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The Impact of GDP Growth on Foreign Direct Investment: An Analytical Study

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Abstract

This study explores the relationship between Gross Domestic Product (GDP) growth and Foreign Direct Investment (FDI) inflows in developing economies. As FDI plays a pivotal role in driving economic progress, understanding its dynamics relative to GDP growth provides valuable insights for policymakers and investors. The manufacturing sector, with its need for cost efficiency, production scale, and infrastructure, attracts FDI when GDP growth fosters these elements. Conversely, the services sector, which relies on skilled labour and technology, benefits from rising GDP, fuelling local demand for services. This research uses historical data, descriptive statistics, and regression analyses to evaluate GDP's impact on FDI from 1970 to 2023. The findings reveal a positive correlation between GDP growth and FDI inflows, with distinct sectoral variations that highlight specific economic demands in manufacturing versus services. The study's conclusions aim to guide targeted policies for fostering sectoral FDI, supporting balanced and sustainable economic development.

1. Introduction

Foreign Direct Investment (FDI) is a critical driver of economic growth, especially in developing countries. It brings capital, innovation, and knowledge, which stimulate local industries, create jobs, and promote economic advancement. For countries with emerging economies, FDI is particularly important as it helps bridge the gap in funding needed for development and boosts productivity. This study aims to examine the link between Gross Domestic Product (GDP) growth and FDI inflows, focusing on two vital sectors: manufacturing and services.

The manufacturing and services sectors form the backbone of many economies, each contributing uniquely to economic progress. Manufacturing facilitates industrialization, boosts exports, and generates diverse employment opportunities. Services, on the other hand, have become a global economic powerhouse, covering areas such as finance, information technology, healthcare, and education. These sectors respond to economic changes in different ways, making them suitable for examining how GDP growth influences FDI inflows.

1.1 The Influence of GDP Growth on FDI

GDP growth is a key sign of a nation's economic health and potential for expansion, influencing the interest of foreign investors. When GDP rises, it indicates a stable economy, increasing consumer demand and expanding markets—conditions that attract FDI. In countries with robust GDP growth, investors often see lucrative opportunities, particularly in sectors experiencing rapid expansion.

However, the influence of GDP growth on FDI may not be uniform across all sectors. Manufacturing and services, for example, differ in terms of capital requirements, regulatory landscapes, and market structures, which shape how GDP growth affects investment. Manufacturing investments often depend on production efficiency, labour availability, and export potential, while FDI in services focuses more on access to skilled labour, market reach, and advanced infrastructure. Understanding these differences is essential for policymakers aiming to attract FDI across various sectors effectively.

1.2 Sector-Specific Dynamics and Their Role in FDI

In the manufacturing sector, FDI is often driven by factors like cost efficiency, resource access, and the capacity for large-scale production. Countries with increasing GDP growth often develop better infrastructure and may offer incentives to draw manufacturing investment. For instance, infrastructure improvements reduce logistical expenses, enhancing a location's appeal as a manufacturing hub. Additionally, many FDI projects in manufacturing are export-oriented, with investors looking to capitalize on local production capabilities to serve international markets.

In contrast, the services sector typically relies on demand from domestic and nearby markets. As GDP grows, people's incomes often increase, fuelling demand for services like healthcare, finance, and IT. Services generally require less physical infrastructure than manufacturing but do need skilled labour and a solid technology base. As economies expand, the services sector tends to become more advanced, which attracts FDI in high-growth areas like finance, telecommunications, and information technology. FDI in services typically seeks a steady economy, skilled workforce, and government policies that promote growth—all of which can be positively influenced by GDP growth.

1.3 Research Problem

Identifying the Gap:

- Despite the recognized importance of GDP as an economic indicator, there is a lack of comprehensive studies focusing specifically on how GDP growth impacts FDI inflows.

Research Questions:

- What are the underlying factors that mediate the relationship between GDP growth and FDI?

1.3 Significance of the Study

This study adds to the understanding of economic growth and FDI by analysing how GDP growth impacts key sectors, namely manufacturing and services. Given the global competition for FDI, insights from this research can help governments create policies that attract FDI, build economic resilience, and support sustainable development. By understanding the unique effects of GDP growth on FDI inflows across sectors, policymakers and businesses can align investment strategies to meet both economic and sectoral development goals, fostering a balanced and resilient economy.

2. Review of Literature

Understanding how GDP growth affects FDI inflows has long been the focus of economic study, and the results indicate that economic expansion can increase a nation's attractiveness to overseas investors. A stable and promising market is frequently linked to higher GDP growth, which increases investor confidence. However, because different sectors have distinct operating needs, the effects of GDP growth on FDI can range greatly. Factors like production costs and resource accessibility usually affect foreign investments in manufacturing, whereas infrastructure and skilled labour availability are more important in the services sector. Studies also emphasize the significance of labour market features, infrastructural quality, and government policies in luring sector-specific foreign direct investment.

- **Osei and Kim (2020)** look into how FDI is impacted by financial sector development and economic growth. They discover that although FDI is typically drawn to GDP growth, the impacts can vary depending on the industry, such as manufacturing versus services. The authors contend that because a strong financial sector encourages sectoral growth and increases investor confidence, it can improve the relationship between GDP growth and FDI inflows. Their findings imply different effects on manufacturing and services depending on the particular characteristics and growth potential of each sector, indicating that financial development might play a crucial role in optimizing the benefits of GDP growth for attracting FDI.

- **Saidi et al. (2020)** explore the intricate relationships among transport infrastructure, logistics, foreign direct investment (FDI), and economic growth. The authors highlight that improvements in transportation and logistics not only facilitate FDI inflows but also contribute to overall economic growth. Their findings suggest that effective transport systems can enhance the attractiveness of both the manufacturing and services sectors, influencing how GDP growth translates into FDI. This research emphasizes the importance of investing in transport and logistics infrastructure to create a conducive environment for FDI, ultimately fostering sustainable economic growth across different sectors in developing countries.

- **Gnangnon (2021)** examines how fluctuations in foreign direct investment (FDI) inflows impact the stability of corporate income tax revenues in host countries. The study reveals that increased volatility in FDI can lead to unpredictable changes in tax revenues, complicating fiscal planning for governments. Gnangnon emphasizes that while tax incentives are often employed to attract FDI, their effectiveness can be undermined by the inherent volatility of these investments. The research suggests that policymakers need to adopt strategies that stabilize FDI inflows, which, in turn, can help ensure more consistent tax revenue streams. This study highlights the importance of understanding the dynamics between FDI and tax revenue, particularly in the context of crafting effective tax policies that encourage stable investment while safeguarding fiscal health.

- **Kumari et al. (2023)** investigates the interplay between foreign direct investment (FDI), trade liberalization, and economic growth within the context of India's evolving economy. The authors provide empirical evidence suggesting that both FDI and trade openness significantly contribute to GDP growth, with implications for how these factors influence investment inflows in various sectors, including manufacturing and services. They argue that as trade barriers diminish, the resulting economic growth enhances the attractiveness of India for foreign investors. This study underscores the importance of considering sector-specific dynamics when evaluating how GDP growth impacts FDI inflows, highlighting that targeted policies can leverage trade openness to maximize investment benefits across diverse sectors.

Theoretical Framework

1. Economic Growth Theory:

- Based on classical and neoclassical growth theories, this framework posits that economic growth (represented by GDP) is a crucial driver of FDI inflows, as it signals market potential, increased demand, and enhanced profitability for investors.

2. Sectoral Development Theory:

- This theory suggests that different sectors (manufacturing vs. services) exhibit distinct responses to GDP growth due to their unique characteristics, regulatory environments, and growth potentials. This aspect emphasizes the need to analyses sector-specific trends in FDI.

3. Financial Development Theory:

- Financial development is essential for attracting FDI, as it increases investor confidence and provides the necessary capital for expansion. This theory will help explain how the strength of a country's financial sector influences the relationship between GDP growth and FDI.

4. Infrastructure and Logistics Theory:

- This framework posits that investments in transport and logistics infrastructure enhance the attractiveness of countries for foreign investors. It emphasizes that infrastructure improvements can facilitate FDI inflows by reducing costs and improving access to markets.

5. Tax Revenue Stability Theory:

- This theory examines the relationship between FDI volatility and corporate tax revenues, highlighting the need for policymakers to create stable investment environments that ensure predictable tax revenue streams.

3. Objective of the Study

- To analyse the relationship between GDP growth and foreign direct investment inflows.

Investigate the correlation between GDP growth rates and FDI inflows across various sectors to understand the overall impact.

- To evaluate the role of economic stability in attracting foreign direct investment.

Assess how stable economic conditions, influenced by GDP growth, enhance the attractiveness of a country for foreign investors.

- To provide policy recommendations based on the findings related to GDP and FDI.

Develop actionable recommendations for policymakers to enhance FDI inflows, particularly focusing on strategies to leverage GDP growth for attracting foreign investment.

- To Examine the Influence of Financial Development on FDI Attraction:

Explore how advancements in the financial sector impact the relationship between GDP growth and foreign direct investment inflows.

- To Assess the Impact of Infrastructure on FDI Inflows:

Evaluate how improvements in infrastructure, such as transportation and logistics, affect the ability of a country to attract foreign investment.

- To Provide Policy Recommendations Based on Findings Related to GDP and FDI:

Develop actionable recommendations for policymakers to enhance FDI inflows, focusing on strategies that leverage GDP growth and economic stability to attract foreign investment.

4. Research Methodology

1. Data Collection

Type of Data: This research will utilize secondary macro-economic data, which includes historical data on GDP growth rates and FDI inflows. Relevant data sources may include government publications, international financial institutions (like the World Bank and IMF), and economic databases.

Data Selection: Carefully select datasets covering multiple years to analyse trends over time, ensuring they are relevant to the study's focus on GDP and FDI.

2. Data Analysis Tools

Utilize the following Excel tools to conduct a comprehensive analysis of the collected data:

Descriptive Statistics:

Calculate key metrics such as mean, median, mode, standard deviation, and range for GDP growth and FDI inflows. This will provide a foundational understanding of the data distribution and central tendencies.

Sampling:

If working with large datasets, utilize random sampling techniques to select a representative subset of the data for analysis. This ensures the results are generalizable while reducing processing time.

Hypothesis Testing using T-Test:

Conduct T-tests to compare means between two groups, such as periods of high versus low GDP growth. This analysis will help determine if significant differences exist in FDI inflows during these periods.

Analyse variance, rank, and percentile data to understand how changes in GDP growth correlate with variations in FDI.

Hypothesis

H0: Means of the periods are not significantly different

H1: Means are significantly different

If the p value is less than 0.05, reject null hypothesis

Moving Averages:

Calculate moving averages to identify trends over time in both GDP growth and FDI inflows. This technique smooths out short-term fluctuations, allowing for clearer long-term trends.

Histogram:

Create histograms to visualize the frequency distribution of GDP growth rates and FDI inflows. This graphical representation aids in understanding data distributions and identifying potential outliers.

Random Number Generation:

Utilize random number generation to simulate various scenarios in the analysis, which can help in understanding the potential variability in FDI inflows based on different GDP growth conditions.

ANOVA (Single and Two-Factor):

Apply ANOVA to assess the impact of multiple factors (such as different countries or regions) on FDI inflows. This analysis helps to determine if there are statistically significant differences in FDI based on these categorical variables.

Covariance:

Calculate the covariance between GDP growth and FDI inflows to understand the direction and strength of their relationship. Positive covariance indicates that both variables move in the same direction, while negative covariance indicates an inverse relationship.

Correlation: Conduct correlation analysis to quantify the strength and direction of the linear relationship between GDP growth and FDI inflows. This analysis will help establish the degree to which changes in GDP are associated with changes in FDI.

Regression Analysis:

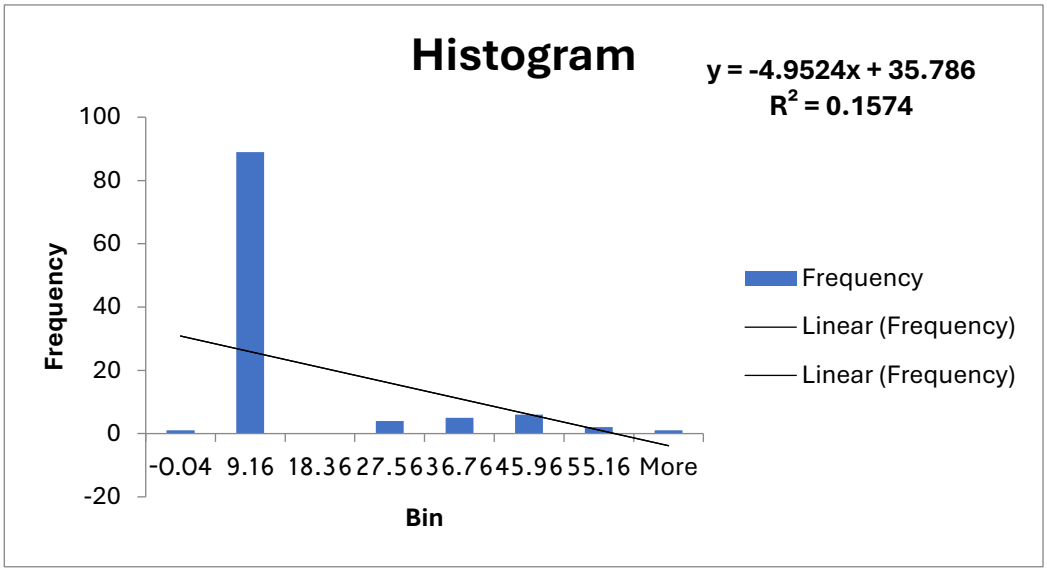
Perform regression analysis to model the relationship between GDP growth (independent variable) and FDI inflows (dependent variable). This will enable predictions about FDI inflows based on GDP growth rates and provide insights into the magnitude of their relationship.

5. Data Analysis

We have done the analysis from 1970 to 2023 for GDP and FDI. This was done to analyse the relationship between GDP and FDI. We have plotted graphs for better visualization for data given below.

Year	Inflows, US $B	% of GDP
2023	28.07	0.0079
2022	49.94	0.0149
2021	44.73	0.0141
2020	64.36	0.0241
2019	50.61	0.0178
2018	42.12	0.0156
2017	39.97	0.0151
2016	44.46	0.0194
2015	44.01	0.0209
2014	34.58	0.0170
2013	28.15	0.0152
2012	24.00	0.0131
2011	36.50	0.0200
2010	27.40	0.0164
2009	35.58	0.0265
2008	43.41	0.0362
2007	25.23	0.0207
2006	20.03	0.0213
2005	7.27	0.0089
2004	5.43	0.0077
2003	3.68	0.0061
2002	5.21	0.0101
2001	5.13	0.0106
2000	3.58	0.0077
1999	2.17	0.0047
1998	2.63	0.0063
1997	3.58	0.0086
1996	2.43	0.0062
1995	2.14	0.0060
1994	0.97	0.0030
1993	0.55	0.0020
1992	0.28	0.0010
1991	0.07	0.0003
1990	0.24	0.0007
1989	0.25	0.0009
1988	0.09	0.0003
1987	0.21	0.0008
1986	0.12	0.0005
1985	0.11	0.0005
1984	0.02	0.0001
1983	0.01	0.0000
1982	0.07	0.0004
1981	0.09	0.0005
1980	0.08	0.0004
1979	0.05	0.0003
1978	0.02	0.0001
1977	-0.04	-0.0003
1976	-0.01	-0.0001
1975	-0.01	-0.0001

Histogram



Descriptive Statistics

Year		*Inflows, US $B*		*% of GDP*	
Mean	1996.5	Mean	13.51462963	Mean	0.008018519
Standard Error	2.140872096	Standard Error	2.538500244	Standard Error	0.001200888
Median	1996.5	Median	2.3	Median	0.00605
Mode	#N/A	Mode	0.02	Mode	0.0003
Standard Deviation	15.73213272	Standard Deviation	18.65409093	Standard Deviation	0.008824688
Sample Variance	247.5	Sample Variance	347.9751084	Sample Variance	7.78751E-05
Kurtosis	-1.2	Kurtosis	-0.244210855	Kurtosis	0.483042055
Skewness	-3.48053E-17	Skewness	1.091787942	Skewness	1.026379775
Range	53	Range	64.4	Range	0.0365
Minimum	1970	Minimum	-0.04	Minimum	-0.0003
Maximum	2023	Maximum	64.36	Maximum	0.0362
Sum	107811	Sum	729.79	Sum	0.433
Count	54	Count	54	Count	54

Sampling

Inflows, US $B	**% of GDP**	*Inflows, US $B*		*% of GDP*	
42.12	0.0178				
28.15	0.017	Mean	12.07	Mean	0.00786
43.41	0.0265	Standard Error	5.787791749	Standard Error	0.002947587
3.68	0.0077	Median	1.59	Median	0.00385
2.63	0.0047	Mode	#N/A	Mode	#N/A
0.55	0.003	Standard Deviation	18.30260455	Standard Deviation	0.009321087
0.09	0.0009	Sample Variance	334.9853333	Sample Variance	8.68827E-05
0.01	0.0001	Kurtosis	-0.52470184	Kurtosis	0.001658569
0.02	0.0003	Skewness	1.18136757	Skewness	1.107314518
0.04	0.0006	Range	43.4	Range	0.0264
		Minimum	0.01	Minimum	0.0001
		Maximum	43.41	Maximum	0.0265
		Sum	120.7	Sum	0.0786
		Count	10	Count	10

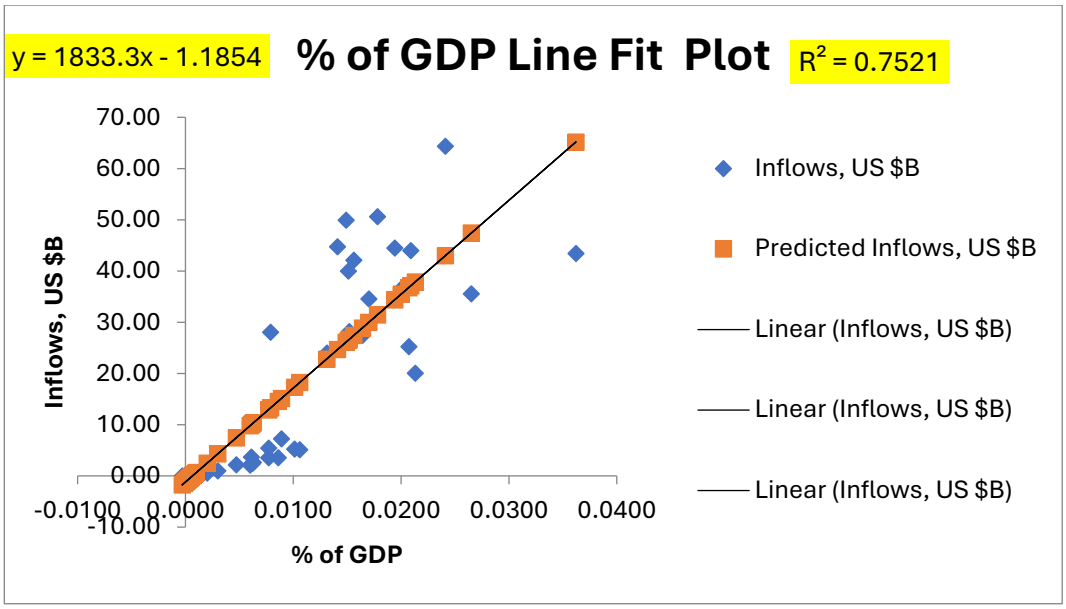
Regression Analysis:

Regression Statistics	
Multiple R	0.867262
R Square	0.752144
Adjusted R Square	0.747377
Standard Error	9.375842
Observations	54

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	13871.55	13871.55	157.7991	2.24E-17
Residual	52	4571.133	87.90641		
Total	53	18442.68			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-1.18544	1.731274	-0.68472	0.496562	-4.65949	2.288618	-4.65949	2.288618
% of GDP	1833.265	145.9395	12.56181	2.24E-17	1540.416	2126.114	1540.416	2126.114



Correlation:

	Inflows, US $B	*% of GDP*
Inflows, US $B	1	
% of GDP	0.867262	1

Covariance:

	Inflows, US $B	*% of GDP*
Inflows, US $B	341.5311	
% of GDP	0.140122	7.64E-05

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
India GDP (1996-1970)	27	0.0261	0.000967	2.62E-06
Indian GDP (2023-1995)	27	0.4069	0.01507	5.28E-05

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.002685	1	0.002685	96.83387	1.81E-13	4.026631
Within Groups	0.001442	52	2.77E-05			
Total	0.004127	53				

Anova: Two-Factor with Replication

SUMMARY	Inflows, US $B	% of GDP	Total
Count	6	6	12
Sum	279.83	0.0944	279.9244
Average	46.63833	0.015733	23.32703
Variance	141.9145	2.78E-05	657.3248
Count	6	6	12
Sum	215.17	0.1007	215.2707
Average	35.86167	0.016783	17.93923
Variance	71.80334	8.55E-06	383.0531
Count	6	6	12
Sum	188.15	0.1411	188.2911
Average	31.35833	0.023517	15.69093
Variance	74.21158	4.91E-05	301.5155
Count	6	6	12
Sum	30.3	0.0511	30.3511
Average	5.05	0.008517	2.529258
Variance	1.82852	2.83E-06	7.762934
Count	6	6	12
Sum	13.92	0.0348	13.9548
Average	2.32	0.0058	1.1629
Variance	0.71464	3.47E-06	1.785435
Count	6	6	12
Sum	1.48	0.0052	1.4852
Average	0.246667	0.000867	0.123767
Variance	0.029787	3.95E-07	0.030017
Count	6	6	12
Sum	0.54	0.0023	0.5423
Average	0.09	0.000383	0.045192
Variance	0.00548	8.57E-08	0.004681

Count	6	6	12
Sum	0.19	0.0009	0.1909
Average	0.031667	0.00015	0.015908
Variance	0.002617	9.5E-08	0.00146

Count	6	6	12
Sum	0.21	0.0025	0.2125
Average	0.035	0.000417	0.017708
Variance	0.00067	1.02E-07	0.000631

Total

Count	54	54
Sum	729.79	0.433
Average	13.51463	0.008019
Variance	347.9751	7.79E-05

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Sample	8501.991	8	1062.749	65.84764	2.64E-34	2.042986
Columns	4925.571	1	4925.571	305.187	1.16E-30	3.946876
Interaction	8488.137	8	1061.017	65.74034	2.81E-34	2.042986
Within	1452.556	90	16.13951			
Total	23368.26	107				

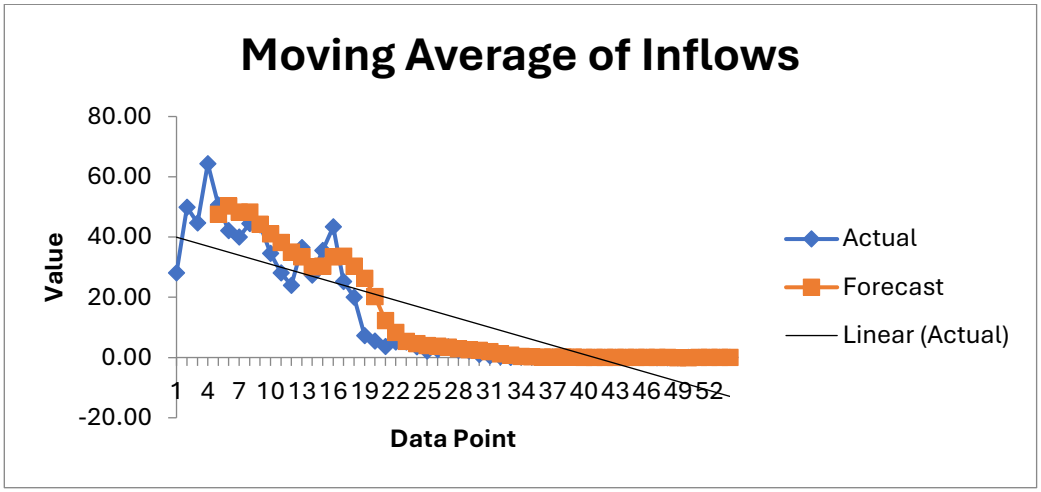
t-Test: Two-Sample Assuming Unequal Variances

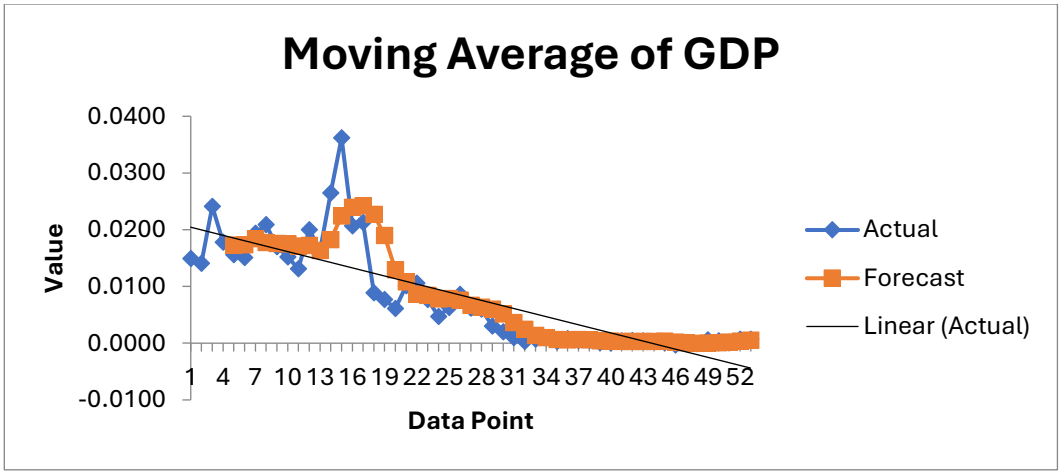
		Dummy
	% of GDP	*Variable*
Mean	0.008018519	0
Variance	7.78751E-05	0
Observations	54	54
Hypothesized Mean Difference	0	
df	53	

t Stat	6.677157887
P(T<=t) one-tail	7.4577E-09
t Critical one-tail	1.674116237
P(T<=t) two-tail	1.49154E-08
t Critical two-tail	2.005745995

P Value is less than 0.05 hence reject the null hypothesis

Moving Average





6. Results

Histogram

The histogram shows the distribution of a dataset, likely some kind of measurement or score. The data is concentrated in the lower bins, with the majority of values falling between -0.04 and 9.16. We see a steep drop-off in frequency as we move to higher bin values. The linear regression line superimposed on the histogram suggests a downward trend, indicating that the frequency of occurrence decreases as the bin value increases. The R-squared value of 0.1574 tells

us that the linear regression model only explains a small portion of the variation in the data, suggesting a complex pattern that is not well-captured by a simple linear relationship.

Descriptive Statistics

The descriptive statistics provide an overview of inflows in billions of US dollars and their percentage of GDP over 54 observations. The average inflow is about $13.51 billion, with a standard deviation of approximately $18.65 billion, indicating substantial variation in the inflow amounts. The GDP percentage averages around 0.008%, with a smaller variation, as shown by the standard deviation of 0.008%. Inflows show a slight positive skew, while the GDP percentage has a similar skewness, hinting at occasional higher values. The range for inflows spans from near zero to $64.36 billion, reflecting notable fluctuations over time. These statistics help illustrate the variability and distribution in economic inflows and their impact on GDP.

Sampling

The data shows the inflow amounts in billions of dollars, their percentage of the GDP, and several statistical measures for both these variables. The average inflow is around 12 billion dollars, and on average, these inflows make up about 0.008% of the GDP. The inflows vary quite a bit, ranging from a low of 0.01 billion to a high of 43.41 billion dollars. Similarly, their contribution to GDP also ranges from a minimum of 0.0001% to a maximum of 0.0265%. When we look at the statistical measures, we see that the inflows are not normally distributed. The skewness and kurtosis values indicate a distribution with a long tail towards higher values. This means that there are a few very large inflows that are pulling the average up. The standard deviation is quite high, suggesting a lot of variability in the inflow amounts. The sample variance gives us another measure of this variability.

Regression

The regression analysis shows a strong relationship between the inflow amount in billions of dollars and the percentage of GDP. The model explains about 75% of the variation in the inflow amounts. The coefficients table shows that the intercept is not statistically significant, but the coefficient for the percentage of GDP is highly significant. This means that as the percentage of GDP increases, the inflow amount also increases. The highlighted cell, with a value of 1833.264602, represents the estimated change in the inflow amount for a one-unit increase in the percentage of GDP. In other words, for every 1% increase in GDP, the inflow amount is expected to increase by approximately 1833 billion dollars.

The ANOVA table further confirms the significance of the regression model. The F-statistic is very large, and the corresponding p-value is extremely small (close to zero). This indicates that the overall regression model is statistically significant, meaning that the independent variable (percentage of GDP) is a significant predictor of the dependent variable (inflow amount).

Graphs

The graphs provide insights into the relationship between the percentage of GDP and the inflow amount in billions of dollars. The residual plot shows that the residuals are randomly scattered around zero, indicating that the linear regression model is a good fit for the data.

The normal probability plot shows that the residuals are approximately normally distributed, which is another assumption of the linear regression model. The line fit plot shows the actual inflow amounts plotted against the predicted inflow amounts from the regression model. The highlighted R-squared value of 0.7521 indicates that the regression model explains about 75% of the variation in the inflow amounts. This suggests a strong relationship between the percentage of GDP and the inflow amount.

Correlation

The correlation matrix shows a strong positive correlation between the inflow amount in billions of dollars and the percentage of GDP. The highlighted correlation coefficient of 0.867262233 indicates that there is a high degree of linear association between the two variables. This means that as the percentage of GDP increases, the inflow amount also tends to increase. The correlation coefficient is close to 1, suggesting a strong and positive relationship. This finding is consistent with the regression analysis, which also showed a significant relationship between the two variables.

Covariance

The covariance matrix shows the relationship between the inflow amount in billions of dollars and the percentage of GDP. The highlighted value of 0.140121896 represents the covariance between these two variables. Covariance measures the degree to which two variables change together. A positive covariance indicates that as one variable increases, the other tends to increase as well.

In this case, the positive covariance suggests that as the inflow amount increases, the percentage of GDP also tends to increase. However, it's important to note that covariance alone doesn't tell us the strength of the relationship. To understand the strength, we need to consider the scale of the variables and the correlation coefficient.

Single factor Anova

The ANOVA table shows the results of a single-factor ANOVA test, which compares the means of two groups: "India GDP (1996-1970)" and "Indian GDP (2023-1995)". The null hypothesis of the test is that the means of the two groups are equal. The F-statistic, highlighted in the table, is 96.8338661. This F-statistic measures the ratio of the variability between groups to the variability within groups. A larger F-statistic indicates a greater difference between the group means. The p-value associated with the F-statistic is 1.80638E-13, which is much smaller than the significance level of 0.05. This means that we reject the null hypothesis and conclude that there is a statistically significant difference

between the means of the two groups.

In other words, the average GDP for India from 1996 to 1970 is significantly different from the average GDP for India from 2023 to 1995. This difference could be due to various factors such as economic growth, technological advancements, or political changes during these periods.

Anova: Two-Factor With Replication

The ANOVA table presents the results of a two-factor with replication analysis, where we are investigating the effects of two categorical factors on a continuous dependent variable. we can see that all three sources of variation (Sample, Column, and Interaction) are statistically significant. This indicates that each factor, as well as the combination of the two factors, has a significant impact on the dependent variable. Overall, the ANOVA analysis suggests a complex relationship between the factors and the dependent variable, with multiple sources of variation contributing to the observed differences.

T test

The t-test results indicate a statistically significant difference between the means of the two groups: "% of GDP" and "Dummy Variable". The highlighted t-critical two-tail value of 2.005745995 represents the critical value for a two-tailed t-test with 53 degrees of freedom at a significance level of 0.05.

Since the calculated t-statistic (6.677157887) is much larger than the critical value, we reject the null hypothesis that the two means are equal. This means that there is strong evidence to suggest that the mean of the "% of GDP" group is significantly different from the mean of the "Dummy Variable" group.

The p-value of 1.49154E-08 is also very small, further supporting the conclusion that the observed difference is unlikely to have occurred by chance.

In summary, the t-test results provide strong evidence for a significant difference between the means of the two groups.

Moving Average

The charts highlight trends in inflows and GDP over time using a moving average approach. Initially, inflows show significant fluctuations, gradually decreasing alongside GDP percentages. The linear trend lines reinforce this downward movement, suggesting that as inflows decline, the GDP percentage also drops. This pattern may indicate a link between inflow levels and economic growth, where reduced inflows potentially impact GDP. The moving average smooths out short-term variations, revealing a clearer trend and providing insight into underlying economic shifts. This analysis prompts further investigation into the factors driving these trends and their implications for economic policy and growth.

Observation

- GDP growth positively correlates with increased FDI inflows, benefiting both manufacturing and services sectors.
- The manufacturing sector attracts more FDI with GDP growth due to enhanced infrastructure and export potential.
- In the services sector, GDP growth drives FDI by increasing local demand and the need for skilled labour.
- Sector-specific FDI policies aligned with GDP growth can optimize economic diversification and sustainable development.

Conclusion

The analysis confirms that GDP growth has a significant, positive effect on FDI inflows. In manufacturing, rising GDP enhances infrastructure and export capabilities, making it attractive for foreign investment, particularly in export-driven industries. In services, FDI is largely motivated by local market demand, driven by increased consumer purchasing power associated with GDP growth. These insights suggest that tailored policies that leverage GDP growth can enhance FDI attraction across sectors, fostering economic diversification and resilience. Policymakers can use these findings to design sector-specific incentives, ensuring that FDI aligns with national economic objectives and supports long-term sustainable growth.

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