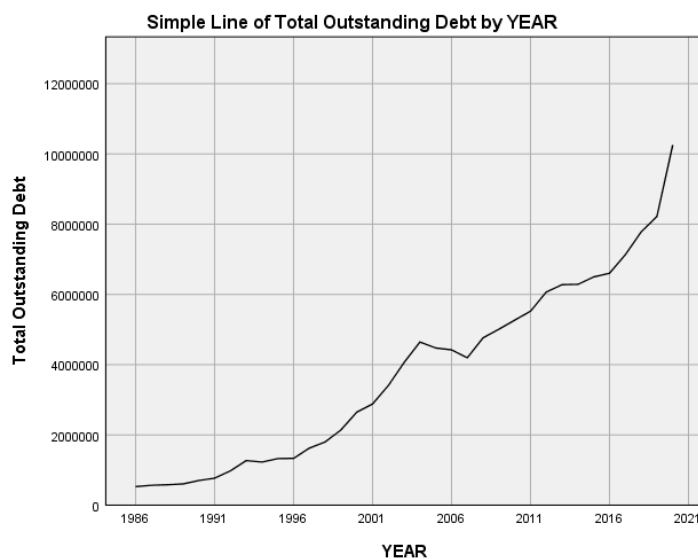
Null<sub>1</sub>: There is no significant relationship between Public Debt and other Economic Variables towards Economic Growth.

Null<sub>2</sub>: There is no significant prediction between Public Debt and other Economic Variables towards Economic Growth.

Alternative<sub>1</sub>: There is a significant relationship between Public Debt and other Economic Variables towards Economic Growth.

Alternative<sub>2</sub>: There is a significant prediction between Public Debt and other Economic Variables towards Economic Growth.

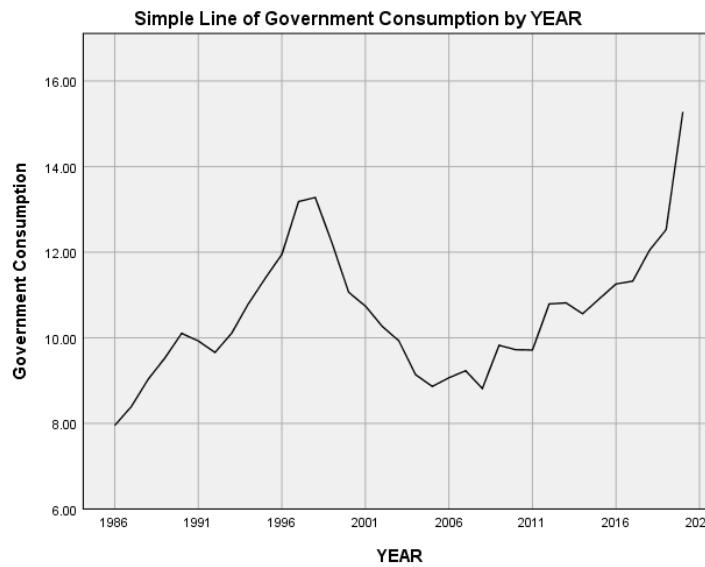
**FIGURE 1: Current Situation of the Total Outstanding Debt of the Philippines from 1986-2020**



*Figure 1 Current Situation of the Total Outstanding Debt in the Philippines during 1986-2020*

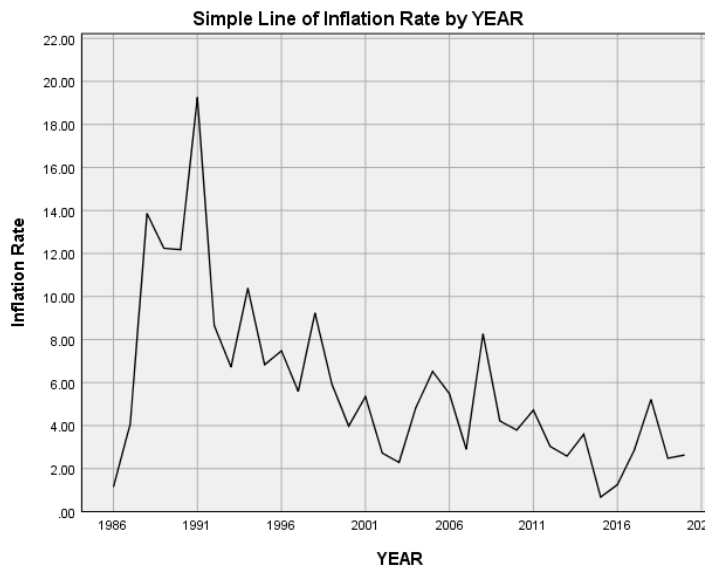
Figure 1 illustrates the present state of the Philippines' Total Outstanding Debt from 1986 to 2020. As we can see, it has a positive slope which means that the total outstanding debt of the Philippines is increasing. According to the Keynesian School of thought, government borrowing may be necessary to stimulate economic growth; thus, the increase in public borrowing may reflect the government's desire to stimulate the economy, particularly in the last two years, when the GDP fell to its lowest level since 1984, and the Philippine economy entered recession for the past four quarters last 2020.

**FIGURE 2: Current Situation of the Other Economic Determinants of the Philippines from 1986-2020**



*Figure 2.1 Current Situation of the Government Consumption in the Philippines during 1986-2020*

Figure 2.1 illustrates the present state of government consumption in the Philippines between 1986 to 2020. The graph depicts a sharp spike in government consumption from 2016, the start of President Rodrigo Duterte's administration, and the primary cause for the steep increase in government spending is President Duterte's build build build program. According to (Santiago, 2019), President Duterte's 8-trillion-dollar infrastructure initiative promises to usher in a 'golden era' of infrastructure development.



*Figure 2.2 Current Situation of the Inflation in the Philippines during 1986-2020*

Figure 2.2 illustrates the current situation of the Philippines in relation to the Inflation Rate. Based on the figure, there is a sudden increase from 1986 to 1991. According to (Akram, 2015), during the 1970s and 1980s, inflation was in double digits due to mounting debt and slow economic development. However, during the 1990s and 2000s, the economy has significantly improved; hence there was already a decrease in the inflation rate. Moreover, it is possible that the rise in prices seen in the second half of 2005 was due in part to the new value-added tax that was put in place (RVAT). A downward shift in the inflation path occurred, stabilizing within the forecast ranges for 2009 and 2010 due to the projected increase in global oil prices and the lower inflation outturn in the fourth quarter of 2008. In 2012, inflation in the Philippines increased faster than projected, mainly owing to anticipated increases in food, beverage, apparel, and housing costs. Further, it illustrates that inflation was unstable from 2010 to 2014. Despite the projection for lower inflation and intense pressures from apparent shortages, reduced agricultural production,

and elections spending in the coming months, it had been predicted that it would not fall any lower. Inflation may have both positive and negative consequences on people. As a consequence of the supply-side improvement in the economy, the cost-push inflation rate has been slowed. Stagnant economies can also be characterized by low inflation since people are reluctant to spend. (William T. Sucuahi, Jodi Ann E. Alvarez, Mae Ann M. Gudes & Royce Bryan B. Parsacala, 2016)

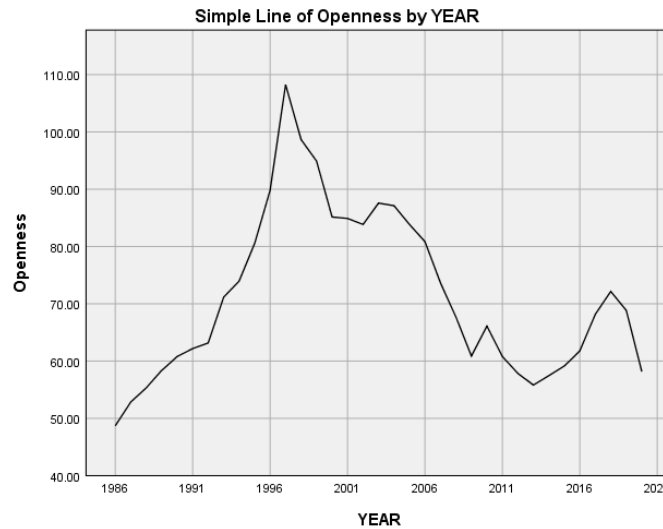


Figure 2.3 Current Situation of the Openness in the Philippines during 1986-2020

Figure 2.3 illustrates the current situation of the Philippines in relation to Openness for the period 1986-2020. According to the illustration, trade openness has increased steadily since 1995, when the Philippines joined the World Trade Organization. The easing of import limitations on some agricultural items, the reduction of levies on certain industrial and information technology products, and the establishment of a tariff schedule was among the events that occurred. (Parcon-Santos, 2016) According to (National Economic and Development Authority, 2016) the decline in trade in 2016 was attributed to a decrease in merchandise trade due to a decrease in demand for Philippine products exported from traditional markets such as the United States, China, Hong Kong, and Japan, and a decrease in imports due to a decrease in local demand for raw materials and intermediate goods which dropped from 12.2 billion US dollars in 2015 to 11.4 billion US dollars in 2016. This incident is attributable to the country's 13 percent drop in exports and 1.7 percent drop in imports.

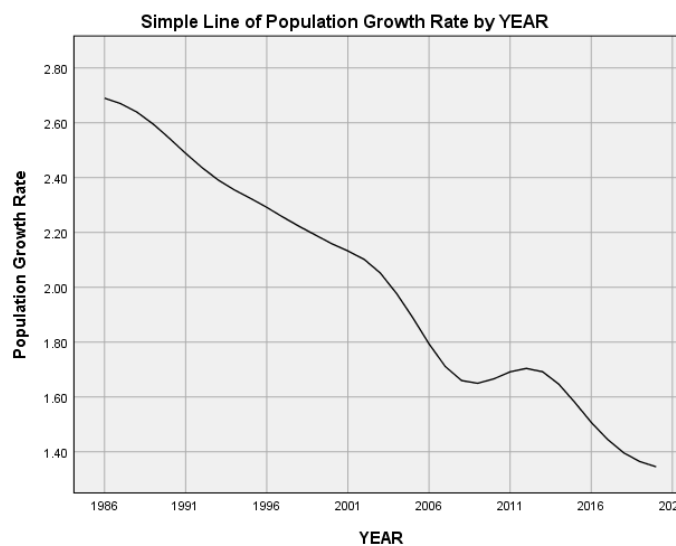


Figure 2.4 Current Situation of Population Growth Rate in the Philippines from 1986 to 2020

Figure 2.4 shows the current situation of the Philippines in relation to the Population Growth Rate. The population growth rate shows a downline trend meaning that even though there is constant population growth, there is a decline in the yearly population

growth rate. Recently the (Population and Development (POPDEV), 2021) released an article stating that family planning continues to gain ground in the country and family sizes stabilize at 2 or 3 children, only indicating that the implementation of the RH Bill during last 2014 was an accomplishment since the population growth slowly declines over the years.

The Philippine Population Management Program and the Reproductive Health Program attempt to slow population growth have contributed to population declines due to improved family planning management (POPCOM, 2020). The country's population growth has slowed slightly as more Filipinos desire smaller family sizes. (Philippine Statistics Authority, 2020)

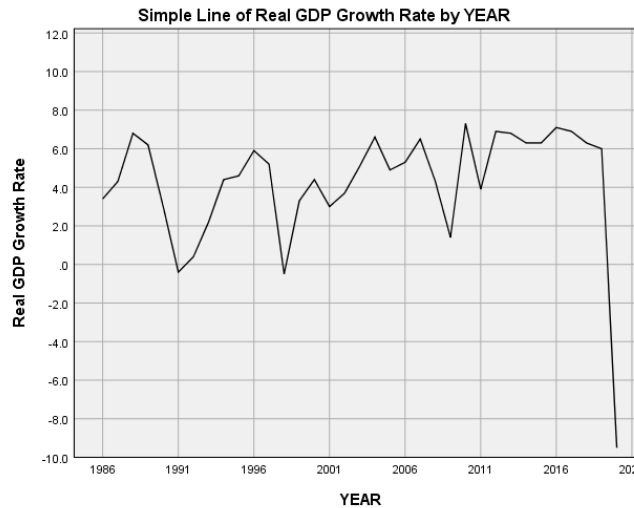


Figure 2.5 Current Situation of Real GDP Growth Rate in the Philippines from 1986 to 2020

Figure 2.5 depicts the Philippines' current Real GDP Growth Rate from 1986 to 2020. Between 1989 and 1995, the average rate of real GDP growth was 3.49 percent. Meanwhile, it climbed by 0.67 percent between 1996 and 2005, resulting in 4.16 percent average real GDP growth and 1.34 percent between 2006 and 2015, resulting in 5.50 percent average real GDP growth. However, between 2016 and 2020, there was a minor decline of 2.14 percent, resulting in average GDP growth of 3.36 percent. This is primarily due to a negative Real GDP Growth Rate by 2020 since the pandemic impacted this year. On the other hand, annual exports to the Philippines increased dramatically in 2017, with exports being the major economic development engine, while imports continued to expand at a double-digit rate. (The World Bank, 2018). Pieces of evidence have shown that globalization has a good impact on the country's economic growth and employment. Following the Foreign Exchange Liberalization Policies in the Philippines, trade openness and foreign portfolio movements have led to stronger per capita GDP growth. Consumption, investment, labor productivity, and economic growth have increased significantly due to increased Overseas Filipinos (OF) remittances. These remittances have also benefited the Philippine economy throughout normal and crisis conditions and will continually aid the country in the future (Guinigundo, 2018).

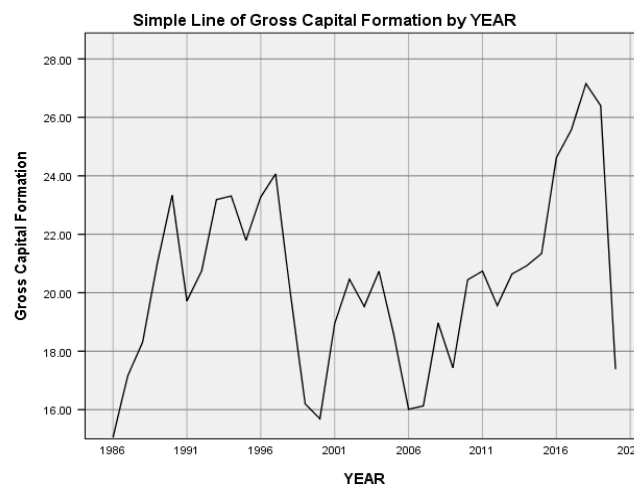


Figure 2.6 Current Situation Gross Capital Formation in the Philippines from 1986 to 2020

Gross Capital Formation in the Philippines from 1986 to 2020 is shown in Figure 2.6. Gross Capital Formation decreased by 18.3 percent in the first quarter of 2020, the lowest rate since 2006, as seen in the figure above. Construction, which accounted for 66.9% of total GCF, decreased by 3.4 percent. Similarly, durable equipment, breeding stocks, orchard development, and valuables decreased by 7.7%, 1.2 percent, and 29.6 percent, respectively. On the plus side, intellectual property items increased by 6.6 percent, the only component of GCF to do so. On the other hand, inventories changed significantly over time, with withdrawals totaling Php 138.1 billion. (Philippine Statistics Authority, 2020)

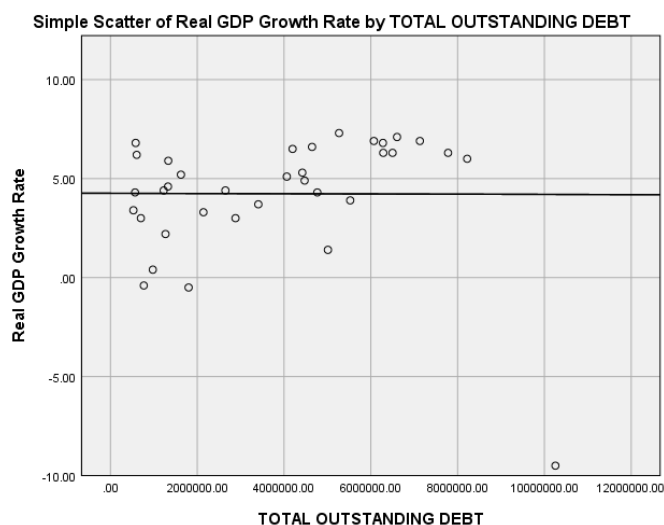
#### 4.1 Regression Model Summary

REGRESSION MODEL 1	R-Squared	Adjusted R-Square	Std. Error of the Estimate	Durbin-Watson
	0.558	0.463	2.3375	1.269

The regression analysis results show the R-squared shows a value of 56 percent. In other words, the model explains 56 percent of the variance, with an r squared of 0.558 or 0.56 percent, indicating that 0.56 percent of our values match the regression model. The independent factors account for 0.56 percent of the variation in the dependent variable. This explains why the model does not account for a large proportion of the volatility in the data. The Durbin-Watson, on the other hand, assesses the autocorrelation in residuals from regression analysis, and the result is 1.269. According to (Gujarati, 2004), the closer the value is to zero, the greater the evidence for positive autocorrelation. Since the result ranges from 0 to 2, this suggests that there is a positive autocorrelation.

#### 4.2 Regression Results

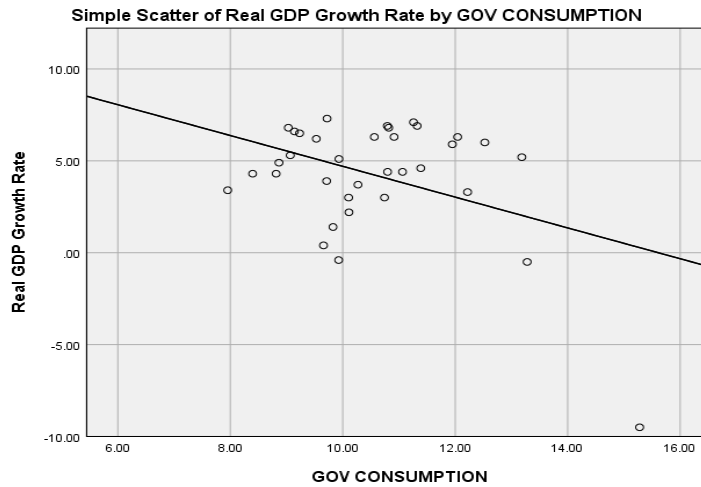
**TABLE 1.1: Measures of Regression between the Relationship of Total Outstanding Debt (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**



Variables	Coefficients ( $\beta$ )	Sig. Value
Total Outstanding Debt	-8.52E-07	0.227
Real GDP Growth Rate	20.781	0.096

In addition, the regression result also shows the linear equation is equal to the Real GDP Growth Rate =  $20.781 - 8.518E-07$  (Total Outstanding Debt). It can be seen in the table that the coefficient of the Total Outstanding is 0.0000008518 while the coefficient of Real GDP Growth Rate is 20.781, which indicates that for every one-unit increase in Real GDP Growth Rate, there will be a decrease by 0.0000008518 in Total Outstanding Debt.

Given the result, it was demonstrated that excessive debt has no impact on economic growth. Smith (1776), in his book *The Wealth of Nations*, emphasizes the importance of reducing government debt and balancing the budget because too much government spending yields little profit. In this case, there is a statistically insignificant relationship between the Real Gross Domestic Product and the Total Outstanding Debt, implying that the Total Outstanding Debt has no effect on economic growth. Theoretically, both neoclassical and endogenous growth models assume that excessive public debt will always impede economic growth. (De Vita, Glauco, Luo, 2018)



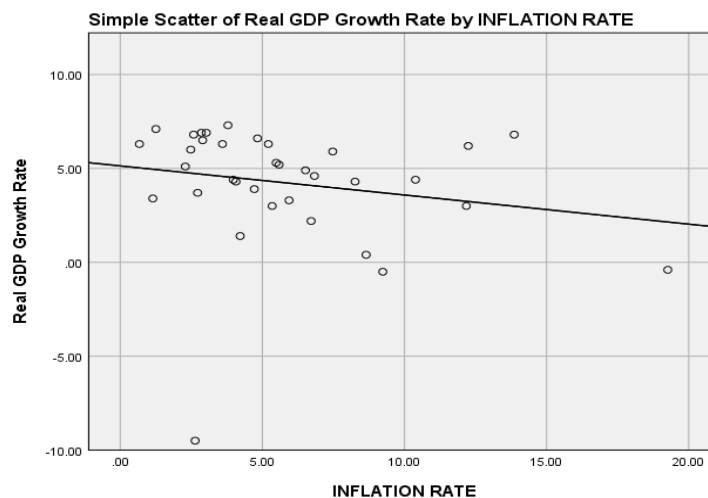
**TABLE 1.2: Measures of Regression between the Relationship between the Economic Determinant in terms of Government Consumption Expenditure Rate (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**

Variables	Coefficients ( $\beta$ )	Sig. Value
Government Consumption Expenditure	-1.404	0.001
<b>Real GDP Growth Rate</b>	<b>20.781</b>	<b>0.096</b>

Table 1.2 shows the P-Value is 0.001, which is less than 0.05, indicating a significant value. In addition, the regression table also shows the linear equation is equal to Real GDP Growth Rate = 20.781- 1.404 (Government Consumption Expenditure Rate). As seen in the table, the coefficient for Government Consumption is -1.404, while the coefficient for Real GDP Growth Rate is 20.781, implying that for every unit rise in Real GDP Growth Rate, the coefficient for Government Consumption Expenditure would fall by 1.404.

Given the results, there is a weak negative relationship between Government Expenditure and Real GDP Growth Rate. (Chen, Yao, Hu, & Lin, 2016) found in their study that as government consumption increases, the influence on economic growth diminishes. When the ratio of government consumption to GDP reaches a specific level, the impact of government spending may shift from positive to negative.

**TABLE 1.3: Measures of Regression between the Relationship of Economic Determinant in terms of Inflation Rate (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**

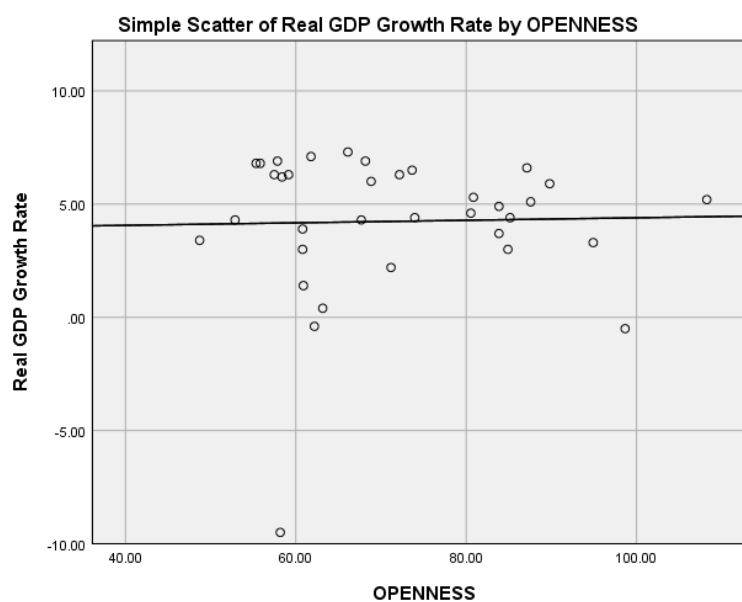


Variables	Coefficients (β)	Sig. Value
Inflation Rate	-0.269	0.053
<b>Real GDP Growth Rate</b>	<b>20.781</b>	<b>0.096</b>

Table 1.3 explains that the model is insignificant as the P-Value is 0.053, which is greater than 0.05. The results also suggest that there is a negative relationship between the Inflation Rate and the Real GDP Growth Rate. In addition, the regression table also shows the linear equation is equal to the Real GDP Growth Rate= 20.781-0.269 (Inflation Rate). As seen in the table, the Inflation Rate has a coefficient of -0.269 while the Real GDP Growth Rate has a coefficient of 20.781, indicating that for every unit rise in the Real GDP Growth Rate, the Inflation Rate decreases by -0.269.

Given the results, it was demonstrated that inflation has a weak negative relationship with the Real GDP Growth Rate. (Anidiobu, Okolie, & Oleka, 2018) claim that although inflation has a negligible effect on growth in the near term and posit that inflation is detrimental to growth, emphasizing no long-run relationship between inflation and growth. Additionally, growth slows dramatically during high inflation, whereas inflation helps growth when its rate is low. This suggests that high inflation does not support growth; instead, it has a detrimental impact on economic growth after it reaches a certain level (i.e., the level at which the effect begins)

**TABLE 1.4: Measures of Regression between the Relationship of Economic Determinant in terms of Openness (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**



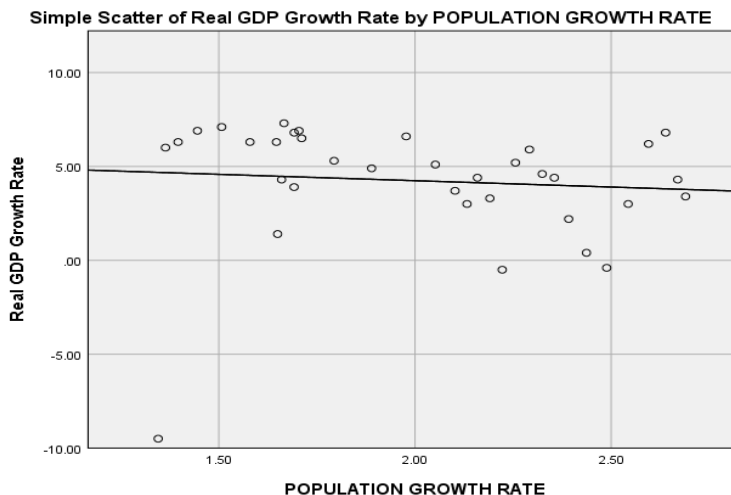
Variables	Coefficients (β)	Sig. Value
Openness	0.034	0.37
<b>Real GDP Growth Rate</b>	<b>20.781</b>	<b>0.096</b>

Table 1.4 also shows the P-Value is 0.37, which is more than 0.05, thus interpreting it as having an insignificant value. In addition, the regression table also shows the linear equation is equal to Real GDP Growth Rate = 20.781 + 0.034 (Openness). As shown in the table, the coefficient of Openness is 0.034, while the coefficient of the Real GDP Growth Rate is 20.781, implying that for every unit rise in the Real GDP Growth Rate, the coefficient of Openness will increase by 0.034.

Given the results, it was demonstrated that openness in trade has a weak but positive impact on the Real GDP Growth Rate. (Keho, 2017) stated in her research that there is a long-run association between trade openness and economic development and discovered a positive and substantial complementarity between trade openness and capital creation in terms of economic growth promotion.



**TABLE 1.5: Measures of Regression between the Relationship of Economic Determinant in terms of Population Growth (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**

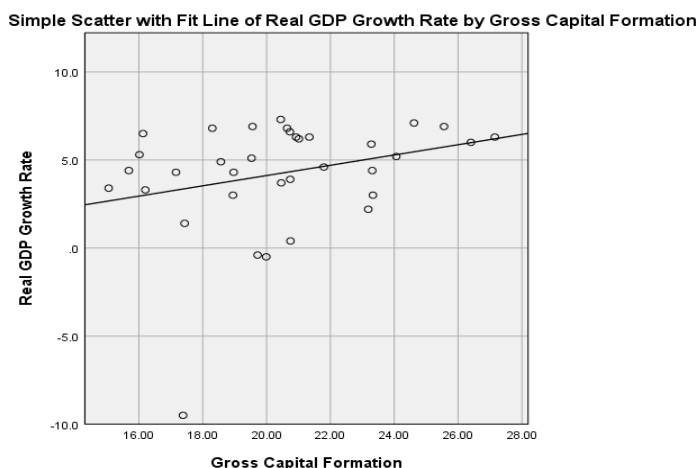


Variables	Coefficients ( $\beta$ )	Sig. Value
Population Growth Rate	-5.287	0.22
Real GDP Growth Rate	20.781	0.096

Table 1.5 also shows the P-Value is 0.220, which is more than 0.05, thus interpreting it as having an insignificant value. In addition, the regression table also shows the linear equation is equal to Real GDP Growth Rate = 20.781 - 5.287 (Population Growth). It can be seen in the table that the coefficient of the Population Growth Rate is -5.287 while the coefficient of the Real GDP Growth Rate is 20.781, which indicates that for every one-unit increase in Real GDP Growth Rate, there will be a decrease of 5.287 in Population Growth Rate. Given the results, it was demonstrated that there is a weak negative relationship between Population Growth Rate and the Real GDP Growth Rate.

Initially, population growth (Pegkas, 2018); Growth in population has a negative and large impact on real gross domestic product (GDP), and this supports the Malthusian theory, which states that population growth is detrimental to a country's economic development and well-being. (Akram, 2015). While population growth initially benefits economic development significantly, in the long term, population growth negatively affects economic growth (Pegkas, 2018) due to the worsening effect of population aging (Tsuchiya, 2016).

**TABLE 1.6: Measures of Regression between the Relationship of Economic Determinant in terms of Gross Capital Formation (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**



Variables	Coefficients ( $\beta$ )	Sig. Value
Gross Capital Formation	0.548	0.001
<b>Real GDP Growth Rate</b>	<b>20.781</b>	<b>0.096</b>

In addition, the regression table also shows the linear equation is equal to Real GDP Growth Rate = 20.781 + 0.548 (Gross Capital Formation). It can be seen in the table that the coefficient of the Population Growth Rate is 0.548 while the coefficient of the Real GDP Growth Rate is 20.781, which indicates that for every one unit increase in Real GDP Growth Rate, there will be an increase in 0.548 in Population Growth Rate. Given the results, it was demonstrated that there is a positive relationship between Gross Capital Formation and the Real GDP Growth Rate.

**TABLE 2.1 Correlation between Total Outstanding Debt and Real GDP Growth Rate**

Variables	Pearson	P-Value	Decision on Null <sub>1</sub>	Interpretation
Total Outstanding Debt				
<b>Real GDP Growth Rate</b>	<b>-0.005</b>	<b>0.979</b>	<b>Accept</b>	<b>Not Significant</b>

Rule: If  $p \leq .05$  (There is a significant relationship), if  $p \geq .05$  (There is no significant relationship)

Table 2.1 shows the correlation coefficient between the “**Real GDP Growth in terms of Total Outstanding Debt.**” It can be seen in the coefficient indicating that there is a “negative, weak” significant relationship with a **Pearson Correlation value of -0.005**, equivalent to **-0.5%**.

**TABLE 2.2: Correlation between the Economic Determinant in terms of Government Consumption Expenditure Rate (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**

Variables	Pearson	P-Value	Decision on Null <sub>1</sub>	Interpretation
Government Consumption				
<b>Real GDP Growth Rate</b>	<b>-0.404</b>	<b>0.016</b>	<b>Reject</b>	<b>Significant</b>

Rule: If  $p \leq .05$  (There is a significant relationship), if  $p \geq .05$  (There is no significant relationship)

Table 2.2 shows the correlation coefficient between the “**Real GDP Growth in terms of Government Consumption Expenditure Rate.**” It can be seen in the coefficient indicating that “There is a negative, weak” significant relationship with a **Pearson Correlation value of -0.404**, equivalent to **40.4%**.

**TABLE 2.3: Correlation between the Relationship of Economic Determinant in terms of Inflation Rate (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**

Variables	Pearson	P-Value	Decision on Null <sub>1</sub>	Interpretation
Inflation Rate				
<b>Real GDP Growth Rate</b>	<b>-0.195</b>	<b>0.262</b>	<b>Accept</b>	<b>Not Significant</b>

Rule: If  $p \leq .05$  (There is a significant relationship), if  $p \geq .05$  (There is no significant relationship)

Table 2.3 shows the correlation coefficient between the “**Real GDP Growth in terms of Inflation Rate.**” It can be seen in the coefficient indicating that “There is a negative, weak” significant relationship with a **Pearson Correlation value of -0.195**, equivalent to **-19.5%**.

**TABLE 2.4 Correlation between the Relationship of Economic Determinant in terms of Openness (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**

Variables	Pearson	P-Value	Decision on Null <sub>1</sub>	Interpretation
Openness				
<b>Real GDP Growth Rate</b>	<b>0.026</b>	<b>0.884</b>	<b>Accept</b>	<b>Not Significant</b>

Rule: If  $p \leq .05$  (There is a significant relationship), if  $p \geq .05$  (There is no significant relationship)

Table 2.4 shows the correlation coefficient between the “**Real GDP Growth in terms of Openness.**” It can be seen in the coefficient indicating that “There is a positive, weak” significant relationship with a **Pearson Correlation value of 0.026**, equivalent to **2.6%**.

**TABLE 2.5: Correlation between the Relationship of Economic Determinant in terms of Population Growth (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**

Variables	Pearson	P-Value	Decision on Null <sub>1</sub>	Interpretation
Population Growth Rate	-0.088	0.613	Accept	Not Significant
<b>Real GDP Growth Rate</b>				

Rule: if  $p \leq .05$  (There is a significant relationship), if  $p \geq .05$  (There is no significant relationship)

Table 2.5 shows the correlation coefficient between the “**Real GDP Growth in terms of Population Growth.**” It can be seen in the coefficient indicating that “There is a negative, weak” significant relationship with a **Pearson Correlation value of -0.088**, equivalent to **-8.8%**.

**TABLE 2.6: Correlation between the Relationship of Economic Determinant in terms of Gross Capital Formation (Independent Variable) and the Real GDP Growth Rate (Dependent Variable)**

Variables	Pearson	P-Value	Decision on Null <sub>1</sub>	Interpretation
Gross Capital Formation	0.283	0.1	Accept	Not Significant
<b>Real GDP Growth Rate</b>				

Rule: if  $p \leq .05$  (There is a significant relationship), if  $p \geq .05$  (There is no significant relationship)

Table 2.6 shows the correlation coefficient between the **Real GDP Growth in terms of Gross Capital Formation.** It can be seen in the coefficient indicating that “there is a positive weak” significant relationship with a **Pearson Correlation value of 0.283**, equivalent to **28.3%**.

**TABLE 3: Variance Inflation Factor for Multicollinearity**

Independent Variable	Dependent Variable	Centered VIF
Total Outstanding Debt	Real GDP Growth Rate	23.306
Government Consumption Expenditure		1.969
Inflation Rate		1.772
Openness		1.891
Population Growth Rate		19.139
Gross Capital Formation		1.251

The Variance Inflation Factor (VIF) analyzes the degree of collinearity among the independent variables, and each produced 23.306, 1.969, 1.772, 1.891, 19.139 and 1.251 for the variables Total Outstanding Debt, Government Consumption, Inflation Rate, Openness, Population Growth Rate and Gross Capital Formation accordingly. The results of four out of the six independent variables vary from 1 to 10, so there it shows that there was no issue with multicollinearity. However, with respect to the remaining two, respectively Total Outstanding Debt and Government Expenditure, the findings of both ranges greater than 10, which is the average value of VIF; thus, it shows that there could be collinearity between the two independent variables. Blanchard noted in (Gujarati D. N., 2002) that it is advisable to do nothing when presented with this sort of problem in multicollinearity as it essentially may be a data deficiency problem and sometimes, we have no choice over the data we have available for empirical studies.

**5. Conclusion**

There have been fewer studies in the Philippines examining the link between public debt, other economic determinants, and economic growth; consequently, this paper aims to discuss the existing studies in this country that will further be expounded. The current state of the Philippines from 1986 to 2020 in terms of the variables indicates that the country's Outstanding Debt is

increasing, especially in the last two years since COVID-19 took place. As a result, the government borrows money from international organizations to fund citizen assistance and vaccines, increasing the country's outstanding debt. As for the country's government consumption, it has gradually increased since President Duterte took office, owing to his BBB or Build Build Build program, which aimed to rebuild the country's infrastructure by investing \$8 trillion. Considering the present situation of the country's inflation rate is increasing quicker than expected due to rises in food, beverage, and garment prices, as well as housing expenditures. Additionally, regarding the present state of the nation's trade openness, trade has expanded significantly since our country joined the World Trade Organization in 1995, easing many import restrictions and lowering tariffs on specific items, as well as establishing a tariff schedule. For the present condition of Population Growth Rates, the population growth rates indicate a downward trend, indicating that even while population growth is stable, the annual population growth rate is decreasing. Finally, in terms of the country's current situation regarding the Real GDP Growth Rate, evidence indicates that the growth rate has slowed significantly since the COVID-19 pandemic occurred; however, over the last decade, it has been established that globalization has had a positive effect on the country's economic growth and employment.

The primary finding of this study is that the outstanding debt of the Philippines has no significant relationship with real GDP growth in the short run, indicating the existence of both neoclassical and endogenous growth models. Additionally, the data suggest that inflation rate, population growth, openness and gross capital formation also have no significant relationship with the real GDP growth rate while government consumption has a significant relationship with real GDP; thus, when the government consumption increase, the economic growth decreases and vice versa.

Based on the study's findings, it is herewith as follows:

### **5.1 Bangko Sentral ng Pilipinas**

Given that majority of the independent factors apart from Government Consumption display a significant relationship link among the dependent variable Real GDP Growth Rate, the BSP may utilize these findings to enforce a better monetary policy execution that will help the economy grow and be stable.

### **5.2 Department of Budget and Management**

Excessive debt is never beneficial to the economy in the long run because it has a negative effect on productivity and economic growth. Therefore, the Department of Budget and Management should allocate the country's budget more efficiently as the country's debt continues to grow, particularly in the last two years due to COVID-19.

### **5.3 National Economic Development Authority**

The findings may benefit the National Economic Development Authority in assessing the condition of our economy and, therefore, in boosting the country's economic policies. Even while most of the independent variables demonstrate a non-significant relationship with the Real GDP Growth Rate, the long-run consequences of each are detrimental, notably excessive debt, continued population decline, trade restrictions owing to covid-19, and a stagnating inflation rate.

### **5.4 Academic and Future Researchers**

The findings may be beneficial to the academic community and future researchers since it contributes to knowledge and expands the references for future research. Additionally, the researchers recommend that future researchers of this study may choose to include another variable that is deemed relevant and to experiment with a different method for assessing both short- and long-term outcomes.

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