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| RESEARCH ARTICLE

Stimulating Global Competitiveness: An Economic Analysis of the Middle-Income Trap in The Philippines

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| ABSTRACT
The Philippines has been a lower-middle-income country for two decades since its entry into the bracket in 1996. Despite enjoying a steady growth rate, the Philippine economy is yet to break through the upper-middle-income bracket and is described to be stuck in the so-called Middle-Income Trap. The middle-income trap is a situation in which countries fail to adapt to the changes within their domestic market, and as a consequence, lose their global competitiveness. According to literature, active innovation and specialization are key factors in boosting global competitiveness and preventing the middle-income trap. In this paper, the researchers explored the determinants for exports and reviewed macroeconomic trends in the Philippines. Multiple linear regression analysis and descriptive statistics were employed to examine the effects of education, research and development, business activities, and foreign direct investments on exports. The regression model indicated a positive relationship among exports and the variables education and research and development, while it was found that foreign direct investments demonstrated a negative relationship between exports. The researchers put forward the enrichment of competition by promoting active research and development of goods, the specialization of the labor force, and the deregulation of government policies to future studies and policy formation to alleviate the country from the middle-income trap.

| KEYWORDS
Macroeconomics, global competition, middle-income trap, Philippine exports, education, research and development, business activities, foreign direct investment, economic growth, economic development.

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1. Introduction

Across multinational firms and industries, the persistent productivity and development that takes place in the Association of Southeast Asian Nations or ASEAN economies is a topic well studied that keeps researchers intrigued. Globally known as the Tiger Cub Economies, it is undeniable that these rapidly growing economies would eventually meet with the Global North in the high-income bracket. However, despite the rapid development occurring in this region, many of the member states have been fastened into the so-called middle-income trap, where economic growth is hindered. Particularly, the Philippines has been in this situation and has struggled to make economic choices to arise from the dilemma. To date, little is still known or studied concerning the factors that affect the middle-income trap in the country and the effectiveness of different variables such as education, research and development (R&D), business activities, and foreign direct investments (FDIs) in combating the said issue.

In this research paper, the researchers will use a time-series dataset in order to create an analysis of the effectiveness of investment in education, research and development, promotion of business activities, and regulation of foreign direct investments in the export performance in the Philippines. With these variables listed, the problem recognized is the middle-income trap present in the country. This is usually a result of a country failing to create high value-added industries to compete with exports in the global market. Stating that the Philippines has low-cost labor and imitation of foreign technology is another way of noticing the problem. Furthermore, a multiple linear regression analysis using time series data will be done using data collected quarterly, from 2003 to

2019. The data gathered for the analysis is measured in terms of the gross value added in education, intellectual property products (to measure R&D), gross fixed capital formation (to measure business activities), and the total approved foreign investments from the BOI (Board of Investment).

1.1. Defining the Middle-Income Trap

The concept "middle-income trap" (MIT) has developed exponentially and has gained a number of coverage in science and non-scientific literature. According to Glawe and Wagner (2016), the concept of the MIT is used to describe economies that have undergone rapid growth, allowing them to attain middle-income status, but have never been able to compete with developed economies and achieve high-income status – rather, they have been stuck in the middle-income bracket. This concept is relatively new in the research area of economics as it was first mentioned by the World Bank in a report entitled "An East Asian Renaissance: Ideas for Economic Growth" presented by Gill and Kharas in 2007. In addition, there are numerous ideas revolving around MIT, and there are two groups of definitions to gain a better understanding of the concept. The first group of definitions are the theoretical definitions which concentrate on the political and social changes that must be made when a nation joins the middle-income bracket. In this sense, the authors characterize MIT as a consequence of a lack of systemic and institutional changes, a type of political failure. Furthermore, Glawe and Wagner cite multiple authors to provide various definitions. MIT economies, for example, are defined by Gill and Kharas (2007) as being pressed between minimal poor country competitors who prevail in mature industries and obscenely wealthy innovators who thrive in industries undergoing rapid expansion. Moreover, countries are trapped in the MIT, according to Kharas and Kohli (2011), if they are unable to "make a smooth shift from resource-driven development, with low-cost labor and capital, to productivity-driven growth." The second group of definitions are the quantitative definitions, and these involve a more detailed description of the concept of MIT. The word "trap" is simple to describe since it has been used in the process of economic growth for quite a long time. Matsuyama (2008) and Azariadis and Stachurski (2005), for example, stress the three key trap attributes: "(a) a self-perpetuating or self-reinforcing mechanism; (b) difficulty breaking out of it; and (c) its persisting character (stable steady state)." These descriptions are mainly used to define the poverty trap, which is common in many developing countries. Citing Felipe et al. (2012), the researcher had stated that the MIT period could take longer than 42 years to be free from, this period is calculated to have 14 years stuck in the lower-middle-income range (LMIR) while there is an estimated 28 years or so in the upper-middle-income range (UMIR). Lastly, the term "middle-income" refers to the upper and lower limits set in the middle-income range.

From this introduction, this study aims to analyze the relationships present among the chosen variables and how these, in turn, may alleviate the problem of the middle-income trap. This analysis will be achieved by using carefully selected literature and previous studies to create a concrete econometric model, which will be discussed in the following chapters. This study is both relevant and timely as the Philippines has been stuck in the middle-income trap for two decades. This problem has hindered its economic growth and has caused the country's economy to lag among its ASEAN neighbours.

1.2 Statement of the Problem and Research Questions

The Philippines is studied to be under the middle-income trap. The Philippines GNI per capita as of 2019 was at $3,850, placing it in the lower-middle-income bracket. Using the World Bank measures, the Philippines has been a lower-middle-income country for two decades since its debut in 1996. Despite enjoying a steady growth rate, the country is yet to drive forward to the upper-middle-income bracket. Although solutions may be country-specific for the MIT, according to the Asian Development Bank, at its core, the MIT is a disease where the country lacks global competitiveness. Since the year 1997, exports have dropped from 48% of the GDP to only 28% in 2019. Although the GDP may have experienced a steady upward trend before the COVID-19 pandemic, it is not enough to break through the MIT.

Thus, this research aims to answer the following questions:

a. What are the Philippines' economic trends in terms of education, research and development, business activities, and FDIs whilst being grounded in the middle-income trap? This means observing the growth or decline of these economic drivers.
b. How do education, research and development, business activities, and foreign direct investments affect exports?
c. What are the relationships present between the dependent variable exports and independent variables education, research and development, business activities, and foreign direct investments?
d. How can the middle-income trap be alleviated in the future? What policies must the Philippines implement to combat this?

1.3 Formulation of the Hypotheses

Null Hypothesis:

H_0: Foreign direct investments, investments in education, research and development, and business activities have an insignificant relationship to the export performance of the country.

Alternative Hypothesis:

H_α: Foreign direct investments, investments in education, research and development, and business activities have a significant relationship to the export performance of the country.

1.4 Scope and Limitations of the Study

To achieve global competitiveness, we use the assumption that exports are the main economic driver against MIT. In this paper, the researchers will treat exports as their dependent variable in a time-series multiple regression analysis. The independent variables, which will be further reinforced in chapter two of the paper, are as follows: investment in public education, investment in research and development, business activities, and foreign direct investments. Specifically, this study shall measure its variables through the gross value added in education, intellectual property products (to measure R&D), gross fixed capital formation (to measure business activities), and the total approved foreign investments from the Board of Investment (BOI). This research will be solely using secondary sources, primarily from the Philippine Statistics Authority (PSA). The data collected in this research will gather quarterly records from the years 2003 to 2019. Lastly, this research's data gathering and analysis will be done from March 2021 to May 2022.

1.5 Significance of the Study

This study deems its significance on the following topics:

In International Trade and Industry Research. This research aims to fulfil its significance through studying the strategies taken by countries included in the ASEAN to grow and strengthen their markets – both in the domestic and international arena. It is important to understand that studying international trade and its policies fuels economies of scale, innovation, and competition among countries. As of 2020, the Philippines was ranked 64th out of 141 countries in the 2019 Global Competitiveness Index, which decreased from its previous year's performance, suggesting that the country must invest in better strategies concerning market competitiveness (Crismundo, 2020).

Furthermore, by studying this field of economics, this research hopes to contribute to global growth and economic development as trade is important for nations to develop their own natural resources and to become active participants in the global economy. Participating in the global market not only enables consumers to get better access to goods and services, but it is also an important aspect of a nation's sovereignty since countries must compete with one another in order to be recognized by international organizations. Finally, foreign trade demonstrates a commitment to becoming a member of the international community as well as a determination to cooperate with other countries in a positive and sensible manner.

In Governance and Policymaking. Throughout history, trade policies have always set an agenda for the economic growth and competitiveness of countries within and beyond their borders. This research deems its significance through discussing and analyzing the effects of foreign direct investments in the Philippines. By analyzing the impacts and effects of this, researchers would be able to reduce investment barriers and as well as foster an open, transparent, and non-discriminatory based trading system. Since trade is also studied to play a part in allowing countries to grow faster, innovate, and improve productivity while expanding opportunities to people, this research hopes to fulfil its role by creating a reliable source that may be useful in policymaking.

In Further Research. The researchers of this work believe that through a thorough econometric analysis of the foreign equity policy, there would be a significant contribution in the fields and activities of trade facilitation and management concerning the ASEAN. This research aims to provide an academic and professional piece where future researchers and academics may rely on and find beneficial data to aid in their own works. Lastly, this research hopes to be of use in the following topics and subject matters: trade agreements, trade competitiveness and development, and global and regional integration.

2. Literature Review

In this chapter, the researchers will discuss the previous studies and theories that have been done relating to the objectives, goals, and variables of this current study. It shall comprise of subsections that tackle the relationships between exports and the middle-income trap, exports and education, business activities, research and development, and finally, foreign direct investments.

2.1.1 The Middle-Income Trap in the Philippines

In early 2019, the Ateneo Economics Society had published an article describing the Philippines' situation on why it has been stuck in the middle-income trap. As per the World Bank, the Philippines has been a lower-middle-income economy for decades and was

scheduled to become an upper-middle-income country by 2019. However, it appears to be lacking in the implementation of transformative policies and investment in development needed to be free of the middle-income trap. As of 2016, the Philippines' spending on R&D had remained unchanged at 0.14%. Furthermore, based on another article published by the Manila Bulletin (2020), the Department of Science and Technology (DOST) had requested a P36.269 billion budget for upcoming research projects in 2021; however, the Department of Budget and Management (DBM) had only allowed for P23.89 billion to spend for these projects. The agency's estimated budget for its research and development institutes was also cut by P76.2 million, from P2.488 billion in 2020 to P2.411 billion in 2021.

Agriculture is also one illustration of a sector that is impacted by underinvestment. Agricultural R&D expenditure accounts for just 0.4% of overall agricultural production, which is far below the 1% level in developed countries and the 2-3% in developing countries. Furthermore, the former chief of the National Economic and Development Authority (NEDA), Arsenio Balisacan, had stated that the Philippines should at least spend 2% of its GDP in the fields of science and technology. This expenditure could possibly help maintain long-term economic growth and development, such as what other Southeast Asian countries are implementing. This statement by chief Balisacan also suggests that one of the reasons the Philippines has been stuck in the middle-income trap is because of the lack of interest in innovation.

In addition, the Philippines has a Gini index of 40.1 which can be comparable to both Indonesia and China. This means that, while the Philippines outperforms Latin American and African countries in this regard, it still has a long way to go in terms of reducing economic disparity. Reducing economic disparity would boost social mobility among classes and aid in education, which would then catalyze employment of more specialized industries, allowing our economy to become more globally competitive. Lastly, the Philippines' dysfunctional political institutions are another indication that the country is on the verge of staying longer in the middle-income trap. In the Corruption Index, the Philippines is ranked 111th out of 180 countries. This implies that the Philippines' political systems are seen as corrupted and tainted by special interests and thus go against the idea of "rules-based" structures that many countries that have fled the middle-income trap have adopted. This is shown by the 33,772 corruption cases recorded between 1979 and 2016, or an average of 912 cases each year. The concept of the public choice theory can be demonstrated in this problem as it states here that people are primarily driven by self-interest. The same assumption is made by public choice economists: that while people behaving in the political marketplace care about others, their primary motivation is self-interest, whether they are voters, legislators, lobbyists, or bureaucrats (Shaw, n.d.)

2.1.2 What are the Effects of the Middle-Income Trap?

The MIT is linked to a relatively long-term slowdown in economic growth, and according to a few definitions discussed, a MIT lasts at an average of at least 50 years. Furthermore, the negative impacts of a MIT in terms of lost revenue are usually followed by indirect effects, such as social conflict that stems from domestic market failures. Middle-income countries or MICs are more vulnerable to economic and financial transparency than high-income countries. MICs that expose themselves to external movements of commodities and capital without adequate protections risk becoming disproportionately affected by more global crises. Furthermore, the very economic integration that can help MICs become more successful is also a source of vulnerability. When domestic industries are not adequately competitive, and the transition from agricultural to industrial production is uncertain, rapid integration of economies in the global market can have negative consequences for MICs. Domestic economies that are unable to keep up with global demand lag behind in the former scenario, leaving the population vulnerable to unpredictable global commodity markets. In the latter case, a slow transition of the workforce into industrial production raises unemployment, which, when combined with persistently low wages, puts growing industrial workers “just a shock away” from poverty. In India, Thailand, and the Philippines, this fragile economic liberalization is particularly evident (Bonneau, 2013).

2.1.3 Exports and the Middle-Income Trap

The drivers of exports in a global market are centered on the concepts of comparative and absolute advantages. Schweisshelm and Vu (2016), in their study, have stated that the fundamental increase in the productivity and innovative prowess of a country is key to escaping the MIT. In their given data, countries that have stagnated in the middle-income bracket commonly have homogenous goods as exports specialities. These are the raw materials that are used in making high-value goods by more industrialized economies. For example, country A will export unprocessed steel to country B. In turn, country B will make cars chassis to export to country A. However, trading terms such as the given scenario will harm the exporter of mere raw materials in the long run. These goods are homogeneous and competitive among foreign traders. On the other hand, industrialized economies that make the finished products are more specialized and can freely dictate global prices. Consequently, in the essence of comparative advantages, low-income countries are commonly the conventions for cheap factors of production. Multinational firms can be seen to flock to these countries for it is cheaper to produce their goods in these countries than in their own. So was the case with China in the study of Paul (2016), where he examined the growth of the country’s economy. His framework suggested that China’s growth was a function of exports, foreign direct investment, and the low cost of labor in the country. But to reiterate, the benefits of factor-driven growth will only be enjoyed in the short run. Innovation-driven growth should be the strategic plan for countries to escape the MIT (Paus, 2017). To reinforce this idea, the study of Wade (2017) further explains this economic pattern.

Countries in the low-income range can stimulate growth with factor-driven resources as their backbone, but as a country's average income rises, the factor-driven resources will yield diminishing returns. Labor costs will eventually increase as the average income of the country increases. All things held constant. But cheap labor as a trade speciality is still raw and unprocessed. The key to alleviating from the MIT, as Paus (2017) suggests, is if the industries of the initial foreign investments were absorbed by the domestic market. For example, Hoyota, a car brand from country B, will invest in country A since labor is cheap. If the laborers from country A will not absorb the industry of car manufacturing, they will only serve as cogs in a machine that works for country B in the essence of comparative advantages. Schweisshelm and Vu (2016), however, have stated that if the laborers from country A will absorb the car manufacturing industry, and internalize the production process, laborers from country A can develop specialization that will be its value proposition in the global market. In this regard, it can be assumed that domestic firms will naturally revolve around the invested industries and commit needed interactions with other key actors in the economy to form a supply chain of sorts. To create a distinct domestic market, the occurrence of specialization mentioned above is required. Moreover, to create a globally competitive domestic market, innovation through whatever form is essentially required.

Furthermore, Dingemans (2016), upon studying the success story of Chile's economy, had mentioned that for decades, underneath its strong growth rates, Chile's economy has been showing signs of being stagnant. Specifically, it has been plagued by the middle-income trap. It has not been able to increase production, add value to its exports, or update its value chain. Its economy cannot cope with either low-wage countries or countries that are highly efficient and productive. Dingemans, however, has established two methods that look at how exports can help a country escape the middle-income trap. The approaches are called Export Promotion (EP) and Export Development (ED). Both involve government interference, but the first attempts to deliberately influence future outcomes. The first also states that the government should interfere when market failures occur, while the second states that the government should intervene when markets collapse. EP aims to establish a market-led international trade policy, with government interference limited to the construction of 'hard' and 'soft' infrastructure that promotes trade and thus acts as a mere facilitator and supplier of public goods, with little space for experimentation. Because of the emphasis on market-led growth, links to other policy areas or national development strategies are either insignificant or undesirable. Finally, expanding international access to markets is the primary goal of a nation's international trade policy, as per this viewpoint. ED, instead, corresponds towards a more interventionist approach. Not only does the government promote trade, but it also directs future development. For example, Chile's government regulates the world's largest copper corporation, but it does not use it as part of a wider growth plan with specific goals. Instead, ED makes a significant contribution to the development of new productive industries, such as forestry and salmon, but it does not overcome comparative advantages. The distinction is that in the context of market failures, allocative performance can be achieved with only a little help from outside powers such as the state. When an economy fails, however, it is no longer advantageous for allocating resources and should be replaced or supplemented by another non-market institution.

Another study done by Lee and Ramanayake (2017) explores one branch of economic growth analysis that reflects on the idea of the "adding-up problem" as one of the factors of complexity in developing countries' economic growth. The adding-up problem is characterized as a condition wherein developed countries enter the market with similar products that they are particularly good at manufacturing, lowering relative costs and making the industries included less profitable. The research on growth spurts and decline, as well as the middle-income trap, are all related to this definition. However, this study finds no evidence for the potential positive effects of undervaluation on developing export growth. This finding suggests that controlling trade and market variables (exchange rates) alone might not be sufficient for long-term export and development in countries belonging to the South in order to rise above the middle-income trap. In contrast to the previously mentioned study, Haddou, Jang, and Kim (2017) hold more promising results while studying the export sophistication and middle-income trap in MENA countries, with reference to South Korea. They begin their study by stating that specialization based on comparative advantage is stimulated by globalization. For middle-income countries stuck in a globalized world, the ability to change a country's competitive advantage is a critical factor. Though resource-rich countries such as Algeria and Saudi Arabia retain their comparative advantage, Korea has attempted to change its comparative advantage from labor-intensive to capital-intensive. Additionally, the competitiveness of foreign trade was investigated in order to truly comprehend the reasons for economic success and failure. This trend was mainly observed during the periods of dominant free trade, more specifically, from 1995 to 2015. Korea's rapid economic growth was achieved by government intervention, carefully regulated trade, and gradual market opening. Its industrial upgrade also followed the flying geese model's smooth transformation in exports and trade, beginning with simple processed products and progressing to complex capital goods.

2.1.4 Exports and Education

In a study conducted by Antonio Favila Tello (2016), the discussion on the link between education and the structure of exports of APEC countries from 1980 until 2014 was thoroughly discussed and analyzed through including four APEC countries, namely, Singapore, Korea, Malaysia, and Mexico. It was discussed here that education is one of the most important topics for societies; its significant transformative influence in the democratic, cultural, social, and economic facets of human groups is generally acknowledged as a driving force of a strong economy. In addition to this, the author had mentioned that the economic benefits

of education had garnered considerable attention from legislators and decision-makers who are struggling to establish how to accomplish long-term development and growth by increasing the population's educational attainment.

Moreover, to discuss the relationship present between foreign trade and education, the author had made use of the Heckscher-Ohlin model. This model was a pioneer in examining the stated relationship; it mainly demonstrated that trade between countries was influenced by differences in the abundance of factors among them. Imports were intended to compensate for the lack of certain factors in domestic production, and as a result, these should represent those differences. Furthermore, Favila Tello (2016) cites the work of Krugman, where it was explained that countries with more resources are more likely to export capital-intensive goods while importing labor-intensive goods, As stated by Leontief in 1953. According to Leontief, US exports were less capital intensive than imports in the 25 years following WWII due to the fact that the United States exported goods that were more labor-intensive and technologically advanced. This demonstrated that having a better-prepared workforce and a larger number of scientists and technicians was not the only known way for the US to gain an edge in foreign markets. As a result, the industries that manufacture more advanced goods and require skilled labor appear to be located in countries with higher levels of education, giving them a greater chance of finding the qualified workers they require. Industries that specialize in goods that need unskilled labor, on the other hand, appear to be located in countries where less capable labor is plentiful, allowing businesses to cut costs by paying lower wages.

Lastly, according to the findings of Favila Tello (2016), there was a strong positive relationship between increased schooling and increased exports of manufactured goods, machinery, and transportation equipment, as well as a significant reduction in their reliance on agricultural products, fuels, and other minerals.

Foxley (2016) also discussed the importance of innovation in MIT. In his study, he divided the determinants for growth into two economic sectors: the macroeconomic level and the microeconomic level. To which he stresses growth in productivity must be simultaneous between the two. For the macroeconomic level, higher domestic savings and investment is required to provide domestic resources for investments to eliminate infrastructure bottlenecks and enhance the quality of the workforce and technological innovation. At the microeconomic level, the central action must be to increase the productivity of small and medium enterprises that are significantly lagging behind the large enterprises of the same industry. To achieve this dual model of growth, Foxley (2016) insists that the support of institutions that are centered on promoting a knowledge economy is key to establishing a globally competitive domestic market. Production must move up the value chain, away from unspecialized and undifferentiated goods and services and create its own distinct identity. Cheong and Lee (2016) open the idea of invigorating technical and vocational education and training as an important part of education to alleviate Malaysia through the MIT. The researchers explored in their study the market failures that revolve around the labor market. Lack of public funding and private information asymmetries were the problems surrounding the lack of domestic labor supply in Malaysia. The study ended with the conclusion: despite the promotion of technological and vocational courses, a deteriorating education system will only drag it down. Truly, the academe is still at the heart of the education structure, as Lee (2016) suggests.

2.1.5 Exports and Research and Development

In building a globally competitive domestic market, it is widely known that technology and human capital are the key drivers for diversification of skill among the population. To support these macroeconomic factors of production, research and development (R&D) provide the possibility of innovation, which would then drive comparative advantages over foreign competitors. Cintio, Ghosh, Grassi (2017) have divided the path of R&D into two innovative results; product innovation and process innovation. In their study, they have gathered different empirical results of the relationship between exports and employment growth at the firm level. They have found that in some countries such as Taiwan and the United Kingdom, non-innovating firms are more likely to export than their innovating counterparts. However, their own model suggests that it is country-specific. In the German and Spanish exports that they have explored, they have found that firms introducing product innovation have caused exports to significantly increase. It is also considered to note that process innovation was found to be negatively affecting the employment rates. Although productivity levels are relative in terms of industry, in essence, in process innovation, capital equipment such as machines take the role of the laborers.

Lee and Becker (2017) explored the series of questions surrounding firms' hesitancy to commit to R&D investments. The time lag in realizing R&D returns make it difficult to quantify its true returns on investment. Other determinants for firms to spend on R&D include the strength of patent protection, the rate of commercialization, whether there is a market for the product to be. Nevertheless, R&D expenditures are found to positively affect overall productivity in the economy. More importantly, in export growth by 0.096% with every one percent increase in R&D expenditures. In another related study, Neves, Texeira, and Silva (2016) assessed the case of a small, accessible, and peripheral nation where exports drive economic growth amid a significant R&D lag. These researchers had also assessed different firms' R&D influences and the impacts placed by their exports, as well as whether the interrelationship between R&D and exports influences firm results. The estimation of the results was scanned over the duration of 2006 to 2012 and used bivariate probit models, which provide a simultaneous estimation of the two options, exports and R&D.

The data set used contained all (more than 340 thousand) non-financial companies based in Portugal. It was confirmed in this research that by understanding the association between the calculation errors of the estimates for R&D and exports, there was indeed a complementary element present between the variables. This means that participating in R&D activities would improve the firm's likelihood of engaging in external trade. Additionally, participating in export programs increases the likelihood of participating in R&D. Finally, it was discovered that R&D and exports have a beneficial impact on sales growth, which is improved when both activities occur at the same time, using a panel model. To reiterate, (Lee and Becker, 2017; Neves, Texeira, and Silva, 2016) strongly views R&D activities as a major strategic determinant for improving a country's economic performance, all the while creating comparative advantages over their foreign competitors.

R&D activities may also decrease dependence on the trade of resources between resource-rich countries. Zafar, Shahbaz, Hou, and Sinha (2018) stated in their study that promotion of renewable energy as opposed to nonrenewable energy decreases dependence on fossil fuel-based energy while sustaining economic growth by avoiding the volatility of fossil fuel prices. In their production function, alongside R&D activities, is trade openness. They argue that the government also plays a vital role in promoting economic growth. Investors must be able to enjoy subsidies and tax incentives to reward businesses in assuming risk.

2.1.6 Exports and Business Activities

The dichotomy between public and private revenues has always been an economic debate in stimulating economic growth. In developing countries, the promotion of commerce has always been a convention, particularly tax incentives. Ugwu (2018) used the assumption of global competition in regard to attracting FDI among source countries through tax incentives and its relationship with Nigeria's exports. Ugwu's framework is centered on the Internalization theory of Buckley and Casson from 1976. This theory states that in any economic system, a tendency to generate sophisticated information in the form of FDI is always present. This theory is comparable to the study of Wu, Wei, Wang (2021), where they have analyzed the relationship between innovation on imports in terms of business groups (BG) in China. BG are a set of firms that are legally independent of each other but are essentially connected through taking coordinated actions filling institutional voids through the coalition to enhance economic welfare. In this regard, Ugwu (2018) and Wu, Wei, Wang (2021) both find tax incentives and BG affiliations as positively correlated with exports. Moreover, Kusek and Silva (2018) surveyed foreign investors on how tax incentives influence their decision to invest. They find that often investors weigh other variables more important than tax policies. Kronfol and Steenbergen (2020) add to this discussion. Tax incentives are often more efficient when a country's infrastructure and institutions are politically stable. Costs of other factors of production are also considered, such as transportation costs and labor costs.

In the study of Minniti and Venturini (2016), where they analyzed the long-run effects of research and development, he found that tax credits greatly helped the increase of production in the long term. Tax incentives such as tax abatements, tax deferrals, and lower tax rates are known to foster businesses, encouraging them to take risks. The researcher added that high corporate taxes are more harmful to economic growth as they discourage entry of firms and investment. Generally, corporate taxes negatively affect entrepreneurial activity. In their study, tax credits for business enterprises for research and development in comparison to direct government spending for public research and development greatly increased productivity in the long run. As long as patents and copyrights laws are properly in place, businesses are assumed to allot a fraction of their costs in research and development to rank up their branding among their competitors. Not only would product innovation bring benefit to the individual consumer, but competition through innovation would promote active and constant product innovation among businesses. In this regard, the study of Neves, Texeira, and Silva (2016) would provide evidence as to how research and development spending paired with tax incentives such as the study of Minniti and Venturini (2016) would boost the export performance of a nation.

2.1.7 Exports and Foreign Direct Investments

Protectionism can first be defined as a group of policies that contribute to the overall protection of domestic industries from foreign competition. Protectionist laws include the implementation of import quotas, tariffs, subsidies, and many other restrictions placed on foreign competitors. The most common results of protectionism are the decline in trade among countries, higher prices in the market, and loss of jobs or unemployment in multinational industries. Throughout history, the implementation of these laws has threatened the growth of developing countries as it hinders their capacity to export goods, especially agricultural products while also limiting the importation of needed resources and goods.

The ASEAN had made an agreement to resist all forms of protectionism and enhance trade for regional prosperity. In a joint vision, the ASEAN countries agreed to their commitment to support the enhancement of trade and investment and the resistance to all forms of protectionism in order to improve regional development and prosperity. However, according to a recent article written by Devadason (2019), there is an ongoing scenario of "new protectionism" in ASEAN. This is mostly correlated with the rise of non-tariff measures or NTMs, which are the technical barriers associated with trade. The author also mentions that the occurring protectionism is one that is concealed or hidden and that this harm or burden the individual ASEAN countries. Furthermore, these hidden barriers must be accounted for by ASEAN leaders as this issue is in need of attention.

Etale, E. and Etale, L. (2016) examined the link between exports, foreign direct investment, and economic growth from the years 1980 to 2013 in Malaysia. The author begins by stating that economic growth is one of the most critical indicators for any properly managed economy. Increased economic growth indicates increased economic prosperity and welfare; as a result, governments are focused on finding ways to encourage their countries' economic growth. The increase in the market value of goods and services over time is referred to as economic development and growth. Furthermore, another idea the research had focused on is the assertion that an economy's openness enhances economic growth is generally accepted, regardless of whether the economy is existing or expanding. Foreign direct investment (FDI) is critical for boosting foreign capital flows, and it has piqued the interest of many researchers. According to the authors, inward FDI will boost the host country's export potential, resulting in higher foreign exchange earnings for the developing country. FDI can also help host countries create new employment, improve technology transfer, and boost overall economic development. Spillovers are caused by FDI because the information is transferred to the host nation. When well-trained staff and managers move from international firms to domestic firms, the spillover effect occurs. Additionally, some researchers agree that FDI has aided economic development in the majority of countries. According to the modernization hypothesis, FDI promotes economic growth by supplying external capital and spreading the benefits across the economy as a result of growth. The existence of the investment, rather than the source of the investment, may be considered important. This is due to the fact that FDI always carries advanced technologies, as well as improved management and organization. Moreover, exports mainly drive economic growth on the demand side, but they also improve supply-side productivity through global competition. Foreign direct investment, as described in theory, leads to an improvement in a country's export output. Over the last five decades, Malaysia's export sector has changed dramatically. The composition of exports progressively changed from agricultural and mining products in the 1960s to manufactured goods in the 1980s, in line with the nation's economic industrialization.

The authors had used a cause-and-effect analysis to look into the relationship between the three parameters. Through their study, it was found that FDI Inflows per capita and GDP per capita have a positive and significant “bidirectional” relationship while exports and FDI inflows and exports and GDP per capita both share a negative or “unidirectional” relationship. Legislators should promote more export opportunities and investments in the export sector, according to the results of this report.

According to Babu (2018), exports and foreign direct investment (FDI) are critical for long-term growth, particularly in emerging economies such as India. They are, of course, critical for the country's short-term growth rate. In India, FDI helps to compensate for the lack of resources, innovation, management skills, and access to markets. It generates capital and technological advancements that can help the host country's businesses improve their technical capabilities. Also, this would allow the country to make the best use of its limited resources and optimize its production. The significant association between FDI inflows and exports is critical to the country's development plans and overall growth. The researcher further mentions that if FDI enables local firms in the receiving country to expand their export trade, it will, in turn, hinder the home country's domestic market. On the other hand, if trade and FDI inflows balance one another, both industries' performance will be enhanced. Using the cointegration technique to test the causal relationship, it was found in the research that in the long run, FDIs do not contribute to higher levels of export in India, indicating that there’s no long-run relationship shared between the two variables. However, using the Granger causality test, the findings revealed that there was bi-directional causality between the variables, implying that FDI could be causing imports, which also lead to exports. Lastly, the author states that when exports are high, which are caused by FDI inflows, they again cause an increase in both exports and imports. In contrast, a similar study done by Ahmada, Draz, and Yang (2018) bore different results where the paper investigated the links between exports, foreign direct investment, and economic growth in countries belonging to the ASEAN. On the panel data from 1981 to 2013, the researchers used a three-stage method focused on the unit root, co-integration, and causality measures. The findings show that FDI and growth have a bidirectional causal relationship in the long run but that FDI and exports have a unidirectional causal relationship in the short run.

2.2 Theoretical Framework

In this section, the researchers will first use the theories of comparative and absolute advantages to generally explain the concept behind how economies may gain through trade activities. Additionally, the researchers will also make use of specific theories per variable pair in order to further explain in detail how the assumed causal relationships occur, such as the Schumpeterian Approach, International Trade Theory - Porter’s National Competitive Advantage Theory, and the Internalization Theory.

2.2.1 Comparative and Absolute Advantages

The researchers use the assumption that economic growth in regard to MIT can be resolved with a globally competitive domestic market. (Schweisshelm and Vu, 2016; Paus, 2017; Wade, 2017; Favila Tello, 2016) Global competitiveness is ultimately reflected by the export performance of the country. In order to achieve this, economic growth through catalyzation of exports is supplemented by the following variables: education, research and development, and foreign direct investments. This is further reinforced by the study of Paul (2016), where he has concluded that the rapid economic growth of China was a function of exports, foreign direct investments, and the low cost of labor in China.

When one nation may manufacture a product or service at a lower opportunity cost than another, it is said to have a comparative advantage. This implies that a country can manufacture a good at a lower cost than other countries. According to the principle of comparative advantage, if countries specialize in manufacturing products where they have a lower opportunity cost, their economic well-being will improve. On the other hand, absolute advantage considers the monetary cost of making a good. Even if one country is more efficient than the other in producing all products (absolute advantage), both countries will benefit from trading with each other as long as their relative efficiencies are different.

2.2.2 Exports and Education: Schumpeterian Approach

According to a study conducted by Liu, Serger, Tagscherer, and Chang (2017), policy development in low-income developing economies is often focused on keeping up with advanced countries, especially to close the widening gaps in income and technology. One of the major challenges facing middle-income countries is maintaining the catch-up mechanism needed to reach the high-income stage. Investment rates, capital accumulation, government actions, and infrastructure conditions may all play a significant role in the initial stages of development. There are various approaches that can be applied to explaining the problem of MIT and how to counter it. The authors primarily focus on two approaches, namely, institutionalism and the Schumpeterian approach. However, only the latter will be included in this paper.

The so-called Schumpeterian approach claims that a country's acquisition of technological growth and development is inextricably linked to its catch-up phase. For upper middle income and high-income countries, it was discovered that higher and more consistent levels of technological development and higher education are more powerful indicators in measuring economic growth rather than institutional development. As a result, rather than political institutions, technical capacity is considered to be the constraining factor on development for middle-income countries.

2.2.3 Exports and Research and Development: International Trade Theory - Porter's National Competitive Advantage Theory

Mariadoss (n.d.) explains that in 1990, Michael Porter proposed a new model to analyze national competitive advantage as part of the ongoing evolution of international trade theories. According to Porter's hypothesis, a country's competitiveness in an industry is determined by the industry's ability to innovate and modernize through research and development. His idea aimed to explain why certain countries are more competitive in specific industries than others. Porter established four determinants that he tied together to describe his theory.

1. *Local market resources and capabilities (factor conditions).* The factor proportions concept views a country's resources (such as labor and natural resources) as essential determinants in selecting what commodities it would import or export, as stated by Porter. Furthermore, he introduced a new set of advanced components to these basic components, which he characterized as skilled and qualified workers, training and education, technology, and infrastructure investments. It was believed that these advanced qualities gave a country a long-term competitive advantage.
2. *Local market demand conditions.* A competent local market, according to Porter, is essential for ensuring continued innovation and thus building a persistent competitive advantage. Corporations with sophisticated, trendsetting, and demanding local markets are driven to innovate and produce new products and technology on a regular basis.
3. *Local suppliers and complementary industries.* Large multinational corporations benefit from having strong, efficient supporting and linked sectors to deliver the inputs necessary by the sector in order to stay competitive. Certain sectors are geographically clustered, resulting in increased efficiencies and productivity.
4. *Local firm characteristics.* A business strategy, industry structure, and industry competition are all local firm characteristics. The competitiveness of a company is influenced by its local strategy. Local enterprises with a good amount of competition will be more innovative and competitive.

2.2.4 Exports and Business Activities: International Trade Theory - Global Strategic Rivalry Theory

Drulia (2017) states that the Global Strategic Rivalry Theory was created with multinational corporations and firms in mind, but it could also be extended to entire countries. This was originally developed by Paul Krugman and Kelvin Lancaster in 1980. According to theory, multinational businesses are driven to achieve a strategic edge over their competitors in order to succeed and protect their market share. This is accomplished by building barriers to entry, such as intellectual property rights, economies of scale, experience management, or raw material access. This strategy may also be used in countries that impose regulations, licenses, and taxes on the goods of international companies in order to protect domestic manufacturers.

This may also be part of a national security policy, as the manufacturing sector is important to the economy, and it poses a challenge to the country if the economy is mostly based on the service sector. Restricted trade during tumultuous political times may result in devastating shortages of necessities. Governments, more specifically, have the ability to monitor the size of foreign transactions that have an effect on sectors of concern.

2.2.5 Exports and Foreign Direct Investments: Internalization Theory

Casson, Porter, and Wadeson (2016) state that the Internationalization theory takes the scope of trade and foreign activities from the firm level to the industry level. It examines a multinational market with a wide range of companies. Licensing and subcontracting agreements enable companies to work together, but they also compete for market share where both price and innovation stimulate competition. Also, internalization defines the scope between firms, while competition represents the number of firms in the industry. A company that does research and development might come up with new technology, method, or inputs. It may be difficult to transfer technologies or sell inputs to unrelated companies because the transaction costs may be too high. In this case, a company may choose to internalize by using backwards, and forward incorporation, in which one subsidiary's output can be used as an input to another's production, or technology produced by one subsidiary can be used by others. Internalization entails activities in several nations, which necessitates FDI.

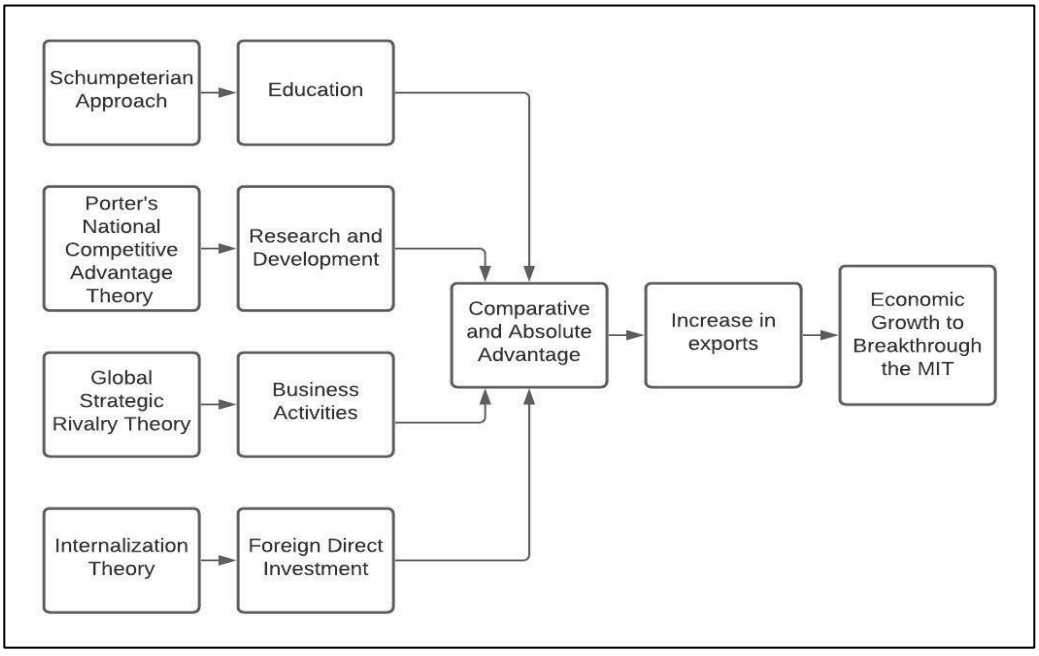
Furthermore, exports through independent representatives (agents) are usually the first step in internationalization, followed by the introduction of sales subsidiaries and, finally, efficient subsidiaries. This is unmistakably a mechanism of growing resource commitment while also acquiring progressive knowledge.

The fact that international branches are often established through the acquisition of former agents or the hiring of key members of the agents' structure supports the knowledge acquiring perspective. Simultaneously, information gained in nearby countries (in terms of psychological distance), where internationalization is likely to begin, would allow for gradual expansion to countries that are increasingly distant. That is learning process "economies of scope" allow the company to grow into new foreign countries that are increasingly distinct from the home country. These economies of scope also allow the company to resolve the limitations imposed by limited managerial capacity, which would otherwise prevent it from entering multiple international markets at the same time. Furthermore, the effect of the internationalization process on the firm's organizational capability, human resources, and organizational structure would most likely enable it to bypass stages until vital knowledge of international markets has been acquired.

The network approach mentioned focuses on both knowledge and resource commitment. However, it believes that the firm's ability to establish long-term relationships with other firms in international networks is critical to its internationalization. This network of connections allows for the growth of trust capital, which lowers transaction costs and increases collaboration in the development of new products and technologies. In other words, even though it is an accidental by-product of the firm's short-term options, it represents a distinct competitive advantage. However, the network is always changing, and the firm's role in it necessitates ongoing investment.

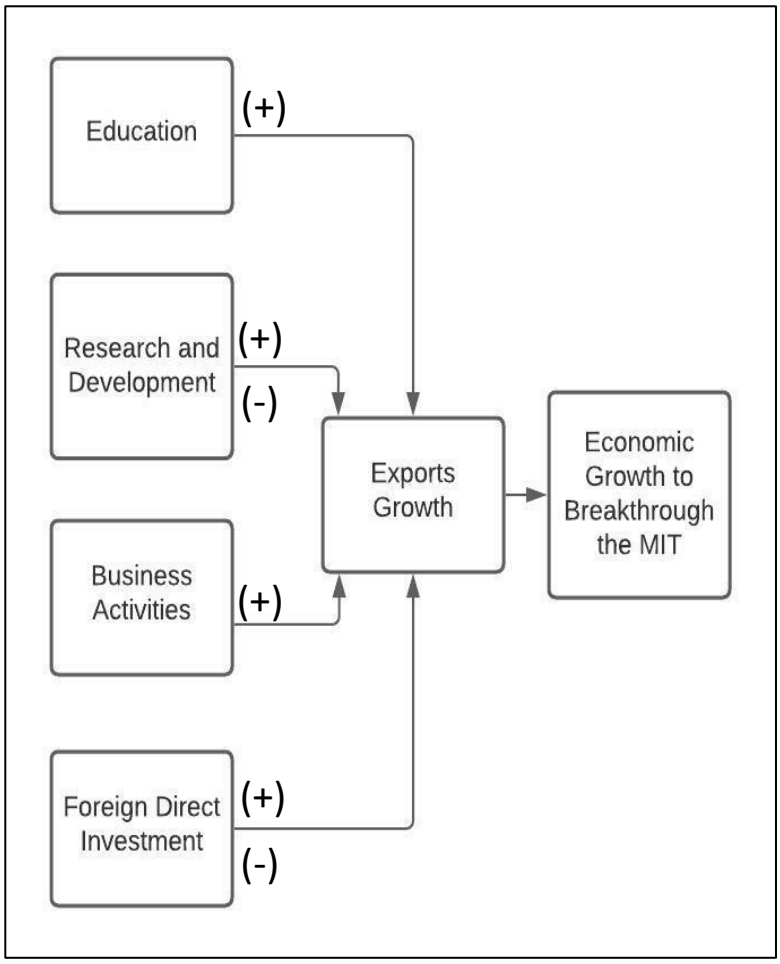
From these discussed theories, the researchers have illustrated a framework below that summarizes the ideas per variables per and the expected outcome from these.

Figure 2.2. Theoretical Framework of exports in relation to education, research and development, business incentives, and foreign direct investments.



2.3 Conceptual Framework

Figure 2.3. Conceptual framework of exports in relation to education, research and development, business incentives, and foreign direct investments.



From the previous literature discussed and collected, the researchers have illustrated the conceptual framework above. Figure 2.3 demonstrates that the independent variables education, research and development, business activities, and foreign direct investment lead to the growth of exports. These variables are assumed to all share a positive and direct relationship, wherein the increase of one independent variable will lead to the increase in exports growth. Ultimately, it is believed in this study that the increase in these variables will allow the Philippines to break through the middle-income trap and establish continuous economic growth.

Table 2.3. A-priori table on the relationships between exports and education, R&D, business activities, and foreign direct investments. The assumptions are based on the reviewed literature:

Dependent Variable

Dependent Variable Name	Variable Description
Exports	According to Sin Yee et al. (2016), export is a commodity or service that is produced or manufactured in one country and sold to another country. The process is referred to as international trade. Commonly, sellers of products and services are referred to as "exporters," whereas buyers based abroad are referred to as "importers."

Independent Variables

Independent Variable Name	Variable Description	A-priori Assumption
Education	Education is an element that enhances and develops a country's society and economy, making it a turning point in its development. The benefits of education are numerous. Knowledge and skills are imparted to the populace, as well as the personality of a nation's youth are shaped (Idris, F., Hassan, Z., Ya'acob, A., Gill, S., and Mohd Awal, N., 2011).	Expected relationship: positive An increase in spending on education and its resources will lead to an increase in exports, and likewise when education decreases.
Research and Development	Independent research, innovative activities, and development activities are all included in the comprehensive range of research and development (R&D). Research and development, in essence, refers to systematic actions aimed at increasing knowledge and applying that information to the establishment of innovative goods, processes, or services (Kainulainen, 2014).	Expected relationships: positive or negative (1) An increase in spending in R&D and its resources will lead to an increase in exports, and likewise when R&D decreases. (2) An increase in spending in R&D and its resources will lead to a decrease in exports. The same indirect relationship can be observed when R&D decreases.
Business Activities	Business activity is amongst the essential aspects that determine not only an enterprise's economic stability but also its potential to innovate in the present and future (Novikov, Lastochkina, and Shunina, 2020).	Expected relationship: positive An increase in the promotion of business activities will lead to an increase in exports, and likewise when the promotion of business activities decreases.
Foreign Direct Investments	Foreign direct investment (FDI) can be referred to as an investment including a long-term relationship displaying involvement and control of an investor from a resident country (parent enterprise or foreign direct investor in a company or entity that is based in a different country (which is labeled as the foreign affiliate or FDI affiliate or enterprise) than the foreign direct investor's (World Investment Report 2007: Transnational Corporations, Extractive Industries and Development, 2007).	Expected relationships: positive or negative (1) An increase in FDIs will lead to an increase in exports, and likewise when FDIs decrease. (2) An increase in foreign direct investments will lead to a decrease in exports. The same indirect relationship can be observed when FDIs decrease.

2.4 Synthesis

From the previous research studies included in this paper, it was found that many of these hold similar assumptions and expected results to this current study. It was found that exports and international participation in trade are a critical factor that affects the overall catch-up phase of an economy. Specifically, it has been mentioned numerous times that a country's export performance could be a way out of the MIT as it generates larger capital and stimulates economic activities for domestic markets. Furthermore, the variables in this study, namely, education, research and development, business activities, and foreign direct investments, hold various results and outcomes as different countries and economic scenarios were analyzed in the previous studies. Firstly, it was found that a country's investment in education plays a major role in how economically efficient a country can become. This is due to its direct relationship to factors such as higher employment and productivity. This, in turn, relates to exports in the notion that if the educational levels in a country are higher, this creates a better overall workforce that can compete in the global market as different industries would become more competitive and efficient with high-skilled workers. Second, research and development are vital to escape the MIT because when an economy invests in R&D, it would be better prepared to compete with other economies in terms of product innovation and technology. R&D and exports are seen to have a positive causal relationship as the direct input in R&D pave the way for economies to export goods and services more efficiently. Third, business activities are significant in the performance of exports as it encourages firms and businesses to enter different markets, boosting overall entrepreneurial activities such as export performance. Fourth, foreign direct investments and exports bore different results in various studies. It was found that in some countries, there was no relationship found between the variables, while in others, there was a significant relationship present. Lastly, the theories involved in explaining the relationships between the variables were namely the concepts of comparative and absolute advantages, the Schumpeterian Approach, the international trade theories of Porter's National Competitive Advantage Theory and Global Strategic Rivalry Theory and the Internationalization Theory.

3. Methodology

In this chapter, the researchers expound on the practical methodology and strategies that will be used in gathering the results of the thesis. This will begin by elaborating on the quantitative methods, the correlational and longitudinal aspects of the study that will assist in the analysis of the data, along with the use of multiple linear regression analysis and descriptive statistics. Furthermore, the nature of the data collected will be further described in this chapter and the corresponding fixes the researchers had applied.

3.1 Research Strategy

This research strictly employs a quantitative strategy. Apuke (2017) describes that quantitative analysis is concerned with quantifying and evaluating variables in order to obtain conclusions and inferences. It entails the use of statistical methods to analyze numerical data in order to answer given research questions. It also refers to the process of collecting numerical data in order to demonstrate a problem or phenomenon. This research will extract its data from numerical information that will be analyzed through the use of various statistical tools. As a result, this paper's strategy is quantitative.

3.2 Research Method and Design

This study uses two methods of quantitative research; namely, it is correlational and longitudinal research. According to Jones and Bartlett Learning. (n.d.), correlational research is one that investigates the association of variables among each other, and in this study, the researchers aim to investigate the possible relationships present among exports and education, research and development, business incentives, and foreign direct investments. Furthermore, a longitudinal method of research is used to monitor social change over time and determine causal factors. The current study is a longitudinal study as it focuses on explaining the relationship shared between the previously mentioned variables in the Philippines using time-series data. Both these research methods can be utilized to test the hypotheses using different statistical tools.

3.3 Research Approach

In this study, the researchers employ a deductive approach to analyze the set of data. This approach is used to ensure a logical step by step analysis of the research. It first includes the variables that have been made specific to the paper, accompanied with the formulation of the hypotheses, reviewed existing theories to create propositions, and lastly, it shall have a testing stage to falsify or verify the assumptions and hypotheses of the study.

3.4 Research Model

$$EXPO = \beta_0 + \beta_1 E_t + \beta_2 RD_t + \beta_3 BUS_t + \beta_4 FDI_t + \varepsilon_t$$

Dependent Variable:

EXPO = exports of goods, measured at constant 2018 prices

Independent Variables:

E = education, measured in gross value added in education
RD = research and development, measured through intellectual property products at constant 2018 prices
BUS = business activities, measured through gross fixed capital formation at constant 2018 prices
FDI = foreign direct investments, measured from the total approved foreign investments by the Investment Promotion Agency - Board of Investment (BOI)

Error term:

ε = other variables or factors that are not included in the model

3.5 Data Selection

The selected data for each variable reflects the research objectives of the study as the relationship between the dependent variable, Exports and the four independent variables, namely: gross value added in education, intellectual property products, gross fixed capital formation, and the total approved foreign investments from the Board of Investment (BOI) are selected for the following rationale:

3.5.1 Dependent Variable:

Export: This is a great indicator of the economic performance of a country since the composition of exports reflects a country's economic structure and how well it interacts with the global economy.

3.5.2 Independent Variables:

Gross Value Added in Education: The acquisition of learning materials, the construction of schools, the employment of teachers and learning staff is assumed by the researchers as a factor that helps improve the global competitiveness of a country.

Gross Value Added in Intellectual Property Products: These are the products of the innovative processes of research and development and all the investments that work towards it. It is assumed by the researchers as a factor that helps improve the global competitiveness of a country.

Gross Fixed Capital Formation: The acquisition of assets towards industry building and other commercial activities are manifested in the measure of gross capital formation, which is assumed by the researchers to help in the alleviation of the MIT.

Total approved foreign investments from the board of investment (BOI): Foreign direct investments measured through the approval by the board of investment is an adequate indicator of the inflow of foreign capital into the country. The researchers assume that FDI is a factor that helps improve the global competitiveness of a country.

3.6 Data Collection

Only two secondary data sources will be used to gather all the needed numerical information for the study, which is the Philippine Statistics Authority or PSA and the Department of Budget and Management (DBM). The PSA is a central statistics agency, where various indicators concerning the economy, society, demography, and politics of the country are collected, analyzed, and published regularly. The DBM formulates and posts the yearly expenditure budget per sector and field of the country.

Most of the data collection will be done through web surfing. In cases where data in government websites are not available, physical consultation from the Philippine Statistics Authority Region III office would be enacted.

3.7 Selection of the Sample

In the study, the researchers will gather time-series quarterly data on exports of goods and services measured at constant 2018 prices, gross value added in education, gross revenue from business activities, and total approved foreign investments by the BOI from the PSA. The collected data will range from 2003 to 2019, totalling 67 observations to process.

3.8 Research Process

The research process first includes the formulation of the statement problem and research questions. These were followed by further research to concretize the chosen topic and as well as narrow the scope of the variables. This is then accompanied by the formulation of the hypotheses, which help illustrate what kind of assumptions the paper may accept or reject. Before beginning the second chapter of the study, the researchers had collected secondary data from the PSA and had run a pre-regression analysis on the variables to test the efficacy of the model. This stage was used to make additional adjustments to the variable pairs and the model. Furthermore, the second chapter of the study was written after the test. By studying more previously written works, the researchers were able to create both a theoretical and conceptual framework that illustrates the relationships among the variables and the expected outcome or result from what this paper aims for. The methodology was also further explained in chapter three, discussing in detail the nature of the study and the types of tools and instruments the researchers will use. These include multiple linear regression analysis and descriptive statistics using Microsoft Excel and Eviews 11 Student Version.

After completing the methodology, the fourth chapter will include the data and how it will be processed. This will include the different types of tools and tests and the analysis and results. Lastly, the conclusion and recommendations will be drawn from the fourth chapter to complete the research work.

3.9 Type of Data Analysis

As mentioned previously, the nature of the study will be quantitative. According to LeCompte and Schensul (n.d.), the data analysis process is used to reduce data to more easily interpret it in order to gain insights and conclusive results. This process helps in simplifying the large data sets into smaller fragments. The researchers of this study will first begin by preparing the data, which is to check for validity and reliability. It was confirmed that the data was collected from the official site of the PSA, approving its validity and freedom from bias. Furthermore, it was found that the data set collected did not contain any missing numerical information in the chosen range of quarterly records, and it was also decided by the researchers to first conduct a pre-regression test to compute the possible relationships within the chosen variables and to verify the need to change any chosen variables in the study. Next, the type of data analysis chosen here will be mainly multiple regression, and descriptive statistics as this will aid the analysis by looking at the possible patterns exhibited by the variables. More specifically, the measures of dispersion or variation will be focused on these statistics, such as looking at the computed range, variance, and standard deviations from the variables.

These values will demonstrate the high and low points of the data set and as well as study the intervals present and how it affects the mean.

Lastly, the software that will be used in this research is Microsoft Excel and Eviews 11 Student Version. Using these tools, the statistical tests will include time-series multiple regression analysis and various diagnostic tests to further examine the reliability of the results.

3.10 Ethical Considerations

This study solely uses open access secondary data, and the ethical issues concerning this kind of data set include the possible harm it may bring to a certain individual, group, or agency as a return for consent may become the problem. However, the researchers ensure that the data collected is completely devoid of any identifying information and remains completely anonymous.

Furthermore, the collected data is freely available for the general public through the Internet and is easily accessible for the use of academic work. It is in the researchers' best interest to keep the data source acknowledged throughout the study to ensure its original ownership.

4. Results and Data Analysis

4.1 The Model

4.1.1 Initial Research Model

$$EXPO = \beta_0 + \beta_1 E_t + \beta_2 RD_t + \beta_3 BUS_t + \beta_4 FDI_t + \varepsilon_t$$

Dependent Variable:
EXPO = exports of goods, measured at constant 2018 prices

Independent Variables:
E = education, measured in gross value added in education
RD = research and development, measured through intellectual property products at constant 2018 prices
BUS = business activities, measured through gross fixed capital formation at constant 2018 prices
FDI = foreign direct investments, measured from the total approved foreign investments by the Investment Promotion Agency - Board of Investment (BOI)

Error term:
ε = other variables or factors that are not included in the model

The initial model presented above indicates that the dependent variable, exports of goods, is expected to exhibit a positive relationship among its four independent variables, which are education, research and development, business activities, and foreign direct investments, respectively. This model simply indicates that an increase in any of the independent variables results in an increase in the exports of goods. The expected outcomes are the following:

a) An increase in the funding of education results in an increase in exports.
b) An increase in the funding of research and development results in an increase in exports.
c) An increase in the value of business activities results in an increase in exports.
d) An increase in foreign direct investments results in an increase in exports.

Lastly, the addition of the error term was used to indicate that there are still other various factors and variables that may affect the increase and decrease of the exports of goods, and the changes to this do not solely depend on the four mentioned independent variables. The data set for all these variables can be seen in Appendix 2.

4.1.2 Adjusted Model

$$EXPO = \beta_0 + \beta_1 E_t + \beta_2 RD_t + \beta_3 FDI_t + \varepsilon_t$$

The researchers conducted a pre-regression test to study the validity and accuracy of the initial model. Through the use of different diagnostic tests, it was found that the initial model contained several OLS violations, which indicated that the estimates of the regression analysis were no longer accurate and reliable to support the claims of the research. Multicollinearity was found to be present in the independent variable, business activities. Furthermore, heteroscedasticity was also found in the model. From these, the researchers decided to exclude business activities, as this was the problematic variable containing multicollinearity. The pre-regression results and their corresponding diagnostic tests can be seen and reviewed in Appendix 3.

In the adjusted model shown above, it can be seen that there are now only three independent variables that affect the exports of goods these are education, research and development, and foreign direct investments. After the adjustment, the model was concluded to be free from any violations, which imply that the estimates gained from the secondary regression analysis are reliable and can be effectively interpreted. The corresponding diagnostic tests of the final regression results can be seen and reviewed in Appendix 4.

4.2 Multiple Linear Regression Results

Dependent Variable: EXPO
Sample: 2003 (First Quarter) to 2019 (Fourth Quarter)
Total Observations: 68

Table 4.2. Final Regression Results: Exports, Education, Research and Development, and Foreign Direct Investments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EDUC	1.632990	0.319012	5.118906	0.0000
RD	9.759880	1.045765	9.332768	0.0000
FDI	-0.174737	0.214657	-0.814029	0.4186
C	162839.7	34976.85	4.655643	0.000

Multiple R	0.951438	Mean dependent var	490607.1
R-squared	0.905236	S.D. dependent var	141890.0
Adjusted R-squared	0.900794	Akaike info criterion	24.30996
Standard error	44691.17218	Schwarz criterion	24.44052
S.E. of regression	44691.17	Hannah-Quinn criter.	24.36169
Sum squared resid	1.28E+11	Durbin-Watson stat	1.768574
Log likelihood	-822.5387		
F-statistic	203.7865		
Prob (F-statistic)	0.000000		

4.2.1 Discussion of Results

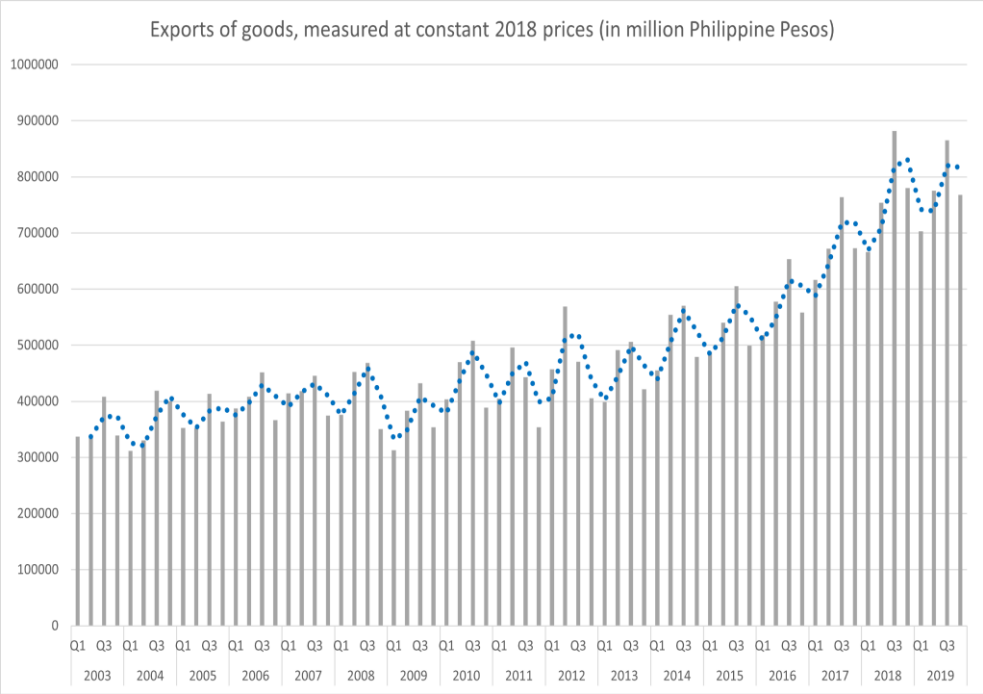
Notwithstanding the gathered related literature, all the other independent variables are observed to have a positive relationship with the dependent variable except for one: foreign direct investments. In the adjusted regression model, the variable foreign direct investments have a coefficient of -0.174737. The regression model suggests that with every unit increase in foreign direct investments, the exports of goods experience a decrease by -0.174737. All the other independent variables, gross value added in education and gross value added in intellectual property products, have a coefficient of 1.632990 and 9.759880, respectively which results are in accordance with the gathered literature. In that regard, the model demonstrates that with every unit increase in the gross value added in education, the exports of goods increase by 1.632990 and with every unit increase in the gross value added in intellectual property products, the exports of goods increase by 9.759880. Additionally, when observing the standard of error values seen on the third column, these values are very small, ranging from 0 to1, indicating that the data set used for the three independent variables contained very few errors.

In terms of testing the hypothesis indicated in the first chapter of the paper, it can be deduced from the p-value results that all the independent variables except foreign direct investments have a significant relationship towards exports. It was found that the independent variable foreign direct investments gathered a p-value of 0.4186, indicating that it does not reject the null hypothesis as the effect of FDI on exports were found to be insignificant. All the other variables were found to have p-values of 0.00, indicating that these reject the null hypothesis and accept the alternative hypothesis for a significant relationship towards exports.

Furthermore, the data of the variables fit the regression model satisfactorily with an r-square value of 0.905236 or 90.52%. This value indicates that the model and its variables strongly correlate with one another, that 90.52% of the changes in the dependent variable exports can be explained by the changes in education, research and development, and foreign direct investments. Lastly, to measure the overall significance of the variables and their relationships, it was found that the regression results gathered a probability F-statistic of 0.000000, which is less than 0.05, indicating that the results are highly significant.

4.3 Descriptive Statistics

Figure 4.3.1. Exports of goods, measured at constant 2018 prices (in million Philippine Pesos)



Exports from 2003 to 2010 are observed to have had a steady rate until the first quarter of 2009 when they displayed a dramatic drop. This is then followed by a gradual increase which was observed in the third quarter of 2010. Since then, the increasing trend of exports has started to visually rise, accompanied by the usual contraction and expansions as seen in figure 4.3.1.

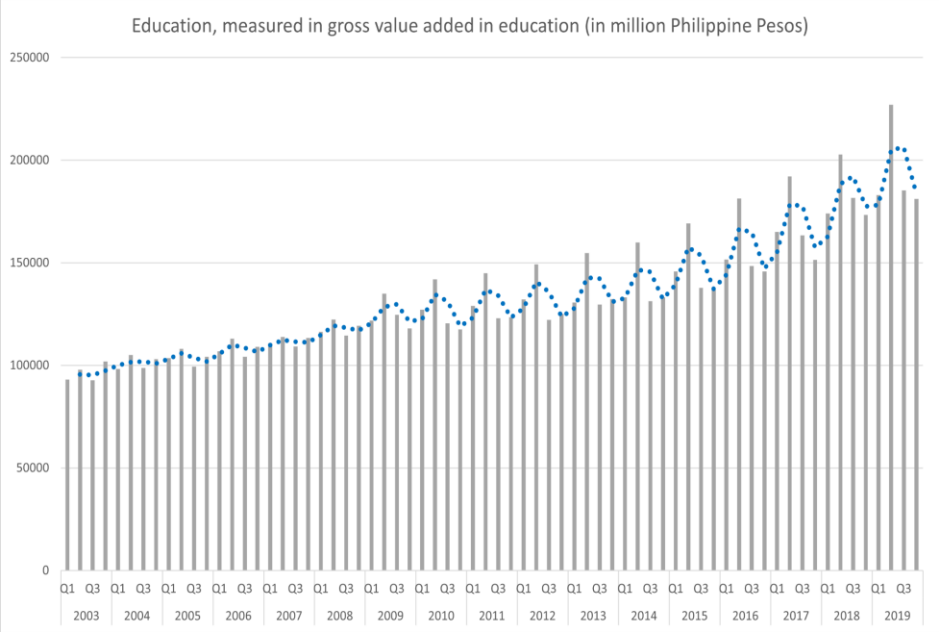
Table 4.3.1. Descriptive Statistics for Exports of goods, measured at constant 2018 prices (in million Philippine Pesos)

EXPO	
Mean	490607.0882
Standard Error	17206.69313
Median	451830.5
Mode	-
Standard Deviation	141890.0265
Sample Variance	20132779623
Kurtosis	0.381488637
Skewness	1.077224145
Range	570061
Minimum	311847
Maximum	881908
Sum	33361282
Count	68

From the conducted table of descriptive statistics for exports, it was found that the average exports of goods, measured at constant 2018 prices, from 2003 to 2019 is 490607.0882 million Philippine pesos. Next, the standard error of the mean is 17206.69313, as this value is quite small compared to its mean. This value indicates that the estimates gathered from the sample are accurate enough. The standard deviation measures the dispersion of the values from one another, and this is measured at 141890.0265.

When observing the peaks from the gathered data set, it was found that it had a positive kurtosis at 0.381488637, and this also shows that the growth of the peaks is relatively stable, as seen in figure 4.3.1.

Figure 4.3.2. Education, measured in gross value added in education (in million Philippine Pesos)



The growth of the gross value added in education is observed to be increasing slowly but steadily from 2003 to 2009. Until the third quarter of 2009 where it displayed a relevant peak over the past years, it continued on to increase more and more each year. And as it increases each year, the expansions and contractions between its rise and fall, which are the second quarter and the fourth quarter respectively, are presumably the results of operational processes such as school years and academic years. Taking into account all other factors that may have affected the displayed growth in education, the researchers would try to note other factors that may explain the movement along with the graph, such as: every year the national budget increases, and the budget for education increases as well.

Table 4.3.2. Descriptive Statistics for Education, measured in gross value added in education (in million Philippine Pesos)

EDUC	
Mean	134042.8235
Standard Error	3578.323459
Median	128067
Mode	-
Standard Deviation	29507.61117
Sample Variance	870699117.1
Kurtosis	0.429096945
Skewness	0.917435974
Range	134371
Minimum	92709
Maximum	227080
Sum	9114912
Count	68

From the conducted table of descriptive statistics for education, it was found that the average gross value added in education from 2003 to 2019 is 134042.8235 million Philippine pesos. Next, the standard error of the mean is 3578.323459, as this value is again quite small compared to its mean. This value indicates that the estimates gathered from the sample are accurate enough. The standard deviation measures the dispersion of the values from one another, and this is measured at 29507.61117.

When observing the peaks from the gathered data set, it was found that it had a positive kurtosis at 0.429096945, and this also shows that the growth of the peaks is relatively stable, as seen in figure 4.3.2.

Figure 4.3.3. Research and development, measured through intellectual property products (in million Philippine Pesos)

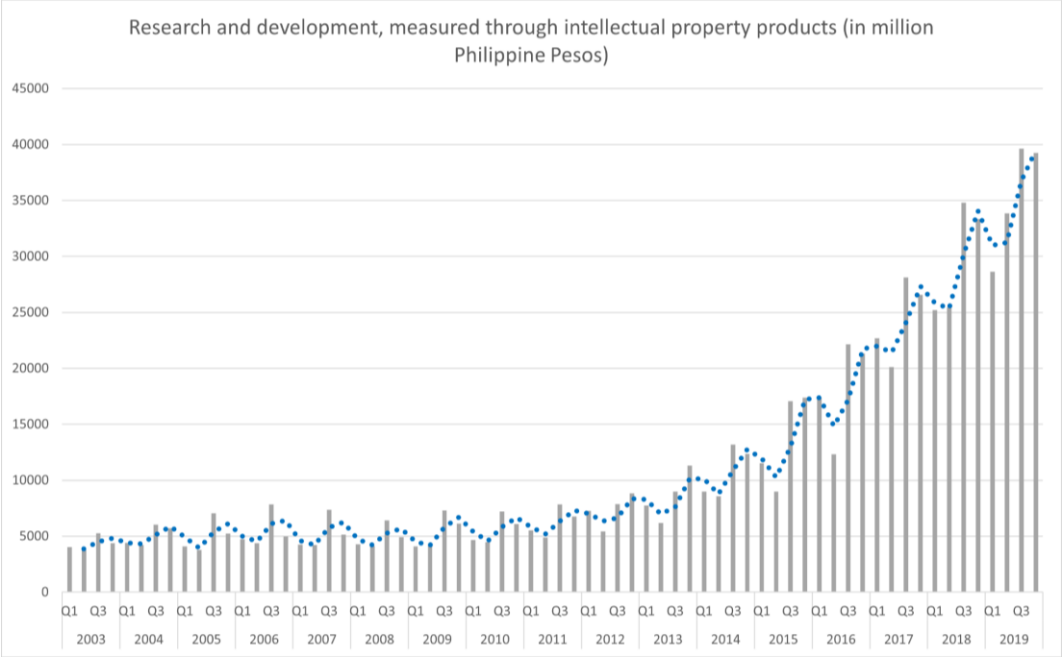


Figure 4.3.3 shows the growth in the gross value added in intellectual property products which have only spurred in value in the last 5 years. From 2003 to 2012 it has been almost in the same range. It was in the fourth quarter of 2013 when it first peaked relative to the years before it. From 2014 until 2019, it has skyrocketed to 39,643 million pesos. Similar to the graph illustrating the gross value added in education, the gross value added in intellectual property products expands and contracts. It expands and contracts in the fourth and second quarters respectively. Taking into account all other factors that may have affected the displayed growth in gross value added in intellectual property products, the researchers would try to note other factors that may explain the movement along with the graph, such as: in 2013, the government amended certain provisions of RA 8329 or the Intellectual Property Code of The Philippines which strengthened the enforcement of copyright claims and all violations of intellectual property. Through this, the researchers would assume that research and development were further incentivized, rewarding innovation by giving premiums to new goods developed and further encouraging firms to spend more on research and development.

Table 4.3.3. Descriptive Statistics for Research and development, measured through intellectual property products (in million Philippine Pesos)

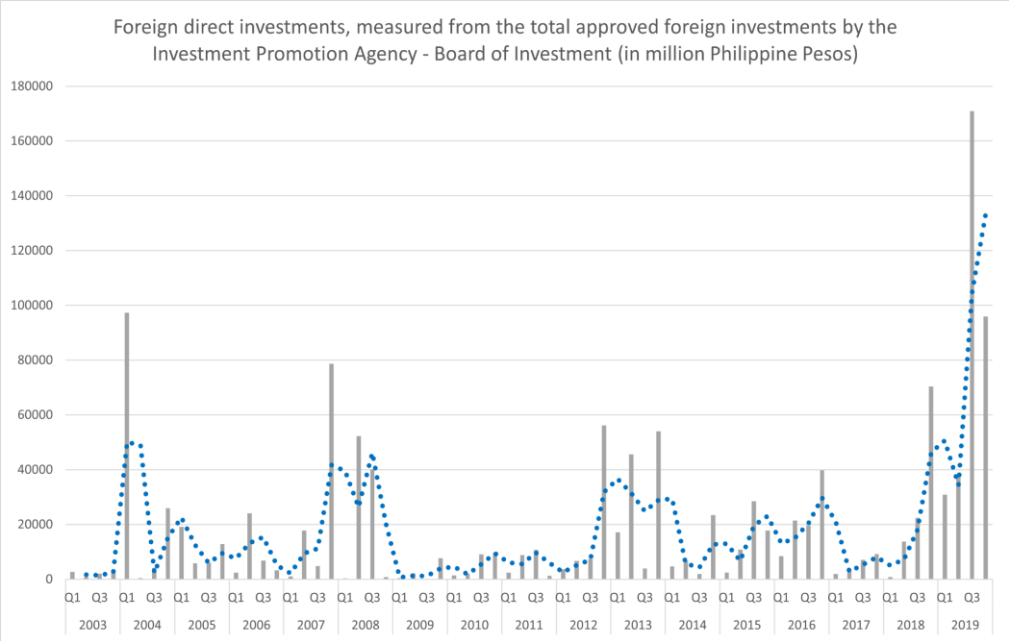
RD	
Mean	11501.39706
Standard Error	1182.343167
Median	7236.5
Mode	-
Standard Deviation	9749.851525
Sample Variance	95059604.75
Kurtosis	1.184048046
Skewness	1.503502551
Range	35918
Minimum	3725
Maximum	39643
Sum	782095
Count	68

From the conducted table of descriptive statistics for research and development, it was found that the average increase in intellectual property products from 2003 to 2019 is 11501.3970 million Philippine pesos. Next, the standard error of the mean is

1182.343167, as this value is again quite small compared to its mean. This value indicates that the estimates gathered from the sample are fairly accurate. The standard deviation measures the dispersion of the values from one another, and this is measured at 9749.851525.

When observing the peaks from the gathered data set, it was found that it had a positive kurtosis at 1.184048046, and this also shows that the growth of the peaks is relatively stable, as seen in figure 4.3.3.

Figure 4.3.4. Foreign direct investments, measured from the total approved foreign investments by the Investment Promotion Agency - Board of Investment (in million Philippine Pesos)



Total approved foreign investments by the BOI have been shaky. There were years where it was high, and there were years where it remained significantly low. For the years 2009 to the second half of 2012, it remained within the low range, as seen in figure 4.3.4. But as for the second half of the year 2018 and 2019, it has skyrocketed to almost four times the past levels. Taking into account all other factors that may have affected the displayed growth of approved foreign investments, the researchers would try to note other factors that may have affected the movement along with the graph, such as: the year 2012, where the drought on foreign investments was brought to an end, was also the year when the Philippines went from a cub economy to a tiger economy. The government then embarked on massive public spending by increasing the spending on public infrastructure by 12%. By June of 2012, Fitch Ratings appraised credit ratings in the Philippines, indicating a better and stable economy and favorable economic indicators that may have attracted more investors (De Castro, 2013). As for the drastic increase in 2018, it was reported to be caused by the amendments to the Foreign Investments Act of 1991, where the government loosened foreign equity policies on certain industries. Through this, the government allowed more industries to be open to foreign ownership in the country.

Table 4.3.4. Descriptive Statistics for Foreign direct investments, measured from the total approved foreign investments by the Investment Promotion Agency - Board of Investment (in million Philippine Pesos)

FDI	
Mean	19317.76029
Standard Error	3534.90572
Median	7547.65
Mode	-
Standard Deviation	29149.57932
Sample Variance	849697974.5
Kurtosis	11.0541718

Skewness	2.957993556
Range	170838.7
Minimum	144
Maximum	170982.7
Sum	1313607.7
Count	68

From the conducted table of descriptive statistics for foreign direct investments, it was found that the average increase in total approved foreign investments from 2003 to 2019 is 19317.76029 million Philippine pesos. Next, the standard error of the mean is 3534.90572, as this value is again quite small compared to its mean. This value indicates that the estimates gathered from the sample are fairly accurate. The standard deviation measures the dispersion of the values from one another, and this is measured at 29149.57932.

When observing the peaks from the gathered data set, it was found that it had a positive kurtosis at 11.0541718, and this also shows that the growth of the peaks is quite high, which can also be observed in Figure 4.3.4.

5. Results and Recommendations

5.1 Conclusion

A majority of the related literature regarding the middle-income trap all points to global competitiveness in combating the said issue. The specialization of products in order to achieve comparative advantages in international trade is the common solution among the related journals. From the findings, investment towards the enrichment of the labor force, the innovation of new consumer products and processes, the independent variables education and research and development, respectively, help in the growth of the export industry of the country while foreign direct investments are found to have negatively affected exports. Since exports are a component of the GDP equation, the increase in exports also increases the GDP, which consequently helps in the alleviation of the country from the MIT. Furthermore, upon monitoring the economic variables from 2003 to 2019, it was found that the exports of goods, education and research and development (measured through intellectual property products) were relatively stable and showed steady progress and increase. However, when observing the progress of foreign direct investments in the country, it was evident that this was unstable and showed sharp declines in the investments approved in the Philippines, specifically by the BOI.

5.2 Limitations and Implications

The data sets used in representing the independent variables do not exactly pinpoint the needed information. It simplifies the model by using broad data sets that include necessary data which are present in the data sets used, but it is not only identified within the data which are most relevant to the improvement of exports. Nevertheless, it illustrates the significance of the variables used: education and research and development in the improvement of exports. Moreover, the results of the research were also limited due to the unavailability of a suitable data set to measure business activities. The researchers believe that the results could improve with the inclusion of this variable and its appropriate indicator of measurement.

5.3. Recommendation for Future Research

1.) Existing research towards alleviating the MIT in the Philippines are scarce. It is not even widely known to be a problem since the people are more concerned with getting by day to day. In this paper, the researchers used the assumption that being globally competitive will help the country breakthrough the high-income bracket. However, with the global pandemic happening and international trade coming to a perpetual hiccup, countries are forced to rely on their domestic market. In this regard, the researchers would recommend further studies to consider policy formations that do not only place exports as the main driver for breaking through the MIT. Although notwithstanding the said concern, the researchers would still recommend centring further studies on the enrichment of exports and global competitiveness. The following elements could reinforce policy formations for global competition in the Philippines as per the World Bank (2017):

a.) Designing a market strategy that is pro-competition. This entails the introduction of individual markets to competition and trade, decreasing government involvement that may shield less efficient enterprises, protect competition, or enable collaboration, and sector-specific regulatory design, among other things.

b.) Include competition and innovation principles in public policies in the country. This means to develop effective methods to advocate competition and its varying strategies such as: national competition policies, state aid, and regulatory reforms that include the concepts of competition, innovation, and specialization of goods and services

c.) Improve and revise the competition framework present in the Philippines. This means implementing programs that can protect competitive markets from anti-cartel programs. Additionally, the emergence of more lenient control on market competition and the institutions and authorities involved should advocate for the absorption of foreign investments into the domestic market, making it our own, whilst building supply chains that revolve around these new investments.

d.) Promote and support competitive neutrality in neighboring economies that have direct state-participation. This means designing procedures that reduce the misleading effects of incentives and government support while promoting competitive neutrality among various market participants.

2.) The macroeconomic indicators that deal with the concerns regarding the Middle-Income Trap are long-run indicators. In creating future regression models, the researchers recommend considering putting lag variables into the model since there is an expected period of time before the initial spending on the given independent variables affects exports and real economic development. For example, an increase in investments in public education this year will not be immediately reflected in the labor force. Students who benefit from the said investment will take years before they are able to graduate and join the labor force. The same can be said for the other independent variables that relate to public and private investments.

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References

[1] Ahmad, F., Draz, M., and Yang, S. (2018). Causality nexus of exports, FDI and economic growth of the ASEAN5 economies: evidence from panel data analysis, *The Journal of International Trade & Economic Development, 27*:6, 685-700. DOI:10.1080/09638199.2018.1426035

[2] Apuke, O. (2017). Quantitative Research Methods: A Synopsis Approach. *Arabian Journal of Business and Management Review* (kuwait Chapter). 6. 40-47. 10.12816/0040336

[3] Atkin, D. (2016). Endogenous Skill Acquisition and Export Manufacturing in Mexico. *American Economic Review 106*, 8 (August 2016): 2046–2085

[4] Babu, A. (2018). Causality between foreign direct investments and exports in India. *Theoretical and Applied Economics* 4(617). 135-144.

[5] Bonneau, C. (2013). *Challenges of the Middle-Income Countries Seoul Debates 2013.* United Nations Development Programme.

[6] Casson, M., Porter, L. and Wadeson, N. (2016) Internalization theory: an unfinished agenda. *International Business Review*, 25 (6). 1223-1234. ISSN 0969-5931 DOI: https://doi.org/10.1016/j.ibusrev.2016.03.007

[7] Cheong, K. C. and Lee, K. H. (2016). Malaysia's Education Crisis – Can TVET Help? *Malaysian Journal of Economic Studies 53* (1): 115-134. ISSN 1511-4554

[8] Cintio, M., Ghosh, S., and Grassi, E. (2017). *Firm growth, R&D expenditures and exports: An empirical analysis of Italian SMEs.* Department of Economics, Management, Mathematics and Statistics, University of Salento, Lecce, Italy

[9] Coloquio, L. (2019). *Philippine economy: Headed for the middle-income trap?.* Ateneo Economics Association. Retrieved from https://admuaea.org/2019/03/27/philippine-economy-headed-for-the-middle-income-trap/ on May 15, 2021.

[10] Crismundo, K. (2020). *WEF pauses ranking of countries in Global Competitiveness Report.* Philippine News Agency. Retrieved from https://www.pna.gov.ph/articles/1124965 on May 23, 2021.

[11] De Castro, R. C. (2013). The Philippines in 2012: "Easygoing, Do-Nothing" President Delivers. Asian Survey, 53(1) 109-116. University of California Press. http://www.jstor.org/stable/10.1525/as.2013.53.1.109

[12] Devadason, E. (2020). New Protectionism in ASEAN. *Journal of Asia-Pacific Business*, 21:1, 57-76. DOI: 10.1080/10599231.2020.1708232

[13] Dingemans, A. (2016). Trying to stay ahead of the curve in Chile's economic development: exploring a way out of the middle-income trap through pragmatic export development. *Development Policy Review*, 2016, 0 (0): 1--27. Overseas Development Institute.

[14] Etale, E. and Etale, L. (2016). The Relationship between Exports, Foreign Direct Investment and Economic Growth in Malaysia. *International Journal of Business Management and Economic Research* (IJBMER), 7(2), 572-578.

[15] Favila T. A. (2016). The link between education and the structure of exports of APEC countries, 1980-2014. *International Journal of Education and Research* 4(7) July 2016, ISSN: 2411-5681.

[16] Foxley, A. and Stallings, B. (2016). *Innovation and Inclusion in Latin America*. DOI 10.1057/978-1-137-59682-6_2

[17] Glawe, L. and Wagner, H. (2016). The Middle-Income Trap: Definitions, Theories and Countries Concerned—A Literature Survey. *Association for Comparative Economic Studies.*

[18] Haddoua, A., Jang, J., and Kim, C. (2017). Middle Income Trap and the Export Sophistication: The Case of MENA Countries with Reference to Korea. *Journal of International Trade & Commerce (J. Int. Trade Commer.)* 13(6).1-18. The Korea International Trade Research Institute.
[19] Herr, H. Schweisshelm, E., & Vu, T.M. (2016). *Vietnam in the Global Economy: Development through Integration or Middle-income Trap?* Retrieved from https://asia.fes.de/news/vietnam-in-the-global-economy-development-through-integration-or-middle-income-trap/
[20] Idris, F., Hassan, Z., Ya'acob, A., Gill, S., and Mohd Awal, N. (2011). The Role of Education in Shaping Youth's National Identity. *Procedia - Social and Behavioral Sciences*, 59 443-450, ISSN 1877-0428. https://doi.org/10.1016/j.sbspro.2012.09.299
[21] Jones and Bartlett Learning. (n.d.). Quantitative Research Designs: Experimental, Quasi-Experimental, and Descriptive. Retrieved from https://samples.jbpub.com/9781284101539/9781284101539_CH06_Drummond.pdf on December 14, 2021.
[22] Kainulainen S. (2014). Research and Development (R&D). In: Michalos A.C. (eds) *Encyclopedia of Quality of Life and Well-Being Research*. Springer, Dordrecht. https://doi.org/10.1007/978-94-007-0753-5_2482
[23] Kusek, P., and A. Silva. (2018). *What Matters Most to Investors in Developing Countries: Findings from the Global Investment Competitiveness Survey*. In Global Investment Competitiveness Report 2017/18. Washington, DC: World Bank.
[24] Kronfol, H. and Steenbergen, V. (2020). *Evaluating the Costs and Benefits of Corporate Tax Incentives.* The World Bank Group.
[25] Lee, J.W. and Becker, K. (2017). Spillover effects of research and development activity on the economic growth and exports of Group 20. *World Review of Entrepreneurship, Management and Sustainable Development,* 13(5).560–579.
[26] Lee, K. and Ramanayake, S. (2017). Adding-Up Problem and Wage–Productivity Gap in Exports of Developing Countries: A Source of the Middle-Income Trap. *The European Journal of Development Research.*
[27] Liu, X., Serger, S., Tagscherer, U., and Chang, A. (2017). Beyond catch-up—can a new innovation policy help China overcome the middle-income trap? *Oxford Science and Public Policy*, 2017, 1–14.
[28] Mariadoss, B. J. (n.d.). *Core Principles of International Marketing*. Pressbooks.
[29] Minniti, A. and Venturini, F. (2016). The long-run growth effects of R&D policy. *National Institute of Economic and Social Research,* London, UK. Research Policy *46* (2017) 316–326
[30] Nayak, D. and Choudhury, R. N. (2014). *A selective review of foreign direct investment theories*, ARTNeT Working Paper Series. 143, Asia-Pacific Research and Training Network on Trade (ARTNeT), Bangkok.
[31] Neves, A., Teixeira, A., and Silva, S. (2016). Exports-R&D investment complementarity and economic performance of firms located in Portugal. *Investigación Económica*. *16*(295) enero-marzo de. 125-156.
[32] Novikov, S., Lastochkina, V., and Shunina, E. (2020). Business activity of the organization in the modern economy. *Revista Espacios*. *41* (08). 7. http://www.revistaespacios.com/a20v41n08/a20v41n08p07.pdf
[33] Office of the President of The Philippines. (2018). Promulgating The Eleventh Regular Foreign Investment Negative List, Executive Order No. 65. Retrieved from https://www.officialgazette.gov.ph/downloads/2018/10oct/20181029-EO-65-RRD.pdf
[34] Paul, J. (2016): The Rise of China: What, When, Where, and Why? *The International Trade Journal.* DOI: 10.1080/08853908.2016.1155513
[35] Paus, E. (2017). Escaping the Middle Income Trap: Innovate or Perish. ADBI Working Paper 685. Tokyo: *Asian Development Bank Institute.* Available: https://www.adb.org/publications/escaping-middle-income-trap-innovate-or-perish
[36] Shaw, J. (n.d.). *Public Choice Theory.* Library of Economics and Liberty. Retrieved from https://www.econlib.org/library/Enc1/PublicChoiceTheory.html on May 23, 2021.
[37] Sin Yee. (2016). Determinants of Export: Empirical Study in Malaysia. *Journal of International Business and Economics* June 2016, *4*(1). 61-75. DOI: 10.15640/jibe.v4n1a6
[38] Terrazola, V. E. (2020). *A bigger budget for DOST's research and development was pushed. Manila Bulletin*. Retrieved from https://mb.com.ph/2020/09/29/bigger-budget-for-dosts-research-and-development-pushed/ on May 23, 2021.
[39] The World Bank. (2017). *Markets and Competition Policy*. Retrieved from https://www.worldbank.org/en/topic/competition-policy on November 16, 2021.
[40] The World Bank. (2020). *The World Bank in Middle-Income Countries.* Retrieved from https://www.worldbank.org/en/country/mic/overview#1 on May 23, 2021.
[41] Ugwu, J. (2018). Tax Incentives And Foreign Direct Investment (FDI): Implication For Export Promotion in Nigeria, Ghana and South Africa, Post IFRS Adoption. *International Journal in Management and Social Science* 6(09), September 2018 ISSN: 2321-1784 Impact Factor: 6.178 Journal Homepage: http://ijmr.net.in, Email: irjmss@gmail.com
[42] Wade, R. H. (2016). Industrial Policy in Response to the Middle-income Trap and the Third Wave of the Digital Revolution. *Global Policy*, 7(4), 469–480. https://doi.org/10.1111/1758-5899.12364
[43] World Investment Report 2007: *Transnational Corporations, Extractive Industries and Development. (2007).* Definition and Sources. Retrieved from https://unctad.org/system/files/official-document/wir2007p4_en.pdf
[44] Wu, L., Wei, Y., Wang, C., (2021). *Disentangling The Effects of Business Groups in The Innovation-Export Relationship.* Department of International Economics and Business, Xiamen University, Xiamen 361005, China b Leeds University Business School, University of Leeds, Leeds LS2 9JT, United Kingdom c University of Bradford School of Management, University of Bradford, Emm Lane, Bradford, BD9 4JL, United Kingdom.
[45] Zafar, M. W., Shahbaz, M., Hou, F., and Sinha, A. (2018). From Nonrenewable to Renewable Energy and Its Impact on Economic Growth: The role of Research and Development Expenditures in Asia-Pacific Economic Cooperation Countries. *Journal of Cleaner Production* (2018), DOI: 10.1016/j.jclepro.2018.12.081

Databases

[46] Philippine Statistics Authority. (2020). *Exports of Goods*. Retrieved from https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2B__NA__QT__4EOG/0222B5CEGQ1.px/?rxid=faa77537-dd0a-484e-ac36-c79f393e015d in May 2021.
[47] Philippine Statistics Authority. (2020). *Gross National Income and Gross Domestic Product by Expenditure.* Retrieved from https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2B__NA__QT__1SUM/0012B5CEXQ1.px/?rxid=1ce8cd2d-ac58-4320-905b-e44f320d864c in May 2021.

[48] Philippine Statistics Authority. (2020). *Gross Value Added in Education.* Retrieved from https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2B__NA__QT__19EDUC/0822B5CEDQ1.px/?rxid=2f703206-dd1b-42a1-8616-f20170934445 in May 2021.

[49] Philippine Statistics Authority. (2020). *Total Approved Foreign Investments by Investment Promotion Agency.* Retrieved from https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2B__FI/0012B5DIPA0.px/?rxid=fdfbf295-1284-4fa8-8994-5d80c4019879 in May 2021.