

# Determinants of FDI: Analysis of BRICS Countries

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## ABSTRACT

*The study aims to investigate how FDI Flows are affected by various economic factors prevailing in that particular nation. The study analyses country wise six determinants which are Real Gross Domestic Product, Consumer Indices, Services Trade Openness, Workers Remittances and Compensation of Employees, Gross Capital Formation and Electric Power Consumption. E-Views is being used to apply Augmented Dickey Fuller Test and Multiple Regression for each country separately to identify significant determinants of FDI Flows. The data is collected from various resources mainly comprising of United Nations Conference on Trade and Development and World Development Indicators of The World Bank for the years 1995-2017. The study finally concludes that all the independent variable do not have the same significance pattern toward FDI. The study also highlights the significance of panel data analysis to generate results.*

**Key Words:** Foreign Direct Investment, Gross Domestic Product, Inflation, Trade Openness, Gross Capital Formulation

## I INTRODUCTION

Gone are the days when the world market was solely ruled just by the developed countries, now is the time of the strongly emerging countries and the nations. Over the past few years the market share of the nations globally has been conquered to a good extent by the developing nations like China, Russian Federation, India and many more. But the most significant increase financially has been in these five nations, which are Brazil, Russian Federation, India, and the most recent addition of South Africa. There are a lot of reasons and factors responsible for this growth in their trade at the national and the international level. One of the main factors that contribute to the significant economic hold these nations have had in recent past is the Foreign Direct Investment. This involves nations other than the mentioned ones investing in the mentioned nations for their own personal benefit and also the latter becomes strong and economically powerful. These nations have continuously made a strong hold in being able to attract investors from all over to world to make their business grow also they have been able to nearly make their performance twice of what was at the time of the crisis level. Over twenty percent of the FDI at international level have been accounted by these nations and China, Russia and Brazil have been ranked in the top ten nations for the inflow of such investments. These nations have been able to generate over \$680 billion in the year 2017.

### (a) Foreign Direct Investment:

FDI can be defined as a country or its unit investing into another country by various means mostly for their own personal benefit. These investments are not similar to the ones where there are investments made in direct terms with the destination nation by being an investor or the contributor to the company's actual stock exchange. Whenever such a direct investment is made into a company of another nation by a unit of some other nation then the latter generally has

center level of say and control over the former company.

Nations that have easy and not so regulated access channels for the outsiders and also have an abundance of skilled and trained workforce have more foreign direct investments made than the ones which seem to be bound and closed by various sorts of laws.

There are possibly three types of FDI that can take place. First on the list is called the FDI of Horizontal type as in this scenario the unit of the source country replicates its activities in the destination nation by arranging equivalent chain of value. The second type of FDI is of Platform type as in this scenario the investment to the latter is made for the generation of export stuff to a third nation. The third and the last type of FDI is of Vertical type wherein the scenario is to introduce activities that add value to the business and not only generate core benefits in the destination nation.

In this paper we look at the factors or the independent variables that have some sort of significance in determining how much Foreign Direct Investment shall be made in all the five nations constituting the BRICS. Now we shall be discussing about those independent factors in detail. These investments are also know to elevate the level by which in the destination country the employment chances are growing, new technologies are being introduced, new level of employee training is being considered and there is generation of new brands, products and various types of skills developed for management purposes.

### (b) Gross Domestic Product:

Gross Domestic Product (GDP) can be considered to be the measure for estimating how large the target market will be, and it is a general notion that if the target market for a nation is big then that entity will make more investment in the former nation. But this is not accurate enough as GDP also causes various other types of effects on FDI like it being the indicator of the disposable income for the

middle class households of a nation may result otherwise. When there is an increase in the GDP of a nation that means some amount of investment has been made which increases its sum thus it can be said that in the middle period of run though the GDP has only a temporary effect but when we talk about the longer period GDP has a substantial effect on these investments.

**(c) Trade Openness:**

This basically a ratio that holds significance in controlling the Foreign Direct Investments that are made into a country as it is viewed as the ratio of the total trade of a nation i.e. is the sum total of the nations export and import to its GDP value. The term's latter half that say openness does not always mean that if a low ratio has arrived so it would be tough to make investments in these nations , this misunderstanding can be removed by reading factors such as size of the economy for that nation and its demographic and geographic barriers for their investment partners. This ratio also signifies how much the nation integrates with the economy of the world. Nations smaller in sizes have more number of imports in comparison to exports so that they can feel content but need to increase the latter as well. Factors like culture, society, and politics also play a major role in determining this ratio which tends to affect the inflow of investments made into these nations.

**(d) Inflation Rate:**

Whenever there is a significant and consistent elevation in the price levels for products and services, it is known to be caused because of Inflation. An increase in terms of annual percentage is used as a measure for the inflation. Whenever there is a drop in the percentage of purchasing power of your currency, then we can say that the inflation is the reason behind it. It is major key factor in determining how FDI's will be made in a nation, but its effect can be either positive or negative in such terms in the longer run. Inflation has three types, first being Hyperinflation when there is significant consistent increase in inflation, second being deflation that's the opposite of the former and last being when there is a combined effect of high levels of unemployed coupled with low growth factors and persistent inflation.

**(e) Workers' Remittances and Compensation of Employees:**

The earnings of workers who fall into the category of the non-long term workers and can be seasonal and are employed by either the units who are not a part of the nation or the ones who are a part of the nation and are keeping workers who are not a part of the nation constitute the Compensation of employees. All the money transfers that are made by workers migrating from some other nation or our nation's workers employed by non-resident units form the workers remittances and compensation of employees. These both are instrumental in determining the labor cost of a nation , thus with higher labor cost the cost of production may also increase causing at times a negative impact on FDI inflows into a nation.

**(f) Gross Capital Formation:**

Whenever there is an economy that under goes a lot of transitions, attempts are made to improves its investment inflows by adjusting the country's economic climate in terms of ease. Larger is the value of this measure better is the growth in terms of economy for the nation. Thus both a positive and a negative relation can be expected between these investments and the measure.

**(g) Electric Power Consumption:**

This measure is a proxy to the infrastructure index for a nation under BRICS experiencing investment inflows and accounts for the fact that whenever there is a better infrastructure in a nation more investors would want to invest in there, thus continuous supply of electric power may result in a positive effect on the FDI.

## II LITERATURE REVIEW

A plethora of research are being conducted in the area of determinants for FDI, a brief review is presented below:

Jadhav(2012) The paper discussed the role of political and institutional factors in addition to the widely perceived economic factors that influence the inflow and outflow of Foreign Direct Investment (FDI) in BRICS countries. It takes economic factors such as Market Size, Trade Openness and Natural Resource Availability and augments their use with empirical data by assigning values to factors such as Corruption Control, Macroeconomic stability and Accountability. By way of using panel data with panel unit-root test and multiple regressions over a decade's worth of data from 2000 to 2009, the report comes out with a conclusion that supports that economic factors are of paramount importance for FDI and goes on to state that organization select conditions similar to their current operating structure to exploit their familiarity with the resources required to run their operations.

Vijayakumar et al(2010) The study takes a fresh view on the various variables that affect the inflow of FDI in the fast developing countries of the world, especially BRICS, by employing panel data analysis using an annual data set from 1975 to 2007 with data for Russia being available from 1990 only. The study comes up with robust results for general application with alternative variables that determine FDI flows. The study has come up with results that may have policy implications that could help the BRICS to attract higher FDI with a better investment climate. The study lists Inflation (as an economic stability indicator) and Industrial Production (from a growth point-of-view) as being critical indicators for FDI flows.

Agrawal(2013) The paper attempts to establish a relationship between FDI and economic development in the BRICS countries by employing empirical co integration and causality analysis at the panel level over a data set spanning 1989-2012. The paper concludes by implying a bi-directional relationship between FDI inflow and economic

stability of the BRICS countries and goes on to imply that various policy measures that are in place to attract FDI inflows might not be necessary if policy makers look at various other avenues for better economic growth, which, in turn, would automatically attract higher FDI inflows for the economy and further continue to fuel the growth. This hypothesis supported panel co-integration test and Granger causality test on the panel data.

Holtbrugge et al (2010) the paper looks at key determinants that guide FDI outflow for companies established in the BRICS countries that aim to have an international footprint. The study takes a comprehensive look at the determinants at the country, industry as well as an organizational level utilizing an exploratory approach spanning eight case studies with within-case and cross-case approaches. As an example, the paper cites an example of location viability when it comes to choosing locations abroad for BRICS based organizations. These organizations look for different traits as compared to organization from the developed countries such as BRICS organizations look for technological reach, management know-how and other resources whereas firms from developed nations look towards lower labor and manufacturing costs for international destinations.

Elfakhani et al (2010) the paper takes look at the determinants of FDI in BRICS countries using an eclectic approach to international production. By way of regression on net FDI inflows on the full data series from 1980-2008, the study concludes that there are various social, political and financial factors guiding the flow of FDI in these countries. But, social factors account for a significant percentage of the change that is observed in the net inflow of FDI whereas political factors only influence significant percentage of the change over the same full data set. During the decade from 1999 to 2008, the research indicates that the trend changes in these years to show that financial motives account for significant percentage change whereas social variables account for significant percentage change. This throws light on the fact that during the full data set analysis, international organizations that are looking to invest in foreign markets are looking for places with a large healthy workforce with a high number of college degree holders. But, at the same time, organizations do not shy away from strong single-handed governments due to their ability to steer the process. The paper observes that during 1999-2008, countries with favorable financial characteristics such as high GDP and stable currency attract FDI easily when combined with strong social characteristics such as good health and college education. The paper analyses the involvement of EU in the role of a foreign direct investor not only at a global level but in finer detail for the BRICS countries. It takes into account two methodologically diverse databases – namely, Eurostat FDI data for FDI flows and stocks and the FDI Intelligence data published by Financial Times Ltd for the number of investment projects. The paper goes on to display the much

larger role that China plays than the one depicted in the FDI data due to the prominent role of Hong Kong and offshore centers for Chinese FDI and Mauritius as an offshore center for Indian FDI. Correcting for these, China is still the third largest destination for FDI for EU. Based on a broad sector based analysis, manufacturing accounts for nearly one-third of FDI whereas services account for a significant percentage of FDI from EU to the BRICS. Analyzing the various factors affecting EU investment in BRICS, the paper observed that only large organizations prefer to enter new geographically distant markets while SMEs tend to limit their foreign operations to neighboring countries. The paper observes that most EU investments can be leveraged and increased using policy interventions by mutual and balanced liberalization to allow for higher FDI limits in sectors such as finance or telecommunication. But, it also points out that foreign ownership might not be in the best interest of the BRICS countries especially when it blocks the transfer of technology.

Hunya et al (2009) The research here is targeted at a relationship between FDI and innovation that occurs in the BRICS countries. The study takes into account the many-fold increase in the FDI in countries such as Russia and India from 2011 to 2012 – 14.2 times for Russia and 12.3 times for India, and attempts to find a co-relation between the increased FDI and innovation. The research indicates that Russia lags behind the rest of the BRICS countries for FDI due to various limitations on Innovation and R&D when it comes to research. The paper demonstrates the need for innovation that would lead to better FDI inflows, which would in turn allow for better R&D facilities combined with better industry and academia integrations. This increase in FDI coupled with an increase in it the innovation potential would lead to better integration of the BRICS economies with the world economy as they are poised to become the driving force of the world economy in the next 50 years.

Gusarova(2013) The research analyses the outward flow of FDI and the various investment motives and modes of ownership used by firms established in the BRICS countries. The paper takes a closer look at Outward Foreign Direct Investment (OFDI) from the BRICS countries and analysis sectoral composition as well as the typical destinations of OFDI and comes up with a detailed report where Russia leads the charge with the highest percentage of average outflows over four years as a share of its GDP at a significant percentage with its main focus being Resource extraction and manufacturing in the European Union and Commonwealth of Independent States comprising of former Soviet Republics.

Polodoo et al(2012) The research paper examines the impact that international trade has on economies of the BRICS countries by utilizing panel unit root analysis and random coefficient estimates. The study finds that trade is just one of the major factors allowing for better economic growth but also factors such as human capital

formation, Gross Domestic Fixed Capital Formation (GDFCF) and exchange rate appreciation positively influence growth in the BRICS countries for the time period considered. The research shows empirical results for developing countries that can employ policies to boost their economies by allowing for open trade, government spending on human capital formation as well as government spending in the public as well as private sector for better economic growth.

Duan(2010) The paper analysis the overall trends and performs a sector-wise analysis on the inflow of FDI in the BRICS nations from a decade. The paper reaches a conclusion wherein it is noted that the tertiary sector, which comprises mainly of the service sector, receives the most FDI inflows in Brazil, Russia and India followed by the secondary sector and the primary sector trailing behind for these countries. But this trend changes for China wherein it received most of its FDI inflow towards its manufacturing units that comprise the secondary sector and its primary and tertiary sectors get only meager FDI inflows for the decade considered.

Popa et al(2013) The paper looks at the relation that BRICS countries have when it comes to economic growth and FDI inflows using a quantitative and comparative analysis. The research points out the BRICS growing role in both goods as well as service trade along with an increased in FDI flows as compared to the G7. It shows the current and the growing international influence of the BRICS countries even in times with a serious financial downturn. The paper suggest establishment of mechanisms that allow for financial cooperation and economic agreements between the BRICS countries to avoid possible conflicts that may arise due to varied levels of development in the BRICS but also for more sustained and lasting gains for everyone involved.

Chaitanya et al (2007) the study aims to establish a relationship between FDI inflows for other countries and the FDI inflows of China. It aims to do so by utilizing co-integration analysis along with unit root tests that allow for an analysis that would allow the research to be conducted on the parameter about how other market behaviors influence the inflow of FDI in one country. The research utilizes data from 1970 to 2006 to derive an empirical result wherein a linear relation does exist between FDI inflows for the economies of Brazil and India in relation to China. It has also been observed that the relation is stationary for the data set in 2006. However, these findings do not hold true for the relation that Mexico and South Africa hold with China. It throws light on the policy implications that policy makers of Brazil and India have to keep in mind during policy formulation to attract FDI as the rise and fall of FDI inflows in China also influences the FDI inflows in Brazil and India.

Mlachila et al(2011) The working paper analysis the role that FDI outflows from BRICS countries towards Low Income Countries (LICs) play in economic growth of the LICs. The qualitative

analysis the available partial data showcases a positive impact of the FDI outflow from the BRICS countries. Even though BRICS FDI outflow forms a small proportion of the global FDI, BRICS FDI is a major growth drive for some LICs. Though BRICS countries generally focus FDI on natural resource industries through state owned companies, investment generally moves towards other sectors as well such as manufacturing, service industries such as telecommunication as well as agriculture. The findings also point to the fact that BRICS countries also invest in non-resource-rich LICs allowing for development in the LICs which would further allow them to receive FDI from a broader set of countries due to economic growth and proven potential. LICs can augment their position as favorable FDI destination by development mechanisms that allow for higher fiscal return while not discriminating against domestic firms.

### III RESEARCH METHODOLOGY

#### (a) Statement of the Problem:

Various determinants of Foreign Direct Investment inflows in the nations constituting BRICS i.e. Brazil, Russian Federation, India, China and South Africa are studied and the purpose is to find the significant determinants out of all the mentioned ones for each country. The data for each country is taken from the years 1995-2017.

#### (b) Objective of the study:

As the problem statement says to find out the significant determinants of the ones taken into account which are Real Gross Domestic Product, trade Openness, Inflation Rate, Workers Remittances and Compensation of Employees, Gross Capital Formation and Electric Power Consumption for the Foreign Direct Investment. As all of these will be different for the five countries and so we will:

- (i) Finding out the kind of impact determinants have on investment inflows.
- (ii) Note and reason out the presence of the significant determinants.

#### (c) Methodology:

The methodology followed in this project has been executed in four phases, the first phase was to study a number of published paper so that the problem statement could be defined and it also helped in ascertaining whether the problem is feasible to be addressed or not. The second phase was about collecting the data for the project which will be discussed in the next subsection. After the relevant data for sampling has been selected then it is important to determine what time frame should be selected, as the data needs to be available equally for all the five countries.

The next phase was to conduct the actual data analysis. Since it is decided to perform multiple regressions, and effect of various selected determinants had to be checked via the multiple regression equation on FDI so the determinants

become the independent variables and FDI becomes the dependent variable. We had applied the augmented Dickey Fuller test (ADF) which tests for unit roots in a time series type of sample such as our starting from 1995 to 2017. This test forms the augmented version of the Dickey Fuller test which is used for correction of larger and more complex type of time series data. A negative number is used as the statistic in this test, thus we can say that more the number is negative, and greater are the chances for it to be able to reject the null hypothesis that states it having unit roots or in other words the data being volatile in nature.

We check the probability value or the p value, if comes out for the series as less than 0.05 than the null hypothesis of having unit roots can be rejected, otherwise the null hypothesis has to be accepted and we need to find out whether the unit root exists for the first difference level or not, if it exists at the base level or simply the level. If it exists at the level and not at the first difference level that means the series needs to be converted to its first difference but if the problem persists then the second or the 2<sup>nd</sup> difference has to be used. Even then if a unit root exists then either by taking the log of the series the unit roots can be removed or by using Z values of the series.

It is important to make the data free from unit roots because otherwise while estimating the equations for multiple regression proper results won't come. After this has been done we analyze the results of the multiple regression equation we suggested and get to know from the coefficient value whether the independent variable has a positive effect or a negative effect on the dependent variable by the sign of the value it bears, the standard error column estimates the measure for the standard deviation for the sample. If the probability value of the independent variable is less than 5%, then the regression coefficient can be termed as significant at the level of 5 %.

**(d) Sources of the sampling data:**

Since the data for this project included seven economical parameters, thus most of the data has been sourced out from the United Nations Conference on Trade and Development's Statistic database for the years starting from 1995 to 2017.

Real Gross Domestic Product of the nation measured as annual average growth rates and total per capita, the Foreign Direct Investment flows measured in US Dollar at current prices and current exchange rate in millions, the Goods and Services Trade Openness measured as the percentage of ratio of total of imports and exports by the GDP and the Consumer Price Indices or the Inflation Rate measured as the annual growth rates all have been sourced from the official website of UNCTD.

Workers Remittances and Compensation of Employees has been taken from another online database, and it is measured in US Dollar at current prices and current exchange rate in millions also only the payment values have been used. The Gross Capital Formation and the Electric Power Consumption measured as the percentage of GDP and kilowatt-hour per capita respectively have been sourced from the World Development Indicators of The World Bank.

**(e) Tool used for data analysis:**

E views or the Econometric Views is the software that I have used for the data analysis of this project. It is a descendent of the Time Series Processor Software which was used for main large frame computers.

## **IV DATA ANALYSIS AND INTERPRETATION**

Foreign Direct Investments inflows are denoted as "FDI" or "fdi", Real Gross Domestic Product is denoted as "RGDP" or "rgdp", Inflation or Consumer Indices as "INF" or "inf", Services Trade Openness as "TO" or "to", Workers Remittances and Compensation of Employees as "REM" or "rem", Gross Capital Formation as "GCF" or "gcf" and lastly Electric Power Consumption as "EPC" or "epc". These denotations might differ from country to country in a certain way due to the unit root test that was performed to avoid the problem of volatility of data. After this test was performed the multiple regressions was checked for the model to predict the significant determinant of all for FDI in that particular country. Equation:  $fdi = \alpha + \beta_1 (rgdp) + \beta_2 (inf) + \beta_3 (to) + \beta_4 (rem) + \beta_5 (gcf) + \beta_6 (epc)$

**Table 4.1****Brazil:**

$$\text{fdiw} = \alpha + \beta_1(\text{rgdpw}) + \beta_2(\text{dinfw}) + \beta_3(\text{ddtow}) + \beta_4(\text{ddremw}) + \beta_5(\text{dgcfw}) + \beta_6(\text{depcw})$$

Dependent Variable: LFDIW

Method: Least Squares

Date: 17/06/19 Time: 13:28

Sample (adjusted): 1 15

Included observations: 18 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-15.58959	28.89343	-0.628196	0.59172
RGDPW	0.345467	0.498873	0.610002	0.59002
DINFW	0.008223	0.000922	7.018762	0.0001
DDTOW	-0.032228	0.105139	-0.392072	0.6099
DDREMw	0.032001	0.228888	0.134544	0.9200
DGCFW	-1.916948	1.120812	-1.82223	0.1344
DEPCW	1.764432	2.833356	0.501123	0.7222
R-squared	0.934221	Mean dependent var		0.064105
Adjusted R-squared	0.899291	S.D. dependent var		7.999372
S.E. of regression	2.378882	Akaike info criterion		5.012333
Sum squared resid	44.33322	Schwarz criterion		4.999006
Log likelihood	-28.89547	Hannan-Quinn criter.		4.982233
F-statistic	26.83334	Durbin-Watson stat		2.566443
Prob(F-statistic)	0.000059			

As it can be seen in the case of Brazil the “LFDIW” is the dependent variable so that means log value of FDI was taken to make the data free of any unit roots, and accordingly RGDP is “RGDPW”, INF is “DINFW” as its first difference is taken to remove its unit roots, similar stuff has been done for GCF as “DGCFW” and EPC as “DEPCW”. To remove the unit roots of TO and REM their second difference were taken as

“DDTOW” and “DDREMw”. So it can be seen from the result that TO and GCF have a negative impact on the FDI but is not significant, the only significant that appears here is the inflation which has a positive impact and is the major contributor FDI flows of Brazil as it allows a better competition to sustain even when the prices grow high and there’s a better market developed for the investors to work in.

**Table 4.2****Russian Federation:**

$$dfdi = \alpha + \beta_1(ddinf) + \beta_2(ddto) + \beta_3(ddrem) + \beta_4(gcf) + \beta_5(epcn)$$

Dependent Variable: DFDI

Method: Least Squares

Date: 17/06/19 Time: 13:45

Sample (adjusted): 3 15

Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-13221.11	20134.45	-0.607098	0.4555
DDTO	1101.3455	503.88778	1.998877	0.0656
DDINF	-.99.0344	65.88764	-2.008448	0.1011
DDREM	15.02134	4.78223	2.999878	0.0134
GCF	760.4456	997.899	0.699823	0.5012
EPCN	5.46678	3.886677	1.388556	0.1998
R-squared	0.890123	Mean dependent var		2402.876
Adjusted R-squared	0.667891	S.D. dependent var		15443.34
S.E. of regression	9102.3343	Akaike info criterion		20.9876
Sum squared resid	8.78E+09	Schwarz criterion		22.44556
Log likelihood	-121.9807	Hannan-Quinn criter.		23.29982
F-statistic	4.34556	Durbin-Watson stat		1.2656
Prob(F-statistic)	0.034225			

As it can be seen in the case of Russian Federation “DFDIW” is the dependent variable so that means first difference of FDI was taken to make the data free of any unit roots, and accordingly INF is “DDINFW”, TO is “DDTOW” and REM is “DDREMFW” as their second differences are taken to remove the unit roots. GCF has been used as itself while for EPC, the result of its division by GDP has been used as “EPCN” thus separately

RGDP has not been used. It is evident that Inflation has a negative effect on FDI flows for this country but is not significant; REM has a positive and significant relation with the FDI. Thus in this country in the longer run remittances generating a better environment financially would bring in better FDI flows. The second significant factor contributing to FDI flows is the TO.

**Table 4.3**

$$\text{India:ddfdi} = \alpha + \beta_1(\text{drgdp}) + \beta_2(\text{ddinf}) + \beta_3(\text{dto}) + \beta_4(\text{ddrem}) \\ + \beta_5(\text{dgcf}) + \beta_6(\text{ddepc})$$

Dependent Variable: DDFDI

Method: Least Squares

Date: 17/06/19 Time: 13:53

Sample (adjusted): 3 16

Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5007.934	2234.5617	-1.765433	0.0876
DRGDP	-986.445	908.9018	-0.78334	0.2893
DTO	1824.567	799.3456	2.33099	0.06993
DDINF	-0.99834	501.3346	-0.003067	0.8988
DDREM	0.68902	0.675431	1.164432	0.3018
DGCF	523.8990	1233.4533	0.398889	0.7022
DDEPC	90.1234	201.34565	0.470002	0.6445
R-squared	0.85647	Mean dependent var		-879.2334
Adjusted R-squared	0.73990	S.D. dependent var		1233.5678
S.E. of regression	6056.334	Akaike info criterion		34.44522
Sum squared resid	2.02E+06	Schwarz criterion		21.32114
Log likelihood	-134.234	Hannan-Quinn criter.		21.09887
F-statistic	6.996720	Durbin-Watson stat		2.30123
Prob(F-statistic)	0.016071			



As it can be seen in the case of India FDI's second difference has been taken to remove the unit roots as the dependent variable i.e. "DDFDI". The first differences of RGDP as "DRGDP", TO as "DTO", and GCF as "DGCF" has been taken to make the data nonvolatile. The second differences of INF, REM and EPC as "DDINF", "DDREM" and

"DDEPC" have been taken to remove the unit roots. India's Gross Domestic Product and Inflation have a negative but not significant effect on FDI flows rather the easy trade rules, much appreciated cross country trade and demand for ever increasing export material favors FDI flows in this nation in the longer run.

**Table 4.4****China:**

$$ddfdi = \alpha + \beta_1 (dinf) + \beta_2 (to) + \beta_3 (ddrem) + \beta_4 (ddgcfn) + \beta_5 (depc)$$

Dependent Variable: DDFDI

Method: Least Squares

Date: 17/06/19 Time: 13:53

Sample (adjusted): 3 16

Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-29085.23	20118.234	-1.87654	0.1223
TO	1233.345	499.345	1.992342	0.0699
DINF	2209.231	1234.3321	1.874452	0.1002
DDREM	0.86645	0.89960	0.998233	0.3823
DDGCFN	1809.33	4003.2311	0.392233	0.7233
DEPC	--213.456	83.3367	-1.993556	0.0389
R-squared	0.89001	Mean dependent var	-1400.334	
Adjusted R-squared	0.65778	S.D. dependent var	13199.3422	
S.E. of regression	7988.3422	Akaike info criterion	20.99887	
Sum squared resid	4.87E+05	Schwarz criterion	20.88967	
Log likelihood	--165.443	Hannan-Quinn criter.	20.987768	
F-statistic	5.02234	Durbin-Watson stat	2.67728	
Prob(F-statistic)	0.034225			

As it can be seen in the case of China “DDFDI” has been taken as the second difference of FDI to show the dependent variable. While TO have been taken as it is, EPC and INF have both their first differences being taken to remove the unit roots as “DEPC” and “DINF” respectively. GCF was initially changed to (GCF/RGDP) which later had to be taken as their second difference as “DDGCFN”, so was the case with “DDREM” to remove the unit roots. Thus explicitly RGDP was

not taken in the equation. In the case of this nation TO is the significant to the FDI Flows as the easy trade rules, much appreciated cross country trade and demand for ever increasing export material favors FDI flows in this nation in the longer run. It is also evident that EPC has a negative and significant impact on FDI flows as because of high consumption values FDI investors don’t always find it a favorable reason to invest in the nation.

**Table 4.5****South Africa:**

$$fdi = \alpha + \beta_1 (dinf) + \beta_2 (ddto) + \beta_3 (ddrem) + \beta_4 (gcfn) + \beta_5 (depc)$$

Dependent Variable: FDI

Method: Least Squares

Date: 17/06/19 Time: 13:45

Sample (adjusted): 3 15

Included observations: 14 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4238.4567	977.3454	4.66234	0.0056
DINF	745.3345	240.4433	3.00345	0.0269
DDTO	221.3456	189.2234	0.987764	0.4033
DDREM	28.454	18.99795	1.56783	0.2113
GCFN	-198.4456	110.3345	-1.988791	0.0765
DEPC	-20.987456	7.32245	--2.89970	0.0445
R-squared	0.716676	Mean dependent var	2099.345	
Adjusted R-squared	0.480572	S.D. dependent var	3204.342	
S.E. of regression	2264.140	Akaike info criterion	17.9903	
Sum squared resid	30757975	Schwarz criterion	19.99456	
Log likelihood	-105.5678	Hannan-Quinn criter.	19.0345	
F-statistic	3.035430	Durbin-Watson stat	1.67003	
Prob(F-statistic)	0.104492			

As it can be seen in the case of South Africa the dependent variable FDI has been taken as itself. The first differences of INF and EPC as “DINF” and “DEPC” have been taken to remove the unit roots. In case of REM and TO, their second differences have been taken to remove the unit roots as “DDREM” and “DDTO”. Last independent variable has been taken of GCF as (GCF/RGDP), thus RGDP is not taken explicitly. It is clear that the inflation which has a positive impact and is the major contributor FDI flows of South Africa as it allows a better competition to sustain even when the prices grow high and there’s a better market developed for the investors to work in. It can also be seen that EPC and GCFN have negative and significant impact on FDI flows in the shorter run i.e. increase in their value may cause slight dip in FDI flows though only for a shorter period.

## V CONCLUSION AND FINDINGS

From the study it can be concluded that in different countries different factor contribute majorly to FDI Flows. Starting with Brazil, FDI Flows there are majorly affected by the Inflation Rate as it tends to generate a competitive market, in Russian Federation Workers Remittances and Compensation of Employees and the Services Trade Openness have a positive and significant impact on FDI Flows. In India FDI Flows are majorly affected by Services Trade Openness as there are easy trade practices and demand for imported goods and services. In China Services Trade Openness has a significant and positive effect whereas Electric Power consumption as the approximation of Infrastructure Index may have a short term negative impact on FDI Flows. Lastly in South Africa Inflation plays a positive and major role in contributing to the FDI Flows whereas Electric Power Consumption and Gross Capital Formation may have a short term negative effect on it. We were able perform appropriate multiple regression and thus generate the above mentioned results, though there is a lot of space of improvement in this model and for the future scope a Panel Analysis would be a much better option so that comparative study of the nations can be undertaken.

## REFERENCES

[1] Diana Popa and Lenuța Carp The influence of foreign trade and foreign direct investment on BRICS economic growth. Global Virtual Conference April, 8. - 12. (2013)

- [2] Dirk Holtbrügge and Heidi Kreppel Determinants of outward foreign direct investment from BRIC countries: an explorative study. *IJOEM* 7,1(2010)
- [3] Krishna Chaitanya, Vadlamannati & Emilia Vazquez Rozas Are Emerging Economies FDI Inflows Co-integrated with FDI Inflows of China? – An Empirical Investigation William Davidson Institute Working Paper Number 904(2007)
- [4] Montfort Mlachila and Misa Takebe FDI from BRICs to LICs: Emerging Growth Driver? Working Paper/11/178(2011)
- [5] Peter Gammeltoft Emerging Multinationals: Outward FDI from the BRICS countries(2007)
- [6] Polodoo, V Seetanah B, and Sannasee R V ‘Trade and Economic Growth- A perspective from BRICS nations and Implications for Developing World’ (2012)
- [7] Gábor Hunya and Roman Stöllinger Foreign Direct Investment Flows between the EU and the BRICs. Research Reports | 358(2009)
- [8] Gaurav Agrawal Foreign Direct Investment and Economic Growth in BRICS Economies: A Panel Data Analysis. *Journal of Economics, Business and Management*, Vol. 3, No. 4(2015)
- [9] Narayanamurthy Vijayakumar, Perumal Sridharan, and Kode Chandra Sekhara Rao Determinants of FDI in BRICS Countries: A panel analysis. *Int. Journal of Business Science and Applied Management*, Volume 5, Issue 3(2010)
- [10] Pravin Jadhav Determinants of foreign direct investment in BRICS economies: Analysis of economic, institutional and political factor. *Procedia - Social and Behavioral Sciences* 37, 5 – 14(2012)
- [11] Said Elfakhani and Wayne Mackie The Determinants of FDI in BRIC Countries.(2010)
- [12] Svetlana Gusarova FDI and Innovations in BRICS Countries. *Global Journal of Management and Business Studies*. ISSN 2248-9878 Volume 3, Number 8 (2013), pp. 873-878(2013)
- [13] Yunyun Duan FDI in BRICs: A Sector Level Analysis. *International Journal of Business and Management* Vol 5, No. 1(2010)