

An Econometric Analysis Of The Study On Foreign Direct Investment And Its Impact On Indian Economy

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Abstract: *The article aims to analyze the trend of foreign direct investment (FDI) from 1991 to 2023 and the indirect relationship between FDI and economic growth in India. Secondary data gathered from the RBI Database, Ministry of Commerce and Industry's Department of Industrial Policy and Promotion, served as the study's foundation. Globalization brings about major changes to the earth and the introduction of new things. Consequently, foreign direct investment (FDI), which currently takes several forms, is one of them. Most people agree that foreign direct investment (FDI) is a form of long-term, worldwide capital movement that is made for productive reasons and has managerial control as a goal. A direct enterprise is an incorporated or unincorporated enterprise in which a single foreign investor either owns 10% or more of the ordinary shares or voting power of an enterprise, or owns less than 10% of the ordinary shares or voting power of an enterprise, but still maintains an effective voice in the management," as defined by the OECD (OECD, 1996). Nearly every country is actively seeking to attract foreign direct investment because of the expected benefits to revenue generation from capital inflows, advanced technology, management capabilities, and market knowledge (Cho, 2003). Additionally, it takes time for foreign direct investment to make a substantial contribution to the expansion of an economy.*

Index Terms: *FDI, Gross Domestic Product (GDP), Annual Growth Rate, Augmented Dickey Fuller (ADF) Autoregressive Distributed Lag Model, Co-integration.*

I. INTRODUCTION

Through changes in market orientation, the global economy enabled a new paradigm for managing capital accumulation. Economic growth is believed to be sparked by investment, and the problem of capital inflows is seen to be the easiest way to achieve this. The potential of foreign direct investment as a means of accelerating an economy's speed has been recognized by the global movement in pro-business sentiments and thinking. Discussions about foreign capital and growth begin with pre-classical viewpoints. The mercantilist investment-trade system, which was enhanced by safeguarding domestic producers and boosting export competitiveness, is fundamentally the source of this issue with regard to foreign capital. Even while export-surplus countries had more potential for saving, a sizable portion of those assets may not be invested due to a lack of suitable investment possibilities. Classical political economists focused heavily on the causal links between economic phenomena, going beyond the mercantilists' intuitive theories. The issue of capital mobility

is a significant determinant of economic growth, according to neo-classical theory. Because of the increased capital mobility in terms of foreign direct investment, neo-classical orthodoxy has made a comeback. International capital flows had been a major component of neo-classical growth theory and policy (Nurkse, 1953). FDI is significant because it disrupts the poverty cycle. Because poor productivity leads to low real income, which in turn limits the ability to save, which in turn reduces investment prospects, the "vicious circle of poverty" got its start. Therefore, less investment leads to a lack of capital. Lack of capital diminishes the ability to save and forces investment to return to the low rate of real income (Nurkse, 1953). Consequently, foreign direct investment (FDI) can function as an adjunct to domestic resources and stimulate the additional resources required to end the poverty cycle.

The relationship between FDI and growth can be examined using the framework of economic development. Both the direct causal link between FDI and economic growth as well as the conditions for growth must be covered in studies on the impact of FDI. The influence of foreign direct investment (FDI) on an economy's capacity to increase output is constrained by the existence of decreasing returns in physical capital that have no lasting impacts, according to neo-classical models. It is now possible to see foreign direct investment (FDI) as a source of new technologies and skilled labor thanks to endogenous growth theories. As a result, theories of economic growth have adopted the "gains-from-FDI" approach (Krugman, 1998). Over the past 20 years, there has been a dramatic shift in the quantity and composition of cross-border financial inflows to rising countries, especially those in Asia. Private capital flows have increased in Asian countries as a result of liberalizing their capital accounts.

Attracting foreign investment is one of the most important strategies employed in developing countries to increase capital formation, create jobs, and so assist growth and development. In recent years, India, a developing country, has attracted a significant amount of foreign investment. Due to a rise in foreign investment, India's GDP has increased continuously during the previous three decades. The primary focus of this article is the impact of foreign direct investment (FDI) on the economic performance and growth of several Indian economic sectors. The contribution of foreign direct investment (FDI) to economic growth is one of the most controversial issues in the development literature. In an effort to generate dynamic expansion, multinational corporations substantially invest in foreign direct investment (FDI). It is envisaged that FDI will not only boost employment and income but also give knowledge that indirectly affects local businesses' capacity to advance their technological and skill skills, broad-based economic growth, etc. The importance of foreign direct investment (FDI) in development has evolved dramatically in several ways. In most nations in the 1960s, foreign direct investment (FDI) was seen as a partner in development projects. India consequently put into effect a policy deemed to be restrictive of foreign direct investment.

The changes in perceptions of foreign direct investment led to several policy changes. These consist of:

- i) Removing the limitations on foreign equity imposed by the FERA.
- ii) Removing obstacles to the entry and expansion of foreign direct investment in consumer goods.
- iii) Eliminating the "foreign exchange balancing" and "local content" rules that forbid using foreign brand names in the home market.

The possibility for FDI involvement in India was also expanded by the concurrent process of the Industrial Licensing System's virtual withdrawal. A number of actions were taken to encourage Foreign Portfolio Investments (FPI) into the Indian stock market through the foreign institutional investor (FII) mechanism in addition to liberalizing the FDI regime. Therefore, the goal was to develop the stock market in India's FDI inflows as well as to encourage non-debt producing foreign capital inflows.

II. REVIEW OF LITERATURE

Parashar Sumit (2013), “Factors affecting FDI inflows in China and India”, the study is purely based on secondary data from 1980-2013. He has employed a variety of econometric models, including partial least squares analysis, the Dicky-Fuller test, and the ordinary least square method. He discovered a strong positive correlation between trade openness and FDI, as well as between infrastructure and FDI in India, and a negative correlation between bond return and FDI. However, there is a strong and favorable correlation between FDI and infrastructure in China, as well as between FDI and policy reforms and US bond returns.

Kumar sandeep and Kavita (2014), “Foreign Direct Investment In Indian agricultural Sector: Opportunities and Challenges States”, the study, which focused on the post-liberalization era, discovered that industrialized nations consistently choose foreign direct investment (FDI) to increase their productivity over emerging nations in Indian retail.

Vyas Abhishek Vijaykumar (2015), “An analytical study of FDI in India”, the study emphasizes on the current status of FDI in different sectors in India. He discovered that the two nations with the highest levels of foreign direct investment in India are Singapore and Mauritius. Since the majority of nations are in the banking and infrastructure sectors, FDI is essential to the development of infrastructure. He also noted that, according to a region-by-region analysis, Mumbai ranked first with 29% of India's total foreign direct investment. The top nine nations account for 83% of India's total foreign direct investment, while the remaining nations only make up 17%.

Murugesan. B. (2016), in the study on “Trend and Growth of sector wise FDI Inflows in India”, explains the sector wise Inflows of FDI into India from 2006-2013 and shows the trend analysis of FDI and GDP in India from 1990-91 to 2011-12. He made use of secondary data from a number of sources, including the Ministry of Commerce and Industry and the Handbook of Statistics on the Indian Economy. He has determined India's yearly growth rate, compound annual growth rate, and the proportion of foreign direct investment in the country's GDP. He discovered that foreign direct investment (FDI) inflows significantly impact a country's economic growth. In order to increase domestic output, saving, and exports through fair distribution across states and draw in more foreign direct investment (FDI), he proposed that the government should formulate its FDI inflows policy in this way.

Shazz syed and Raghran J.N.V (2017), “FDI inflow: Trend analysis”, the study is based on the secondary data taking the time period 2000-01 to 2016-17. They employed techniques like corrective analysis and regression. They have gathered information from a number of sources, including official government reports, the World Bank, the Reserve Bank of India bulletin, and the Department of Industrial Promotion and Policy. Based on their research, they came to the conclusion that foreign direct investment (FDI) is a significant driver of economic expansion. FDI is strongly positively correlated with trade, GDP, and the industrial output index.

Hunderkar Vanishri R. (2018), “Foreign Direct Investment (FDI): Trend analysis of FDI Inflow in India”, the study is based on secondary data from 2000-01 to 2016-17. They discussed the characteristics of Indian FDI during the four time periods, the various FDI pathways, the necessity of FDI, and the difficulties and obstacles in drawing in more FDI to India. He discovered that India's sizable market has contributed to a notable increase in FDI influx. The majority of foreign direct investment (FDI) flows into India come from Singapore and Mauritius.

And they are directed towards key industries like telecommunications and services. India's GDP has grown by roughly 35% to 36%, despite a 5% decline in global foreign direct investment.

Madaan Rachna, Bhandari Jitender and Mishra Shraddha (2019), in their study “FDI inflows in India: An Analysis of the trend during 2004-2018 and Future Projections for the Next decade” they have used secondary data and time of the study is taken from 2004 to 2018. They have performed trend and growth analysis. For forecasting, they have also calculated ARIMA (Auto Regressive Integrated Moving Average). They discovered a positive trend that suggests FDI inflows into India are growing in a variety of ways.

Das Bipul Kumar (2020), “FDI Inflows in India”, the study explains conceptual background of FDI. He has collected data from United Nations Conference on Trade and Development (UNCTAD) from 1970 to 2015. Also data are collected from Department of Industrial policy and Promotion (DIPP’S). He has computed the global and Indian FDI growth rates (CAGR). According to the report, foreign direct investment (FDI) inflows to India began slowly in 1970, began to increase in 1993, and then began to increase quickly starting in 2001. FDI inflows into India were greatly impacted by the deregulation in 1991. The discussion leads to the conclusion that the majority of FDI inflows went to the service and telecommunications sectors, as well as to the manufacturing sector to a lesser extent.

Chodisetty R S Chandra Murthy (2022), And Rao R Nageswara, in their study “Impact Of Foreign Direct Investment (FDI) On Indian Economic Growth With Special Reference Infrastructure Sector-An Empirical Analysis” explain the positive long run relationship between FDI and infrastructure sector. Using the OLS method, Granger Causality test, Augmented Dicky Fuller test, and Vector Error correction method, they came to the conclusion that FDI and the GDP of the Indian economy would continue to have a positive association in the future.

Based on a thorough assessment of the literature, it has been noted that not much research has been done to determine the trend of foreign direct investment (FDI) and how it affects economic growth in various economies. Using a number of statistical approaches, the current study attempts to analyze the cause-and-effect relationship and the role of foreign direct investment (FDI) in the expansion of the Indian economy in recent years.

III. OBJECTIVES OF THE STUDY

Keeping in view the above facts, the main objectives of the study are as under -

- To study the trend of FDI in India.
- To examine the linkage between FDI and economic growth in India.

IV. RESEARCH HYPOTHESES

H0: There is no relation between foreign direct investment and the economic growth in India.

H1: There is relation between foreign direct investment and the economic growth in India.

V. RESEARCH METHODOLOGY

Secondary data has been used to study the aforementioned goals. Numerous secondary sources, including published publications from the RBI, the Department of Industry Policy and Promotion (DIPP), the Secretariat of Industrial Assistance (SIA), the Central Statistical Organization (CSO), the World Bank, the IMF, and others, were used to gather the secondary data. Tables and graphs have been used to analyze the gathered data. Using data from 1991 to 2023, the correlation and causality analysis was conducted to

determine the relationship between India's gross domestic product (GDP) and the flow of foreign direct investment.

VI. DATA ANALYSIS AND RESULT

TABLE-1: FDI INFLOWS AND GROSS DOMESTIC PRODUCT (GDP) DURING THE PERIOD 1991-2023 (RS CRORE)

YEAR	FDI	GDP
1991-92	409	2276129
1992-93	1049	2398216
1993-94	2018	2534467
1994-95	4312	2696541
1995-96	6916	2893069
1996-97	9654	3123782
1997-98	13548	3258155
1998-99	12343	3475910
1999-00	10311	3754131
2000-01	10733	3909859
2001-02	18654	4120430
2002-03	12871	4280211
2003-04	10064	4621194
2004-05	14653	4947030
2005-06	24584	5415865
2006-07	56390	5934117
2007-08	98642	6487299
2008-09	142829	6923555
2009-10	123120	7518562
2010-11	97320	8188600
2011-12	165146	8736329
2012-13	121907	9213017
2013-14	147518	9801370
2014-15	181682	10527674
2015-16	262322	11386145
2016-17	291969	12196006
2017-18	288889	13144582
2018-19	309867	13992914
2019-20	353557	14534641
2020-21	442569	13694869
2021-22	437188	15021846
2022-23	367435	16071429

Source: Department of Industry Policy and Promotion (DIPP)

According to Table 1, the GDP rate was Rs. 2276129 crore and the FDI inflow was Rs. 409 crore in 1991–1992, the start of the economic reform era. During the 1998–1999 era, India's GDP rate grew by Rs. 3475910 crore, but inflows of foreign direct investment fell by Rs. 12343 crore. Ten years later, it states that the FDI inflow was Rs. 18654 crore, with an oscillating rate (2001-02), while the GDP rate was Rs. 3909859 crore, indicating an upward tendency over the year. In 2020–21, India's core foreign direct investment is Rs 600252, while the GDP rate is Rs 13512740 crore. Ten years later, it says that the GDP rate was Rs. 4151197 crore, showing an upward tendency during the year, while the FDI inflow was Rs. 29235 crore, oscillating in rate (2001-02). The GDP rate for 2020–21 is Rs 13694869 crore, while the core foreign direct investment in India is Rs 442569. The following two years (2002–03 and 2003–04) had a fall in FDI, which was followed by an increase during the following five years, or until 2008–09. Nonetheless, during that time, the GDP rate was showing an impromptu upward tendency. From 2012–13 onward, FDI inflows increased for four years, then decreased in 2017–18 and increased once again in 2018–19. However, thirty years later, in 2021–2022, FDI inflow was Rs. 437188 crore, while GDP was Rs. 15021846 crore. While GDP has maintained a consistent upward tendency through 2019–20, FDI has a variable trend throughout that time. After that, it dips before increasing once more.

FIGURE-1: FDI INFLOWS DURING THE PERIOD 1991-92 TO 2022-2023

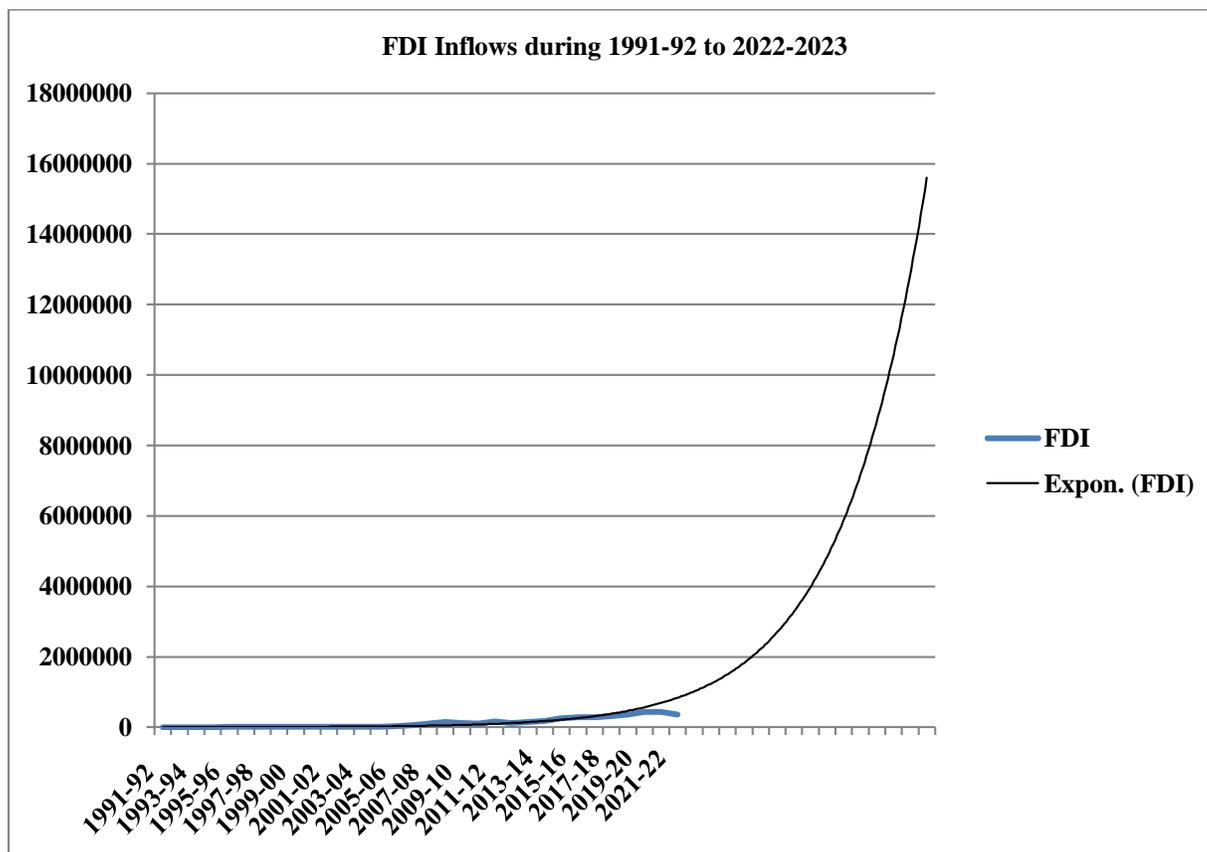


Figure-1 establishes the exponential trend of Foreign Direct Investment. After the introduction of New Economic Policy in 1991 India has realised the attraction of larger FDI inflows from abroad. Although the inflows of FDI have witnessed fluctuations in the recent years, the liberalization of foreign investment policy reported an upward trend in FDI inflows starting from an impressive amount of Rs. 13548 crore in 1997-98. In the next two years, FDI inflows have witnessed a decline structure. After reaching high at Rs. 10733crore in 2000-01 and Rs. 18654 crore in 2001-02, it further declines at Rs. 12871 in 2003-04. The trends in FDI inflows

into India from 1991-92 to 2020-21 are postulated in Figure-1. The period 2020-21 resulted in Rs 442569crore FDI inflows into India followed by Rs. 367435 crore in the year 2022-23.

FIGURE-2: GROSS DOMESTIC PRODUCT (GDP) IN RS CRORE DURING THE PERIOD 1991-92 TO 2022-23

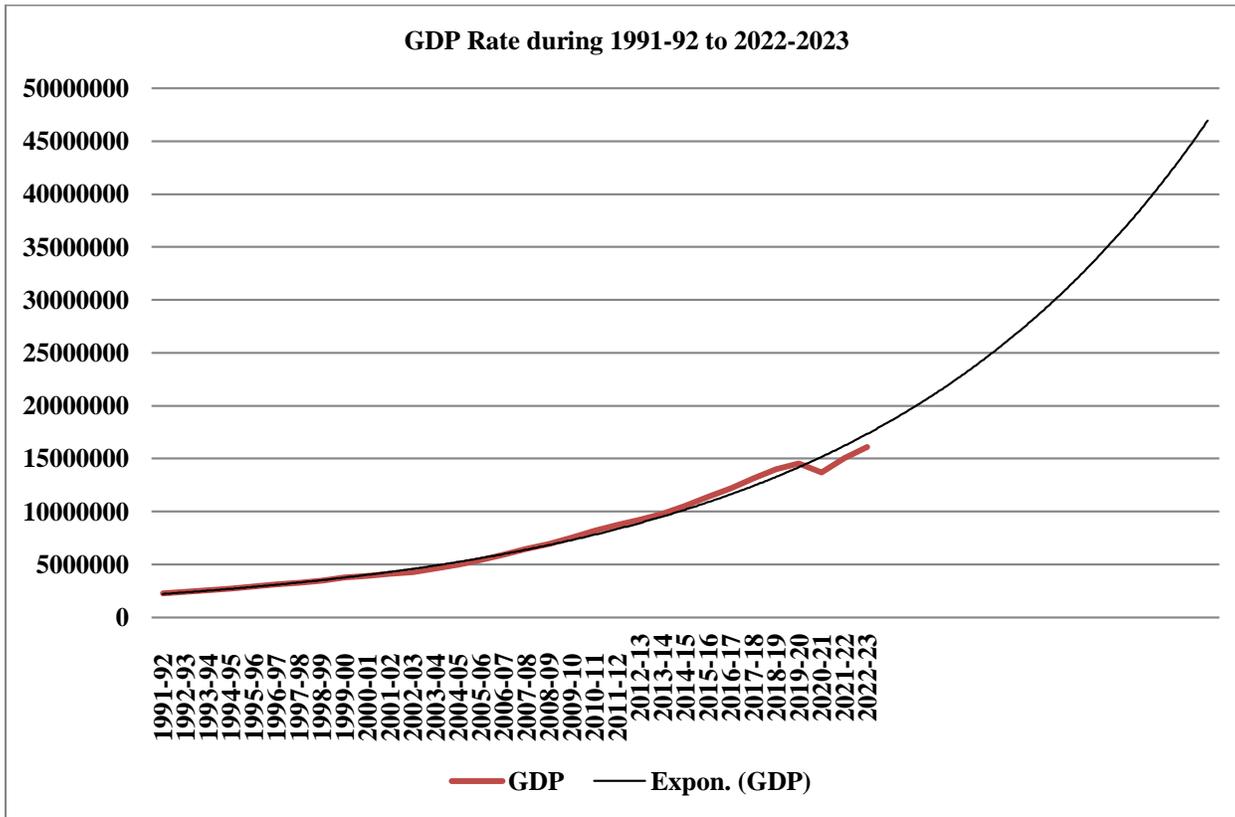


Figure 2 shows that the GDP rate has been rising since globalization, then falling and then rising again throughout time. In 1991–1992, India's GDP grew at a pace of Rs 2276129 crore, while in 2011–2012, it reached its highest GDP rate of Rs 8736329 crore. Nonetheless, the GDP grew at a rate of Rs 13992914 crore in 2018–19. The GDP rate was Rs. 14534641 crore in 2019–20 and Rs. 13694869 crore in 2020–21. Likewise, the GDP rate for 2022–2023 was Rs. 16071429 crore. Overall, we get the conclusion that throughout the past 20 years, the GDP growth rate has been oscillating. This figure also draws the exponential trend line for Gross Domestic Product (GDP).

UNIT ROOT TEST

We must first demonstrate whether or not the GDP and FDI variables are stationary before using the co-integration test. In this instance, the diagnosis of stationarity test relies heavily on the Unit Root Test. I have taken the GDP and FDI log numbers to make the data calculation pleasant.

TABLE-2: FDI LEVEL VALUES

Null Hypothesis: LOG FDI has a unit root.

Augmented Dickey- Fuller test statistic		t-Statistic	Probability
		-3.775471	0.0076
Test critical Values	1 % level	-3.661661	
	5 % level	-2.960411	
	10 % level	-2.619160	

The above table represents log values of FDI is stationary which is evident from the result of “t” statistic (-3.775471) and the level of significance (0.0076). Thus we conclude that LOG FDI has no Unit Root.

TABLE-3: GDP LEVEL VALUES

Null Hypothesis: LOG GDP has a unit root

Augmented Dickey- Fuller test statistic		t-Statistic	Probability
		-0.649775	0.8591
Test critical Values	1 % level	-3.661661	
	5 % level	-2.960411	
	10 % level	-2.619160	

Since the probability value is 0.8591 which is more than 0.10, we can say the null hypothesis is accepted and our alternative hypothesis is rejected. So for this purpose GDP data are non-stationary.

TABLE-4: GDP FIRST DIFFERENCE

Null Hypothesis: D (LOG_GDP_) has a unit root

Augmented Dickey- Fuller test statistic		t-Statistic	Probability
		-4.876887	0.0007
Test critical Values	1 % level	-3.670170	
	5 % level	-2.963972	
	10 % level	-2.621007	

Table-4 shows that after taking first difference of log GDP, the probability value (p) is less than 0.01 which is highly significant we reject the null hypothesis which means thus GDP have no unit root and it is stationary.

TABLE-5: AUTOREGRESSIVE DISTRIBUTED LAG MODEL

Variable	Coefficient	Standard Error	t-statistic	Probability
GDP01(-1)	0.930076	0.029552	31.47235	0.0000
FDI01	0.024371	0.010686	2.280706	0.0304
C	0.386576	0.152357	2.537309	0.0170
R-squared	0.998291			
Adjusted R-squared	0.998169			
SE of Regression	0.011299			
Sum squared residuals	0.003574			
Log likelihood	96.56591			
F-statistic	8176.786			
Probability	0.00000			

SOURCE: Author's Calculation

It shows that GDP itself is influenced by 93% of its lagged values in current period because the 'p' value is less than 0.05 which is highly significant. But FDI level values are not influenced the GDP rate. Only the first difference of FDI can influence the GDP level which shows FDI has positive impact on GDP. All are statistically significant at 5%.

TABLE-6: ARDL COINTEGRATION TEST

Here the adjustment shows that errors of the previous period would be corrected in the current period. The coefficient is statistically significant at 5% level and also negative. So -0.069924 is the adjustment chance which is highly statistically significant. Since the 'd' value is very close to 2, there is no autocorrelation.

Variable	Coefficient	Standard Error	t-statistic	Probability
Co-integration Eq(-1)	-0.069924	0.029552	-2.366128	0.0251
R-squared	0.998177			
Adjusted R-squared	0.998169			
SE of Regression	0.011299			
Sum squared residuals	0.003574			
Log likelihood	96.56591			
Durbin-Watson statistic	1.900552			

SOURCE: Author's Calculation

VII. CONCLUSION

This study's goal is to examine whether or not foreign direct investment plays a major role in India's economic growth. The results could be the basis for the Indian government's ongoing focus on promoting foreign investment. The test results indicate that the two factors that have the greatest short-term effects on foreign direct investment are government spending and the GDP. This implies that the government ought to

continue its efforts to increase the attractiveness of India's economy to foreign direct investment. If every Indian learns a talent and contributes to the country, India will become a developed nation in a few days. The findings support the strong and proven beneficial relationship between foreign direct investment inflows and India's economic progress.

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