



Analysis of Foreign Direct Investment Net Inflows in the Philippines: Trends, Predictors, and Forecasting Using Time Series and Linear Regression Models

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ABSTRACT

Foreign direct investment fosters economic growth, technology transfer, job creation, and international cooperation. Identifying predictors and forecasting foreign direct investment contributes to informing policymakers, investors, and stakeholders about effective strategies for promoting economic growth and development through optimized FDI attraction and utilization. This paper explores the trends and key factors influencing Foreign Direct Investment (FDI) net inflows in the Philippines from 2000 to 2022. Using simple linear regression, multiple linear regression, and time series analysis, the study examines the relationships between FDI and various independent variables. The findings reveal fluctuating FDI trends with periods of growth and decline, influenced by global economic conditions and the COVID-19 pandemic's impact in 2020. Notably, international tourism expenditures in exports, annual percentage of exports, and grants and other revenues exhibit significant linear relationships with FDI. Time series modeling identifies the moving average model with an interval of 2 as the best fit, predicting a 2.276% increase in FDI net inflows for 2024. This research offers valuable insights for policymakers, investors, and future researchers aiming to promote sustained economic growth and development through FDI strategies in the Philippines.

Keywords: Philippines, Foreign Direct Investment, Time Series Analysis, Linear Regression, Mathematical Modelling

1. Introduction

The gap between developed and developing countries in terms of investment has been there for a long time, and it's a big challenge for the developing countries to attract money from their own country and from other countries. Among various sources of external funding, Foreign Direct Investment (FDI) has emerged as a pivotal driver of economic growth and development, offering not only monetary capital and resources but also technical expertise and opportunities for local entrepreneurs to collaborate with foreign firms. FDI helps to improve and strengthen both the public and private parts of a country. This is important for developing countries to grow economically and catch up with more developed countries. But FDI can change a lot because it depends on many different things that affect how investors think about investing in a country.

The Asian Development Outlook (ADB, 2004) highlights that FDI has experienced substantial acceleration in recent years, primarily due to rapid technological progress, the emergence of globally integrated production and marketing networks, bilateral investment treaties, recommendations from multilateral development banks, and positive evidence from developing countries that have embraced FDI. According to Prinz Magtuliz of The Philippine Star in 2010, net inflow of FDI for the Philippines jumped to \$202 million from an outflow of 78 million a month prior to April of that year. In the article the Banko Sentral ng Pilipinas stated that the sustained FDI inflows reflected the extraordinary investment climate due to the favorable macroeconomic fundamentals being felt by the country's economic activities. In this context, the Philippines is getting more and more interesting for foreign investors through the years, and many investments are coming in. Nonetheless, policymakers remain to continue in their pursuit of creating an even more conducive macroeconomic environment to sustain and maximize the benefits of FDIs.

Existing research has explored various factors that influence FDI inflows in the Philippines. Studies have investigated the impact of economic indicators, trade openness, fiscal policies, and other macroeconomic variables on attracting foreign investments. Some researchers considered economic factors as drivers of FDI, in the study of Noorakhsh & Paloni (2001), Kok & Ersoy (2009), Pearson et al. (2012), they found out that market size growth has a positive influence on FDI, Kersan-Skabic (2013) also found that inflation rate has a positive influence on FDI. Previous studies also considered some institutional political factors such as corruption where in Mateev (2009), Kersan-Skabic (2013) found out that corruption has a positive influence on FDI, while in contrast Jimenez et al. (2011), Du et al. (2012), Barassi & Zhou, (2012) found out that corruption has a negative influence on FDI. In the study Sharma & Bandara (2010) considered tariffs as possible determinants of FDI and found out that tariffs have positive influence on FDI. Tang (2011), Arbatli (2011), Hayakawa et al. (2013) considered corporate tax rates and found out that it has a negative influence on FDI. A lot of studies also considered related variables but only few researches about the influence of tourism expenditure in imports and exports, and also import and exports are only used in

the studied as trade openness. Although numerous studies considered GDP rate per capita, in this study the rate of GDP in the year 2000-2020 will be considered including the strike of pandemic in 2019. Some research has utilized simple linear regression and multiple linear regression to assess the significance of individual predictors in explaining FDI inflows. Time series analysis has also been employed to analyse historical trends and patterns in FDI over time. However, there is a notable gap in research that comprehensively integrates all three analytical methods to investigate the determinants of FDI net inflows in the Philippines considering independent variables that will be used in this study. This current study aimed to fill this gap by employing a comprehensive approach, combining simple linear regression, multiple linear regression, and time series analysis. By integrating these analytical methods, the study seeks to provide a more holistic understanding of the factors that drive FDI inflows. International tourism, expenditures (% of total exports), Exports, GDP Rate Per Capita, International tourism, expenditures (% of total imports) Grants and other revenue (% of revenue), Specifically, this study aimed to:

1. Determine the trend of percentage of Foreign Direct Investment net inflows from 2000 to 2020.
2. Find if the percentage of Foreign Direct Investment net has a significant linear relationship with (1) International tourism, expenditures (% of total exports), (2) International tourism, expenditures (% of total imports), (3) Percentage of Exports Annually, (4) Percentage of Imports Annually, (5) Grants and other revenue (% of revenue), (6) GDP Rate Per Capita, (7) International tourism, expenditures (% of total exports, Imports, Exports, GDP Rate Per Capita, International tourism, expenditures (% of total imports) Grants and other revenue (% of revenue).
3. Construct time series model of the Foreign Direct Investment net inflows using the models (1) Exponential, (2) Linear, (3) Logarithmic, (4) Polynomial, (5) Power (6) Moving Average, (7) Exponential Smoothing and (8) Auto regression to predict the percentage for 2023.
4. Determine the best fit model and predict the Foreign Direct Investment net inflows in the Philippines for year 2024.

2. Methodology

The data used in this study was collected from the World Bank's database, which provides comprehensive and reliable statistics on various economic indicators for countries, including Foreign Direct Investment (FDI) net inflows, international tourism expenditures, percentage of exports and imports annually, grants and other revenue, GDP rate per capita, and other relevant variables. The time frame of the study covers the period from 2000 to 2020.

For the data analysis, to determine the trend of percentage of Foreign Direct Investment net inflows from 2000 to 2020, simple linear regression model was used to establish the trend of FDI net inflows over the study period. The regression analysis provided insights into the direction and magnitude of the trend. In finding if the percentage of Foreign Direct Investment net has a significant linear relationship with the independent variables, multiple linear regression models were developed to assess the individual relationships between the percentage of FDI net inflows and each predictor variable (a-g). The regression coefficients, p-values, and R-squared values were examined to determine the significance and strength of the relationships. In constructing time series model of the main variable for 2000 to 2022, the main variable, the percentage of FDI net inflows, was modeled using various time series methods: linear, quadratic, exponential, polynomial (quadratic, cubic, quartic, quintic, sextic), power, moving average, exponential smoothing, and auto-regression. Each model was evaluated based on its accuracy, goodness of fit, and forecasting performance. In predicting for 2024 FDI, the best-fit time series models were selected based on their forecasting performance and used to predict the percentage of FDI net inflows for the year 2024.

3. Results

Objective 1

Determine the trend of percentage of Foreign Direct Investment net inflows from 2000 to 2020.

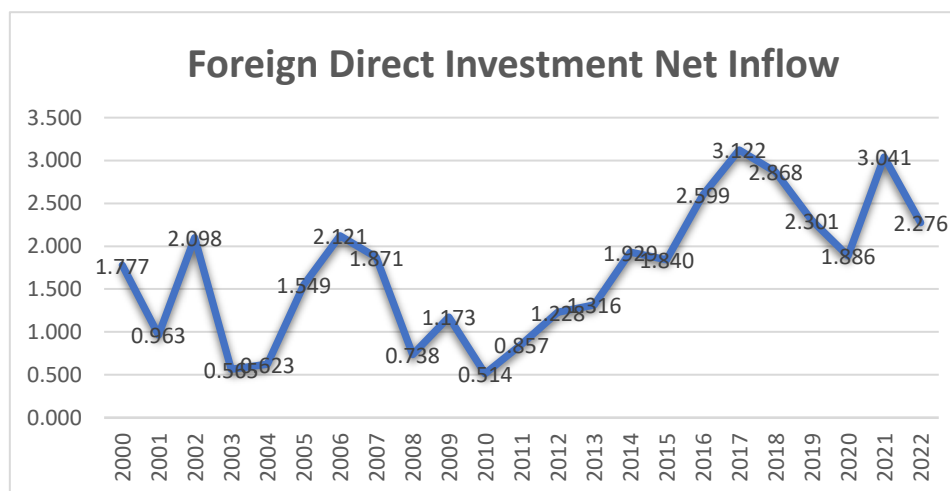


Figure 1. Trend of Foreign Direct Investment net inflows from 2000-2022

The trend of Foreign Direct Investment (FDI) net inflows in the Philippines from 2000 to 2022 indicates fluctuations with periods of both growth and decline. Initially, from 2000 to 2002, there was an upward trend, with FDI net inflows increasing from 1.777% to 2.098%. However, between 2003 and 2004, there was a significant decline, dropping to 0.565% and 0.623%, respectively, potentially influenced by external factors or economic challenges. Subsequently, from 2005 to 2008, there was a gradual increase in FDI net inflows, reaching 2.121% in 2006. In 2008, there was another dip, likely linked to the global financial crisis. From 2009 to 2010, FDI net inflows demonstrated a moderate recovery, hovering around 1%, with 1.173% in 2009 and 0.514% in 2010. From 2011 to 2014, there was a relative increase in FDI net inflows, indicating positive growth. In 2014, the FDI net inflow reached its highest point in the examined period at 1.929%. These years might have been influenced by the Philippines' efforts to attract foreign investments through various economic policies and incentives. In 2015, there was a slight dip in FDI net inflows to 1.840%, but it rebounded in 2016 to 2.599%, indicating renewed interest from foreign investors. From 2017 to 2019, the FDI net inflows continued to rise, surpassing 3% in 2017 and maintaining levels above 2% in 2018 and 2019. These figures suggest a positive perception of the Philippine economy among foreign investors during those years.

Objective 2

Find if the percentage of Foreign Direct Investment net has a significant linear relationship with (1) International tourism, expenditures (% of total exports), (2) International tourism, expenditures (% of total imports), (3) Percentage of Exports Annually, (4) Percentage of Imports Annually, (5) Grants and other revenue (% of revenue), (6) GDP Rate Per Capita, (7) International tourism, expenditures (% of total exports, Imports, Exports, GDP Rate Per Capita, International tourism, expenditures (% of total imports) Grants and other revenue (% of revenue).

International tourism, expenditures (% of total exports)

Table 1. Significant linear relationship between international tourism expenditure in export and Foreign Direct Investment

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.121	0.625	-0.194	0.848
International tourism, expenditures (% of total exports)	0.212	0.074	2.857	0.010

F (1) = 8.162 p-value= 0.010

Table 1 shows F (1) = 8.162 and p-value= 0.01 which indicates that percentage of international tourism expenditures in export has a significant linear relationship with foreign direct net inflows. The table also shows that the percentage of international tourism expenditures is a significant predictor of unemployment rate (p=0.01).

International tourism, expenditures (% of total imports)

Table 2. Significant linear relationship between international tourism expenditure in imports and Foreign Direct Investment

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.700	0.493	1.421	0.172
International tourism, expenditures (% of total imports)	0.114	0.058	1.958	0.065

F (1) = 3.833, p-value= 0.065

Table 2 shows F (1) = 3.833 and p-value= 0.065 which indicates that percentage of international tourism expenditures in imports has no significant linear relationship with foreign direct net inflows. The table also shows that the percentage of international tourism expenditures in imports is not a significant predictor of foreign direct investment net inflows (p=0.065).

Exports of goods and services

Table 3. Significant linear relationship between annual percentage of exports and Foreign Direct Investment

	Coefficients	Standard Error	t Stat	P-value
Intercept	2.756	0.873	3.157	0.005
Exports	-0.034	0.026	-1.328	0.199

F (1) = 1.766 p-value= 0.199

Table 3 shows F (1) = 1.766 and p-value= 0.199 which indicates that percentage of exports annually has no significant linear relationship with foreign direct net inflows. The table also shows that the percentage of exports is not a significant predictor of foreign direct investment net inflows (p=0.199).

Import of goods and services

Table 4. Significant linear relationship between annual percentage of imports and Foreign Direct Investment

	Coefficients	Standard Error	t Stat	P-value
Intercept	1.240	1.18	1.051	0.306
Imports	0.010	0.031	0.321	0.751

F (1) = 0.103, p-value=0.751

Table 4 shows F (1) = 0.103 and p-value= 0.751 which indicates that percentage of imports annually has no significant linear relationship with foreign direct net inflows. The table also shows that the percentage of exports is not a significant predictor of foreign direct investment net inflows (p=0.199).

Grants and other revenue (% of revenue)

Table 5. Significant linear relationship between grants and other revenues and Foreign Direct Investment

	Coefficients	Standard Error	t Stat	P-value
Intercept	4.391	1.021	4.21	0.000
Grants and other revenue (% of revenue)	-0.243	0.089	-2.74	0.013

F (1) = 7.529, p-value=0.013

Table 5 shows F (1) = 7.529 and p-value= 0.013 which indicates that percentage of grants and other revenues has no significant linear relationship with foreign direct net inflows. The table also shows that the percentage of grants and other revenues is not a significant predictor of foreign direct investment net inflows (p=0.013).

GDP Rate Per Capita

Table 6. Significant linear relationship between GDP rate per capita and Foreign Direct Investment

	Coefficients	Standard Error	t Stat	P-value
Intercept	1.574	0.220	7.152	0.000
GDP Rate Per Capita	0.015	0.049	0.291	0.767

F (1) = 0.089, p-value=0.767

Table 6 shows F (1) = 0.089 and p-value= 0.767 which indicates that percentage of grants and other revenues has no significant linear relationship with foreign direct net inflows. The table also shows that the percentage of grants and other revenues is not a significant predictor of foreign direct investment net inflows (p=0.013).

International tourism, expenditures (% of total exports), International tourism, expenditures (% of total imports), Percentage of Exports Annually, Percentage of Imports Annually, Grants and other revenue (% of revenue), GDP Rate Per Capita, International tourism, expenditures (% of total exports Imports, Exports, GDP Rate Per Capita, International tourism, expenditures (% of total imports) Grants and other revenue (% of revenue).

Table 7. Significant linear relationship between the dependent variable and independent variables.

	Coefficients	Standard Error	t Stat	P-value
Intercept	-1.271	1.881	-0.676	0.510
International tourism, expenditures (% of total exports)	0.188	0.077	2.442	0.028
Imports	0.079	0.032	2.480	0.026
Exports	0.001	0.040	0.034	0.974
GDP Rate Per Capita	-0.151	0.049	-3.077	0.008
International tourism, expenditures (% of total imports)	0.162	0.088	1.839	0.087
Grants and other revenue (% of revenue)	-0.217	0.102	-2.137	0.051

F (6) = 6.939, p-value=0.0014

Table 7 shows F (6) = 6.939 and p-value=0.0014 that is less than 0.05 which indicates that there is a significant linear relationship between the dependent and independent variable. The independent variable that shows a significant predictor with FDI are international tourism, expenditures in

export ($p=0.028$), GDP Rate Per Capita ($p=0.008$) and annual percentage of imports ($p=0.026$). On the other hand, international tourism, expenditures in imports ($p=0.087$), annual percentage of exports ($p=0.974$) and grants and other revenues (0.051) are not a significant predictor of foreign direct investment net flows.

This corroborates with Khoshnevis Yazdi et al. (2017) who also found that there is a positive relationship between tourism expenditure (% of total exports) and foreign direct investment in the long term and short term. Similarly, study was also conducted by Ağazade et al. (2022) states that foreign direct investment positively affects the international tourism. Hence, based on the findings and the support from the related studies, international tourism, expenditures in export predict the foreign direct investment. When international tourism exports increase it will attract foreign investors, which can lead to increased investment in infrastructure, hotels, resorts, and other tourism-related businesses. This can contribute to economic growth and development in the host country.

The results also supported by Aziz et al. (2017) who also found that there is a negative relationship between Foreign Direct Investment and economic growth. Moreover, study was also conducted by Ausloos et al. (2019) states that the effect of GDP growth on FDI is mostly negative. Hence, based on the findings and the support from the related studies, GDP rate per capita predict the foreign direct investment. A decrease in foreign investment may be limiting the country's economic progress when there is a negative relationship between GDP growth rate and FDI. FDI is essential for funding new projects, generating employment, and boosting economic activity. Reduced economic growth and development potential might result from declining FDI.

The findings also supported by Nosheen. (2015) who found that real demand for imports has positive impact on foreign direct investment. This corroborates with Jayakumar et al. (2016) who also found that there is statistically significant evidence of positive linkage between annual percentage of import and foreign direct investment in India. Hence, based on the findings and the support from the related studies, annual percentage of import predict the foreign direct investment. Increased levels of FDI and imports can promote international trade and economic growth. The involvement in global value chains might result from enabling the host nation to access global markets and deepen its economic relationships with trade partners.

This corroborates with Bak et al. (2016) who also found that grant and other revenues has no significant effect on the foreign direct investment. Hence, based on the findings and the support from the related study, grant and other revenues cannot predict the foreign direct investment.

Objective 3

Construct time series model of the Foreign Direct Investment net inflows using the models (1) Exponential, (2) Linear, (3) Logarithmic, (4) Polynomial, (5) Power (6) Moving Average, (7) Exponential Smoothing and (8) Auto regression to predict the percentage for 2023.

The following figure represents changes in foreign direct investment (FDI) over time using various mathematical methods.

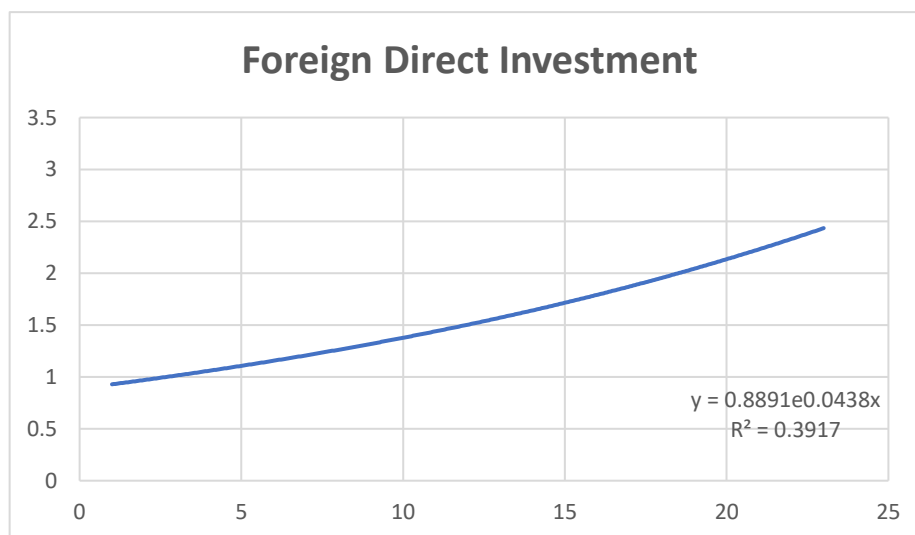


Figure 2. Exponential Trend of Foreign Direct Investment

Figure 2 shows the exponential model of Foreign Direct Investment if the Philippines from year 2000-2022 with, $y = 0.8891e^{0.0438x}$ and an R^2 value of 0.3917 which indicates that around 39.17% of the variances in FDI can be explained by the exponential model.

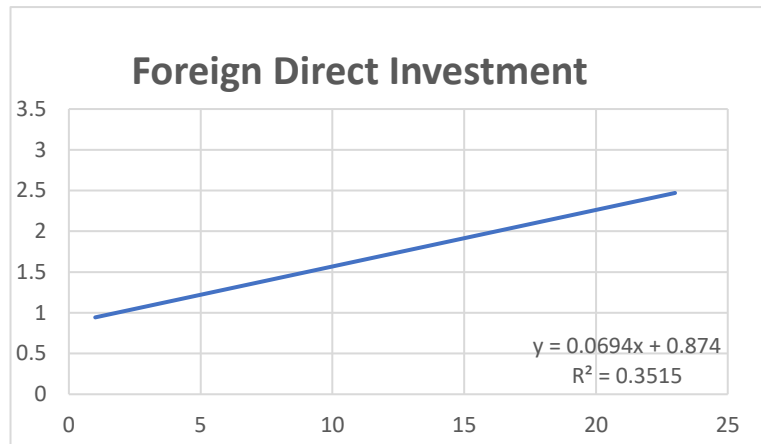


Figure 3. Linear Trend of

Foreign Direct Investment

Figure 3 shows the linear model of Foreign Direct Investment of the Philippines from year 2000-2022 with, $y = 0.0694x + 0.874$ and an R^2 value of 0.3515 which indicates that around 35.15% of the variances in FDI can be explained by the linear model.

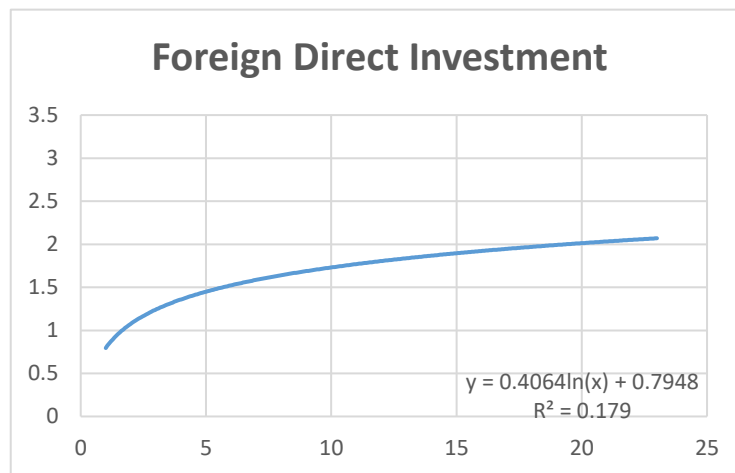


Figure 4. Logarithmic Trend of Foreign Direct Investment

Figure 4 shows the logarithmic model of Foreign Direct Investment of the Philippines from year 2000-2022 with, $y = 0.4064\ln(x) + 0.7948$ and an R^2 value of 0.179 which indicates that around 17.9% of the variances in FDI can be explained by the logarithmic model.

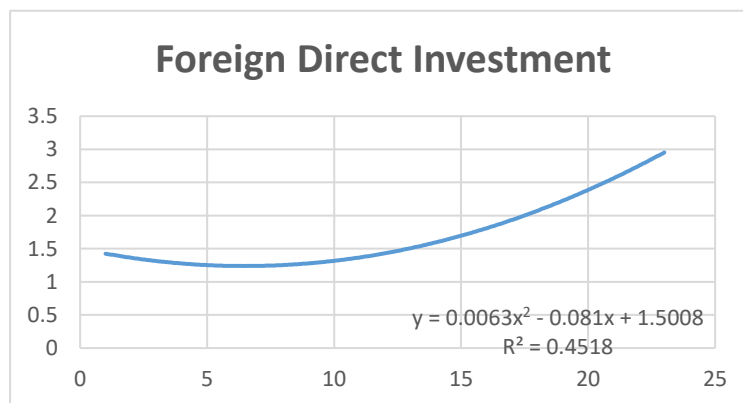


Figure 5. Quadratic Trend of Foreign Direct Investment

Figure 5 shows the quadratic model of Foreign Direct Investment of the Philippines from year 2000-2022 with, $y = 0.0063x^2 - 0.081x + 1.5008$ and an R^2 value of 0.4518 which indicates that around 45.18% of the variances in FDI can be explained by the quadratic model.

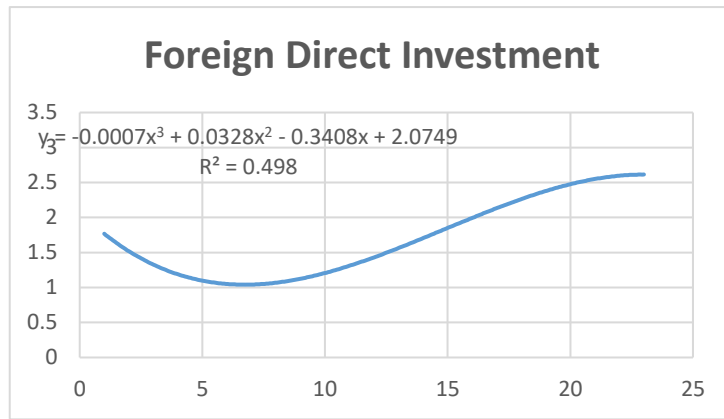


Figure 6. Cubic Trend of Foreign Direct Investment

Figure 6 shows the cubic model of Foreign Direct Investment of the Philippines from year 2000-2022 with, $y = -0.0007x^3 + 0.0328x^2 - 0.3408x + 2.0749$ and an R^2 value of 0.498 which indicates that around 4.98% of the variances in FDI can be explained by the cubic model.

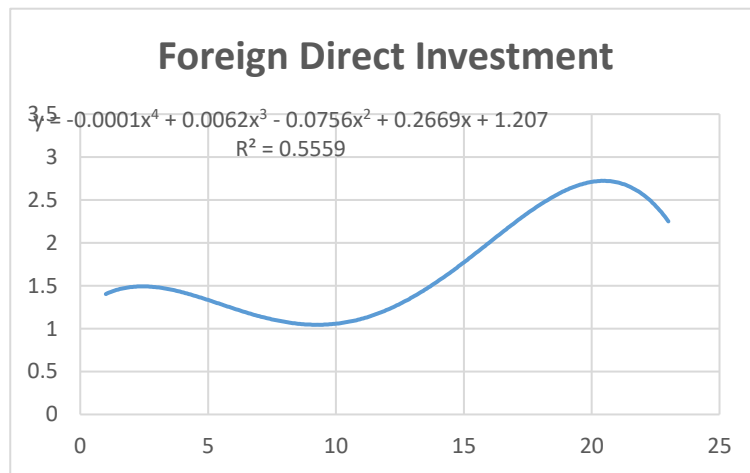


Figure 7. Quartic Trend of Foreign Direct Investment

Figure 7 shows the quartic model of Foreign Direct Investment of the Philippines from year 2000-2022 with, $y = -0.0001x^4 + 0.0062x^3 - 0.0756x^2 + 0.2669x + 1.207$ and an R^2 value of 0.5559 which indicates that around 55.59% of the variances in FDI can be explained by the quartic model.

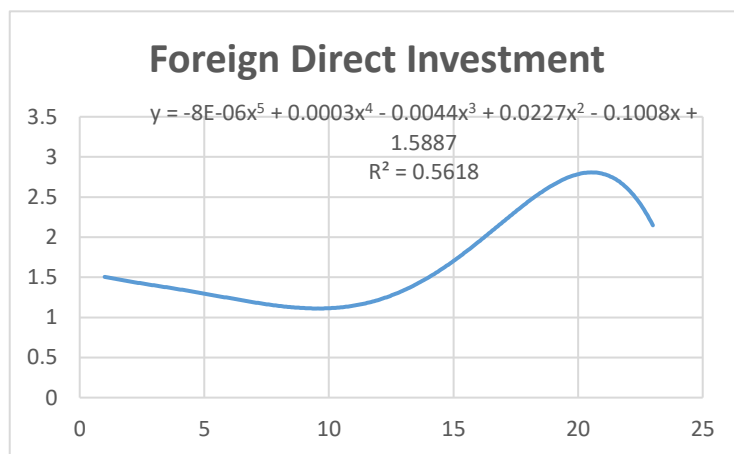


Figure 8. Quintic Trend of Foreign Direct Investment

Figure 8 shows the quintic model of Foreign Direct Investment of the Philippines from year 2000-2022 with, $y = -8E-06x^5 + 0.0003x^4 - 0.0044x^3 + 0.0227x^2 - 0.1008x + 1.5887$ and an R^2 value of 0.5618 which indicates that around 56.18% of the variances in FDI can be explained by the quintic model.

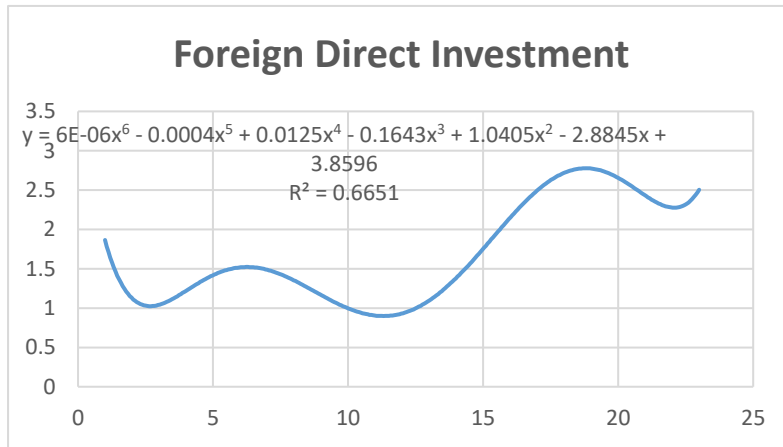


Figure 9. SEXTIC Trend of Foreign Direct Investment

Figure 9 shows the sextic model of Foreign Direct Investment of the Philippines from year 2000-2022 with, $y = 6E-06x^6 - 0.0004x^5 + 0.0125x^4 - 0.1643x^3 + 1.0405x^2 - 2.8845x + 3.8596$ and an R^2 value of 0.6651 which indicates that around 66.51% of the variances in FDI can be explained by the sextic model.

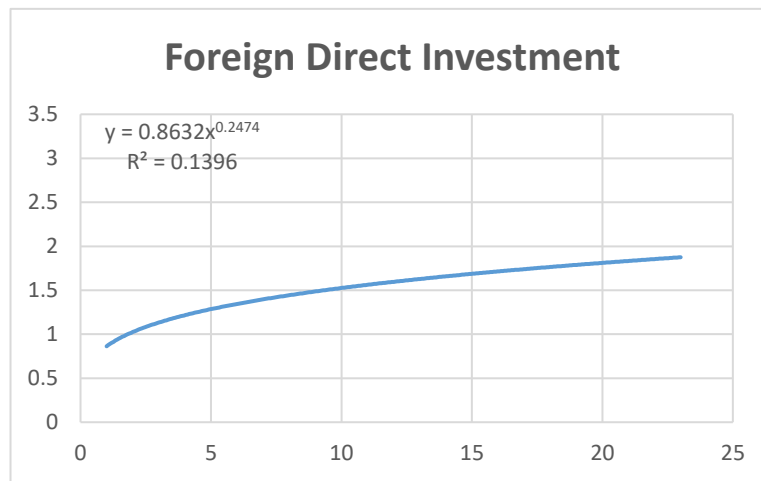


Figure 10. POWER Trend of Foreign Direct Investment

Figure 10 shows the power model of Foreign Direct Investment of the Philippines from year 2000-2022 with, $y = 0.8632x^{0.2474}$ and an R^2 value of 0.2281 which indicates that around 22.81% of the variances in FDI can be explained by the power model.

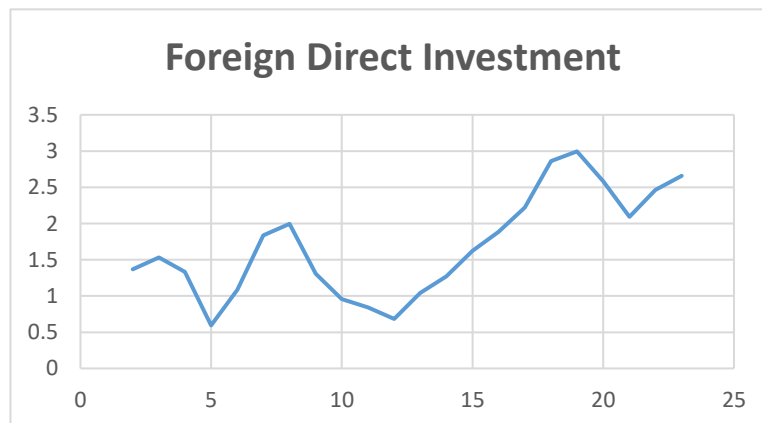


Figure 11. MOVING AVERAGE Trend of Foreign Direct Investment

Figure 11 shows the moving average model at interval 2 of Foreign Direct Investment of the Philippines from year 2000-2022.

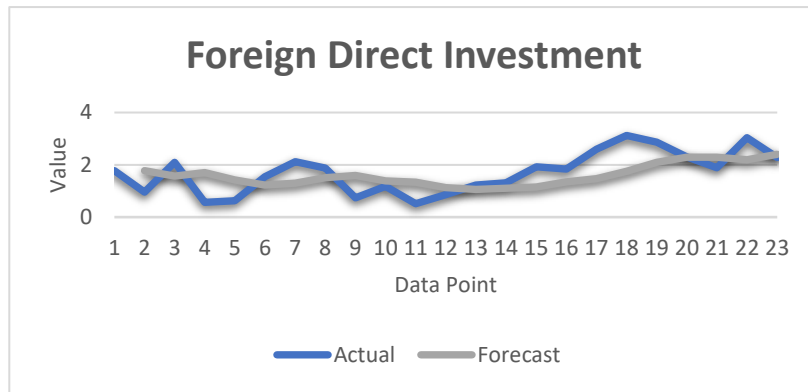


Figure 12.

Exponential Smoothing of

Foreign Direct Investment

Figure 12 shows the exponential smoothing model of Foreign Direct Investment of the Philippines from year 2000-2022.

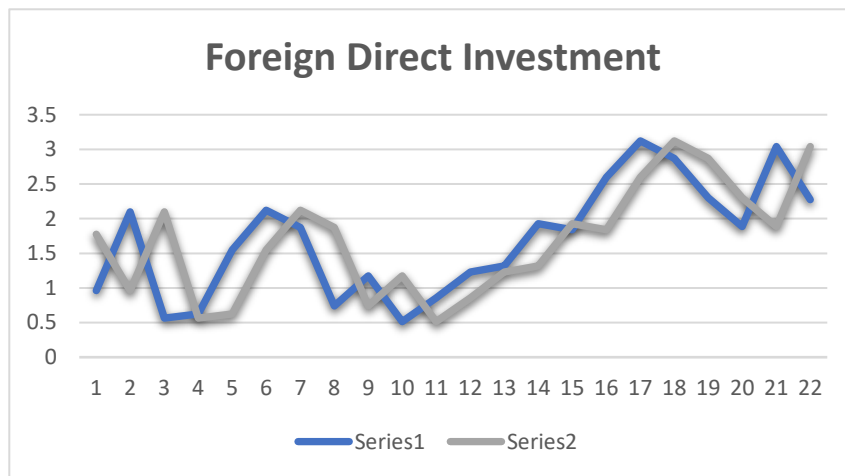


Figure 13. 1st Autoregression Model of Foreign Direct Investment

Figure 13 shows the 1st Autoregression model of Foreign Direct Investment of the Philippines from year 2000-2022 with, $y = 0.0719x + 0.8538$ and an $R^2 = 0.3386$ which indicates that around 33.86% of the variances in FDI can be explained by the 1st autoregression model.

Objective 4

Determine the best fit model and predict the Foreign Direct Investment net inflows in the Philippines for year 2024.

Table 9. Model and Prediction

Model	Equation	R2	Standard Error	2023 Predicted FDI net inflow
Exponential	$y = 0.8891e^{0.0438x}$	$R^2 = 0.392$	0.634	2.657
Linear	$y = 0.0694x + 0.874$	$R^2 = 0.352$	0.654	2.609
Logarithmic	$y = 0.4064\ln(x) + 0.7948$	$R^2 = 0.179$	0.736	2.103
Quadratic	$y = 0.0063x^2 - 0.081x + 1.5008$	$R^2 = 0.452$	3.255	3.413
Cubic	$y = -0.0007x^3 + 0.0328x^2 - 0.3408x + 2.0749$	$R^2 = 0.498$	0.577	3.117
Quartic	$y = -0.0001x^4 + 0.0062x^3 - 0.0756x^2 + 0.2669x + 1.207$	$R^2 = 0.556$	3.323	18.442
Quintic	$y = -8E-06x^5 + 0.0003x^4 - 0.0044x^3 + 0.0227x^2 - 0.1008x + 1.5887$	$R^2 = 0.562$	0.655	-16.431

Sextic	$y = 6E-06x^6 - 0.0004x^5 + 0.0125x^4 - 0.1643x^3 + 1.0405x^2 - 2.8845x + 3.8596$	$R^2 = 0.665$	0.646	456.278
Power	$y = 0.8632x^{0.2474}$	$R^2 = 0.229$	0.714	1.914
Moving Average Interval=2	-	-	0.271	2.276
1st Autoregression	$y=0.712+0.59x$	$R^2 = 0.340$	0.676	15.462
Exponential Smoothing Damping Factor=0.75	-	-	0.544	2.371

Table 9 presents various models used for predicting foreign direct investment net inflows. After analysing the various models, it is evident that the moving average model with an interval of 2 stands out as the most accurate among all listed, demonstrating the lowest standard error (SE=0.271). The moving average model with an interval of 2 utilizes historical data points from the two most recent time periods to make predictions for future net migration rates. The lower standard error of 0.271 indicates that the model's predictions are, on average, closer to the actual observed values, making it more reliable and precise compared to the other models considered in the table.

These results show the effectiveness of the moving average model with an interval of 2 in capturing the underlying patterns and trends in foreign direct investment. The moving average method is well-known for its ability to smooth out short-term fluctuations and provide a more stable trend, which likely contributes to its superior performance. Considering the task of foreign direct investments, the moving average model appears to be the most reliable choice when compared to both the polynomial models and exponential averages included in the table.

Summary of Findings

1. The trend of Foreign Direct Investment (FDI) net inflows in the Philippines from 2000 to 2022 shows fluctuations, with periods of growth and decline. Initially, there was an upward trend from 2000 to 2002, followed by a significant decline between 2003 and 2004. Subsequently, FDI net inflows gradually increased from 2005 to 2008, with a dip during the global financial crisis in 2008. From 2009 to 2010, there was a moderate recovery, and from 2011 to 2014, there was a relative increase. The years 2015 to 2022 saw varying levels of FDI net inflows, influenced by global economic conditions and the COVID-19 pandemic's impact in 2020. Understanding these trends is crucial for policymakers and investors to make informed decisions and create an environment conducive to attracting and retaining foreign investments for sustained economic growth and development.
2. There is a significant linear relationship between FDI net inflows and international tourism expenditures (% of export), there is also a significant linear relationship between FDI and annual percentage of exports and grants and other revenues (% of revenue) also had a significant linear relationship with FDI. While, FDI and international tourism expenditures (% of imports), imports of goods and services, and GDP per capita did not have a significant relationship. However, when the independent variables were combined together, it is the international tourism expenditures in export, GDP rate per capita and annual percentage of imports that showed a significant linear relationship with FDI and international tourism expenditures in imports, annual percentage of exports, grants and other revenues, showed no significance with FDI.
3. The time series models using 2000 to 2022 FDI net inflows are $y = 0.8891e0.0438x$ for exponential, $y = 0.0694x + 0.874$ for Linear, $y = 0.4064\ln(x) + 0.7948$ for Logarithmic, $y = 0.0063x^2 - 0.081x + 1.5008$ for Quadratic, $y = -0.0007x^3 + 0.0328x^2 - 0.3408x + 2.0749$ for Cubic, $y = -0.0001x^4 + 0.0062x^3 - 0.0756x^2 + 0.2669x + 1.207$ for Quartic, $y = -8E-06x^5 + 0.0003x^4 - 0.0044x^3 + 0.0227x^2 - 0.1008x + 1.5887$ for Quintic, $y = 6E-06x^6 - 0.0004x^5 + 0.0125x^4 - 0.1643x^3 + 1.0405x^2 - 2.8845x + 3.8596$ for Sextic, $y = 0.8632x^{0.2474}$ for Power, moving average model with an interval of 2, the exponential smoothing model with a damping factor of 0.75 and the first autoregression model.
4. The best fit model is the moving average model at interval 2. Using this model, the FDI net inflows of the Philippines will increase to 2.276%.

Conclusions

The study's findings highlight the crucial role played by specific variables in influencing FDI net inflows in the Philippines. Notably, international tourism expenditures as a percentage of exports, annual percentage of exports, and grants and other revenues as a percentage of revenue have shown to have a significant linear relationship with FDI. This highlights the need for policymakers and analysts to carefully consider these factors when examining and forecasting FDI trends in the country.

Moreover, the study reveals that a comprehensive approach, taking into account multiple independent variables, yields more accurate predictors of FDI net inflows. By combining international tourism expenditures in export, GDP rate per capita, and annual percentage of imports, researchers have identified additional significant drivers of FDI. This emphasizes the importance of adopting a holistic perspective to grasp the intricate dynamics behind FDI trends and making well-informed decisions. The practical implications of these significant relationships are substantial for both policymakers and investors. Armed with a deeper understanding of these influential factors, government authorities can fine-tune their economic policies and tailor incentives to attract foreign capital more effectively. By strategically focusing on areas like international tourism expenditures and exports that have a proven impact on driving FDI, policymakers can create an attractive investment climate, fostering increased inflows of foreign capital and stimulating economic growth in the country. Furthermore, investors can use this knowledge to make informed decisions about their investment strategies, identifying potential opportunities and risks related to FDI in the Philippines.

With the knowledge that the moving average model at interval 2 is the best fit model for predicting FDI net inflows, policymakers can make more informed and accurate decisions regarding economic policies and incentives. They can use this predictive model to anticipate future FDI trends and implement measures to attract and retain foreign investments effectively. For investors and businesses, understanding the best fit model allows them to strategically plan their investments in the Philippines. They can use the predicted FDI net inflow percentage of 2.276% to assess potential. This information enables them to make well-informed decisions on the timing and scale of their investments in the country. Having a prediction 2.276% of FDI net inflows allows policymakers and investors to identify potential risks and vulnerabilities. This information helps in devising risk management strategies to address fluctuations in FDI and its potential impact on the country's economy and financial stability. The predictive model also provides valuable insights for long-term planning in various sectors of the economy. Policymakers can align their efforts and resources to foster an environment that encourages sustained FDI inflows, leading to consistent economic growth over time. The study's insights have the potential to guide policy formulation and investment decisions, contributing to a more resilient and thriving economy in the Philippines.

Recommendations

Based on the findings of this study, several recommendations emerge that can guide policymakers in enhancing the Foreign Direct Investment (FDI) landscape in the Philippines. Firstly, policymakers should concentrate on bolstering infrastructure and promoting attractive tourist destinations. Additionally, they should enact policies that foster international tourism, a factor that often correlates with heightened FDI inflows. Furthermore, adopting strategies to fortify export-oriented industries and support businesses geared towards exports, while also diversifying export markets, could enhance the appeal for foreign investors. Second, policy development should account for economic resilience and preparedness, especially in the face of unforeseen challenges like global financial crises or pandemics such as COVID-19. This proactive approach would enable the Philippines to swiftly recover from economic setbacks and maintain the confidence of investors, even in testing circumstances. The policymakers are advised to adopt a comprehensive perspective when promoting FDI. This entails considering a variety of factors concurrently, such as international tourism spending, export-related indicators, GDP per capita, and import percentages. By holistically formulating policies, the nation can more effectively attract and retain foreign investments. The dynamic nature of economic trends calls for vigilant policy monitoring and adaptability. Crafting policies that encourage FDI, particularly during periods of economic growth, can significantly contribute to the nation's overall economic advancement. Finally, for future research endeavors, expanding the temporal scope and gathering more extensive data could provide deeper insights into FDI net inflow patterns over a more extended timeframe. Employing advanced causal inference techniques, such as instrumental variable analysis or difference-in-differences, may shed light on causal relationships between specific economic variables and FDI net inflows, contributing to a more nuanced understanding of the dynamics at play.

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