

Impact of Foreign Direct Investment(FDI) on GDP & Unemployment of India

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Abstract

The role of capital has become increasingly important in today world, where development seems to be taking place. Nations are constantly competing with each other to attract direct Foreign investment (FDI) due to its recognized value as a valuable resource.

To gain an understanding of the impact of FDI on India this study will focus on how it influences GDP growth and unemployment. Higher FDI inflow in India can provide stable GDP growth rate.

Here using yearly data of Foreign direct investment (FDI) as inflow in US \$, Gross Domestic Production in US \$ (GDP) And Unemployment rate(UNP) for the time span of December 1992 to December, 2022. The methodology includes: Unit root (pp) tests to determine the stationarity of Variables . Cointegration Test in 1st Model and Autoregressive distributed lag (ARDL) is used in 2nd Model , as the Variable are integrated at order of zero & one . In the first model, there is No Long term Relationship between GDP and FDI, as it is statistically Insignificant . In the second model, Unemployment rate has No significant impact on FDI ,since the 'p' value is turned out be greater than 0.05 .

Keywords: Foreign Direct Investment(FDI); Unemployment Rate(UNP); Gross Domestic Product (GDP); Unit Root; ARDL.

INTRODUCTION

The United Nations Conference on Trade and Development (UNCTAD) World Investment Report indicates that international investors continue to view India as a top destination. After the economic crisis of 1991, India acquired the third-highest level of foreign direct investment, According to the Report of 2023 , FDI has been gradually increasing in India ever since. FDI inflows shows positive impact on GDP growth where, large Portion of FDI comes from Mauritius & Singapore in the Service Sector Area But, After 2007-2008 Financial Crises ,the Percentage of FDI Get Dropped. As per the Model of this Study , the FDI has Negative Impact on Unemployment . as, FDI mostly Brings Capital Intesive Technology Rather than Labour Intensive Tehnology, Due to which The Unemployment Rises . FDI Focuses Job Opportunity in Particular sectors and Neglects the Remaining Sectors. The introduction Of FDI In India occurred at early 1990s, further which the FDI become a popular tool to Boost an Economy . IN the year 2004-2006, the gdp of India is at its Peak, Growing at the rate of 8% ,where Service Sectors Plays a Crucial Role in Determining the Growth Rate . FDI which brings Technology ,Enahnces the Productivity and Efficiency of Human capital, which leads to the GDP growth .To Increase the FDI ,the Government should be Flexible in Taxation System, Less Entry Barrier , thus, These will Attract Investor More, Although there is also Restriction on FDI in sectors Like -Atomic Energy, Arms & Amunation and many others .

LITERATURE REVIEW

(Wang et al., 2022) Liang, Shah, and Bifei discovered a positive correlation between foreign direct investment (FDI) and economic growth, but they discovered a negative correlation between FDI and unemployment in developing countries . The Overall findings indicate a positive correlation between FDI and economic growth in emerging nations.

Al-Masbhi and Du studied for Yemen from 1998 to 2018 applying cointegration test and found the existence of a long-run relationship between FDI, GDP growth and unemployment . The Granger causality test suggests that causality runs from FDI to Unemployment, not GDP,

Bhowmik studied the causative relationships between foreign direct investment (FDI) inflows and India's fiscal deficit, as well as the bidirectional relationships with inflation, exchange rates, interest rates, and growth rates. During 1971–2015, and discovered three equations that cointegrate .

Mora & Singh Found That FDI have positive Correlation between Exports and Imports ,as these both are Related or Having a positive corelation with GDP

Woldetensaye, Sirah, and Shiferaw investigated the relationship between foreign direct investments and unemployment in East Africa and came to the conclusion that yearly Foreign direct investment has a strong negative influence on unemployment. Using panel data from 1996 to 2021

Said, Al Baqy, Mohammed, Okasha and Shaaban found the relation between FDI and unemployment in Egypt from 1990 to 2019 and defined that there is a positive significant relation between FDI and unemployment in Egypt

Foster Defines the FDI Condition in Transitioning nations like India, U.K, China ,Brazil. He observed that China is Among one of the top nations in the world to receive FDI. the FDI is not properly distributed in the country. The wealthiest regions like east China attract high FDI as compared to western region. this highlights various problems in the country leading to execution of FDI projects

Kadisa , Butkus and Aleksandraviciene Found the effectt on the growth - unemployment using ols estimator to analayse okun's law and EU Panel data and it found that FDI Reduces the effect of Unemployment growth,

Zdravkovic, DJukic and Bradic- Martinovic states the relation between FDI and Unemployment ,of 17 Developing Countries , from 2000-2014 by using OLS which give result that FDI & Unemployment are not CO-Integrated.

Tseng and Zebregs (2002) reported that in case of China causality between market growth and magnitude of FDI holds true. Means, FDI and GDP Are Directly proportional

Dwivedi and Badge (2013) Define the relationship between FDI inflow and Gross Domestic Product (GDP) in service sector and revealed that Foreign Direct Investment has positive and significant impact on Gross Domestic Product.

Athreye and Kapur (2001) revealed that since , the Contribution of FDI on Dometic Capital isn't Significant and hence as a Result FDI due to growth is more likely than Growth due to FDI.

Al-Masbhi and Du research of Yemen from 1998 to 2018 applying cointegration test thus, they found the existence of a long-run relationship between FDI, GDP growth and unemployment . The Granger causality test suggests that causality runs from FDI to Unemployment, not GDP.

DATA AND METHODOLOGY:

The main objective of this study is to investigate the “ Impact of FDI(Foreign Direct Investment) on “ Growth rate of Gross Domestic Production (GDP)”, and “Unemployment Rate (UNP) “ of India , these variables by considering Yearly data. Here , GDP & UNP are “Dependent Variables “ . whereas , FDI is an “ Independent Variables” .Here it includes two Dependent Variables thus ,we will Run Two Different Models with their own Pair of dependent and Independent variables . The time period taken is from 1992-2022.

The Data collected here is from – Macrotrends .

MODEL 1:

$$GDP_t = \beta_0 + \beta_1 FDI_t + \mu_t$$

Where, GDP_t = Gross Domestic Production (time series data)

FDI_t = Foreign Direct Investment (time series data)

Here, GDP is taken as ‘dependent variable’ and ‘ FDI ‘ taken as independent variable.

The study starts with the conventional unit root tests, to find out the order of integration by using the Philips Perron(PP test). Unit root tests are used to test whether the data contains unit root (non-stationary) or is a stationary process. A series is said to be integrated of order ‘d’ which can be denoted by I (d), means that it has to be differenced ‘d’ times before it becomes stationary. In PP Test, the null hypothesis of non-stationarity (unit root) is tested against the alternative hypothesis of stationarity.

$$\Delta y_t = \beta y_{t-1} + \mu_t$$

The null and alternative hypothesis can be written as:

$H_0: \beta = 0$ (y_t is unit root)

$H_1: \beta < 0$ (y_t is stationary)

In these Model , cointegration test is Used as Both the Variables are Integrating at order of I(1) ,

If all the variables came out of same order, i.e. as I(1) then we need to apply pp test on the residuals to check whether the residuals are stationary or not. If the pp test on residuals rejects the null hypothesis of non -stationarity, then we can draw the inferences that the FDI and GDP are cointegrated and hence they are interrelated with each other in the long run, if not than we will drawv inferences that they both not cointegrated.

MODEL 2:

$$UNP_t = \alpha_0 + \alpha_1 FDI_t + \mu_t$$

Where, UNP = Unemployment Growth Rate (time series data)

FDI = Foreign Direct Investment

Here, Unemploymentnet Rate is taken as Dependent variable and Foreign Direct Investment(FDI) is taken as independent variable. We used the ARDL model, , which was proposed by Pesaran and Shin (1998) and Pesaran, Shin and Smith (2001) to investigate how UNP growth reacts to FDI . Here Variables are Integrated at order of I(1) and other at I(0).

RESULTS AND DISCUSSIONS

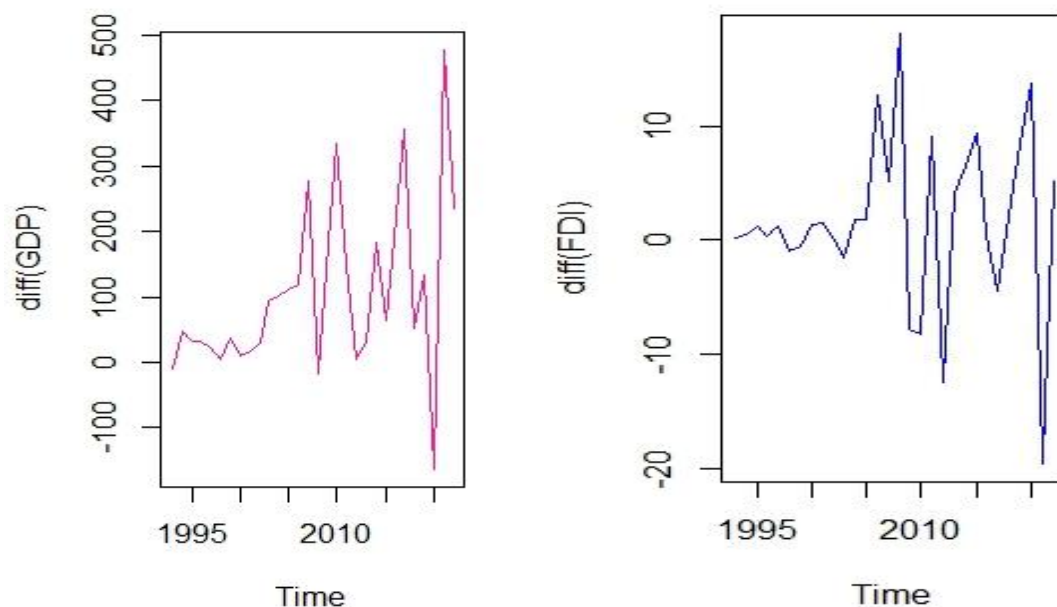
MODEL 1:

Table 1: Unit Root Test Results

Variables	T -Statistics		Order of Integration
	Level	1 ST Difference	
FDI	-16.201	-33.2	I (1)
GDP	-2.984	-17.3	I (1)

We apply PP test on the time series data to check whether the data are stationary or not. If the PP test on data rejects the null hypothesis of non-stationarity, From table 1, we have seen that all the variables are of same order, i.e. $I(1)$.

The table 1, I.illustrate the unit root tests statistics, comprising the ADF. The unit root tests models are estimated at levels and first-difference for both, with and without trend variable in each case. The estimated results of unit root tests show that for both with and without trend variable, the ADF t-statistics do not reject the null hypothesis of a unit root at the 5 % level of significance or lower, for all the variables at their level which indicates that these series are non-stationary at their levels and therefore, that would confirm that those variables contain a unit root process. But, when checked at first difference ADF t-statistics reject the null hypothesis of a unit root at the 5 % level of significance or lower, for all the variables and confirm that series are stationary at first difference. Here all variables are integrated of same order we can move to check Co-integration.



The Figure Above of FDI and GDP Are Result of the PP test which get After 1st Differencing, i.e. at $I(1)$ integrating order. showing stationarity of FDI and GDP Time series Variables

Table 2: Unit Root for Residual

Variables	ADF Level	
	Constant and no Trend	Constant and Trend
Residual	0.100	0.10

Table 2 indicates that residual is non- stationary at its level, i.e., the residuals result of PP .test test fail to reject the null hypothesis of non-stationarity at 5 % level of significance and provides evidence that there is No - Cointegration relationship between the variables.

Table 3: Granger Causality Test

Null Hypothesis	F-statistic(Probability)	Casual Relation
FDI does not Granger Cause GDP	0.002909	Bidirectional Relation
GDP does not Granger Cause FDI	0.01684	Bidirectional Relation

Table 3 , Showing P value less than 0.05 in each case , hence we fail to reject null , FDI does not Granger cause GDP and GDP does not Granger Cause FDI . here , the alternate hypothesis is FDI Granger cause GDP and GDP Granger Cause FDI , Which is Accepted

MODEL 2:

Table 4: Unit Root Test Result

Variables	T -Statistics		Order of Integration
	LEVEL	1 ST Difference	
FDI	-16.201	-33.2	I(1)
UNP	0.0027	0	I(0)

The table 4. illustrate the unit root test statistics, comprising the PP test . The unit root tests models are estimated at levels and first-difference for both with and without trend variable in each case. The estimated results of unit root tests show that for both with and without trend variable, the PP t-statistics do not reject the null hypothesis of a unit root at the 5 % level of significance or lower.

Table 4. results shows that UNP stationary at level, and FDI stationary at their first difference.

Table 5: AIC Criterion For Best Lag Order

Unemployment rate	GDP	AIC
4	0	57.58976
3	0	58.43675
4	1	59.57962
3	1	60.14472
3	2	60.65297
4	2	60.92812
3	3	61.94348
4	3	62.27697
1	5	63.32268
1	4	63.73760

Table 5, define that based on Aic information criterion .the lowest AIC , that corresponds to the suitable lag order is (4,0) . implying four(4) lagged values of Unemployment Rate and No Lag Value for GDP .

Table 6: ARDL Test Results

ARDL Test			
Variable	Coefficient	T-statistic	Probability
Intercept	4.661830	2.238	0.0362
UNP ₋₁	-0.155718	-0.709	0.4858
UNP ₋₂	0.312338	1.054	0.3040
UNP ₋₃	1.426550	1.806	0.0852
UNP ₋₄	-1.180723	-1.043	0.3087
FDI	0.007605	0.66	0.5138

The intercept has a value of 4.66 which shows the value of the dependent variable , when all independent Variable in the model are zero .the P value is 0.0362 indicating that it is statistically Significant .

The first lag of unemployment has a P value of 0.4858 , that is greater than 0.05 , implying that it is statistically Insignificant , this means that there isn't enough evidence in the model to show that unemployment is dependent on in its previous values .

The Second lag of unemployment has a P value of 0.3040 , that is greater than 0.05 , implying that it is statistically Insignificant , this means that there isn't enough evidence in the model to show that unemployment is dependent on in its previous values .

The Third lag of unemployment has a P value of 0.0852 , that is greater than 0.05 , implying that it is statistically Insignificant , this means that there isn't enough evidence in the model to show that unemployment is dependent on in its previous values .

The fourth lag of unemployment has a P value of 0.3087 , that is greater than 0.05 , implying that it is statistically Insignificant , this means that there isn't enough evidence in the model to show that unemployment is dependent on in its previous values .

FDI has a P value of 0.5138, this shows that it is statistically Insignificant , which means there isn't enough evidence in the model to prove that FDI has a relationship with Unemployment .

CONCLUSIONS:

These study Examined the Impact of FDI On Gross Domestic Production (GDP) And Unemployment Rate of India . Here many Authors Describe that there is Positive Relationship Between the All three Variables , and other find a Negative Relationship Between Them with their Given Hypothesis , which is mentioned in the “ LITERATURE REVIEW” Section. Thus in order to Verify The True Relationship as per the Real Data Provided by Verified organization . we used Two Different Model (a) Co-integration Test – These model here is used to Define The Relationship between GDP(Dependent Variable) and FDI(Independent Variable) . in Result we Found That there is No Cointegration between them ,which implies that there is No Long term Relationship Between GDP & FDI . and in Aspect of Granger Causality , FDI doesn't Granger Cause GDP , & also GDP doesn't Granger Cause FDI .

The Second Model (b) Auto Regressive Distributed Lag Model(ARDL)- These Model here is used to define the Relationship between Unemployment Rate(UNP), as a Dependent Variable & FDI ,as a Independent Variable . In Result we Found that there is Insignificant impact of FDI on Unemployment Rate .since The P values of this Model is greater than >0.05 .

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